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FALL 2014
ISSUE 56

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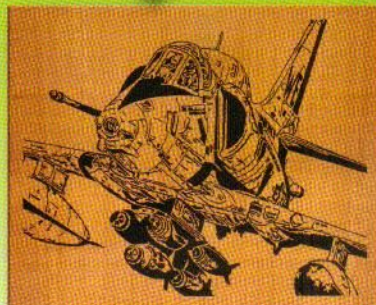
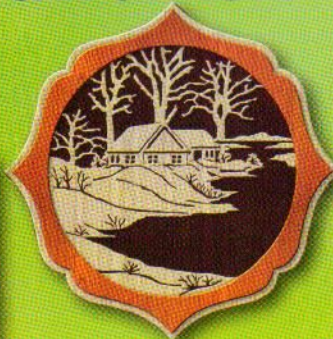
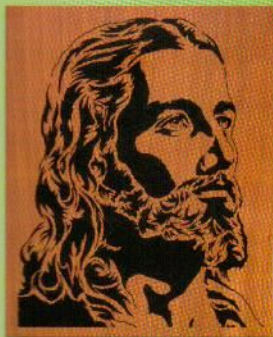
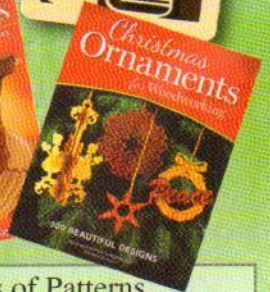
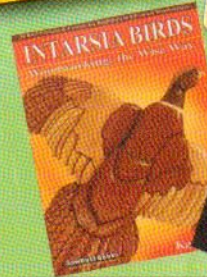
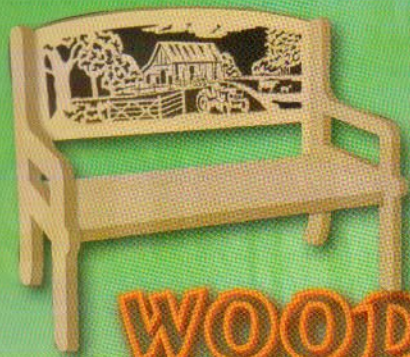
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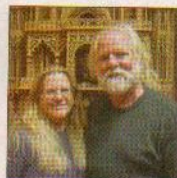
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Additional online features:

community forum • scroller galleries • tips article index
free patterns • product reviews • subscriber services



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Odds 'N Ends



Things are busy here! We're adding staff, juggling responsibilities, moving our office, and building a workshop. More on that next time. In the meantime, here are some of the thoughts inspired by our work on this issue.

- I have rarely been so tired or so elated as I was at the end of our Open House in May. The show went so well: Visitors came! The classes were full! The shoppers shopped and the vendors sold! No one cut anything off while participating in demonstrations, and the possum didn't bite anyone! It's a lot of work to put on a party for 2,000 people and, admittedly, a hundred or so antique tractors and steam engines make a certain amount of noise and grime. But the show itself was everything we hoped for. We had a fantastic time connecting with our readers and members of the interested—or just curious—public. Thanks to everyone who participated, from the vendors, demonstrators, teachers, and volunteers to the students, shoppers, and eager hands-on doers! (There really was a possum; see page 10.)
- Judy Peterson is known for her clever puzzle designs, most of which are depicted in natural wood. She made an exception for us by painting this issue's *Cruisin' Corvette* (page 24). From the cherry-red hood to the gleaming silver trim, this car...er, puzzle... is a beauty!
- When we included a mention of Dirk Boelman's ornaments-for-veterans project last year (Holiday 2013, Issue 53), more than 100 of you requested the free pattern Dirk offered. We have more details from Dirk in this issue, including another ornament pattern (page 26). If each one of our readers cut this pattern, that would be nearly 40,000 ornaments in the hands of our country's servicemen. Please consider donating an ornament (or two or three—they're easy to stack cut) to your local VA Hospital, USO, or veterans group.
- Our gear clock only has one hand. We know this. It isn't a mistake. This clock can't compete with digital timekeepers for accuracy, it can lose time rather quickly. But it is an excellent gizmo that will not only intrigue you with its construction but mesmerize you with its action once you get it running. Check it out on page 52.
- We would love to hear from new artists and authors with fresh, unique pattern ideas. We publish about 60 projects each year, plus those in our special issues, so we're always looking for ideas. If you have a pattern that your fellow club members love, or that sells well at craft shows, or that your family says, "You oughta send that to the magazine," well, you oughta send it to us. It should be unique to you—not a new version of someone else's pattern. If it's based on a photo, you need to own the photo or have written permission to use it for a pattern. We work about six months ahead of the calendar, we accept ideas year 'round, and we pay for everything that is published. Please send a photo and description to me at the e-mail address below. Thanks!

M Kinsey

Mindy Kinsey
kinsey@FoxChapelPublishing.com

SCROLLSAW woodworking & CRAFTS

Printed in the USA

FALL 2014

Volume 15, Number 3, Issue 56

1970 Broad Street, East Petersburg, PA 17520

Phone: 717-560-4703 Fax: 717-560-4702

Website: www.ScrollSawer.com

Our Mission:

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

Publisher	Alan Giagnocavo
Editor	Mindy Kinsey
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Newsstand Distribution: Curtis Circulation Company

Circulation Consultant: National Publisher Services
Printed by Fry Communications

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Subscription rates in US dollars:

One year	\$24.95
Two years	\$49.90

Canada

One year	\$29.95
Two years	\$59.90

International

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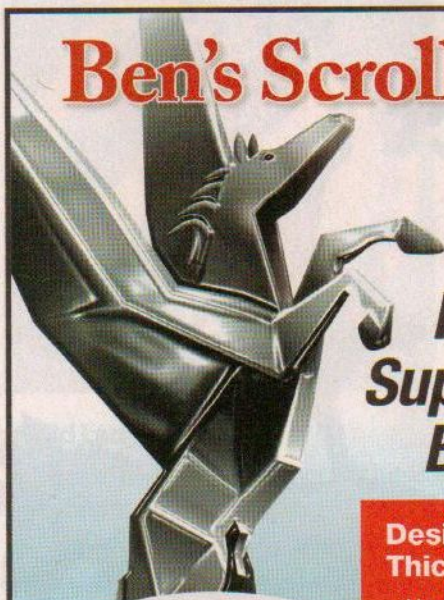
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Identification Statement: Scroll Saw Woodworking & Crafts, vol.15, no. 3 (Fall 2014) (ISSN#1532-5091) is published four times a year in the months of January, April, July & October by Fox Chapel Publishing Co., Inc., 1970 Broad Street, East Petersburg, PA 17520. Periodical Postage paid at East Petersburg, PA and additional mailing offices. POSTMASTER: Send address changes to Scroll Saw Woodworking & Crafts, 1970 Broad Street, East Petersburg, PA 17520.

Publication Mail Agreement #40649125
Return Undeliverable Canadian Addresses to:
Station A, PO Box 54
Windsor, ON N9A 6J5
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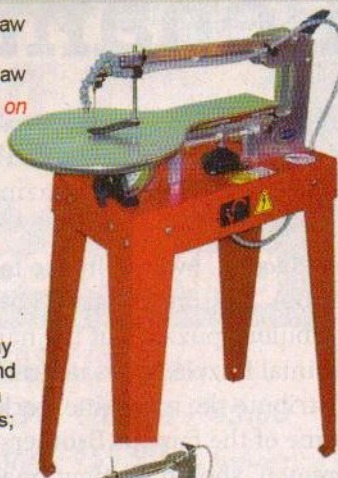
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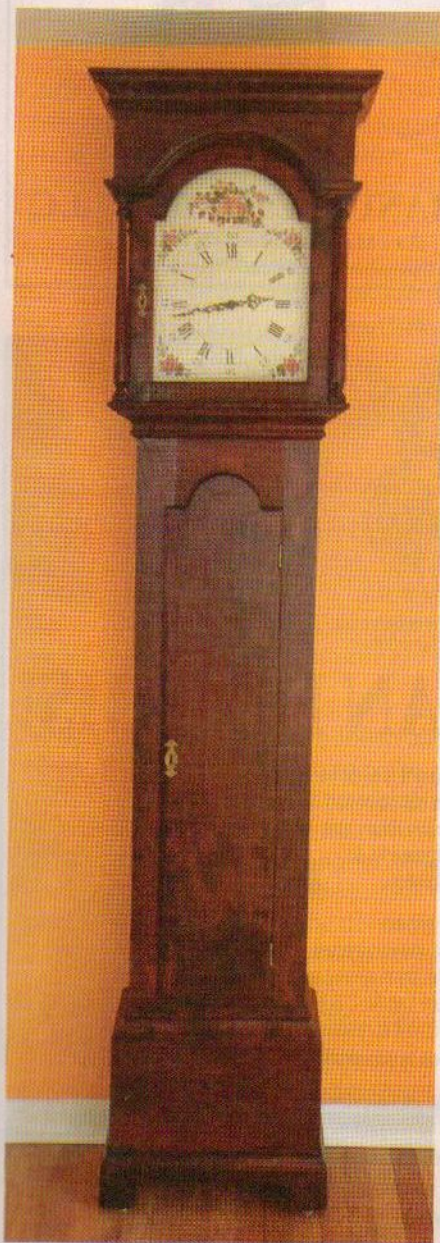
Renaming a Project

First, I'd like to say that *Scroll Saw Woodworking & Crafts* magazine is getting better and better. I have been a subscriber for the last six or seven years. Your magazine is the best one for scrollers around the world.

Second, I would like to focus your attention to the article by John A. Nelson on page 33 of *SSWC* Summer 2014 (Issue 55). It is a fabulous puzzle, but the name of the article, "Scrolling a Stacked Animal Puzzle," does not reflect the origin of the piece. You distribute the magazine worldwide and in my point of view, the name of the famous Brothers Grimm story "Town Musicians of Bremen" should be mentioned in the text.

Vitali Temirov
Burnaby, B.C., Canada

John Nelson's puzzle depicts
the Brothers Grimm story
"Town Musicians of Bremen."



Clock 20 Years in the Making

I recently completed the grandfather clock described in John A. Nelson's book *Build Your Own Grandfather Clock and Save*. The movement is the S. LaRose 451050 John suggested in the book, which I got from LaRose before they went out of business. Hardware is by Ball and Ball. The dial was painted by Carol Buonato in 2011. The finish is Moser's water-based aniline dye and hand-rubbed shellac.

The clock took 20 years to finish. I started it in the early 1990s in my dad's woodworking business. I went off to graduate school, my dad's health deteriorated, and he had to close the shop. My dad gave the partially completed clock and movement to a friend because he didn't have room for it in his house.

Len Testa's handmade grandfather clock was 20 years in the making.

We lost contact with the friend. I thought the clock was gone, which was a shame, because I'd still dream about it.

In 2008 my dad passed away. The friend showed up at my dad's funeral and, as he was paying his respects, turned to me and said, "Hey, I still have your clock. Let me know when you want it." I was stunned. He said, "I knew we'd see each other again."

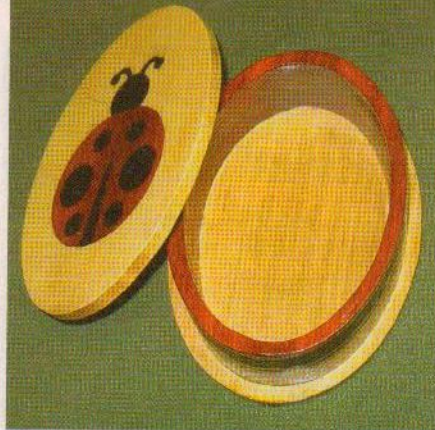
The clock was in exactly the same condition I'd left it more than 15 years before. The movement had to be cleaned and oiled, and it took a couple of years to get it sanded and stained. Now it's done, and every time I see it I'm reminded of my dad.

Len Testa
Greensboro, N.C.

Let's Hear From You

We'd love to hear your thoughts on our projects, ideas for new patterns, scrolling experiences, and woodworking show stories. Write to us at:

Letters to the Editor, *Scroll Saw Woodworking & Crafts*, 1970 Broad Street, East Petersburg, Pa., 17520 or e-mail Editors@ScrollSawer.com.



Inlaid Ladybug Boxes

I just finished making five of these Ladybug Boxes, based on the article by Kip Travis in the *Boxes, Bowls, and Baskets Special Issue*. I plan on giving them as Christmas gifts to family members this year. Instead of the red cedar and walnut, I used padauk for the sides and ladybug's body and ebony for the ladybug's spots and head. They really turned out nice!

Dale C. Maley
Fairbury, Ill.

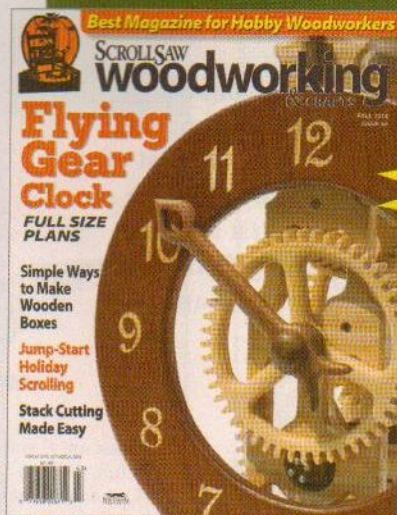


Fox Hunt

Don Hysell of South Solon, Ohio, and Robert Gaines of Jasper, Texas, were randomly drawn from the participants who located the fox in our last issue (Summer 2014, Issue 55). The fox was hiding in the flowers on the lead photo on page 62, in the Stacked-Ring Vase article.

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 September 9, 2014, 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.



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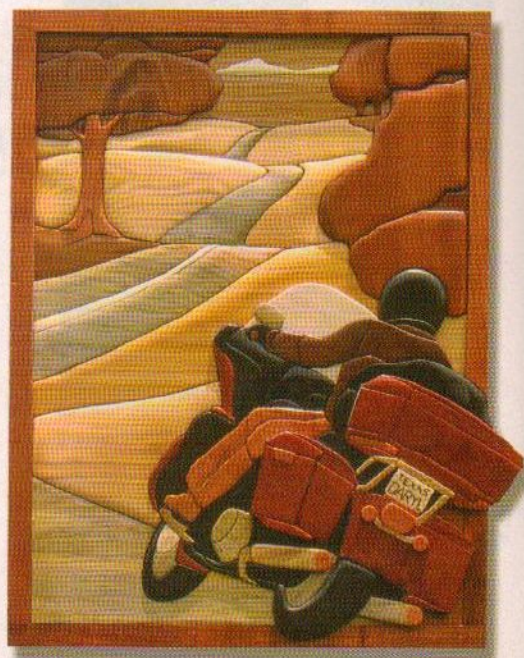
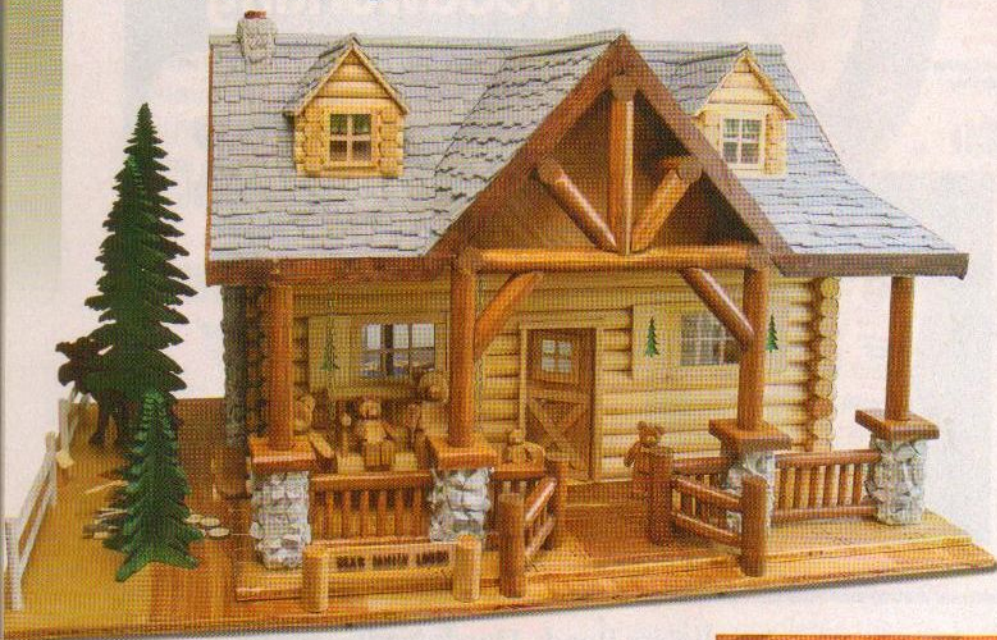
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Bear Family Lodge ▼

Donald Ames of Niantic, Conn., made this log cabin using a pattern by The Winfield Collection. He gave the completed piece to his wife for Mother's Day. Although Don cut most of the pieces using traditional scrolling techniques, he cut the notches for the log pieces in rectangular stock first and then rounded the edges with a router bit before gluing them in place. For the shingles, Don notched a thick piece of wood and then sliced off thin pieces.



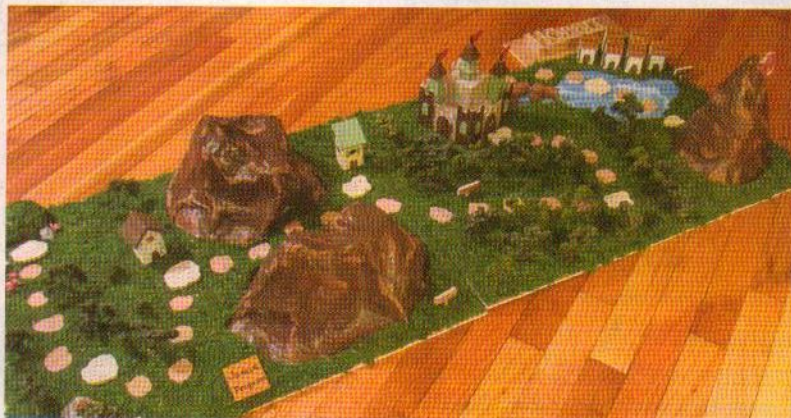
Intarsia Motorcycle ▲

Craig Buckner of Laporte, Tex., made this scene from a Judy Gale Roberts design. He uses aspen, padauk, Peruvian walnut, mesquite, Western red cedar, basswood, blue pine, and holly for this piece, which features a Harley Davidson motorcycle.



Clown Fretwork ◀

Michael Kelley of Bartlesville, Okla., designed and cut this fretwork portrait from ¼"-thick Baltic birch plywood. He used black felt on the back to create contrast.



Board Game ▲

Jamie Ferguson, 14, of Youngsville, N.Y., designed and built this board game of *The Hobbit* as a school project while her class read the book. She used a scroll saw to cut several elements of the game, which is based on her interpretation of Middle Earth.

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.

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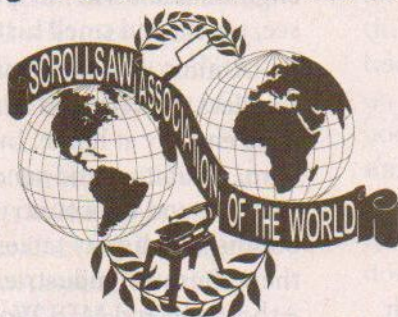
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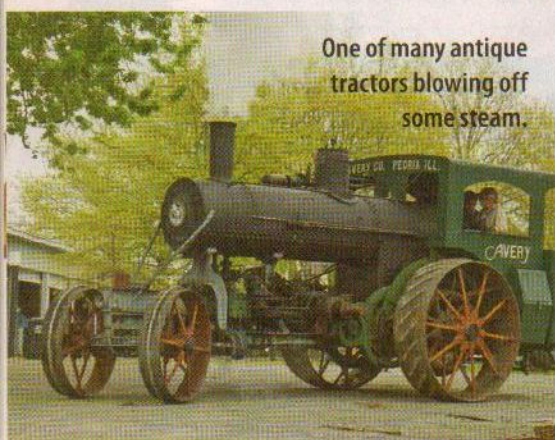


Shawn Ferguson conducting a class on free-style puzzle scrolling.

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**We've finally found a home for our show.
Mark your calendar for next year — May 8-9, 2015**

Photos by Scott Kriner, Jim McDonald, Shane Rottier, and Mindy Kinsey



One of many antique tractors blowing off some steam.

The air smelled of spring mixed with steam, coal smoke, sawdust, and fuel as nearly 2,000 people gathered at the Rough and Tumble Engineers Historical Association in Kinzers, Pa. They came from as far away as California and Oregon for the Fox Chapel Publishing 2014 Woodworking Show and Open House, held May 9 and 10.

This was the third such event for Fox Chapel Publishing, the parent company of *Scroll Saw Woodworking & Crafts* magazine, but the first held at Rough and Tumble, a non-profit museum dedicated to preserving America's agricultural and industrial history. The company's president, Alan Giagnocavo, sees the new venue as a unique opportunity. "Rough and Tumble is a hidden gem right here in Lancaster County," he said. "There's so much going on, from steam trains to antique plows, a

sawmill, and tractor pulls. I knew our readers would be fascinated by the museum, and I figured that Rough and Tumble members are probably woodworkers, even if they don't know it yet."

The show was scheduled in conjunction with Rough and Tumble's annual Spring Steam-Up. Members shake off the winter dust, fire up their antique tractors and engines, and invite the public to see, touch, and smell history.

Amidst this background, scrollers, carvers, and turners were entirely at home. In one barn, exhibitors and vendors from around the country manned booths and display tables. Among them, Bushton Industries, Seyco, Arbortech, and MDI Woodcarvers Supply offered tools; Ben Fink's Wood Shop sold scroll saw blades; and Hillcrest Carving sold woodworking supplies and wood.



Kelly Varnes-Sierra and Wendy Calta greet visitors at the welcome tent.



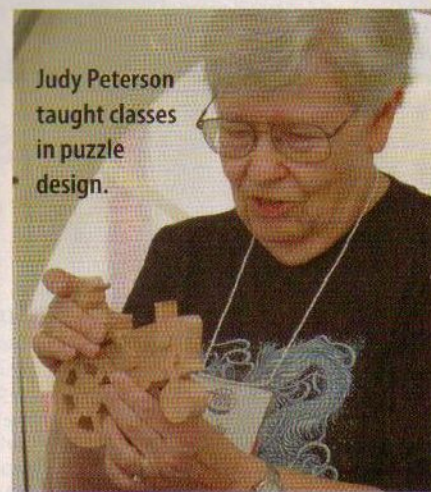
Ben Fink was one of dozens of vendors at the Open House.



John Nelson and Alan Giagnocavo share a moment during the two-day event.



Rolf Beuttenmuller teaching basic woodworking and advanced scrolling techniques.



Judy Peterson taught classes in puzzle design.

In addition to teaching seminars, Judy and Dave Peterson and Shawn Ferguson displayed their puzzles, Janette Square showed off her intarsia, Carole Rothman exhibited her bowls, and John A. Nelson demonstrated his new method of adding color to scrolled projects. Rolf Beuttenmuller, a frequent test cutter for *SSWC*, taught seminars on basic woodworking and advanced scroll saw techniques. Additional offerings in carving, turning, and general woodworking rounded out the schedule of 40 classes.

Demonstrators offered hands-on projects in the other barn. Volunteers from the Penn-Jersey Scroll Saw Association and the Tri-County Scrollers helped visitors cut a simple puzzle, while other clubs and volunteers helped show-goers carve a five-minute owl, turn a pen, make a craft, try woodburning, or see an authentic totem pole being carved.

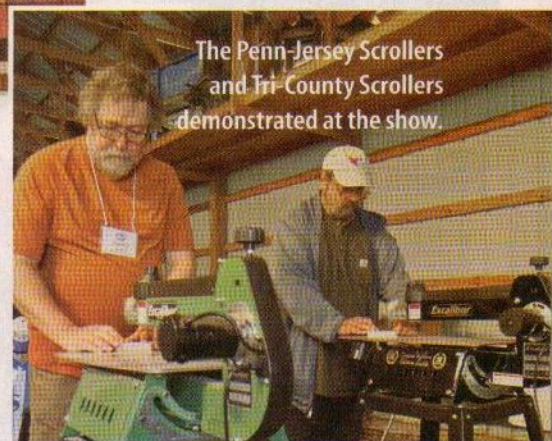
Show attendees wandered all over the outdoor museum to observe scale models, classic cars, and other displays; so, too, did curious Rough and Tumble members visit the woodworking displays and try a hand at scrolling, carving, and turning.

Late Saturday afternoon, the delighted staff of Fox Chapel Publishing piled into the train cars for a victory lap around the museum. Afterward, Alan Giagnocavo paused to sum up the weekend. "It was great. It was dusty, and the tractors and trains were a little louder than we expected, but we had a great time. We brought together a lot of people who love the same things we do, and they got to take classes, and get their hands on new tools, flip through some books, and really dig in to the things they like to do. Plus, this place, the Rough and Tumble, is just fascinating. We can't wait to do it again next year."

Look for more photos, plus save-the-date information on the 2015 show, online at wood-show.com.



Amid the noise and crowds, a possum took up residence behind a display in the main hall.



The Penn-Jersey Scrollers and Tri-County Scrollers demonstrated at the show.

A National Scrolling Show

It took a while but we finally found a nice place for our magazines' show. Close enough to civilization, yet out in the open. Clean and nice, yet where we can rev up a chainsaw or make lots of sawdust without bothering others.

It is important to have a public face for our hobby—somewhere you can meet your fellow scrollers, talk to manufacturers, take your friends so they can get hooked themselves (how popular would football be without a SuperBowl?).

The number one question I heard at the show was, Are you going to hold it again next year?

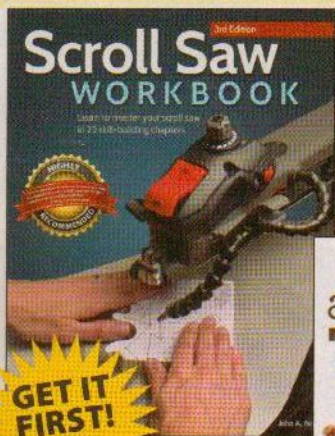
YES—we are committed to turning this into a fantastic annual event. Please come out next year and bring your friends. To really make the show a success with such low ticket prices and high quality, we'd like to more than double attendance. 2,000 people was great for our first year—but I know we can double it to 4,000 next year. There is plenty of room at the Museum to expand and spread out without crowding.

We have many improvements and new ideas for next year—stay tuned!

Alan Giagnocavo, Publisher

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Make Something GREAT This Weekend



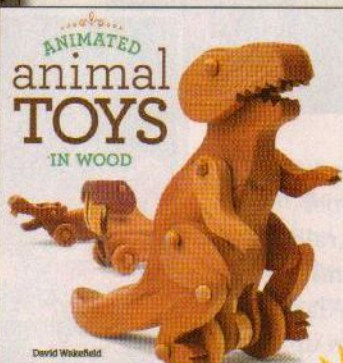
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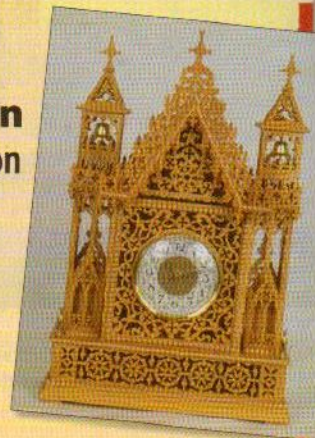
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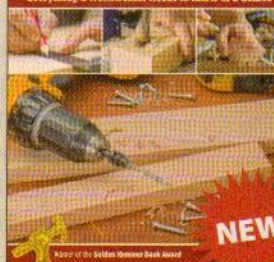
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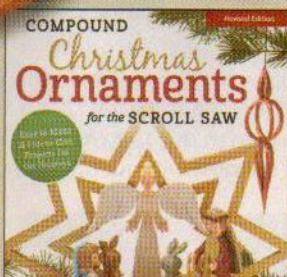
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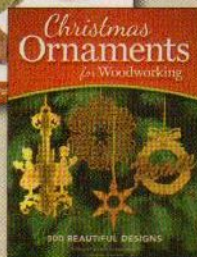
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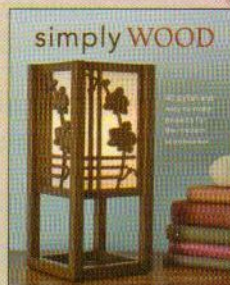
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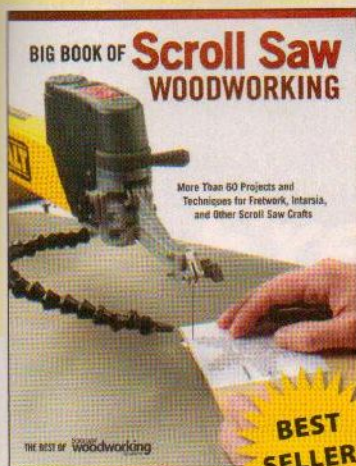
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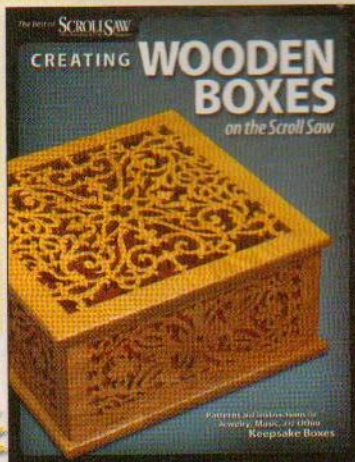
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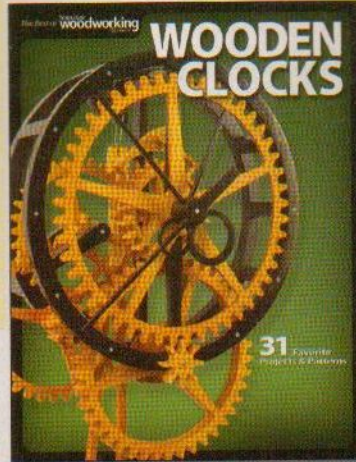
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Creating Wooden Boxes on the Scroll Saw

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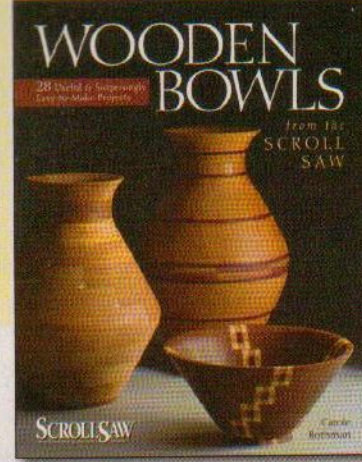
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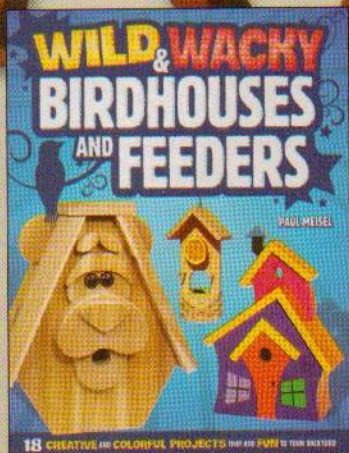
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Wooden Bowls from the Scroll Saw

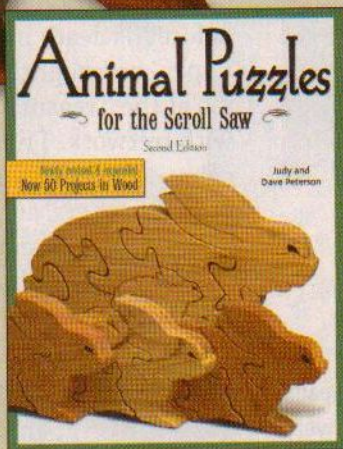
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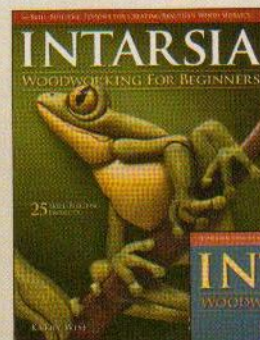
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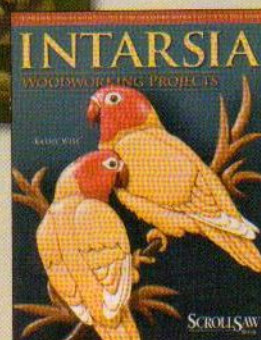
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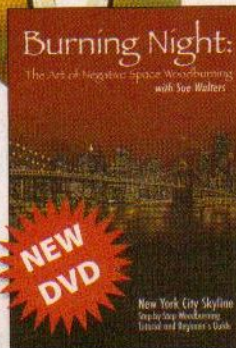
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By Sue Walters

Let one of today's finest woodburning artists teach you *negative pyrography*, the art of engraving through burned wood to expose natural wood color. Instead of burning on pale wood to produce a positive image (as in traditional pyrography) this technique involves engraving through burned wood to expose natural wood color.

Each of the 15 lessons on this new DVD puts you next to Sue Walters as she creates "Burning Night," a dramatic depiction of the New York City skyline. The package also includes a bonus 24 page color booklet with a step-by-step "Day And Night" rotating planter box project.
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Note the extensive fretwork on the sitting room's paneling, window trim, radiators, table, stools, and delicate corner niches. (Photo by Cristian Barnett.)

Right: A conservator repairs fretwork pieces that were temporarily removed. (Photo by Vicki Marsland.)

Facing page: The hallway's walls sport a variety of fretwork designs—and a wonderful painted clock face. (Photo by Cristian Barnett.)

London home-turned-museum is decorated with fretwork from ceiling to floor

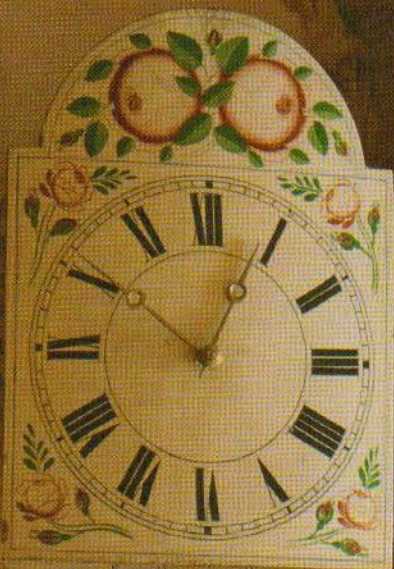
By Francine Kirsch

Khadambi Asalache never meant to take up woodworking. But, in 1986, he tacked up a few discarded floorboards in his dining room to cover a section of wall made damp by the launderette next door. The patch job was such an eyesore that the Kenyan-born poet and British civil servant decided to decorate it.

And decorate he did, until the year before his death in 2006. By then, the “fixer-upper” he bought in London to be near his job at the Treasury was completely filled with fretwork. The walls, ceilings, doors, cabinets, cupboards, fireplace mantels, radiator covers, and even light fixtures and light switches eventually bore the fanciful designs. Khadambi chose to protect the lower windows with fretwork latticing rather



A Fretwork Fantasy





© National Trust

Above: The restoration included Khadambi's elaborate fretwork ceilings. (Photo by Vicki Marsland.)



© National Trust

Fern Ryan, Project House Steward, dusting collections prior to packing. (Photo by Alexandra Solomon.)

than the usual iron grills. He glued fretwork trim to salvaged furniture and designed his own pieces, including lamps and a dog basket. Fretwork niches around the house held decorative objects.

While most of his pieces resemble fretwork cut on a scroll saw, Khadambi used a keyhole saw (called a pad saw in Great Britain) and worked outside in London's notoriously poor weather. The artist drew his designs right onto the wood without using any patterns, and he sometimes worked 14 hours a day for six straight days, when inspired. Khadambi preferred salvaged wood, such as discarded doors, floorboards, and crates. He burned the pieces he wasn't satisfied with. Khadambi didn't erase his pencil lines or sand the finished pieces, which he assembled with white glue and pins.

A self-taught woodworker, the son of a tribal chief, and a childhood fan of Shakespeare's writing, Khadambi won literary prizes in England and attended art schools in Europe. This background sometimes provided the basis for his designs, which could be exotic, influenced by Spain's Alhambra palace and Grand Mosque, or simple animal, heart, star, and bird shapes. His art training came in handy for painting the areas between the wood with everything from scenes of the Nile to portraits of Pocahontas and Madame de Pompadour.

Although he never meant for his home to be more than a personal statement, friends ultimately persuaded Khadambi to leave it to the National Trust. Usually thought of as a conservator and curator of Britain's great estates, the Trust believed that this small 18th-century row house had "national significance as one man's complex and singular achievement" and spent two years taking extensive steps to shore up the structure and safeguard its interior, especially against further damp. This included repairing and replacing fretwork pieces and even taking up the floors.

The Trust opened the home-turned-museum to the public in 2013, an ending unimaginable when Khadambi began the minor cover-up that turned into a major cover-all.

For those planning a trip to London, Khadambi's house is located at 575 Wandsworth Road, not far from the Cabinet War Rooms, Houses of Parliament, Millennium Wheel, and Imperial War Museum. Tours, for up to six at a time, must be pre-booked, either by calling (011) 0844 249 1895 or via the website www.nationaltrust.org.uk.

Below: Fretwork, not iron bars, protects the window in the heavily decorated kitchen. (Photo by Adeline Thouvery.)



© National Trust



© National Trust

In the bedroom, the ceiling and walls boast Khadambi's detailed woodworking. (Photo by Cristian Barnett.)

The Old Mill

An intricate fretwork design captures dreams of days gone by

By Charlie Dearing

Original photo by Steven Faucette, www.stevenfaucette.com

There's something nostalgic about a water-driven mill. It could be the old building or the stream in the woods—whatever it is, it looks peaceful. This design, based on a beautiful photo by Steven Faucette, tries to capture this tranquility.

Cutting the Portrait

You can reduce the size of this pattern and cut it from a smaller piece of wood, but the intricate cuts and small bridges between frets makes this challenging. While you can scan or copy the pattern in sections that fit standard letter-sized paper, it's often easier to take it to a copy center and have a full-size photocopy made.

After attaching the pattern to the blank, start cutting the smaller frets in the middle. Leave the wide opening between the mill house and the tree for last. As you cut, use tape on the back of the piece to reattach the cut pieces to help support the fragile bridges between the frets. After you finish cutting, carefully sand off any fuzzies and remove the tape and scrap wood. Paint the backing board black, and carefully glue and clamp the fretwork to the backing board.

Materials & Tools

Materials:

- Baltic birch plywood, $\frac{1}{8}$ " (3mm) to $\frac{1}{4}$ " (6mm) thick: 2 each 24" x 30 $\frac{3}{8}$ " (610mm x 765mm)
- Tape
- Spray adhesive
- Sandpaper
- Paint: flat black
- Glue: wood

Tools:

- Scroll saw blades: #3 and #5 spiral
- Drill with assorted small bits
- Clamps

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



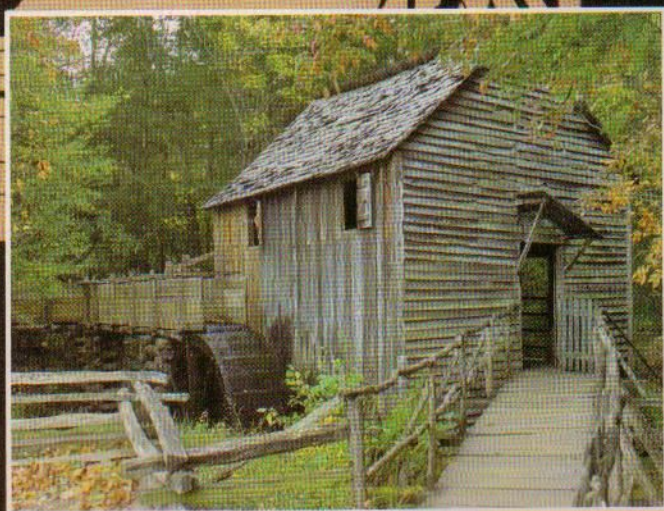
Charlie Dearing lives in Gatesville, Texas. Search for Charlie on Facebook to see more of his work.

Pattern for **THE OLD MILL** is in the pattern pullout section.





The original mill is located in Cades Cove, Tenn., and is part of the Great Smoky Mountains National Park.



Miniature Park Bench

Whether for dolls or décor, this small bench is an attractive accent

By Sue Mey
Cut by Dennis Merkle



This pretty bench is a great way to display an 18" doll or favorite stuffed animal, or you can add a small plant or books for an interesting vignette. The sides and seat are easy to cut or stack cut, and you can adapt a variety of fretwork patterns to fit the back. Design your own custom back or visit my website, www.scrollsawartist.com, for more patterns.

Making the Bench

Transfer the patterns to the blanks, and drill the blade-entry holes. Cut the fretwork, remove the remaining pattern, and then sand away any fuzzies. Glue and clamp the back and seat to the sides, and reinforce the joints with brads or small screws. Apply a clear spray finish.

Materials & Tools

Materials:

- Cherry, 1/2" (13mm) thick: sides and back, 7 1/2" x 36" (191mm x 914mm); seat, 6" x 10 1/16" (152mm x 272mm)
- Spray adhesive or glue stick
- Wood glue
- Sandpaper
- Finish: clear spray
- Brads or small screws

Tools:

- Blades: #3 reverse tooth
- Drill with assorted small bits
- Clamps

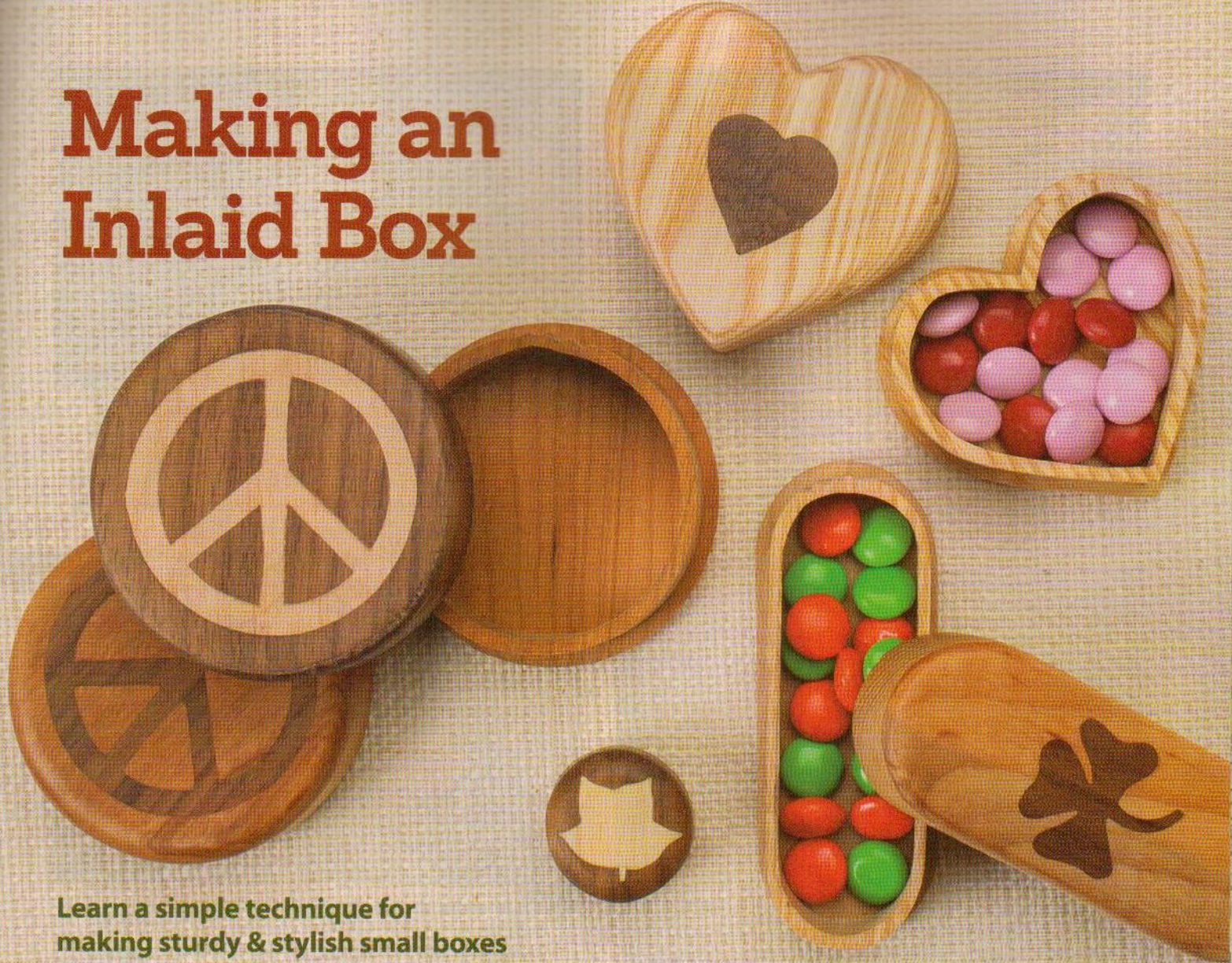
The author used these products for the project.
Substitute your choice of brands, tools, and materials as desired.

Patterns for the **MINIATURE PARK BENCH** are in the pattern pullout section.



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

Making an Inlaid Box



Learn a simple technique for making sturdy & stylish small boxes

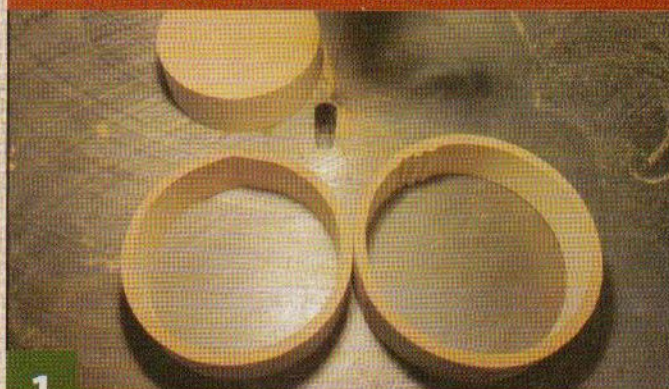
By Daniel and Ruth Johnson

Use up small pieces of scrap wood, practice doing inlays, and stock up on easy gifts by making these small boxes. Once you understand the technique, it's easy to vary the sizes and shapes of the boxes. We demonstrate the method with the peace symbol box; use our other designs for inspiration to create your own inlay patterns.

Getting Started

Cut the blanks to size. Attach a copy of the pattern to all three blanks (top, bottom, and center). Note the slightly irregular middle line on the center pattern; this is used to help make sure the box is aligned correctly when the project is completed. Drill $\frac{1}{16}$ " (2mm)-diameter blade-entry holes where indicated in the center blank. Make sure the saw blade is square to the table.

INLAY BOX: CUTTING THE BLANKS



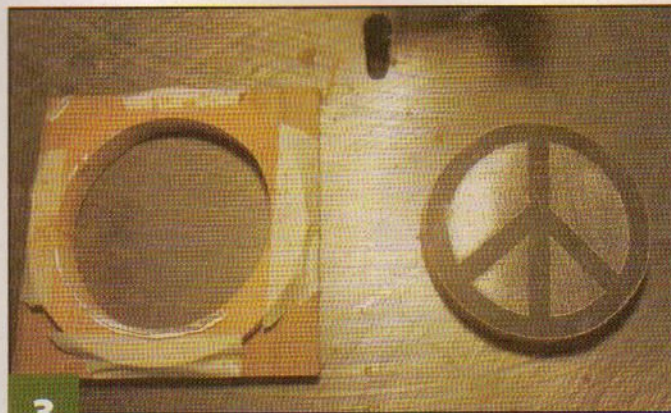
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Cut the pieces. Cut the top and bottom with a #5 skip-tooth blade. Then, cut the perimeter of the center blank. Insert the blade into the entry hole, and cut the inside of the first ring. Then, insert the blade into the next entry hole to cut the inside of the second ring.



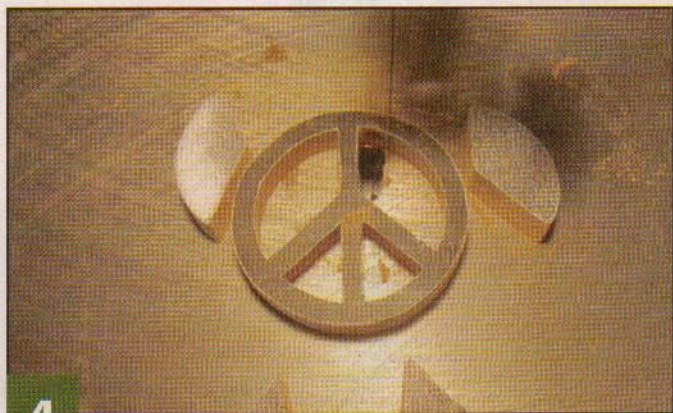
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Attach the inner center ring to the bottom. Apply glue to the edges of the ring, and use the outer ring as a guide to position the inner ring on the bottom. Remove the outer ring, and clamp the inner ring in place until the glue dries.



3

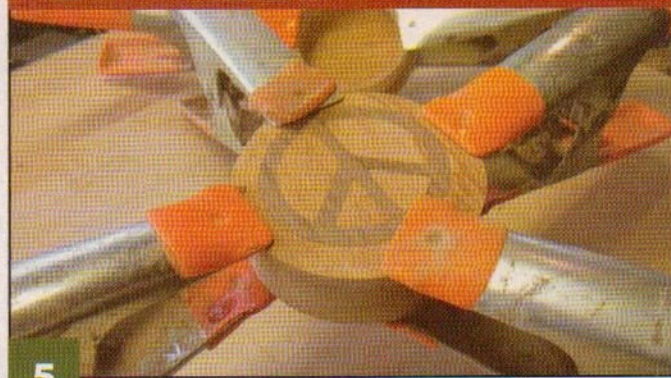
Begin cutting the inlay. Use tape to attach the box lid onto the inlay blank. Drill a $\frac{1}{16}$ " (2mm) hole at a $2\frac{3}{4}^\circ$ angle on the perimeter of the peace symbol where indicated. Tilt the left side of the saw table down $2\frac{3}{4}^\circ$, and use a #3 skip-tooth blade to cut along the perimeter of the peace symbol in a counter-clockwise direction. Separate the stacks and set aside the remaining lid piece.



4

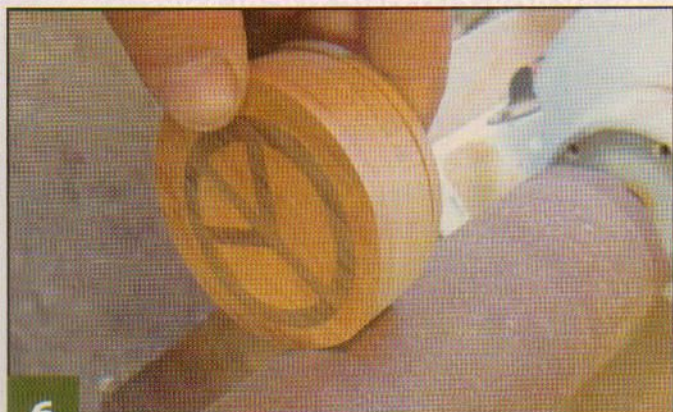
Cut the inlay. Peel the peace sign pattern off the lid blank and attach it to the round inlay blank. Use double-sided tape to attach the lid blank to the bottom of the inlay blank. Drill four $\frac{1}{16}$ " (2mm) blade-entry holes at a $2\frac{3}{4}^\circ$ angle toward the center post where indicated. Tilt the left side of the saw table down $2\frac{3}{4}^\circ$ and cut the four sections in a counter-clockwise direction. Separate the stacks, and reserve the walnut peace sign and cherry center pieces.

INLAY BOX: ASSEMBLING & FINISHING



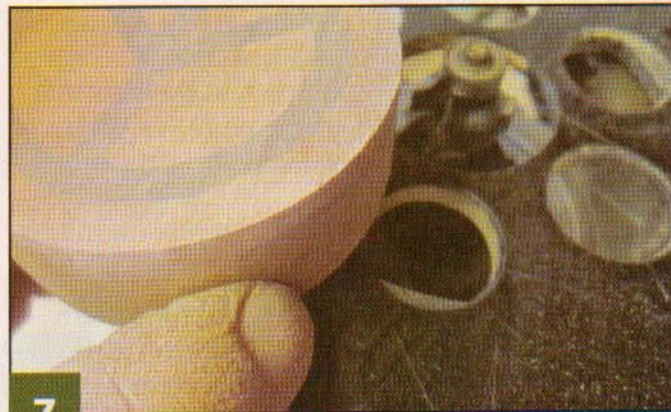
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Assemble the top. Glue the reserved cherry lid pieces inside the walnut peace sign. Then, glue the peace sign inside the lid ring cut in Step 3. Finally, glue and clamp the outer center ring to the under side of the lid.



6

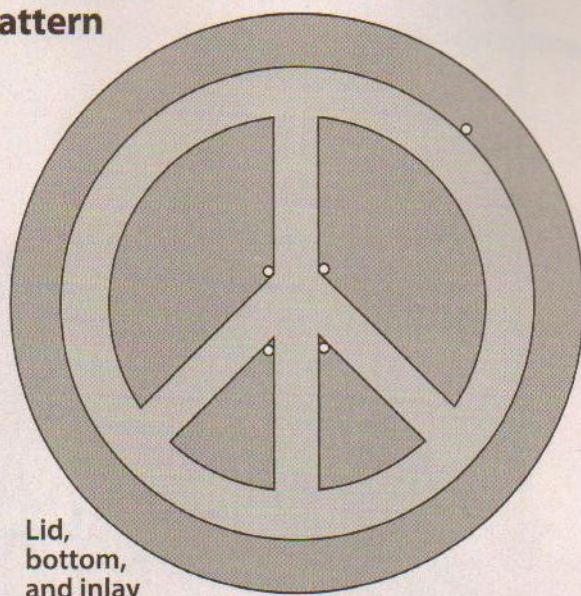
Sand the box. Sand the top of the lid flush. Then, put the lid on the box and sand the edges of the lid, center, and bottom flush; I use a Flex-Drum sander, but you can use nearly any stationary sander. Then, use a $\frac{1}{4}$ " (6mm)-radius roundover bit in a router to soften the top and bottom edges. Sand the box again with 220-grit sandpaper.



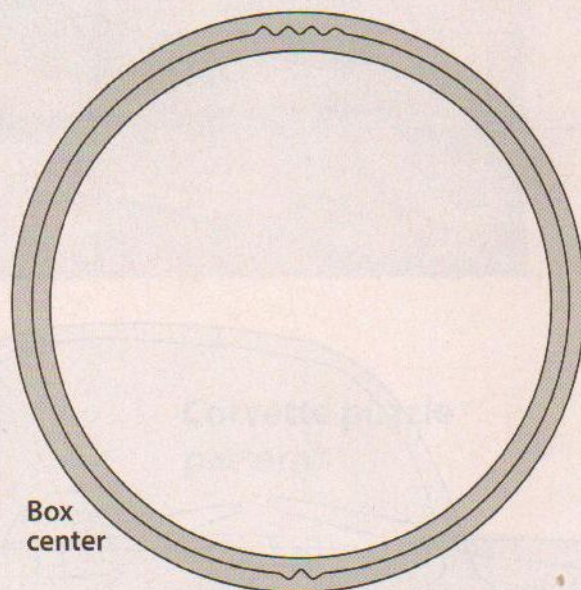
7

Finish the box. I use a drum sander in a drill press to sand handles into the box lid. Smooth the handles with 220-grit sandpaper. Then, apply Danish oil or a finish of your choice.

Peace box pattern



Lid,
bottom,
and inlay



Box
center

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The Origins of the Peace Sign

By Paul Meisel

The peace sign, which can be found on all sorts of items and accessories, was originally designed by Gerald Holtom in 1958 for the British nuclear disarmament movement. The symbol is a combination of the semaphore signals for the letters "N" and "D," standing for "nuclear disarmament." Semaphore letters are formed using a pair of flags. The letter "N" is represented by holding the flags downward in an inverted "V" and the letter "D" is represented by holding one flag straight up and one flag straight down. Superimposing the two letters gives us the center part of the symbol, and the surrounding circle is the symbol for an unborn child. The peace sign became the badge of the Campaign for Nuclear Disarmament, which ultimately connected the symbol with "peace."

Materials:

- Cherry, $\frac{3}{16}$ " (5mm) thick: top and bottom, 2 each $3\frac{1}{4}$ " x $3\frac{1}{4}$ " (83mm x 83mm)
- Walnut, $\frac{3}{16}$ " (5mm) thick: inlay, $3\frac{1}{4}$ " x $3\frac{1}{4}$ " (83mm x 83mm)
- Cherry, $\frac{3}{4}$ " (19mm) thick: center, $3\frac{1}{4}$ " x $3\frac{1}{4}$ " (83mm x 83mm)
- Pattern adhesive: repositionable spray, scroll saw tape, or clear shelf paper
- Tape: masking; double-sided

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

Materials & Tools

- Wood glue, such as Titebond II
- Sandpaper
- Finish, such as Danish oil

Tools:

- Scroll saw blades, such as Pebecco: #3 and #5 skip-tooth
- Drill press with bit: $\frac{1}{16}$ " (2mm)
- Sanders: Flex Drum; drum
- Router with bit: $\frac{1}{4}$ " (6mm)-radius roundover



Daniel and Ruth Johnson live with their many dogs, cats, and pot-bellied pigs in south-central Indiana between the Brown County State Park and the Hoosier National Forest. They participate in many art shows each year in Indiana,

Illinois, and Ohio. Daniel has been making a living as a woodworker since 1994.

Cruisin' Corvette Puzzle

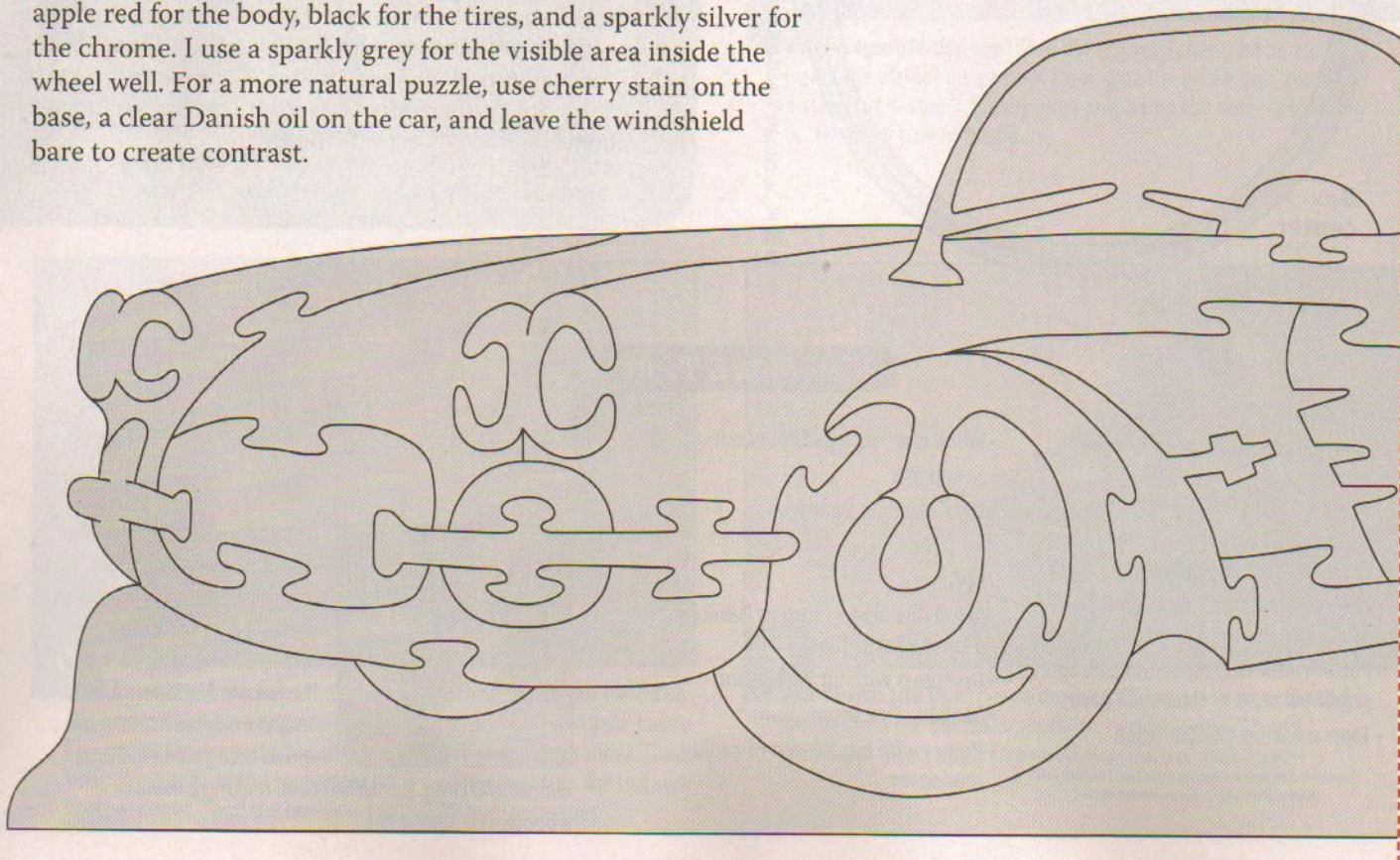
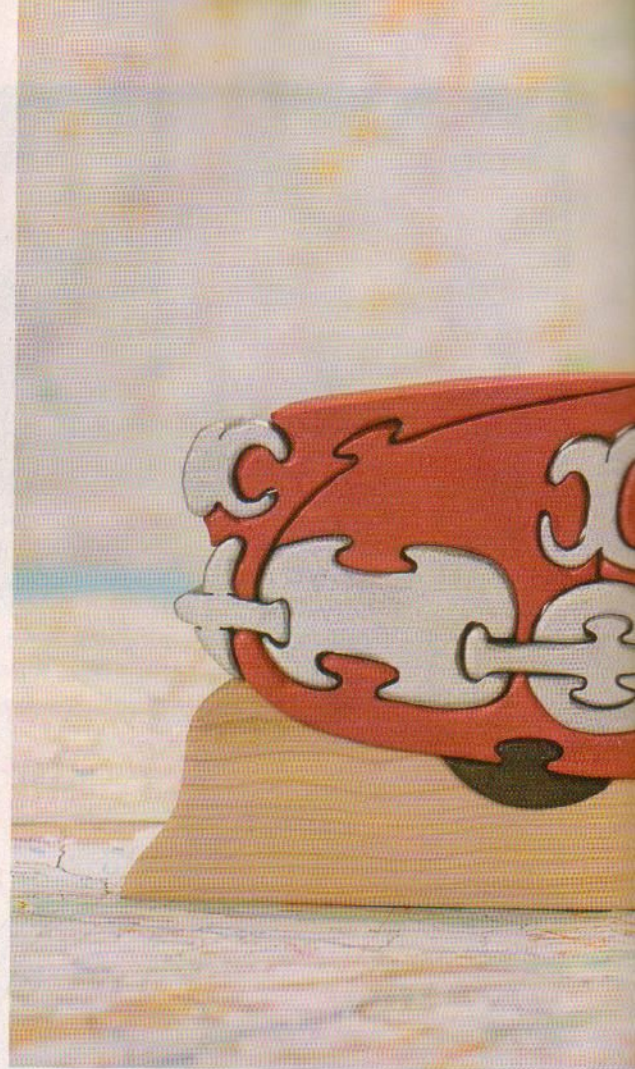
Capture the feel of a classic muscle car with this painted puzzle

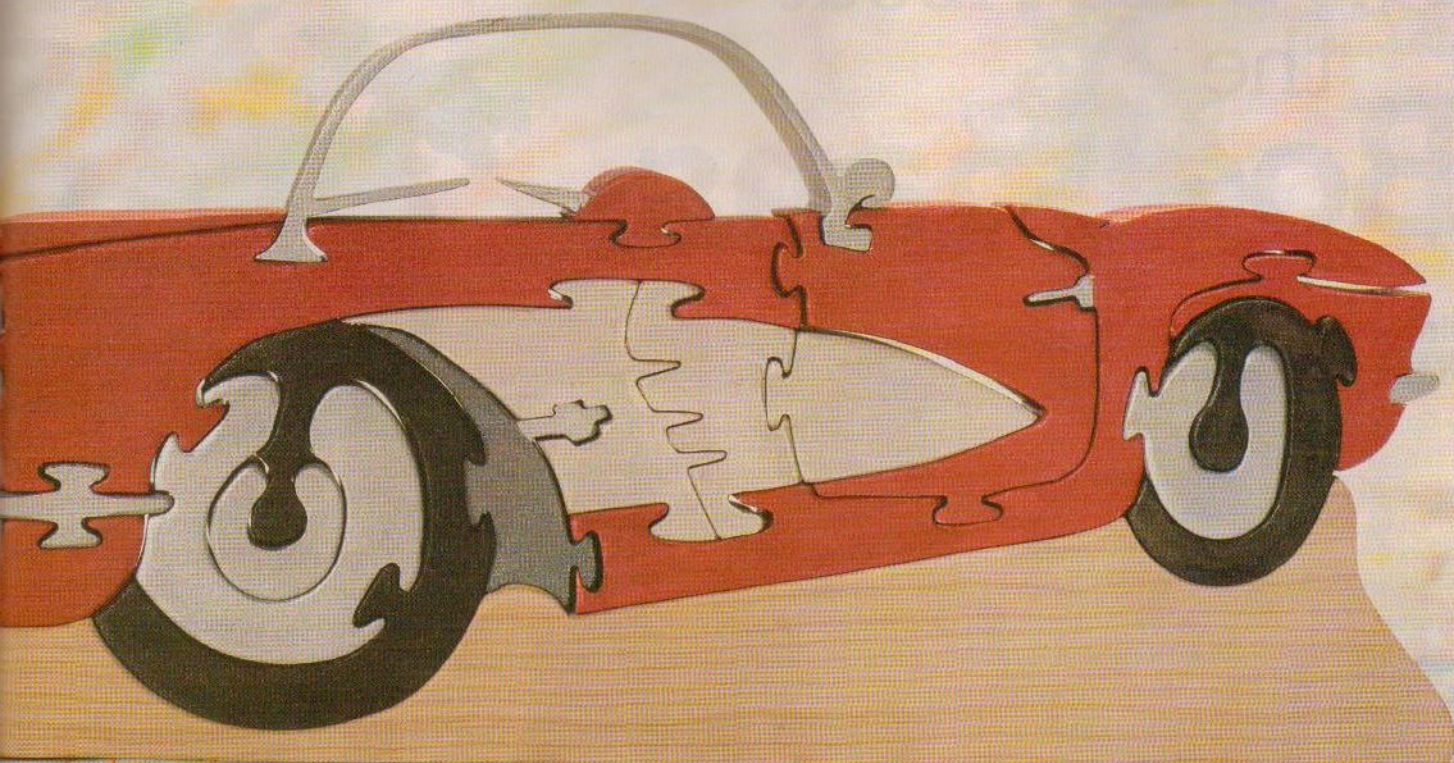
By Judy and Dave Peterson

Many men (and a fair number of women) love the look of classic cars. One of the most iconic is the Chevrolet Corvette Stingray. This puzzle pays homage to the popular American-made car.

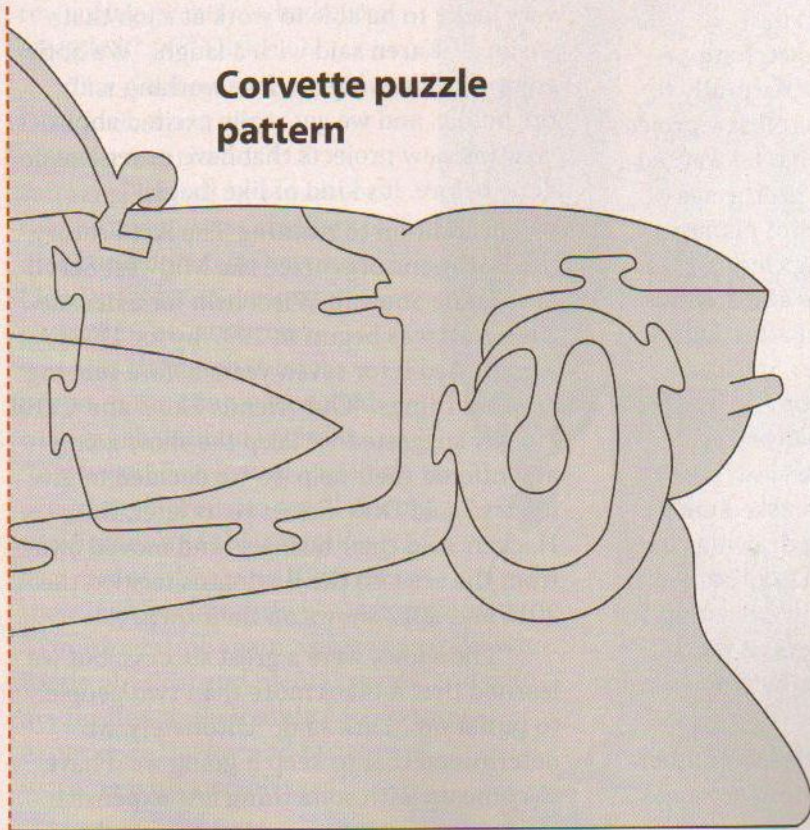
Making the Puzzle

I cut this puzzle from cherry. Orient the grain from left to right to protect the fragile windshield details. Then, cut the pieces, reassembling them as you go. After cutting and sanding the pieces, use a flap sander to round the edges of the pieces slightly. I used acrylic paint to accent this custom hot rod. Use a candy-apple red for the body, black for the tires, and a sparkly silver for the chrome. I use a sparkly grey for the visible area inside the wheel well. For a more natural puzzle, use cherry stain on the base, a clear Danish oil on the car, and leave the windshield bare to create contrast.





Corvette puzzle pattern



Materials & Tools

Materials:

- Cherry, $\frac{3}{4}$ " to 1" (19mm to 25mm) thick: $4\frac{1}{2}$ " x $11\frac{3}{4}$ " (114mm x 298mm)
- Spray adhesive
- Acrylic paint: candy apple red, black, sparkly silver, sparkly grey
- Danish oil: clear (optional)
- Stain: cherry (optional)

Tools:

- Blades, such as Flying Dutchman: #7 ultra reverse
- Sanders: drum, flap
- Paintbrushes

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



A former teacher and librarian, Judy Peterson found her niche in life as a woodworker. A winner of many design awards, she sells her puzzles at art shows around the country. Her husband, Dave, runs the record-keeping side of the business. Together they have

written several books, which are available at www.foxchapelpublishing.com.

The Buzz About the Boelmans

Dirk and Karen Boelman handcraft patterns, shows, and goodwill at The Art Factory

By Kathleen Ryan



You can't be involved in the scroll saw world for very long without hearing the buzz about Dirk and Karen Boelman and The Art Factory. That's because many people consider Dirk to be one of the industry's top fretwork pattern designers.

Dirk is a meticulous artist who knows and understands the nuances of working with wood. He is also a caring and giving man willing to lend his time and talents to multiple causes.

As a child growing up in rural Wisconsin, Dirk found that sketching, drawing, and designing came naturally to him. After cutting his first scroll saw project in 1987, Dirk knew exactly what he wanted to do with the rest of his life. At the age of 32, he quit his job as the general manager of an advertising and printing company to see if he could use his artistic and creative talents to make a living. Soon after, Dirk was approached by the late Patrick Spielman, the founder of *Home Workshop News* (which later became *Scroll Saw Woodworking & Crafts*) and the author of several woodworking books. "Patrick asked me if I'd be interested in preparing drawings for a book about scroll sawing," Dirk recalled. "This was a terrific opportunity, one that I am eternally grateful for. Over the years, I produced the drawings for many of his scroll sawing books."

Today, Dirk's original patterns number well into the thousands. His designs range

from simple to highly complex and cover a wide range of objects and subject matters. His work has appeared in numerous videos, books, and magazines, and his customer base includes woodworkers from 18 countries around the world.

Karen, Dirk's wife of 33 years, took the scroll saw plunge alongside her husband. She cuts patterns, tackles the daily business operations, plans shows, and talks customers through their projects. She creates the decorative kits and detailed instructions that accompany many of Dirk's patterns. "We are very lucky to be able to work at a job that we love!" Karen said with a laugh. "We both enjoy scroll sawing, we like working with the public, and we get really excited about creating new projects that have never been done before. It's kind of like magic!"

In addition to running The Art Factory, the Boelmans organized the Midwest Scroll Saw Trade Show in Wisconsin for a decade. The show was begun in 1997 by Joe Diveley, who hosted it for seven years before turning to other things. "Our friends Floyd and Carol Hacker suggested we keep the show going and offered their help, so we decided to give it a try," said Dirk. Seven years later, the Hackers sold their business and moved away from the area, so the Boelmans tackled the 2011 and 2012 shows on their own.

"The shows were a great success, but we learned that it takes more than two people to pull it off," Dirk said. "Ultimately, we determined that to keep it going we'd have to come up with something less expensive



*Simple Dragons by
The Art Factory.*

*The Apostles on Parade was
inspired by a clock in the
Bily Brothers Clock Museum
in Spillville, Iowa.*

and a whole lot easier to organize, promote, and run." Future shows are on hold as the Boelmans develop an alternate plan.

Meanwhile, the couple has also dedicated themselves to assisting veterans. In April 2010, they were invited to a Tri-State Veterans Conference in Dubuque, Iowa. "That was an eye-opening experience for Karen and me, and one of the most heartwarming and rewarding events we had ever attended," said Dirk.

The conference inspired Dirk to design a series of patterns to honor U.S. veterans, including ornaments that he encourages scrollers to make and donate to veterans. (See Dirk's latest design on page 29.) The conference was also the catalyst for a program the couple launched to help rehabilitate veterans. "We began developing a special program to promote scroll sawing to veterans and their families as a means of helping them piece their lives back together," Dirk explained. "Time and time again, we've seen folks who battle physical and mental issues, and who are limited in their ability to do things, experience the joy and benefits of working with a scroll saw!"



“We’ve seen all kinds of people discover that they can make beautiful handmade projects on a scroll saw”

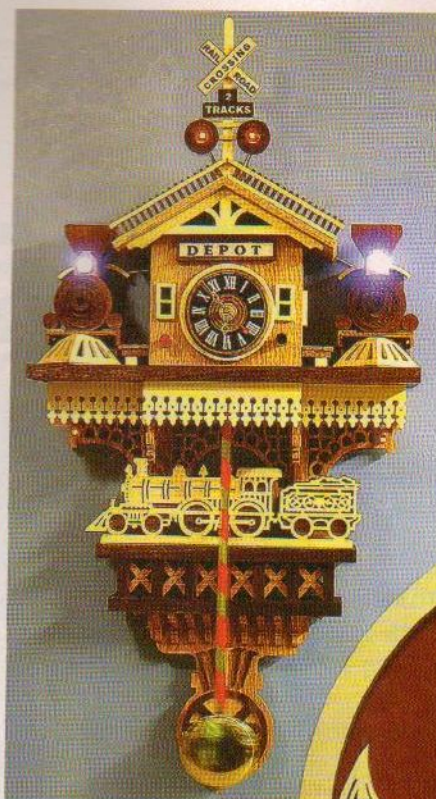
With the help of the Veterans Affairs office, the DAV, and the Veterans Freedom Center in Dubuque, Iowa, where they teach ongoing classes, the Boelmans have developed a program called Scrollsawing for Veterans. “It’s designed to rehabilitate, regenerate, motivate, stimulate, cultivate, nurture, restore, and revitalize,” Dirk explained.

In fact, the scrolling duo promotes the art at every turn, firmly believing in its restorative powers. Dirk said, “We’ve seen all kinds of people discover that they can make beautiful handmade projects on a scroll saw and experience the joy of praise and admiration for their amazing skills. These are life-changing experiences for many people.”

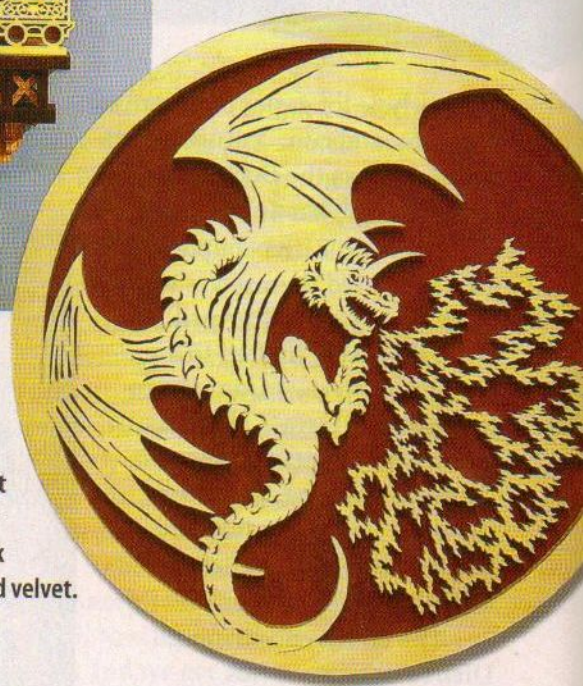
The couple also hopes to inspire other woodworkers, as well as the general public, to get out there and start scrolling. They have made several videos to encourage the art. “We’re trying to make a bigger splash and get more folks scroll sawing,” said Dirk. “Lots of woodworkers have scroll saws somewhere in the back of their shops, and they don’t do a lot with them. We’d like to see them drag those scroll saws back out and start working on them!”

Karen added, “Scroll sawing is a good hobby for anyone. Gender or age is really not an issue because scroll saws are one of the safest woodworking tools out there. I encourage everyone to give it a try. Who knows, they might fall in love with it ... just like we did!”

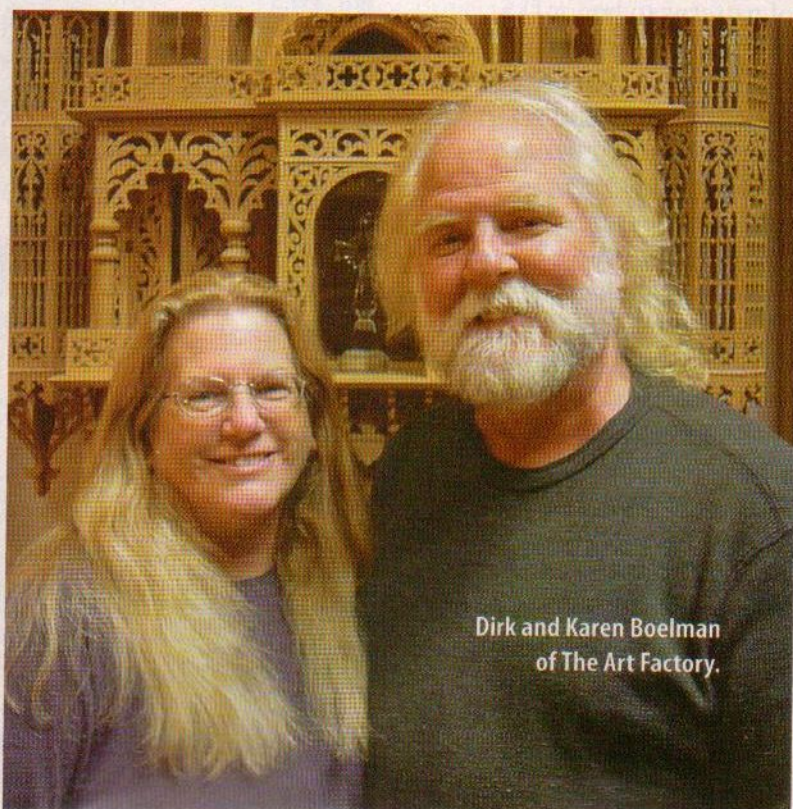
For more of Dirk and Karen Boelman's work, visit www.theartfactory.com.



Train Depot Clock, shown here in oak, walnut, and aspen, measures 14" wide, 29" tall, and 4" deep. The intricate design features twin 3-D locomotives alongside the depot, many railroad-themed details, and a depot sign that can be customized to display the name of any town.



Fire-Breathing Dragon is one of The Art Factory's latest dragons. The 19½"-diameter plaque is made from ½"-thick plywood and backed with red velvet.



Dirk and Karen Boelman of The Art Factory.

THANK YOU FOR YOUR SERVICE

Overlay



The Boelmans encourage scrollers to make this ornament to share with veterans everywhere.

Veteran's
ornament
pattern

Materials & Tools

Materials:

- Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: overlay, $3\frac{1}{4}$ " x 5" (83mm x 127mm); backer, $6\frac{1}{2}$ " x $7\frac{1}{4}$ " (165mm x 184mm)
- Spray adhesive
- Glue: wood or cyanoacrylate (CA) glue
- Finish, such as Danish Oil and Deft clear wood finish

Tools:

- Scroll saw blades: #3 reverse-tooth
- Drill with assorted small bits
- Clamps

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

Backer

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Chalkboard Kids



Celebrate the return to school with an intarsia chalkboard, memo board, or photo frame

By Kathy Wise

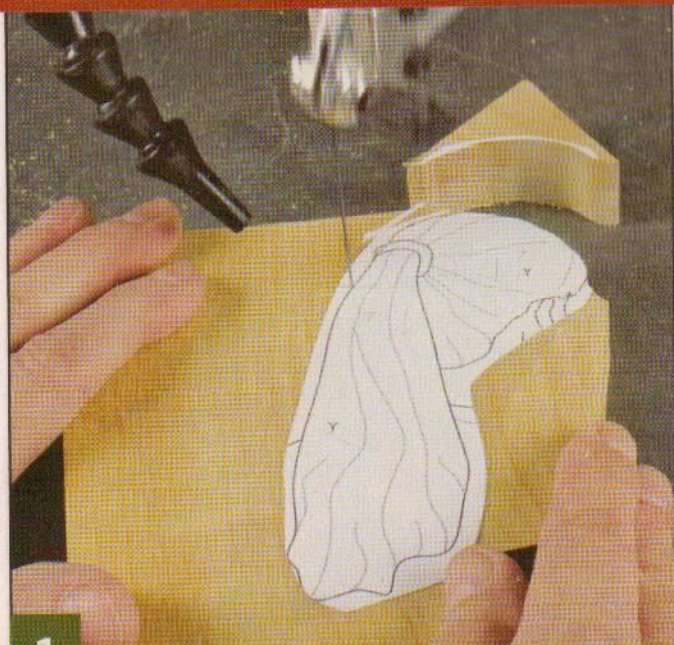
You can make this chalkboard for your child's activities and reminders, substitute cork to turn it into a bulletin board, or add glass to use it as a frame. Choose to use both the boy and girl or just one of the children to customize your chalkboard. Match the hair colors to your star students.

Getting Started

Make several copies of the pattern. Keep one as a master copy. Choose the wood and plane it to the correct thicknesses. Cut the pattern pieces and spray the backs with adhesive. Attach the patterns to the shiny side of clear shelf paper, such as Con-Tact® brand. Peel and stick the patterns onto the blanks.

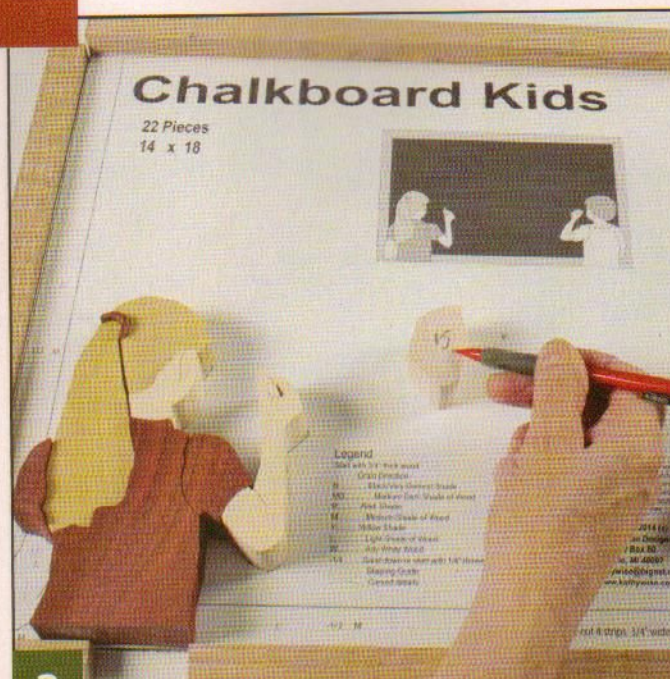


CHALKBOARD: CUTTING THE PIECES



1

Cut the pieces. Using a #5 or #7 skip-tooth blade, cut the pieces. Be careful to stay on the lines, especially where different colors of wood meet.



2

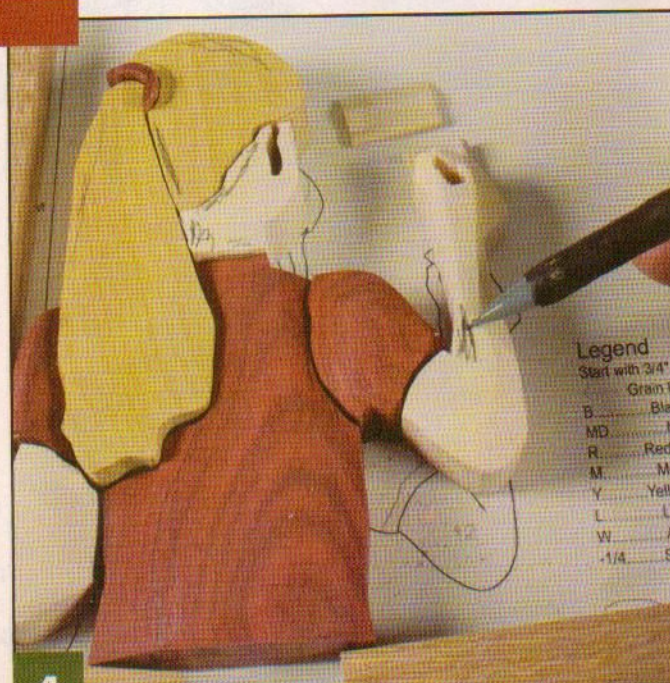
Organize the pieces. As you cut each piece, mark the bottom with a pencil to make sure you don't sand and shape the wrong side. Organize the pieces on a copy of the pattern taped to the backing board and check that they fit together well. Make any adjustments, and mark the areas to sand.

CHALKBOARD: SHAPING THE PIECES



3

Sand and shape the pieces. Use an 8" (203mm)-diameter pneumatic drum sander with a 150-grit sleeve for rough shaping and a 2" (51mm)-diameter drum with a 220-grit sleeve to smooth the pieces. Start with the lowest pieces, and mark the level you want to sand to. Position the pieces so you can see the line as you sand down to it. Work your way up to the thickest pieces, which you will just round slightly.



4

Check the flow of the pieces. Replace the pieces on the pattern often to check the flow. Continue shaping all of the pieces until you are happy with the overall appearance.



5

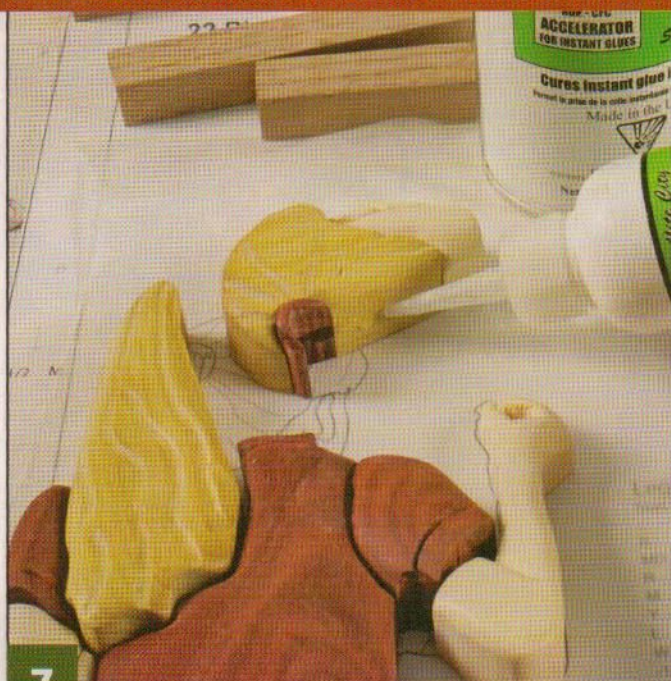
Carve the details. Use a rotary tool, such as a Dremel or a die grinder, to carve the details. I use a round bit for the hair and a cone-shaped bit for the other textures.



6

Buff the pieces. Use a 220-grit sanding mop to buff all of the pieces. The mop puts a nice finish on the pieces and makes it easy to apply the varnish finish.

CHALKBOARD: ASSEMBLING & FINISHING THE PROJECT



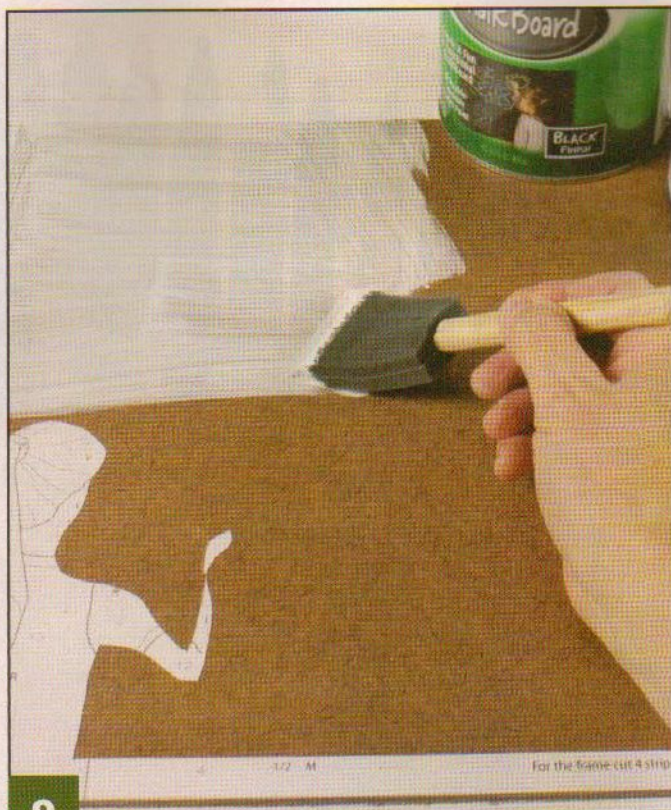
7

Glue together the small pieces. Paint the chalk pieces white before you glue them together. Place waxed paper on top of the pattern, and position the pieces on top of it. Starting at the head, place a few drops of cyanoacrylate (CA) glue between the pieces as you attach two or three pieces together. Allow the glue to set before moving on to the next pieces. Recut the edges as necessary to get the closest possible fit. Assemble the children before doing the frame.



8

Mark the backing board. Sand the bottoms of the children with a flat drum sander, such as a Sand-Flee. Then, glue the frame and children together, and trace the assembled project onto the backing board. Trim off any overhang.



9

Finish the frame and backing board. Mask off the areas for the frame and children. Then, prime and paint the front of the chalkboard with chalkboard paint. Allow the paint to dry. Apply clear satin spray varnish to the children and frame.



10

Complete the project. Apply dots of CA glue and wood glue to the frame, and then spray accelerator onto the backing board. Press the frame into place and adjust the fit. After the glue dries, attach the hanger to the back.

Materials & Tools

Materials:

- Red wood, such as bloodwood, $\frac{3}{4}$ " (19mm) thick: 5" x 5" (127mm x 127mm)
- Light wood, such as white poplar, $\frac{3}{4}$ " (19mm) thick: 4" x 8" (102mm x 203mm)
- Medium-tone wood, such as dark cherry, $\frac{3}{4}$ " (19mm) thick: 3" x 4" (76mm x 102mm)
- Yellow wood, such as yellowheart, $\frac{3}{4}$ " (19mm) thick: 4" x 6" (102mm x 152mm)
- Medium-tone wood, such as zebrawood, $\frac{3}{4}$ " (19mm) thick: 2" x 3" (51mm x 76mm)
- Medium-tone wood such as oak, $\frac{1}{2}$ " (13mm) thick: frame, 6" x 20" (152mm x 508mm)
- Tempered hardboard, $\frac{1}{4}$ " (6mm) thick: 15" x 19" (381mm x 483mm)

- Glues: cyanoacrylate (CA); wood
- Clear shelf paper, such as Con-Tact® brand
- Spray adhesive
- Hanger: mirror style
- Chalkboard paint, such as Rustoleum: black or green
- Paint: flat white (primer)

Tools:

- Blades: #5 or #7 skip-tooth
- Sanders: pneumatic drum, oscillating spindle, sanding mop, flat drum
- Rotary tool with carving bits
- Paintbrushes

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

The pattern for the **CHALKBOARD KIDS** is in the pattern pullout section.



Nationally acclaimed intarsia artist Kathy Wise has written two books and many articles. Her new book, *Intarsia Birds: Woodworking the Wise Way*, is available now for \$23 including shipping. 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.



Barn owl
#716

Crafting the Crayonator



Cute critter carts crayons for kids

By Paul Meisel

Kids love drawing pictures with crayons, and they are also fond of cute critters. So, for this project we decided to combine “crayon” with “alligator” to create the Crayonator. In addition to holding 32 crayons, this project doubles as a pull-toy, so youngsters can use it to transport their art supplies.

While you can cut the body and side pieces from $1\frac{1}{2}$ " (38mm)-thick lumber, I find it easier to cut them from $\frac{3}{4}$ " (19mm)-thick stock and glue them together to get the proper thickness. The front and back legs are cut from a single piece of $\frac{3}{4}$ " (19mm)-thick stock.

Cutting the Pieces

Cut the parts and drill the holes as described on the patterns. It is difficult to drill consistently deep holes for the crayons on the irregularly shaped surface of the body and side pieces, so the patterns for these parts include “steps,” or a series of flat surfaces along the top. When you cut these pieces, follow the step lines. Use an awl to mark the locations of the holes. Then, attach a depth-stop collar to a $\frac{3}{8}$ " (10mm)-diameter brad-point bit (or wrap a piece of masking tape around it) and drill all of the crayon holes. Then, cut the pieces to their

final shapes. Do not drill the holes in the legs for the axle pegs or the holes for the eye shanks yet. Drill a $\frac{1}{4}$ " (6mm)-diameter hole for the pull cord the whole way through the body. Then, counter-bore a $\frac{1}{2}$ " (13mm)-diameter by $\frac{1}{2}$ " (13mm)-deep hole on the bottom of the neck to accommodate the knot in the pull cord.

Assembling the Project

Dry-assemble the pieces, and mark the edges you want to soften. Use sandpaper or a router with a $\frac{1}{8}$ " (3mm)-radius chamfer or round-over bit to soften the marked edges. Face-glue and clamp the two parts of the body and the two parts of each side piece. When the glue is dry, refer to the assembly drawing as you glue and clamp the side pieces to the body. Then, glue and clamp the front and back legs to the sides. Drill $\frac{1}{4}$ " (6mm)-diameter through holes for the eye shanks. To drill the holes for the axle pegs, attach a





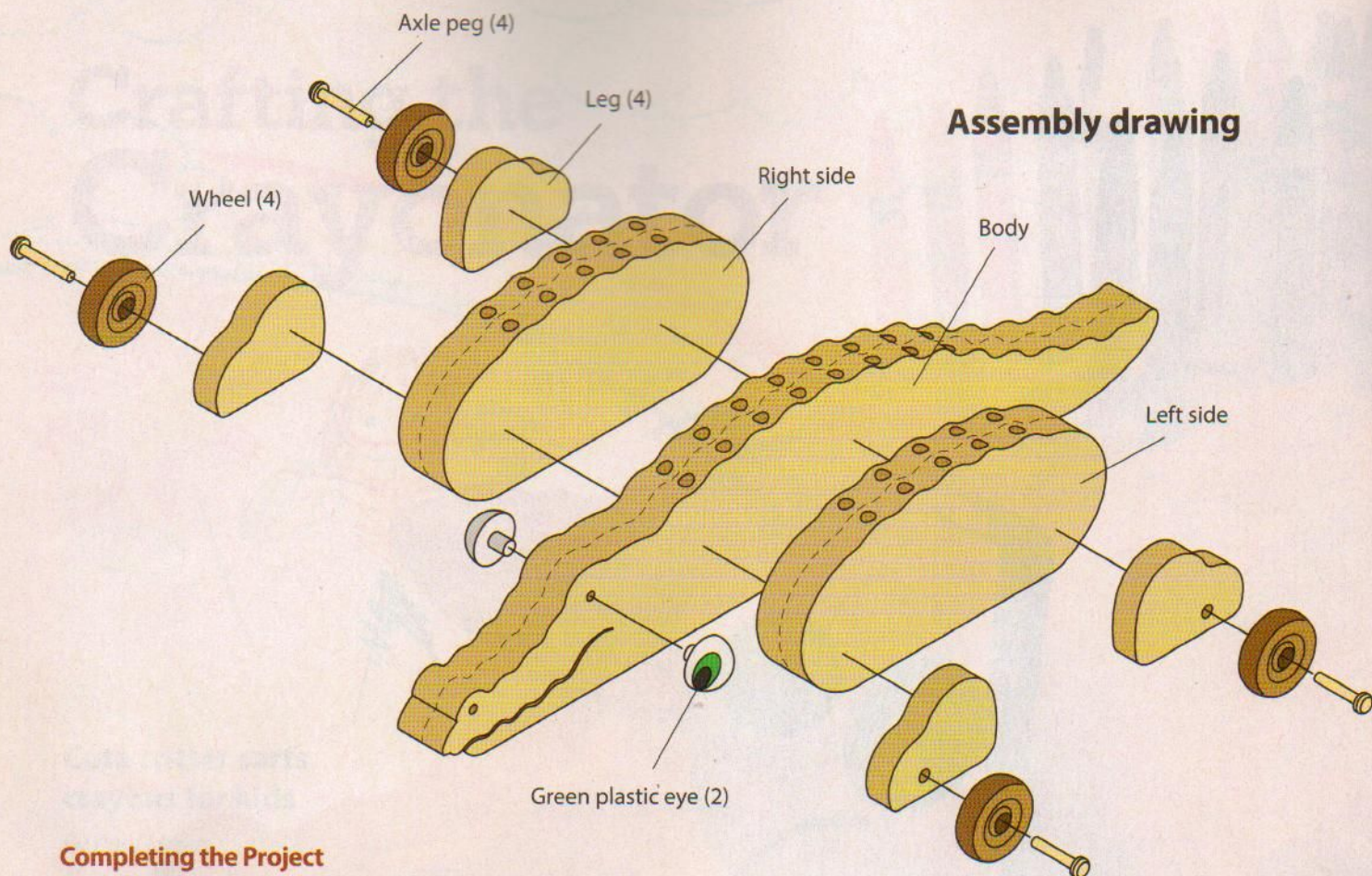
fence $\frac{5}{8}$ " (16mm) from the center of the chuck. Hold the project on its side with the feet against the fence as you drill a $1\frac{1}{32}$ " (9mm)-diameter by $\frac{7}{8}$ " (22mm)-deep hole for the axle peg. Repeat the process for the other three legs.

Applying the Finish

Brush a coat of sanding sealer onto the main assembly, the wood bead, the wheels, and the heads of the axle pegs. Let it dry, and then sand with 220-grit sandpaper. Paint the collar and the bead blue. Paint the cheeks green. Apply a topcoat of polyurethane to all of the finished surfaces.

Attaching the Wheels

Use a toothpick to spread glue on the inside of the axle hole. Slip a wheel onto the axle peg, and insert the peg into the hole. Use a section of cardboard from a cereal box as a spacer between the wheel and leg to ensure that the wheel will turn freely. Push the axle peg down until the wheel is tight against the spacer, and then remove the spacer. Repeat the process for the other wheels.



Assembly drawing

Completing the Project

Push the shanks for the plastic eyes into the holes in each side of the head. String the rope through the hole in the body and tie a knot in the bottom end. Pull the rope up to set it into the counter-bored recess; then, insert the other end of the rope through the bead. Tie a knot in the end, and coat both knots with glue to keep them from untying.

Materials & Tools

Materials:

- Pine, nominal 1" (25mm) thick: 8" x 8' (203mm x 2,438mm)
- Wooden wheels: 4 each 2" (51mm) dia. (#W203)*
- Axle pegs: 4 each 1 $\frac{1}{32}$ " (9mm) dia. x 1 $\frac{1}{8}$ " (41mm) long (#AP4)*
- Pull toy rope and bead: 1" (25mm)-dia. wooden bead, 36" (914mm) long rope (#3147)*
- Plastic eyes, green: 2 each 1 $\frac{1}{16}$ " (36mm) dia. x $\frac{1}{4}$ " (6mm) shank (#9299)*

- Sanding sealer
- Polyurethane
- Acrylic paint: blue, green
- Adhesive spray
- Sandpaper: 220 grit
- Wood glue

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

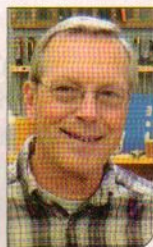
Tools:

- Scroll saw blades: #5 reverse tooth
- Drill press with bits: $\frac{1}{4}$ " (6mm), $\frac{1}{32}$ " (9mm), $\frac{3}{8}$ " (10mm), $\frac{1}{2}$ " (13mm)
- Stop collar: $\frac{3}{8}$ " (10mm) (or masking tape)
- Clamps

SPECIAL SOURCES:

Parts marked with an asterisk above are available from Meisel Hardware Specialties. To order parts or to request a catalog, contact Meisel Hardware Specialties, P.O. Box 70, Mound, MN 55364-0070; 800-441-9870; www.meiselwoodhobby.com.

Patterns for the **CRAYONATOR** are in the pattern pullout section.



Paul Meisel of Mound, Minn., has designed more than 3,000 woodworking plans. For more ideas of what to build, to order parts, or to request a catalog, contact Meisel Hardware Specialties at 800-441-9870 or www.meiselwoodhobby.com.

Halloween Luminaries

Glowing luminaries guarantee a full moon for Halloween

By Alison Tanner



Show off your scrollwork with these spooky luminaries. Stack cutting lends support to fragile frets and lets you make more than one project at a time.

Making a Luminary

Stack several fretwork blanks if desired. Attach the pattern to the blank, drill the blade-entry holes, and cut the fretwork design. Do not cut the perimeter. Stack the fretwork blank with the acrylic, tape the pieces securely, and cut the perimeter of the pattern. Separate the stack and remove the paper lining from the acrylic. Cut the base to size.

Lightly sand the fretwork to remove any fuzzies. Spray the front

and sides of the fretwork, and the top and sides of the base, with several thin coats of black paint. When the paint is dry, use small dots of epoxy to attach the acrylic to the fretwork. Use clamps to hold the luminary against the base as you drill pilot holes through the luminary into the side of the base. Remove the clamps, add a few dots of epoxy to the front of the base, and reclamp. Drive nails through the pilot holes to reinforce the joint. Fill the holes with putty, sand if necessary, and touch up the paint. Place a jar candle on the base and light. *Warning: Never leave a lit candle unattended. Luminaries are for indoor use only.*

Materials & Tools

Materials:

- Plywood, $\frac{1}{8}$ " (3mm) thick: fretwork, $7\frac{5}{8}$ " x 10" (194mm x 254mm) (stack as desired)
- Plywood, $\frac{1}{4}$ " (6mm) thick: base, 4" x $7\frac{5}{8}$ " (102mm x 194mm)
- Acrylic, $\frac{1}{8}$ " (3mm) thick: backer, $7\frac{5}{8}$ " x 10" (194mm x 254mm)
- Adhesive of choice for pattern

- Epoxy
- Spray paint: black
- Small brads: 3 each
- Wood putty
- Sandpaper

Tools:

- Blades: #1 reverse-tooth
- Drill and assorted bits
- Clamps
- Hammer

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

**Halloween
luminary
patterns**



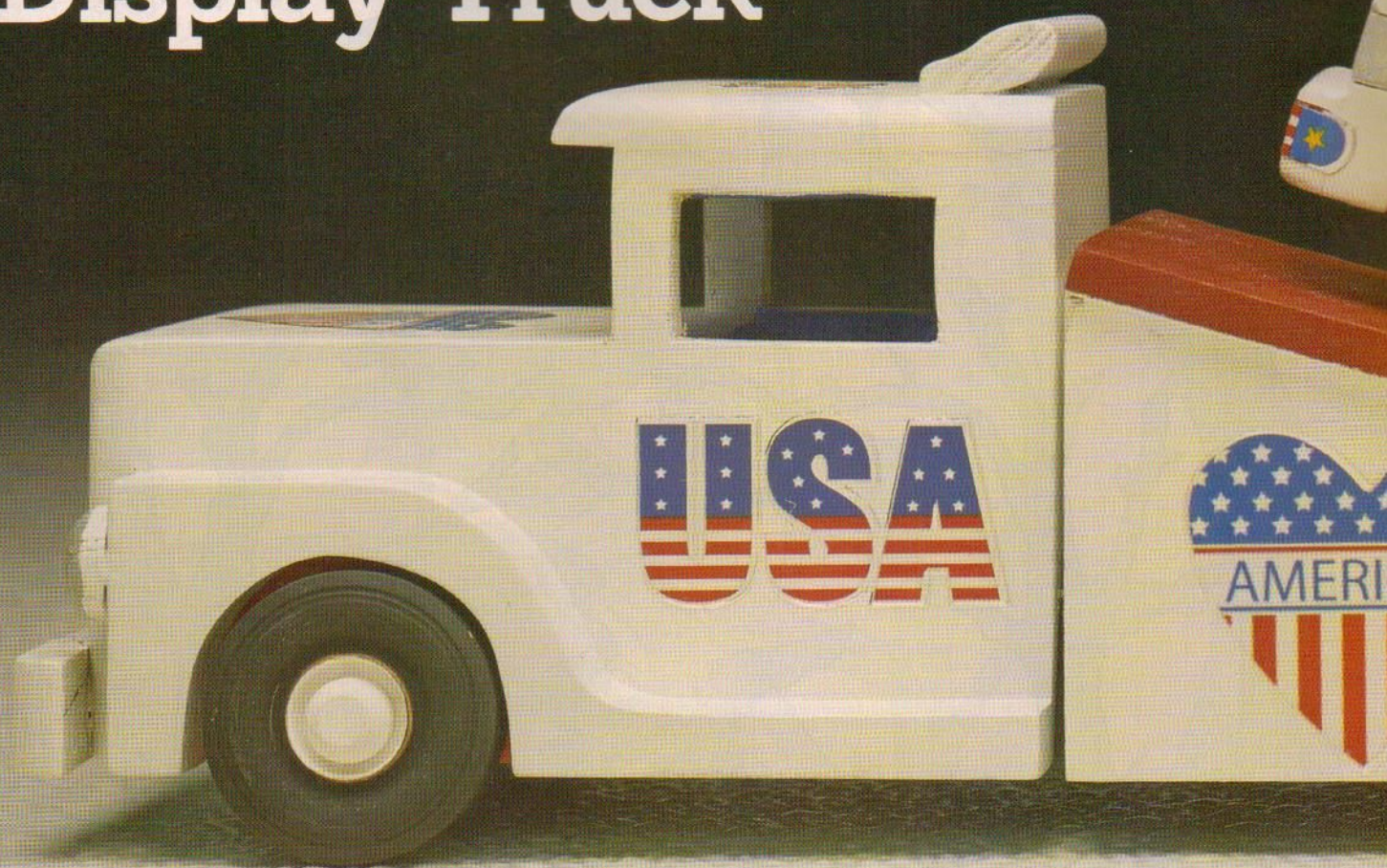
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Alison Tanner began cutting paper at the age of 8, inspired by a visit to the home of Hans Christian Andersen. She is the owner/creator of Papercuttings by Alison, which carries the largest variety of patterns and supplies for the scissorist. For more of her work, visit www.papercuttingsbyalison.com.



Race-Car Carrier & Display Truck



Display your Derby car in style with this functional toy truck

By Dennis Simmons

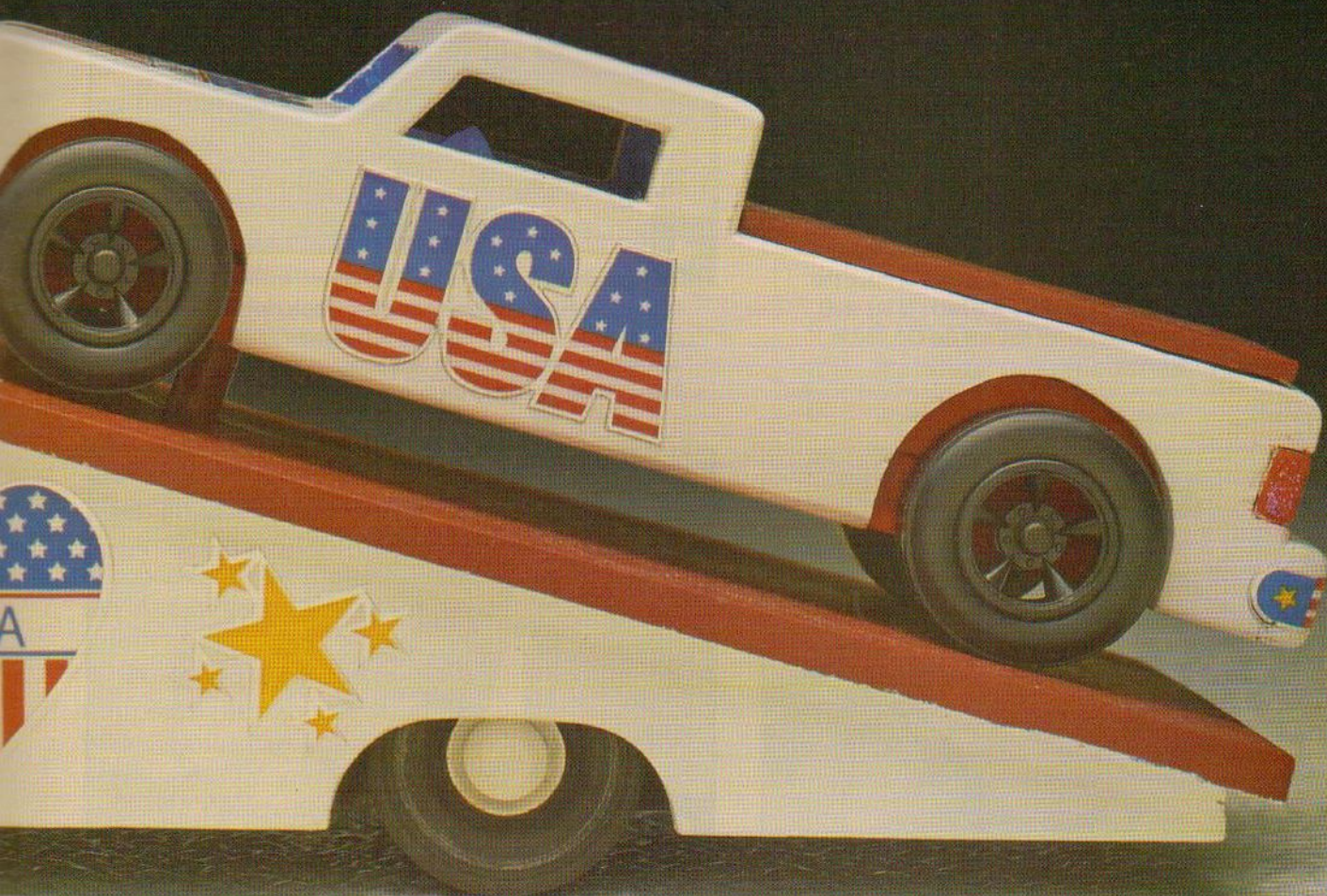
Any Pinewood Derby car looks like a winner when displayed on this hauling truck. In addition to making one for—or with—your young racer, you could make an extra, painted with the Pack insignia, to be given as a trophy on race day. The hauling truck is easy to make and does not require much material.

Full-sized patterns are provided for the complex-shaped components, while dimensions for the other components are in the parts list. Because you will paint the completed project, you can use

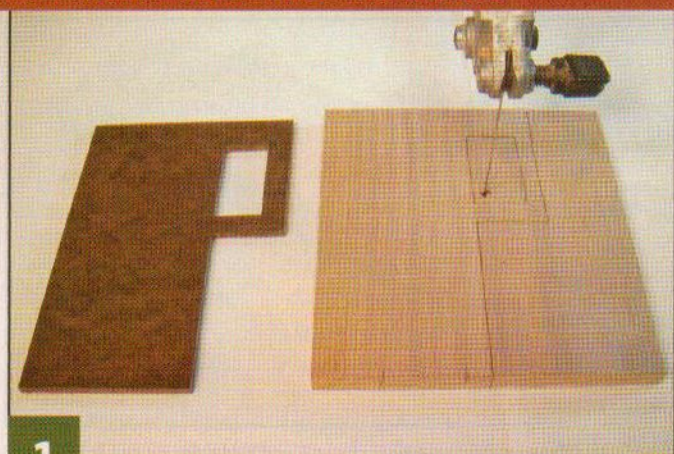
any type of wood. I suggest you purchase the wheels, axles, and the golf tee.

Getting Started

If you plan to make more than one or two haulers, I suggest making hardboard templates for the more complex pieces. Simply transfer the patterns to the hardboard, drill the blade-entry holes, and cut the pieces. Sand them to the final shape. Then, trace around the templates onto the blanks.



CARRIER: PREPARING THE PIECES



1

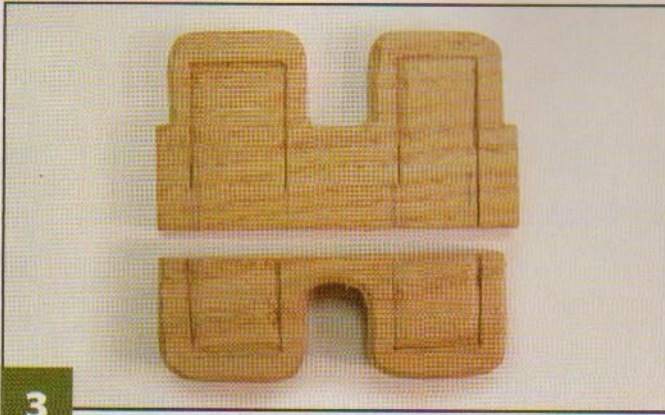
Cut the pieces. Cut the rectangular pieces to the sizes noted in the parts list. I rip the pieces for the truck frame and the cab components, which are all $2\frac{1}{4}$ " (57mm) wide, at the same time. Transfer the patterns to the remaining pieces, drill the blade-entry holes, and cut the pieces. Use the template to mark the angle on the frame, and cut along the line. Cut the posts off the ends of two screw button plugs to serve as headlights.



2

Glue the bed together. Glue and clamp the bed sides to the bed front and bed block with the bed block $1\frac{1}{2}$ " (38mm) from the front and flush with the bed sides; allow the glue to dry. Glue and clamp the bed top to the sides and the bed block. The bed top should be even with the front of the apparatus and overhang the sides by about $\frac{1}{8}$ " (3mm) on each side. Keep the pieces square.

CARRIER: ASSEMBLING THE PROJECT



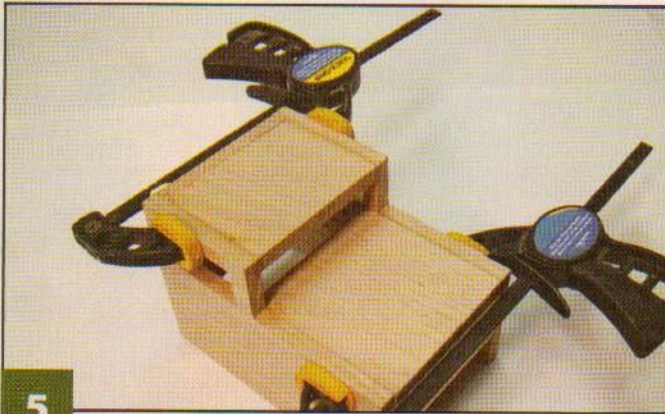
3

Detail the cab components. Use hand tools to shape the seats and seat backs. Glue and clamp the seat backs to the seats. Use wood chisels to cut grooves in the grill and top cap, and to shape the wind deflector.



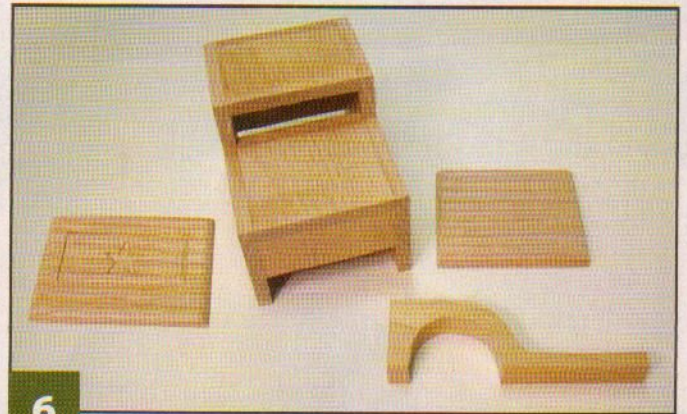
4

Assemble the cab. Using scrap leftover from Step 1, clamp (with no glue) the cab sides to the scrap. Apply glue to the edges of the cab back and the support blocks. Use the pattern and photos as a guide to position the cab back and support blocks against the bottom scrap, and clamp them in place until the glue dries.



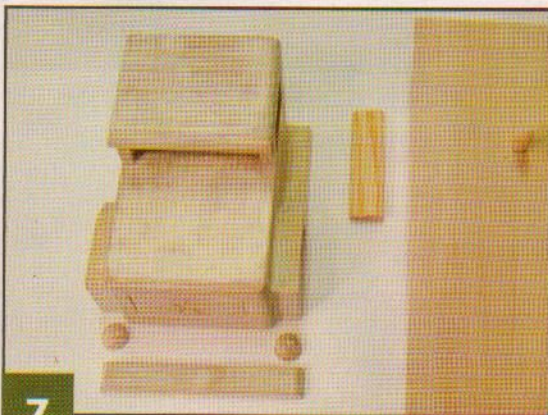
5

Add the hood and headliner. Glue and clamp the hood flush with the cab sides. Then, glue and clamp the headliner flush with the windshield post.



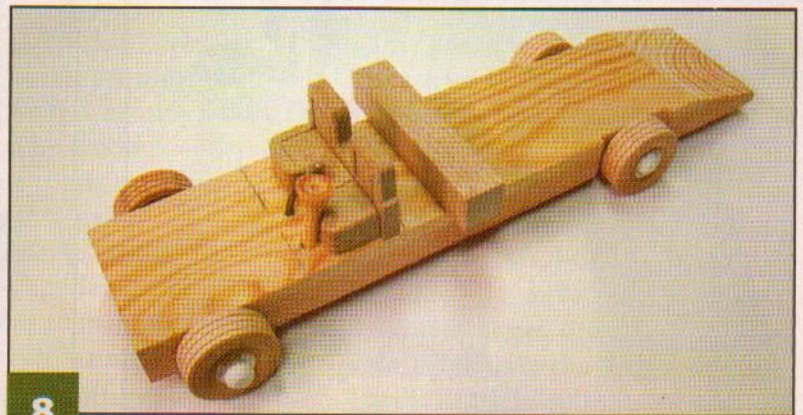
6

Add the fenders, top cap, and grill. Glue and clamp the fenders flush with the bottom edge of the cab and even with the cab side (before installing the grill). Glue and clamp the top cap flush with the cab back and sides. It should hang over in the front. The grill is flush with the sides and hood.



7

Finish the cab. Apply a thin layer of wood putty (or wood filler) to all of the surfaces of the cab and bed sides to fill the grain. Sand everything with 150-grit sandpaper. Glue on the headlights, bumper, and wind deflector. Drill a $\frac{1}{4}$ " (6mm)-diameter hole centered in the bed top $2\frac{1}{2}$ " (64mm) from the front edge and glue in a piece of dowel to hold the truck.



8

Assemble the frame. Dry-assemble the cab and bed sides on the frame. Make sure the axle hole locations are centered in the wheel wells on the fender and bed. Drill four $\frac{7}{32}$ " (5.5mm)-diameter axle holes. Reach in through the window and mark the inside edges of the cab back and center cab support block. Using these lines as guides, glue and clamp the seat assembly to the frame. Drill holes for the golf tee steering wheel and wire shifter, and install the pieces. Use the bed sides to mark the position of the bed gluing block, and glue and clamp the bed gluing block to the frame.

Painting and Finishing the Car Carrier

Paint the wheels and axles, and then install them on the frame. Paint the interior of the cab and seats before installing the cab on the frame. Apply glue to the angled area of the truck frame and to the gluing block, and glue the truck bed to the frame. The truck bed must be installed before the cab to allow room for clamps.

Apply glue to the inside surface of the cab sides where they come in contact with the frame. Slide the cab over the frame, and let the glue dry.

Decorate the truck with race team decals or your Cub Scout Pack insignia. I used USA decals purchased in the scrapbooking section of a discount store.

To mount a derby car on the hauler truck, drill a $\frac{1}{4}$ " (6.5mm)-diameter hole in the bottom of the car to fit over the dowel mounted in the truck bed.

Parts List

	Part name	Qty	Dimensions	Presentation
A	Frame (includes cab clamping block scrap)	1	$\frac{3}{4}$ " x $2\frac{1}{4}$ " x 16" (19mm x 57mm x 406mm)	Pattern
B	Bed sides	2	$\frac{1}{4}$ " x $2\frac{1}{4}$ " x 7" (6mm x 57mm x 178mm)	Pattern
C	Bed top	1	$\frac{1}{4}$ " x 4" x $7\frac{1}{2}$ " (6mm x 102mm x 191mm)	Dimensions
D	Bed front	1	$\frac{1}{4}$ " x $2\frac{1}{4}$ " x $3\frac{1}{4}$ " (6mm x 57mm x 83mm)	Pattern
E	Bed gluing block	1	$\frac{1}{2}$ " x $\frac{1}{2}$ " x 3" (13mm x 13mm x 76mm)	Dimensions
F	Bed block	1	$\frac{1}{4}$ " x 2" x $2\frac{1}{4}$ " (6mm x 51mm x 57mm)	Dimensions
G	Car dowel	1	$\frac{1}{4}$ " (6mm) dia. x $1\frac{1}{4}$ " (32mm) long	Dowel
H	Cab sides	2	$\frac{1}{4}$ " x $2\frac{3}{4}$ " x $4\frac{1}{8}$ " (6mm x 70mm x 105mm)	Pattern
I	Head liner	1	$\frac{1}{4}$ " x $1\frac{3}{4}$ " x $2\frac{1}{4}$ " (6mm x 44mm x 57mm)	Dimensions
J	Top Cap	1	$\frac{1}{4}$ " x $2\frac{1}{4}$ " x $2\frac{3}{4}$ " (6mm x 57mm x 70mm)	Dimensions
K	Fenders	2	$\frac{1}{4}$ " x $1\frac{1}{4}$ " x $4\frac{1}{8}$ " (6mm x 32mm x 105mm)	Pattern
L	Hood	1	$\frac{1}{4}$ " x $2\frac{1}{4}$ " x $2\frac{3}{8}$ " (6mm x 57mm x 60mm)	Dimensions
M	Cab back	1	$\frac{1}{4}$ " x 2" x $2\frac{1}{4}$ " (6mm x 51mm x 57mm)	Dimensions
N	Seats	1	$\frac{3}{4}$ " x $\frac{7}{8}$ " x $2\frac{1}{8}$ " (19mm x 22mm x 54mm)	Pattern
O	Seat backs	1	$\frac{1}{4}$ " x $1\frac{1}{4}$ " x $2\frac{1}{4}$ " (6mm x 32mm x 57mm)	Pattern
P	Cab support blocks	2	$\frac{1}{4}$ " x $\frac{7}{8}$ " x $2\frac{1}{4}$ " (6mm x 22mm x 57mm)	Dimensions
Q	Wind deflector	1	$\frac{1}{2}$ " x 1" x $2\frac{5}{8}$ " (13mm x 25mm x 67mm)	Pattern
R	Bumper	1	$\frac{1}{4}$ " x $\frac{1}{2}$ " x $3\frac{3}{4}$ " (6mm x 13mm x 95mm)	Dimensions
S	Grill	1	$\frac{1}{4}$ " x $1\frac{7}{8}$ " x $2\frac{3}{4}$ " (6mm x 48mm x 70mm)	Pattern
T	Axles	4	$\frac{1}{4}$ " (6mm) dia. x $1\frac{1}{4}$ " (32mm) long	Axle Pegs
U	Wheels	4	$1\frac{1}{4}$ " (32mm) dia.	Wheels
V	Headlights	2	$\frac{3}{8}$ " (10mm) dia.	Screw button plugs

Materials & Tools

Materials:

- Pine, $\frac{3}{4}$ " (19mm) thick: frame, cab clamping block scrap, seats $\frac{3}{4}$ " x $2\frac{1}{4}$ " x 17" (19mm x 57mm x 432mm)
- Pine, $\frac{1}{2}$ " (13mm) thick: bed gluing block, $\frac{1}{2}$ " x 3" (13mm x 76mm)
- Pine, $\frac{1}{4}$ " (6mm) thick: 5" x $32\frac{1}{2}$ " (127mm x 825mm)
- Dowel, $\frac{1}{4}$ " (6mm) dia.: truck pin, $1\frac{1}{4}$ " (32mm) long
- Axle pegs: 4 each, $\frac{1}{4}$ " dia. x $1\frac{1}{4}$ " long (6mm x 32mm)
- Wheels: 4 each $1\frac{1}{4}$ " (32mm) dia.
- Screw button plugs: headlights, 2 each $\frac{3}{8}$ " (10mm) dia.
- Wood glue
- Wood putty or wood filler
- Sandpaper: 150 grit
- Paint
- Stickers (optional)

- Golf tee
- Scrap heavy wire

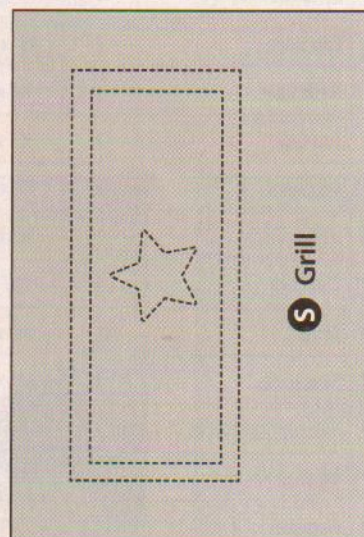
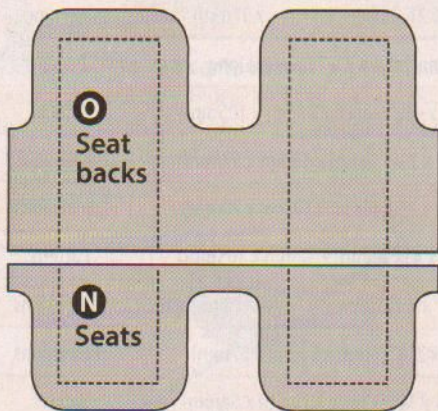
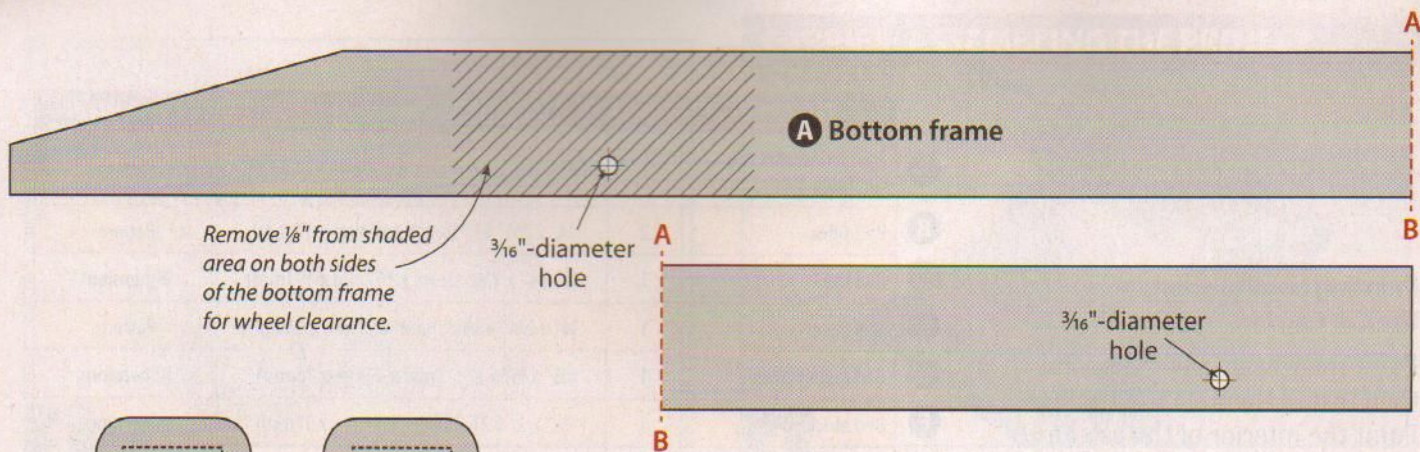
Tools:

- Scroll saw blades: #5 reverse-tooth
- Drill with bits: $\frac{1}{4}$ " (6mm) dia., $\frac{7}{32}$ " (5.5mm) dia., $\frac{1}{16}$ " (6.5mm) dia.
- Paintbrushes
- Clamps

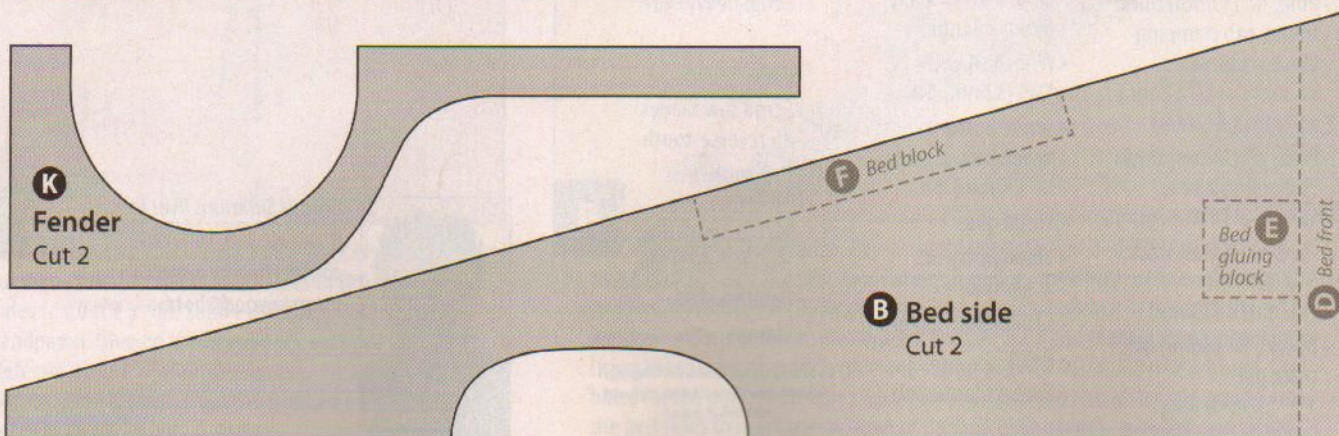
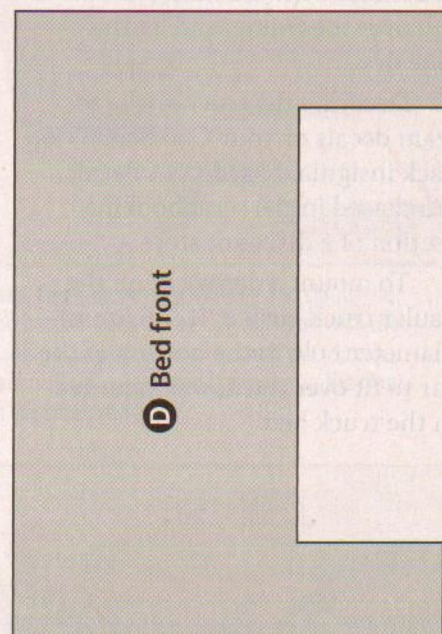
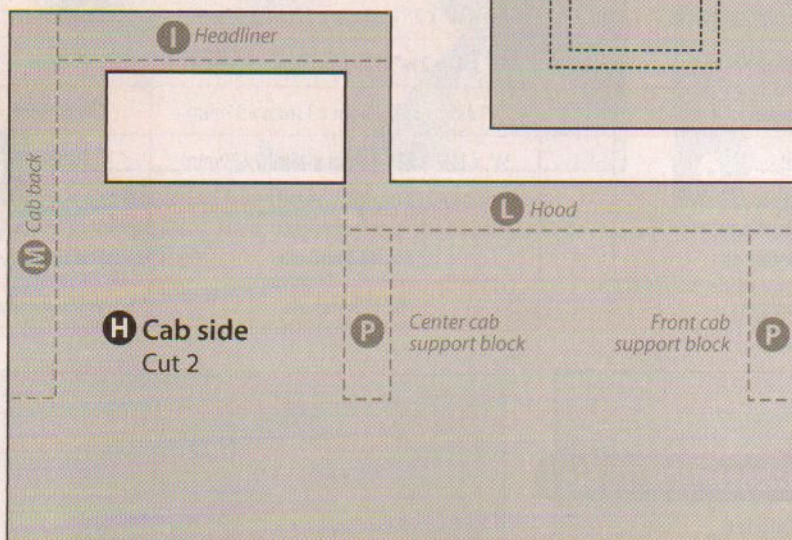
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Dennis Simmons lives in Rushville, Ind. You may contact him by e-mail at Intarsiawood@hotmail.com.



Race-car carrier truck patterns



Compound Ornaments

Get a head start on your holidays by making ornaments now

By Diana Thompson

Christmas is my favorite time of year. Inspiration for new designs is everywhere: stores, decorated homes, catalogs, sale items in the newspaper, gifts from friends, suggestions from family, the symbols of Christianity. And, usually, one idea will lead to another. However, thinking of designs can be more challenging if you want to start early, while the days are longer and it's still warm in your shop. Here are a few ideas to get you started on your holiday gift-giving or craft-show inventory.



Selecting the Wood

If I am planning to paint a figure, I cut it from sugar pine, basswood, or white pine. Choose blanks with close, even grain; wood with uneven grain makes the blades harder to control and to keep on the line.

If you don't plan to paint the finished piece, hardwoods are a good choice for compound figures. However, I avoid using woods harder than black walnut, because 1½" (38mm)-thick hardwood can be very difficult to cut. Good varieties of wood for these projects include red cedar, cypress, redwood, willow, magnolia, canary, alder, poplar, and Spanish cedar.

If you have trouble finding 1½" (38mm)-thick stock, simply glue and clamp together two ¾" (19mm)-thick pieces.

Getting Started

Cut the blanks to size, and then cut out the patterns. Fold a pattern on the dotted line and apply spray adhesive to the back. Align the fold with the corner of the blank and press the pattern into place. Install a sharp new blade and make sure the saw table is perfectly perpendicular to the saw blade.

Cutting the Ornaments

Drill blade-entry holes, cut the frets in one side, and tape the waste in place (do not remove it). Rotate the blank and repeat. Then, make a single continuous cut around the perimeter of the design. Allow the figure to rest naturally in the block as you pinch the block and figure together and wrap tape around the bottom of the block. Larger figures may need to be taped in a second spot. Rotate the blank and make a single continuous cut around the ornament on the other side. Gently remove the figure from the block. Sand away any fuzzies, and paint the ornament or apply a clear finish. Drill a small hole or insert a screw eye in the top of a solid ornament for a hanger.

TIP

EASIER CUTTING

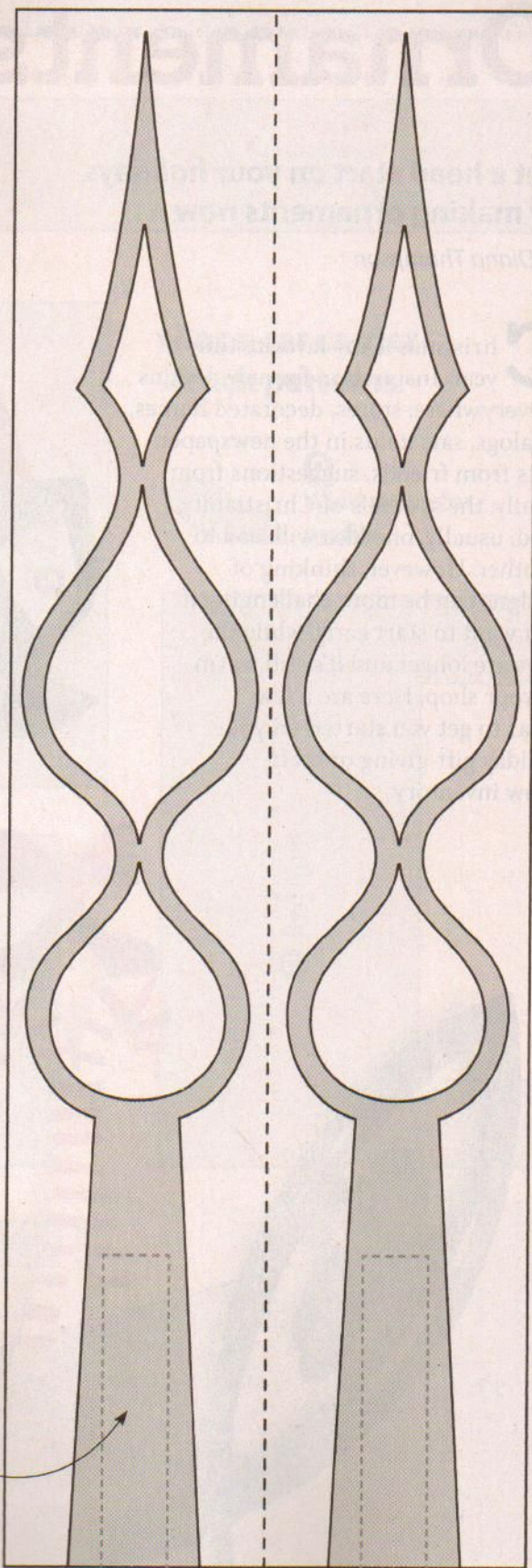
I use small quick clamps to hold pieces of scrap, the same thickness as the blanks firmly, but not too tightly, to the sides of the blank. This increased surface area makes it easier to hold the blank flat against the saw table.



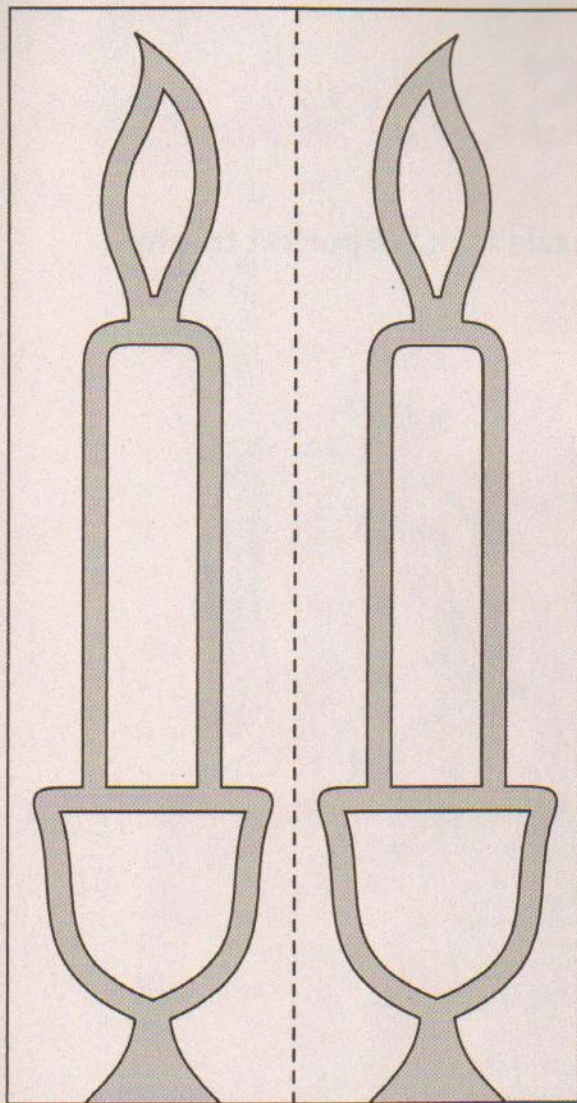
Drill a 1¾"-deep hole in the bottom with a ⅜" Forstner bit before cutting.

Holiday ornament patterns

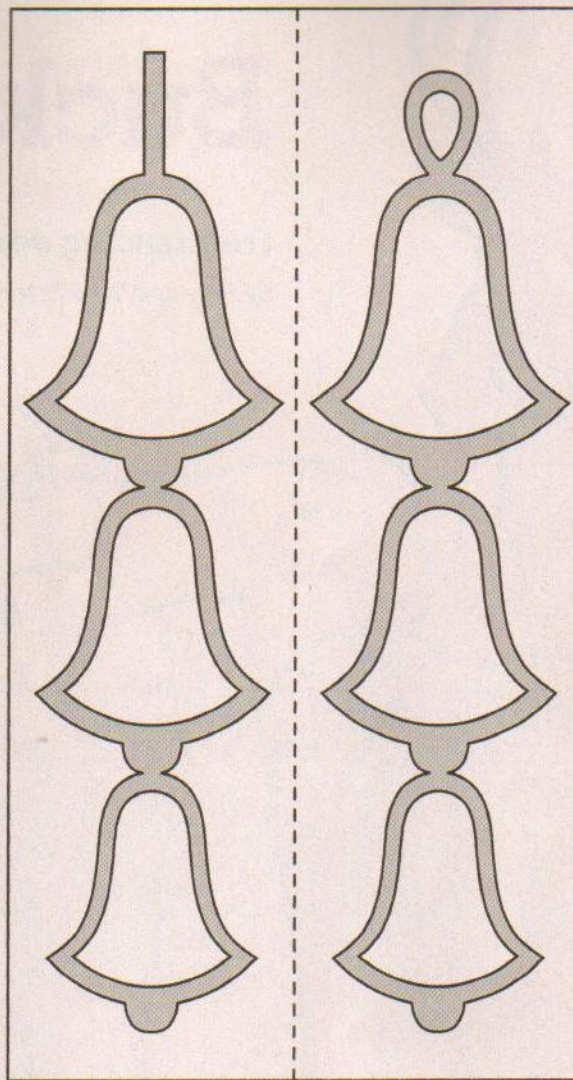
Tree topper



Candle ornament



Bell ornament



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Materials & Tools

Materials:

- Sugar pine, basswood, or white pine: 1½" (38mm) thick x 1½" (38mm) wide (lengths vary)
- Sandpaper
- Paint or finish
- Spray adhesive
- Clear tape: ¾" (19mm) wide

Tools:

- Scroll saw blades: #5 skip-tooth
- Drill with: assorted small bits
- Paintbrushes
- Small quick clamps (optional)

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

Additional patterns for the **COMPOUND ORNAMENTS** are in the pullout section.

Further Reading

3-D Patterns for the Scroll Saw, Revised Edition

Compound Christmas Ornaments for the Scroll Saw

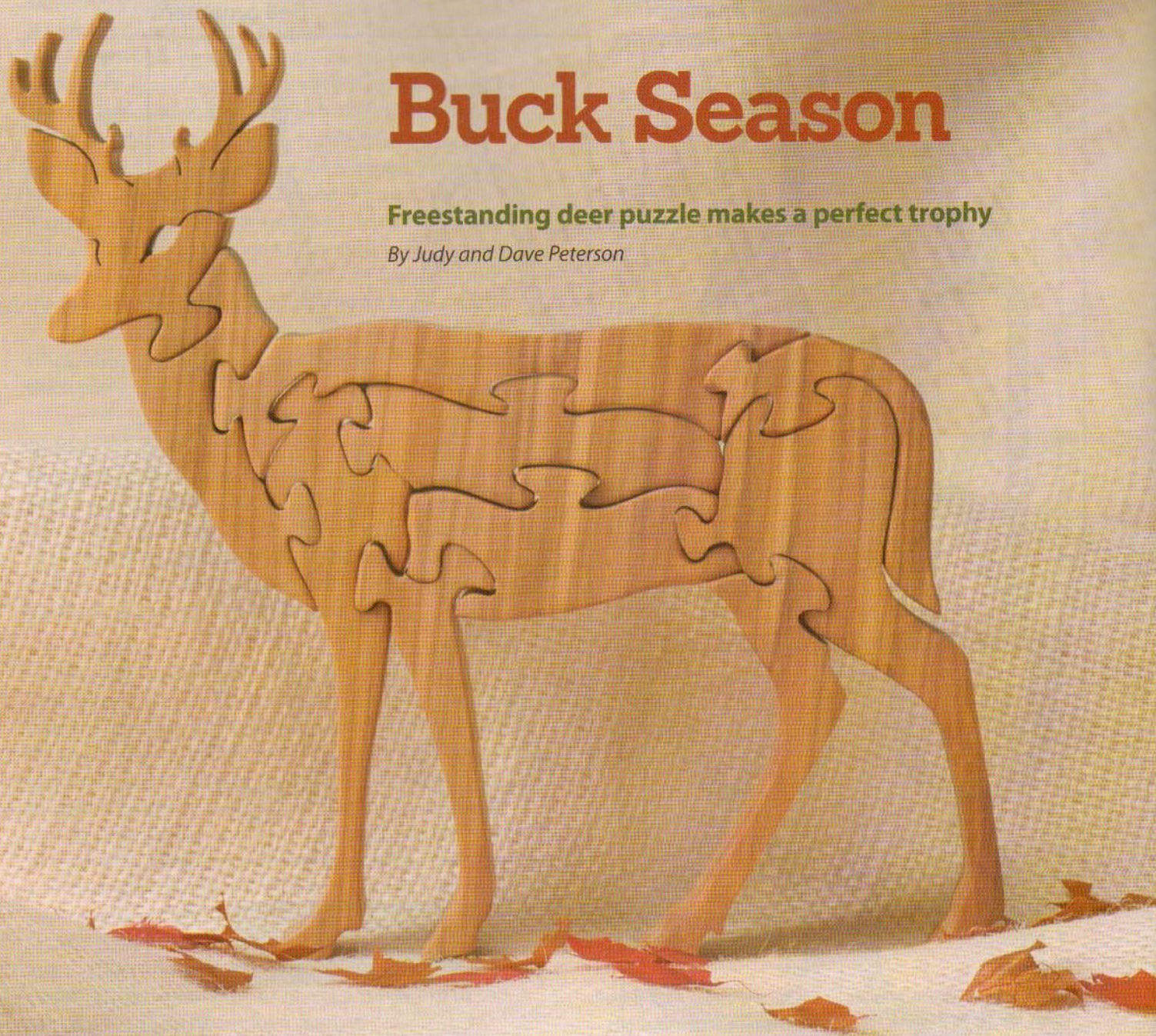
By Diana Thompson

Learn the basics of compound scrolling through step-by-step demonstrations, helpful hints, time-saving techniques, and shop-tested and ready-to-use patterns.

Each available for \$14.99 + \$3.99 S&H (parcel post) from Fox Chapel Publishing, 1970 Broad St., East Petersburg, Pa., 17520, 800-457-9112, www.FoxChapelPublishing.com, or check your local retailer.



Diana Thompson is a prolific scroller and designer who specializes in compound cutting. See her books and patterns at www.foxchapelpublishing.com and at www.scrollsawinspirations.com.



Buck Season

Freestanding deer puzzle makes a perfect trophy

By Judy and Dave Peterson

Unlike most of my patterns, this article comes with a lesson. I developed my original deer pattern in 1992, and it wasn't very successful. Actually, it didn't sell worth a darn.

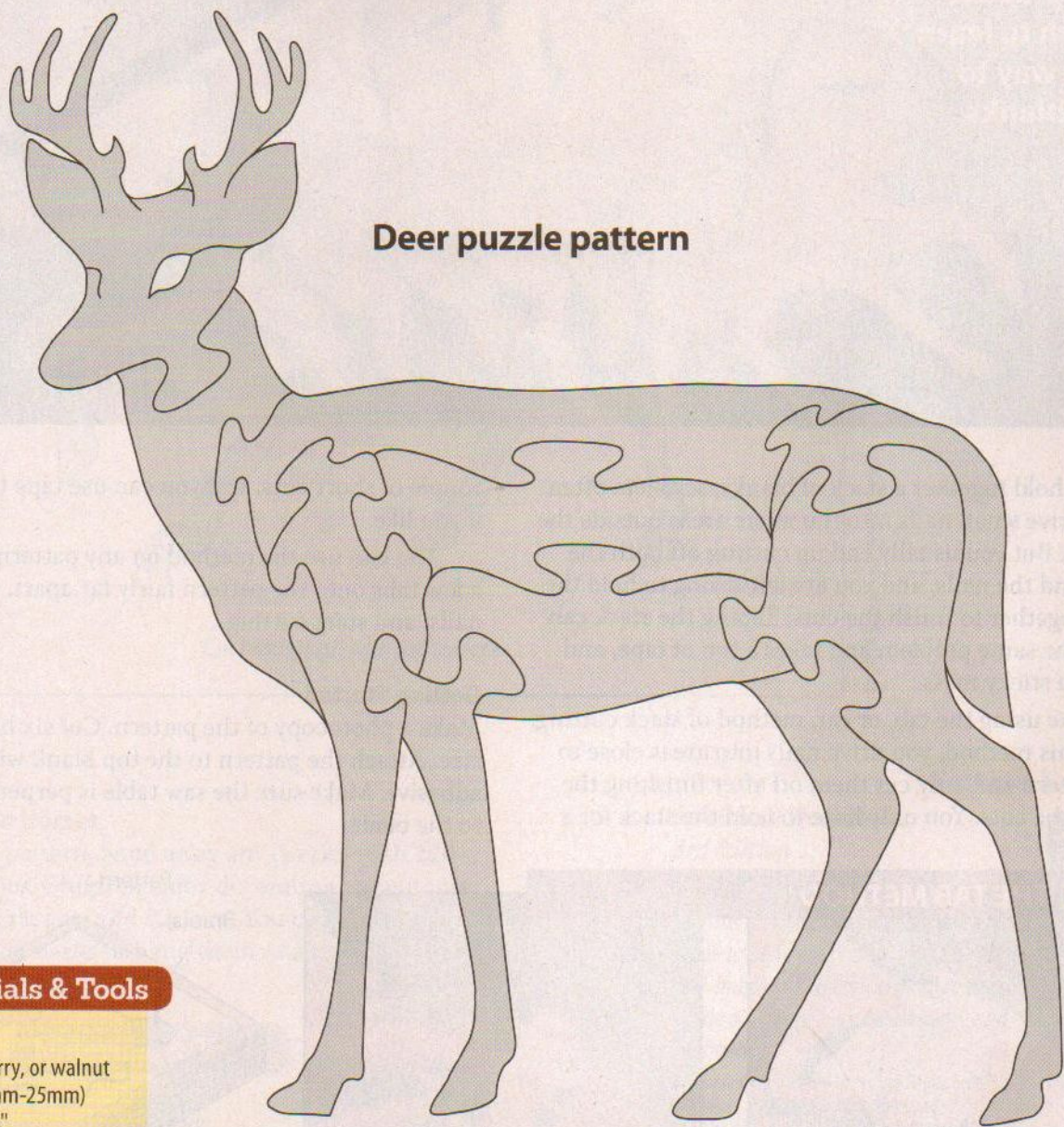
A couple of years went by, and I signed up for a wildlife art show. I was placed in the basement, where my booth attracted quite a few male woodworkers who had been arm-twisted by their better halves into coming along to the show. One of them identified himself as a taxidermist. I asked him what was wrong with my deer pattern. He picked it up, looked it over carefully, and said, "The legs are too short." His occupation allowed him to put the problem into words!

At home, I added $\frac{1}{16}$ " to each leg above and below the knee, and my deer puzzles started selling.

So the moral of this story is: if one of your designs isn't selling the way you think it should, don't be afraid to ask for advice, even from your customers and your would-be customers.

Cutting the Puzzle

This puzzle is pretty straightforward. Cut the pieces, sand everything smooth, round the edges slightly with a flap sander, and seal the project with clear Danish oil.



Deer puzzle pattern

Materials & Tools

Materials:

- Redgum, cherry, or walnut
¾" to 1" (19mm-25mm)
thick: 6" x 6¼"
(152mm x 159mm)
- Spray adhesive
- Danish oil: clear

Tools:

- Scroll saw blades:
#7 skip-tooth
- Sanders: drum, flap

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



A former teacher and librarian, Judy Peterson found her niche in life as a woodworker. A winner of many design awards, she sells her puzzles at art shows around the country. Her husband, Dave, runs the record-keeping side of the business. Together they have written several books, which are available at www.foxchapelpublishing.com.

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Stack-Cutting Made Simple

Use a practice pattern to learn a new way to stack blanks

By John A. Nelson



To hold together a stack of blanks, scrollers often drive small nails into the waste areas outside the pattern. But you usually end up cutting off both the scrap and the nails, and you are left trying to hold the stack together to finish the cuts. Taping the stack can cause the same problem and takes a ton of tape, and glue is a sticky mess.

I like using the tab, or ear, method of stack cutting. With this method, you drive nails into areas close to the pattern and only cut them off after finishing the rest of the cuts. You only have to hold the stack for a

couple of short cuts, and you can use tape to secure it if you like.

You can use the method on any pattern; just draw a few tabs onto the pattern fairly far apart, add the nails, and start cutting.

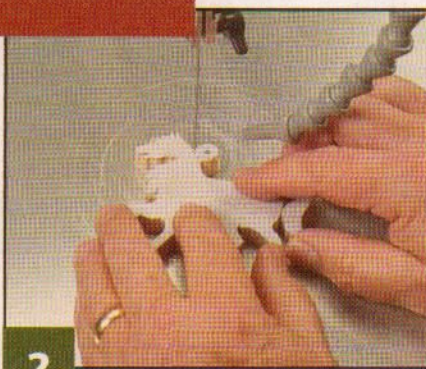
Getting Started

Make a photocopy of the pattern. Cut six blanks to size. Attach the pattern to the top blank with spray adhesive. Make sure the saw table is perpendicular to the blade.

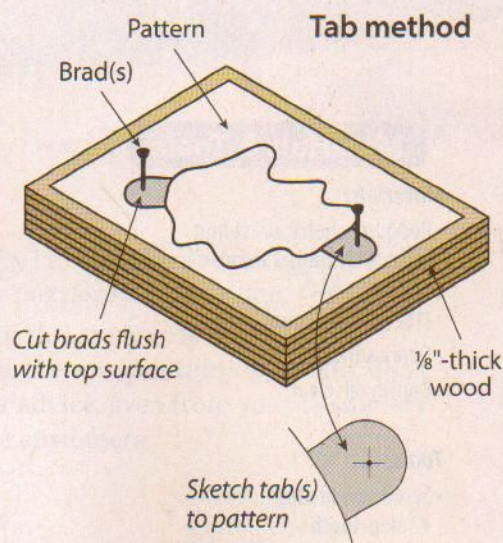
USING THE TAB METHOD



1 Make the stack. If the tabs are not already on the pattern, draw them in positions as far from each other along the cutting line as possible. Align all of the blanks under the top blank, drill pilot holes through the tabs, and drive nails through the whole stack. Cut the nails flush with the stack if necessary.

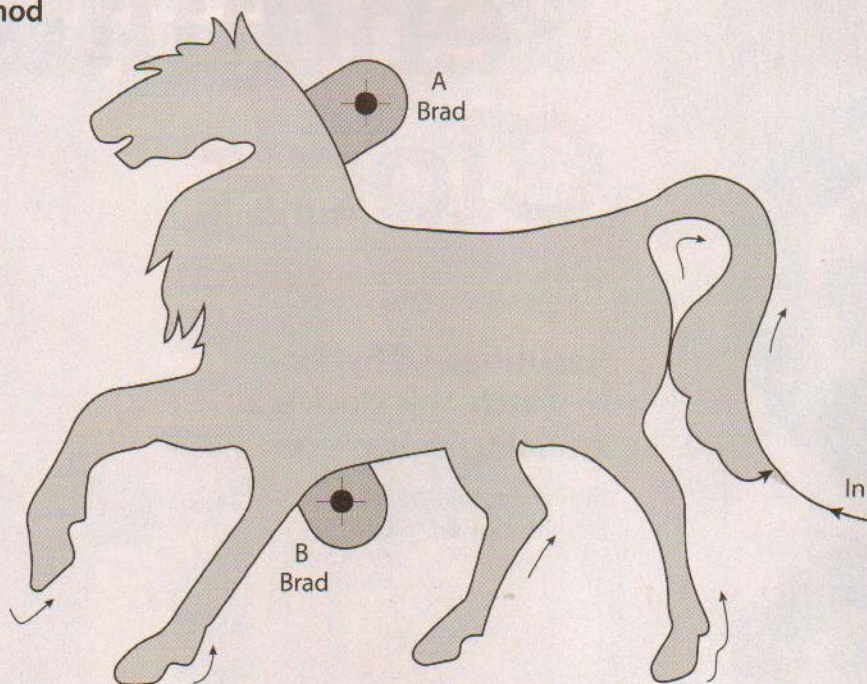


2 Cut the pattern. Follow the lines and cut in from the edge of the blanks. Make one smooth, continuous cut around the pattern. **DO NOT CUT THE TABS OFF YET.** When you've finished cutting around the horse, hold the stack together tightly (or add a few pieces of tape) and cut off the tabs.



Horse silhouette pattern

Tab method



Cut brads flush with top surface

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Finishing the Horses

Remove the pattern. Sand away any fuzzies with 220-grit sandpaper. Children enjoy decorating the cutouts with paint, crayons, and stickers. You could also use them for bookmarks or hang them as a mobile.

Materials & Tools

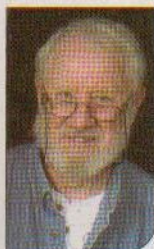
Materials:

- Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: 6 each $4\frac{1}{2}$ " x $5\frac{1}{2}$ " (114mm x 140mm)
- Spray adhesive
- Sandpaper: 220 grit
- Small nails or brads

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

Tools:

- Scroll saw blades: #5 skip-tooth
- Wire cutter or tin snips (to cut the brads)
- Drill and bit sized to nails or brads



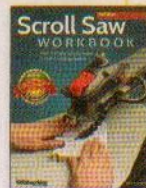
The author of many scroll saw patterns, John A. Nelson still enjoys designing new projects. He's currently working on a concept for creating colorful scrolled toys and accessories. John lives in Narragansett, R.I., where he visits the beach and plays the piano. He has given up the bagpipes.

Further Reading

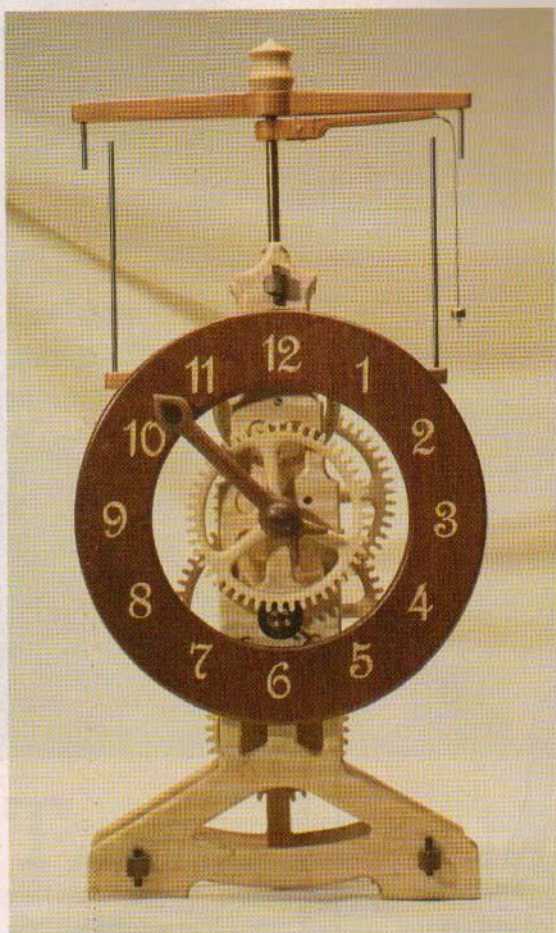
Scroll Saw Workbook, 3rd Edition

By John A. Nelson

Use this ultimate beginner's scroll saw guide to hone your scrolling skills. These skill-building exercises get you ready to tackle any project with experience and confidence.



Available September 2014, for \$16.99 plus \$3.99 S&H from Fox Chapel Publishing, 1970 Broad St., East Petersburg, PA 17520, 800-457-9112, www.foxchapelpublishing.com, or check your local retailer.



Flying Pendulum Clock

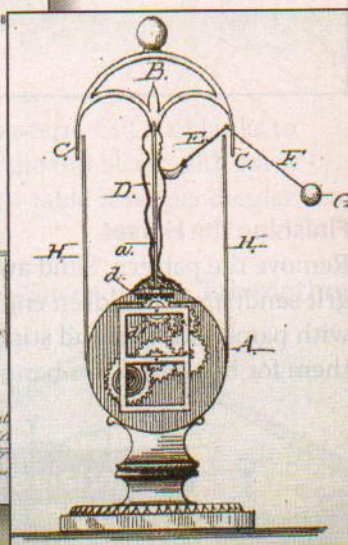
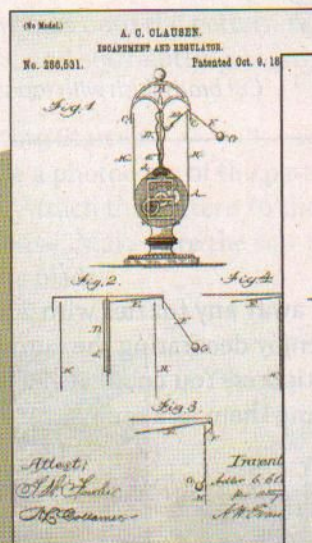
Beautiful and hypnotic to watch, this clock is a stunning showpiece

*By Rolf Beuttenmuller
Designed by Brian Law*

This tabletop clock uses a flying pendulum escapement instead of a traditional hanging pendulum. What does that mean? A small metal weight is connected to the pendulum by a string. When you set the clock in motion, the weight wraps around one brass post, unwinds, wraps itself around the post in the opposite direction, and then swings over to the other side to continue the motion. While this clock doesn't keep time very well, the action of the flying pendulum is mesmerizing. Because it isn't intended to keep accurate time, I've omitted the minute and second hands to simplify the design.

The clock is relatively simple to build because it only has five gears, and the designer, Brian Law, replaced the pinions with pins set into the gear sleeves. The clock is driven by a spring mounted inside the bottom gear. It uses miniature ball bearings to support all of the shafts, which reduces friction and ensures that the spring drive runs efficiently.

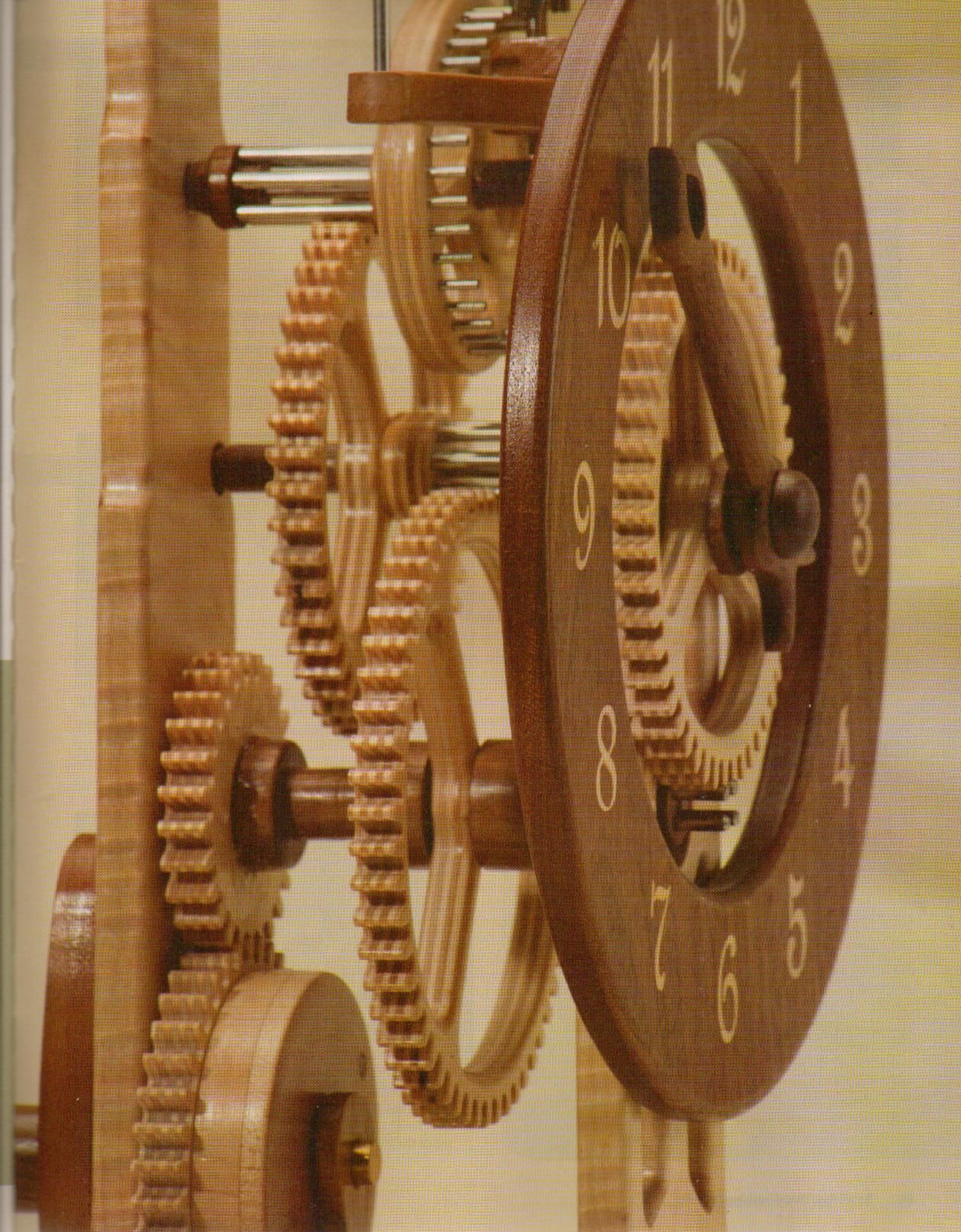
In many ways this is an easy clock to build, but, as with all wooden gear clocks, it calls for precise cutting and assembly. It is not a beginner project, but it is perfect for those who enjoy making clocks or unique mechanical gadgets.



History of the Flying Pendulum Clock

By Brian Law

The flying pendulum clock was invented and patented in 1883 by Adler Christian Clausen and J. C. Slafter in Minneapolis. The clock was later called the Ignatz Flying Pendulum Clock after a character in the Krazy Kat comic. I adapted the original A. C. Clausen plan so that I could construct it on a clock base of my design. I maintained the proportions of the flying escapement to preserve the interesting original design.

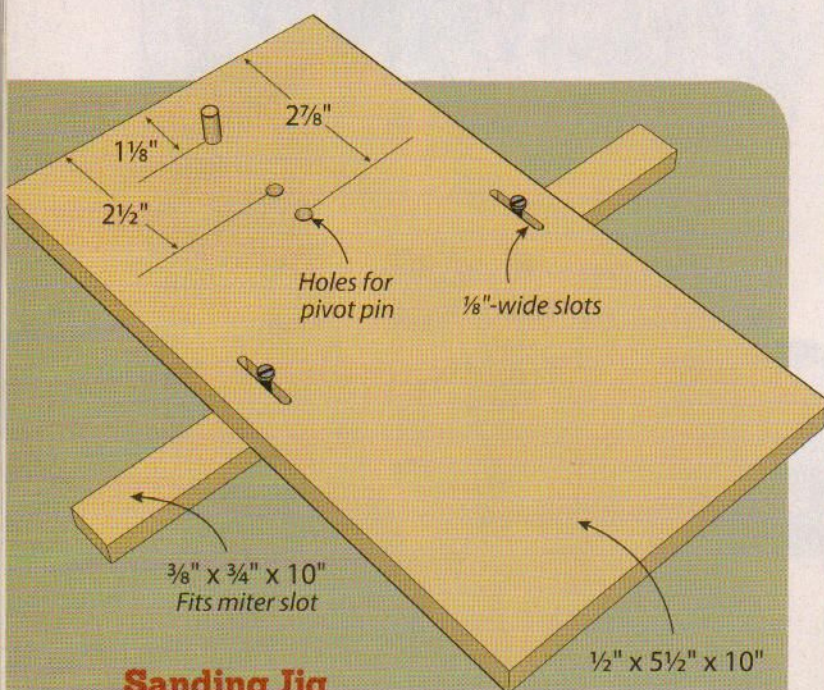


Getting Started

Read all of the instructions before you begin. I did not convert most of the metric measurements to imperial, because the conversion could introduce a greater chance of error. All of the hardware is readily available in both metric and imperial measurements.

In addition to your scroll saw, you will need a drill press to create perfectly vertical holes. You will also need to make and work with some metal components. There is no way around this when building this clock. For a polished look, I use a rotary tool equipped with a $\frac{1}{8}$ " (3mm)-radius roundover bit to soften the sharp corners of all of the pieces except the gears. I turned a finial for the top, but you could cut one using compound techniques.

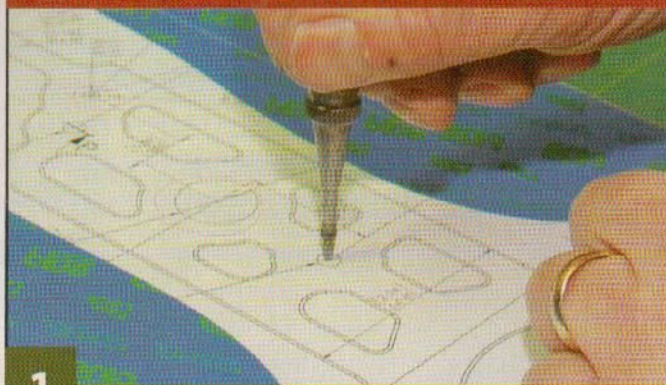
Copy and print all of the patterns at the same time. Use the same printer for all of the copies, and compare them to the original. If there are any scaling errors, the clock will not work. Attach the patterns to the blanks with spray adhesive. Use a compass to draw a line $\frac{1}{8}$ " (3mm) outside the perimeter of each gear; to make sure the gears are perfectly round, we will cut along these lines and then sand off the excess.



Sanding Jig

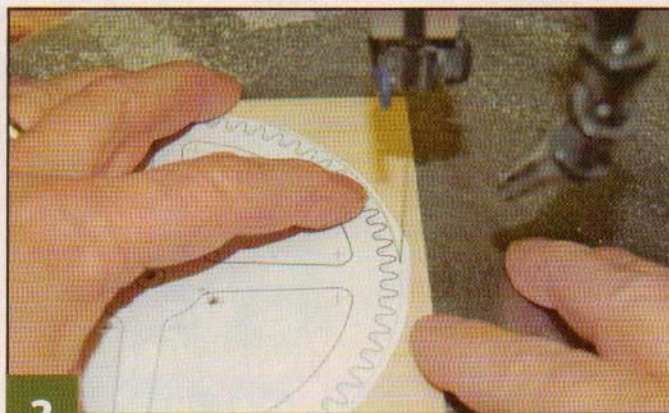
I used basic hardware and scrap plywood to make an adjustable jig to sand the gears perfectly round. Cut a strip of $\frac{3}{8}$ " (10mm)-thick wood to fit the miter slot on a disc sander; sand the strip smooth. Cut the plywood to size (see the drawing), and cut two $\frac{1}{8}$ " (3mm)-wide by $1\frac{1}{2}$ " (38mm)-long slots in the center of the plywood $\frac{1}{2}$ " (13mm) in from each edge. Then, drill three $\frac{1}{4}$ " (6mm)-diameter holes for the pivot pins, using the drawing as a guide. See Step 3 for instructions to use the jig.

GEAR CLOCK: PREPARING THE PIECES



1

Drill the holes in the frame pieces and the gears. Use a sharp awl to mark the exact center of each hole, and then use a spring-loaded center punch to create a dimple for the drill bit. Do not drill the holes for the bearings yet.



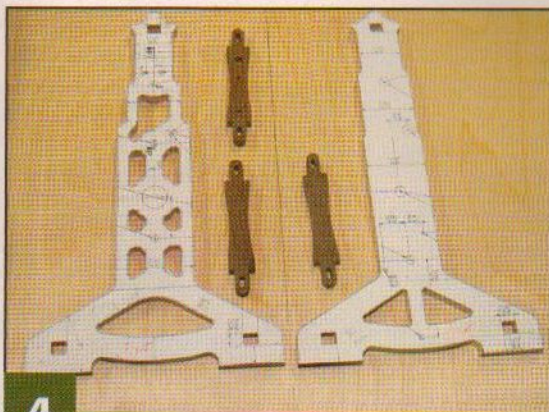
2

Cut the gears, wheels, and pinion blocks. This includes parts F1, I, L, N, S, P1, BB, GG4, and MM1. Cut along the pencil line outside the teeth, and then cut the gear teeth gullets, leaving the wood at the tip.



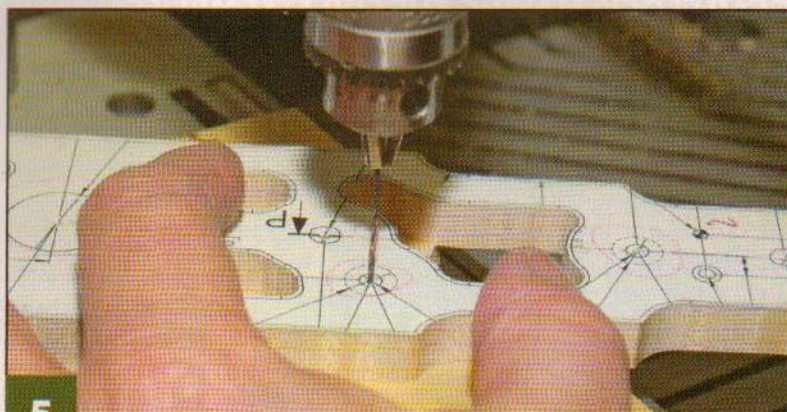
3

Sand the gears round. Make a simple jig for your disc sander (see instructions at left). Use the same size drill bit used in the center hole to lock the gear to the jig. Adjust the jig so you sand the tips of the teeth down to the pattern lines, and carefully rotate the gear to sand each tip to the line.



4

Cut the frame and spacers. Cut out the frame pieces (A1, B1), but wait to cut the rectangular holes for the spacers. Cut the spacers (C1, C2) carefully, because they control how parallel the frame is. Cut the spacer holes in the frame so the spacers fit into them tightly. Cut the frame spacer wedges (D) that lock the spacers to the frame.



5

Drill the holes for the bearings. Drill a $\frac{1}{16}$ " (2mm)-diameter reference hole through the center of each hole marked on the patterns for the frame (A1, B1), spring inner cover (X1), and spring outer cover (AA). Drill a $\frac{5}{32}$ " (4mm)-deep hole the same size as your bearing (see Tip, below); I used a 10mm bit. Use the center hole as a guide and drill a 4.5mm-dia. hole the rest of the way through the wood. Press all of the small bearings (A2, B2) into the holes in the frames. Drill the holes and cut the sleeve bearing holder (PP1).

GEAR CLOCK: MAKING THE SUB ASSEMBLIES

Refer to the patterns to cut, drill, and shape the dowels for each sub assembly; some ends are rounded or tapered to fit into other pieces. For some of the sub assemblies, pins pressed into discs replace gears. While it's possible to buy long rods and cut them into individual pins, it's often faster to purchase bags of pre-cut pins.

TIPS

DRILLING HOLES IN DOWELS

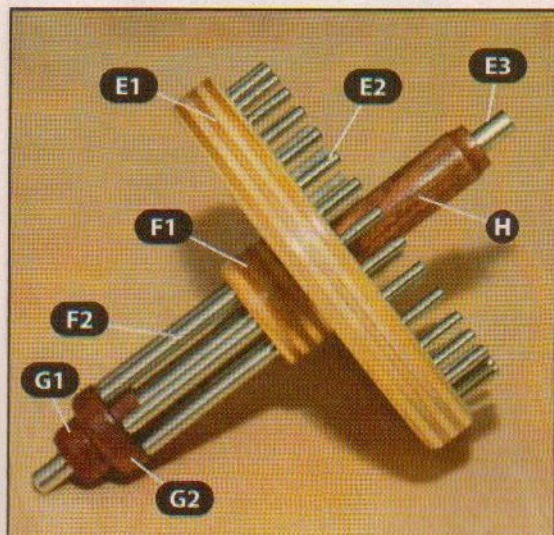
Without a lathe, you need to drill holes in the centers of dowels to make several components. There are several commercial tools to mark the center of round objects. Once you've marked the center, make a dimple with a centerpunch, clamp the dowel securely in a vise (I use angled blocks inside the jaws to hold different sizes of dowels securely), and make sure the vise is positioned correctly on the drill press. Then, carefully drill the holes, raising the bit often to clear the drill waste, which can cause the dowel to burst if you let too much collect in the drill flutes.

DRILLING HOLES FOR PINS & BEARINGS

Drill several test holes in scrap wood to check the fit of the pins and bearings. The pins and bearings should fit tightly into the holes. If a hole is slightly oversized, use a piece of paper as a shim.

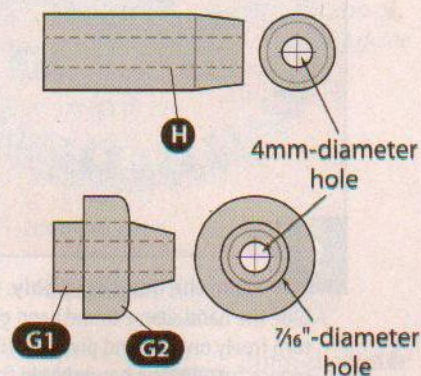
TAPERING DOWEL SLEEVES

To ensure the sleeves remain round as you taper the ends, chuck the sleeves in a drill press before drilling and taper the ends with a fine file or sandpaper.

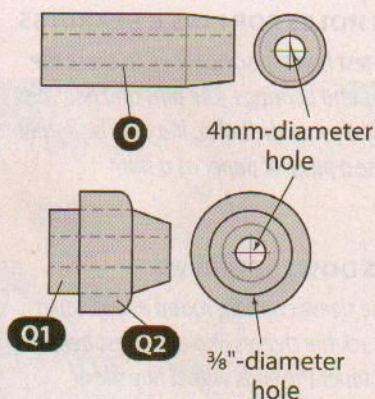
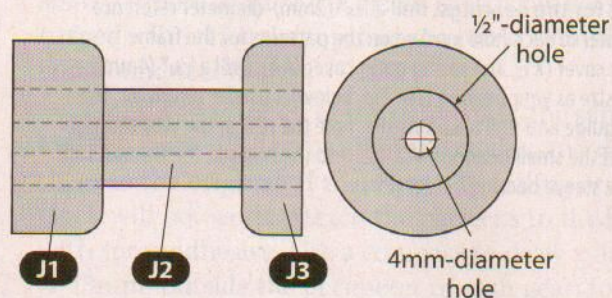
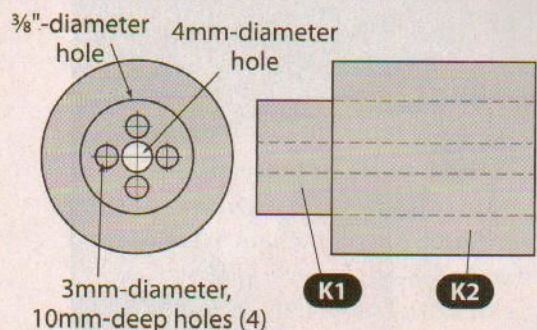


6

Make the escape wheel. The escape wheel (E1) and the spindle-sleeve driver (MM1) are the critical driving components. The pins must be spaced properly. Cut the escape wheel, and drill the holes where indicated; I used a #48 bit. Carefully press the pins (E2) into the holes with a drill press or tap them in with a small hammer. Repeat the process with the escape pinions block (F1) and pins (F2); I used a #32 drill bit. Drill the holes through the centers of the dowels for the front and back escape sleeves (G, H). Then, put together the escape wheel, front and back escape sleeves, the escape pinions block, and the escape shaft (E3). Use the same process to drill and press the pins (MM2) into the spindle-sleeve driver (MM1).



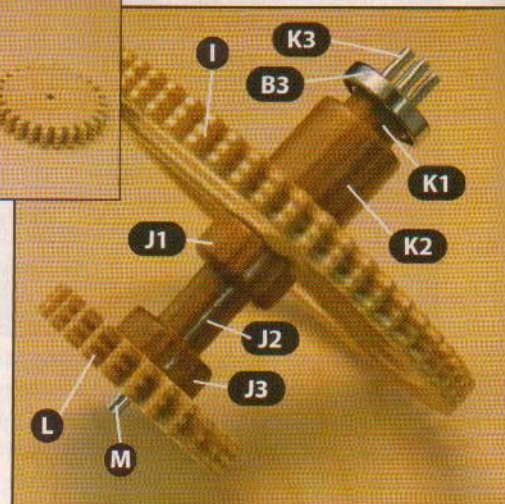
GEAR CLOCK: MAKING THE SUB ASSEMBLIES



7

Make the hand-drive assembly.

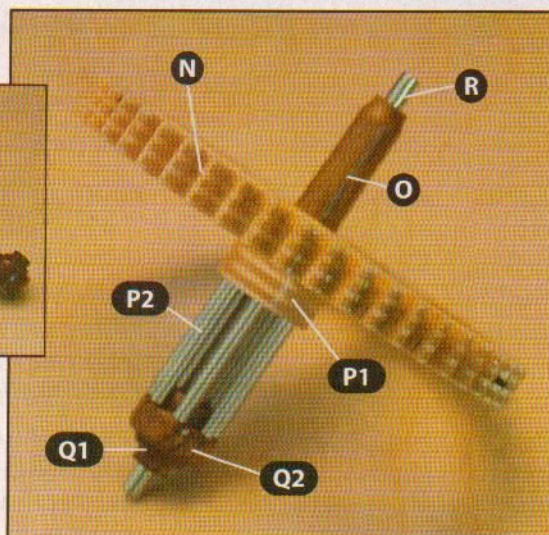
Attach the pattern to the end of the front sleeve pinion block (K1) and drill the holes for the pinions (K3). Finish drilling and assembling the two sleeves (J, K). Press the front frame large bearing (B3) onto the front sleeve pinion block (K1). Then, glue the rear gear (L) to the back of the rear sleeve (J), and glue the front gear (I) to the rear sleeve and front sleeve (J, K) using the shaft to properly align the pieces.



8

Make the motion-transfer assembly.

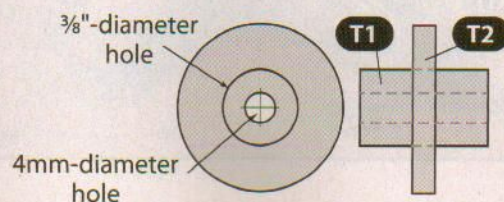
Drill the holes in the sleeves (O, Q), and then taper the ends of the sleeves slightly so they fit into the small bearing holes. Assemble the sleeves, gear (N), pinion block (P1), and pinions (P2) on the shaft (R).

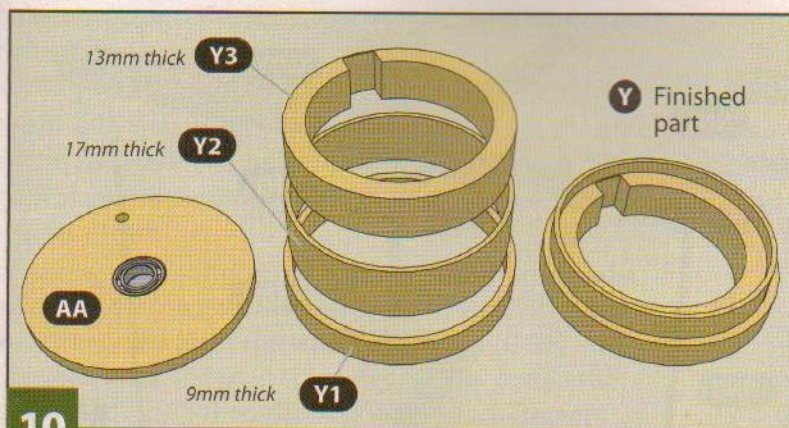


9

Make the hand assembly.

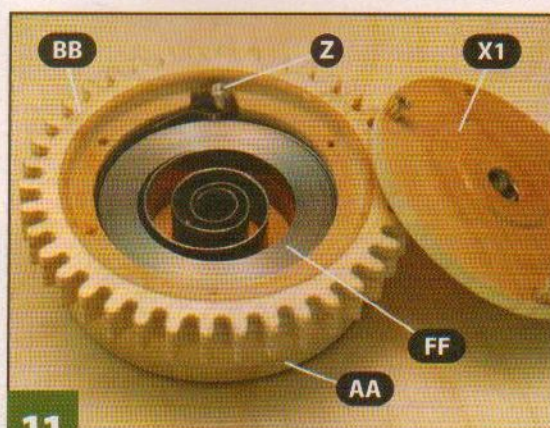
Cut the hand (V). Then, make the hand sleeve (T). Glue the hand sleeve to the hand gear (S); the hole in the center of the sleeve allows it to turn freely on the hand pivot pin (U). I press a short length of brass tube into the hole to reduce friction. The hand should fit snugly on the sleeve, but still move, so you can move it to adjust the current time. Use a 1/4" (6mm) toy-car axle pin with a rounded head for the pivot pin. (I turned one from walnut to fit the color scheme of my clock.)





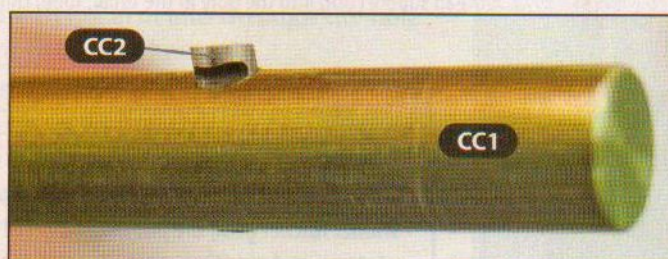
10

Cut the pieces for the spring assembly. Cut the spring outer and inner covers (X1, AA) and the spring case (Y). Then, compound-cut the spring support arm (W1). Drill the holes for the bearings, spring pin, and screws. Then, make alignment marks on the bottom of the case walls. Drill a blade-entry hole along the line between the middle and inside ring, and cut along the line. Sand the inner ring (Y1) down to $\frac{1}{2}$ " (13mm) thick. Glue the inner ring to the middle ring (Y2), using the alignment marks. Then, cut the notch for the spring pin. Drill a blade-entry hole along the line between the middle ring and the outer ring. Cut along the line, and sand the outer ring (Y3) down to $\frac{1}{32}$ " (9mm) thick. Glue the outer ring to the middle ring. Drill the holes for the bearing and spring pin; then, dry-assemble the housing. Pre-drill the screw holes.



11

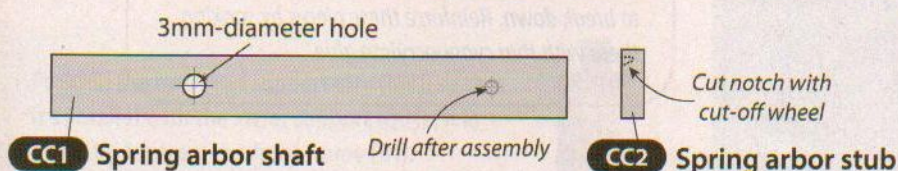
Make the spring assembly. Press the spring pin (Z) into the hole and the bearings (DD, EE) into the appropriate holes. Glue the spring gear (BB) to the spring case. Glue the spring case outer cover (AA) to the flat surface of the spring case. Leave the wire around the spring (FF) as you put it into the case. Carefully slide the wire out from around the spring, and let the spring uncoil. Be careful, because the spring will release a lot of stored energy as it expands to fit the housing.



12

Make the spring arbor assembly.

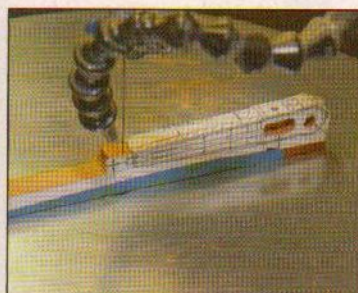
Cut a notch in the spring arbor stub (CC2) with a small cut-off wheel in a rotary tool. Drill a hole through the spring arbor shaft (CC1) for the stub. Make sure the notch is positioned to catch the spring as you wind it, and then use epoxy or solder to attach the pin to the shaft. Insert the stub end into the bearing in the spring case outer cover. Then, insert the other end through the bearing in the spring case inner cover, and screw (X2) the inner cover to the spring case.



CC1 Spring arbor shaft

Drill after assembly

CC2 Spring arbor stub



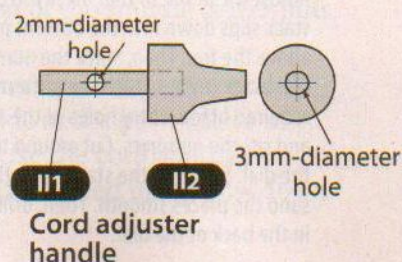
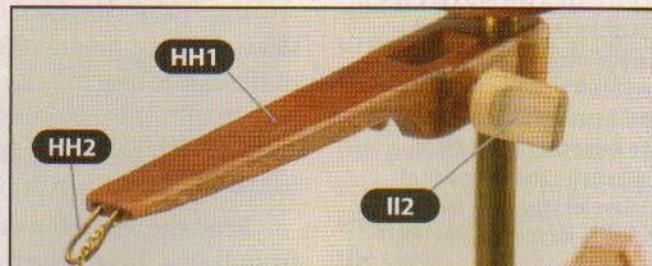
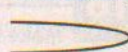
13

Make the flying arm and the pawl. Use compound-cutting techniques to cut the flying arm (HH1). Then, cut a slot for the cord. I used a small hobby saw to cut the slot, and I cleaned up the corners with a small chisel. Bend the flying arm support loop (HH2) to shape and glue it in the holes in the flying arm. Cut and shape the two dowels for the cord adjuster, and drill a hole for the string in the cord adjuster dowel (II1), and the hole in the cord adjuster handle (II2) for the cord adjuster dowel. Insert the adjuster assembly into the appropriate hole. Cut the pawl (LL1); the grain should run the length of the thin parts.

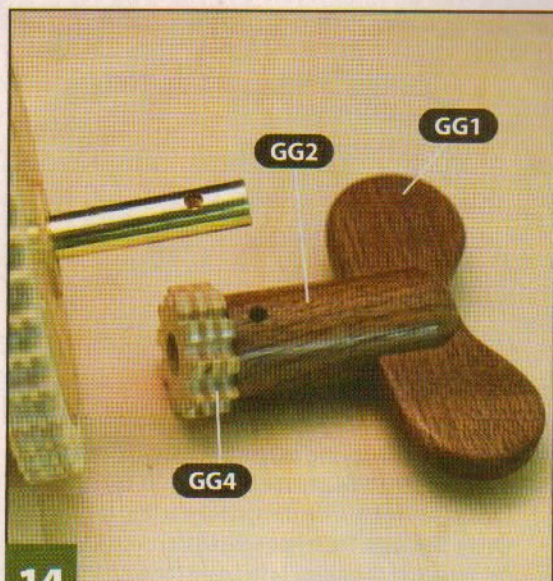
HH2

Flying arm support loop

Wire bending guide

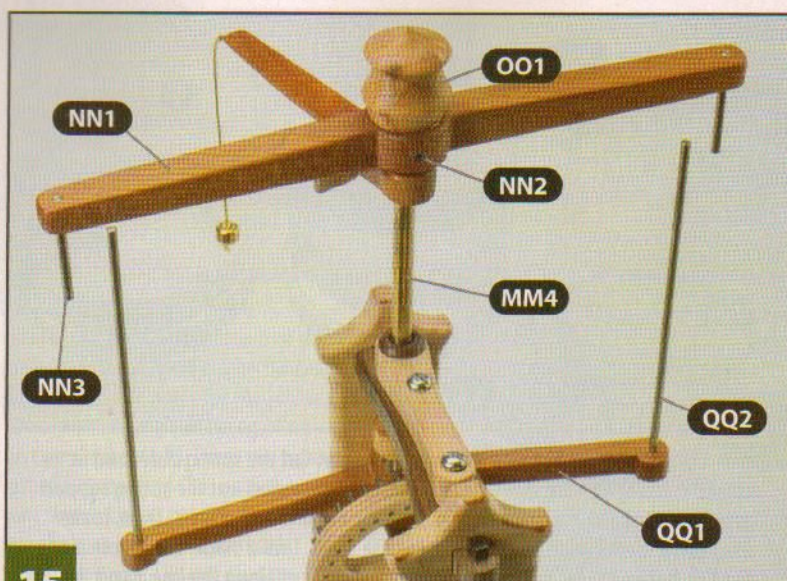


Cord adjuster handle



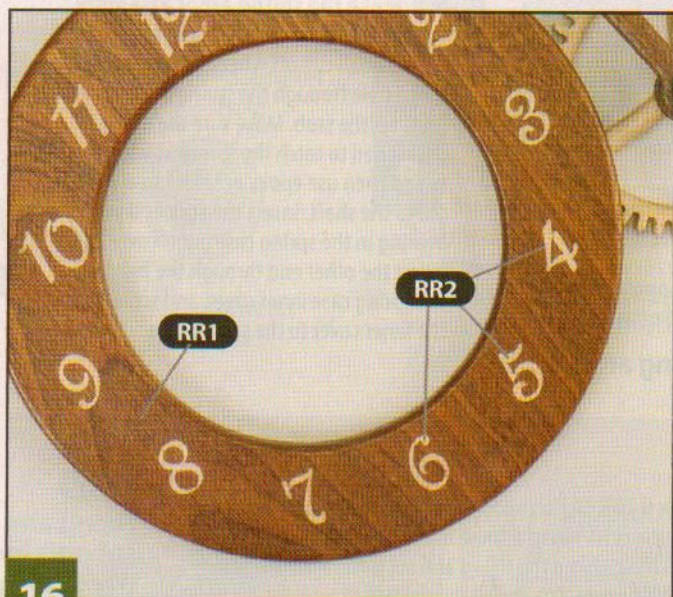
14

Make the winder assembly. Cut the winder handle (GG1). Drill a hole for the spring arbor in the winder shaft dowel (GG2), cut a slot in the end, and taper the end to match the pattern. Glue the handle into the slot in the shaft, and then glue the winder ratchet gear (GG4) to the other end of the shaft.



15

Make the supports and finial. Drill the holes in the blanks for the overhead support (NN1), the lower support (QQ1) and the finial (OO1). Use compound-cutting techniques to shape the pieces. Press the first wrap pins (NN3) into the ends of the overhead support, and press the second wrap pins (QQ2) into the ends of the lower support. Thread the set screws (NN2, OO2) into the indicated holes in the overhead support and finial. Insert the center spindle (MM4) through the center hole in the overhead support and into the hole in the finial; then, tighten the set screws.



16

Make the dial. While it's possible to cut and glue the numbers to the face of the clock, I decided to inlay them. To inlay the numbers, tilt the saw table a few degrees. Make a stack of scrap wood the same thickness as the face, and make a few test cuts. Adjust the angle so that after you cut a circle, the top piece in the stack slips down into the bottom piece and sits flush or slightly above the top. Then, stack the numbers blank (RR2) on top of the dial blank (RR1), attach the pattern to the top of the stack, drill the required blade-entry holes at the same angle the table is set at, and cut the numbers. Cut around the perimeter and the inside of the dial. Separate the stack, glue the inlays into the clock face, and sand the pieces smooth. Then, drill the holes for the dial pins (RR3) in the back of the dial.

TIP

REINFORCING GEARS

Some elements of this clock, specifically the winder ratchet gear, are put under a great deal of stress, and over time, even plywood can start to break down. Reinforce these pieces by soaking them with thin cyanoacrylate glue.

Assembling the Clock

Note: Refer to the drawings at right and on page 60 to assemble the clock. Press the pawl pins (LL2) into the back frame. Insert the sleeves for the escape-wheel assembly, the hand-drive assembly, and the motion-transfer assembly into the bearings in the back frame.

Insert the lower support pin (QQ4) into the lower support (QQ1). Then, glue and screw the lower support to the front frame.

Insert the sleeve bearing (PP2) into the hole in the sleeve bearing holder (PP1). Drill a 6mm-diameter hole in the sleeve bearing cap (PP3), and insert it into the hole in the sleeve bearing. Use the sleeve bearing holder screws (PP4) to loosely attach the sleeve bearing holder to the top frame spacer (C1).

Feed the assembly sleeves into the bearings on the front frame. Insert the frame spacers (C1, C2) into the

holes, and insert the frame spacer wedges (D) into the holes in the spacers.

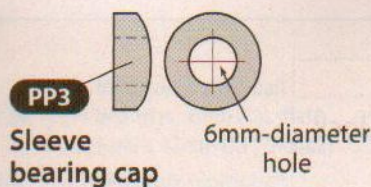
Insert the stub end of the spring arbor (CC1) into the hole in the spring support arm (W1). Feed the other end of the arbor through the appropriate hole in the back frame. Glue and screw the spring support arm to the back frame.

Insert the spring arbor into the hole in the winder assembly. Drill a hole through the winder shaft (GG2) and arbor, and press the winder shaft pin (GG3) into the hole. Place the pawl (LL1) in position. Install the bearing covers (SS) on the back of the back frame.

Press the flying arm (HH1) onto the spindle sleeve (MM3). Press the spindle sleeve through the sleeve bearing, passing through the sleeve bearing holder and top frame spacer. Press the sleeve into the spindle sleeve driver (MM1). Thread the center spindle (MM4) through the spindle sleeve down into the hole in the lower support. Thread the set screw into the hole in the lower support and use it to lock the spindle in place.

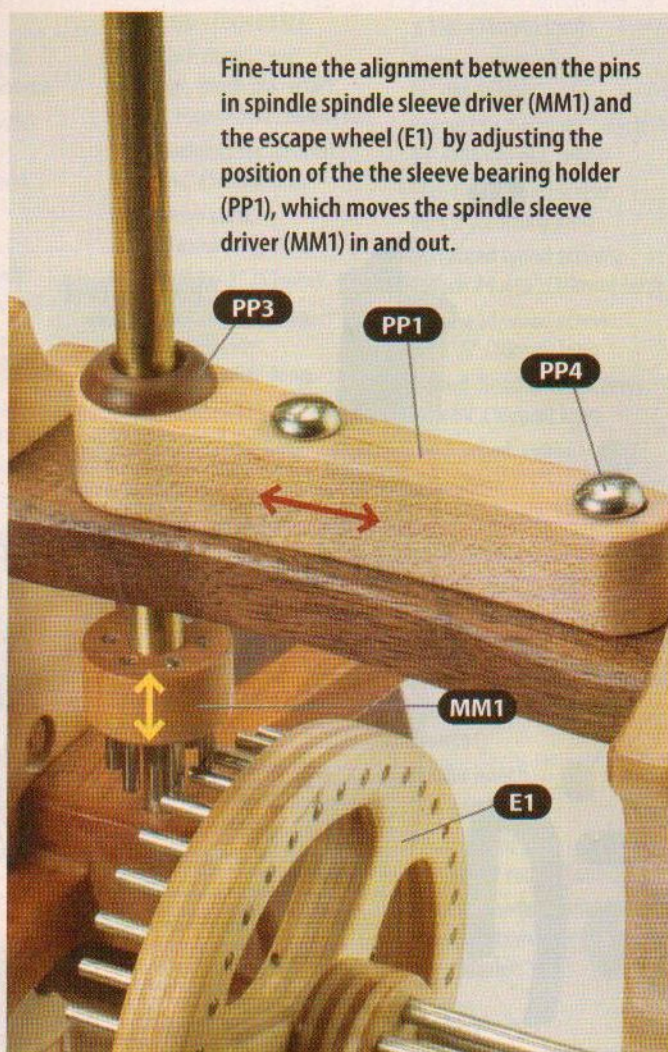
Cut 8" (203mm) of cord (JJ). Feed it through the hole in the cord adjuster and knot it. Feed the other end through the slot in the flying arm and through the hole in the hanging weight (KK), and knot it.

Apply glue to the dial pins (RR3) and use them to attach the dial to the front frame. Use the hand pivot pin (U) to attach the hand assembly to the front frame, making sure the hand-drive assembly pinions mesh with the hand gear.



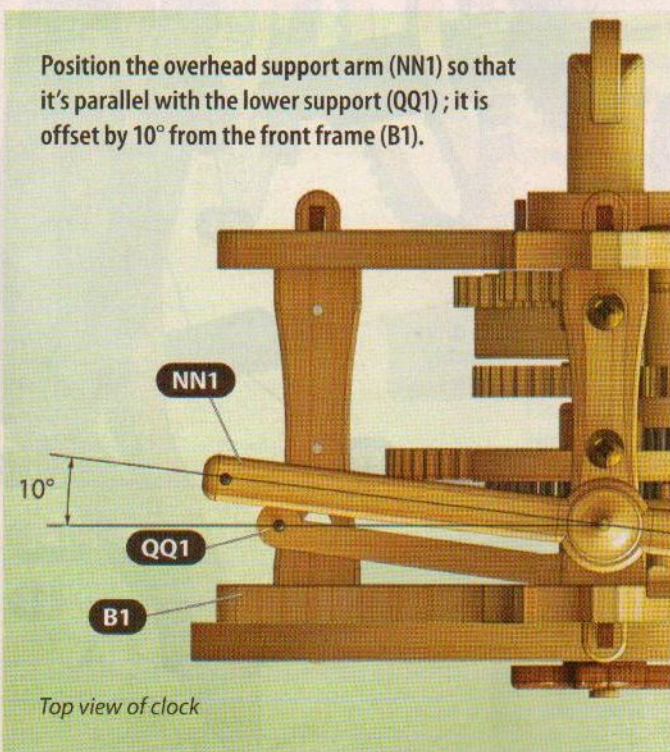
Sleeve bearing cap

6mm-diameter hole



Fine-tune the alignment between the pins in spindle sleeve driver (MM1) and the escape wheel (E1) by adjusting the position of the sleeve bearing holder (PP1), which moves the spindle sleeve driver (MM1) in and out.

Position the overhead support arm (NN1) so that it's parallel with the lower support (QQ1); it is offset by 10° from the front frame (B1).



Top view of clock

Adjusting the Clock

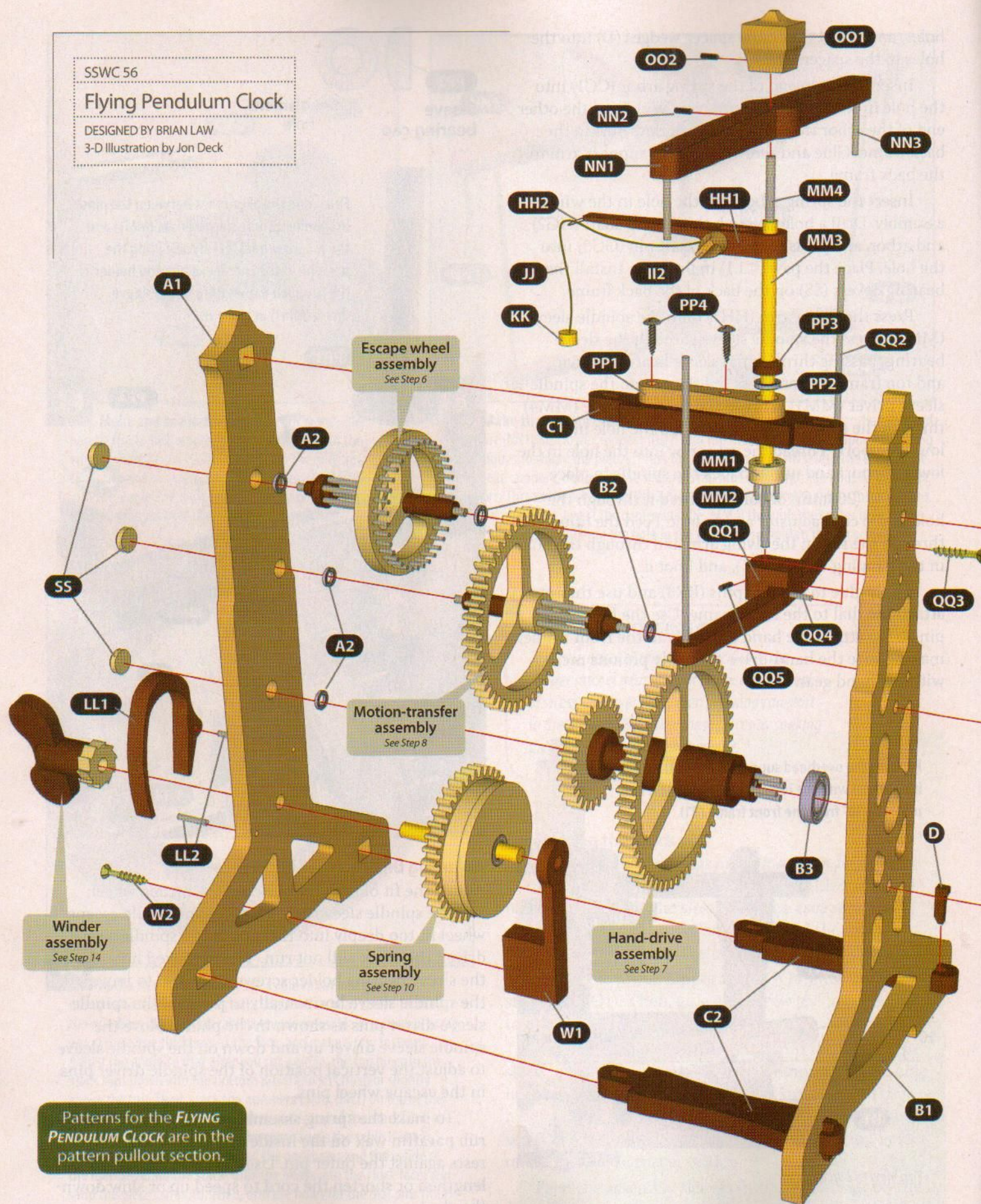
Adjust the fit of the pins between the escape wheel and the spindle sleeve driver. If the pins on the escape wheel fit too deeply into the pins in the spindle sleeve driver, the clock will not run. The oversized holes for the sleeve bearing holder screws allow you to move the spindle sleeve horizontally to position the spindle sleeve driver pins as shown in the photo. Move the spindle sleeve driver up and down on the spindle sleeve to adjust the vertical position of the spindle driver pins in the escape wheel pins.

To make the spring assembly work more smoothly, rub paraffin wax on the inside of the pawl where it rests against the outer pin. Use the cord adjuster to lengthen or shorten the cord to speed up or slow down the clock.

SSWC 56

Flying Pendulum Clock

DESIGNED BY BRIAN LAW
3-D Illustration by Jon Deck



Patterns for the **FLYING PENDULUM CLOCK** are in the pattern pullout section.

Materials:

- Baltic birch plywood, $\frac{3}{8}$ " (10mm) thick: 12" x 24" (305mm x 610mm)
- Walnut, $\frac{3}{8}$ " (10mm) thick: 2 each 10" x 10" (254mm x 254mm)
- Maple, $\frac{3}{16}$ " (5mm) thick: $2\frac{3}{4}$ " x 6" (70mm x 152mm)
- Maple, $\frac{3}{8}$ " (10mm) thick: frames, 2 each $8\frac{1}{4}$ " x $13\frac{3}{4}$ " (209mm x 349mm); numbers, 9" x 9" (229mm x 229mm)
- Maple, $\frac{1}{2}$ " (13mm) thick: $\frac{3}{4}$ " x $2\frac{3}{4}$ " (19mm x 70mm)
- Maple, $\frac{7}{8}$ " (22mm) thick: $2\frac{3}{4}$ " x $2\frac{3}{4}$ " (70mm x 70mm)
- Wenge, $\frac{1}{4}$ " (6mm) thick: 1" x 1" (25mm x 25mm)
- Cherry, $\frac{5}{16}$ " (8mm) thick: $\frac{5}{8}$ " x $\frac{5}{8}$ " (16mm x 16mm)
- Cherry, $\frac{3}{8}$ " (10mm) thick: $2\frac{1}{2}$ " x 4" (64mm x 102mm)
- Cherry, $\frac{1}{2}$ " (13mm) thick: 1" x $8\frac{1}{2}$ " (25mm x 216mm)
- Cherry, $\frac{7}{8}$ " (22mm) thick: 1" x 8" (25mm x 203mm)
- Mahogany, 1" (25mm) thick: $1\frac{1}{4}$ " x $4\frac{3}{4}$ " (32mm x 95mm)
- Brass tube, $\frac{1}{4}$ " outside diameter (OD), 0.032" wall thickness: 36" (914mm) long (7782T113)
- Brass rod, 8mm dia.: 1 meter long (9122K85)
- Stainless steel rod, 4mm dia.: 36" (914mm) long (1274T43)
- Stainless steel rods, 3mm dia.: 2 each 36" (914mm) long (1274T42)
- Stainless steel rods, 2mm dia.: pack of 50, 16mm long (91585A016)
- Metric ball bearing, 15mm dia. shaft: 24mm OD (5972K213)

- Miniature metric ball bearings, 4mm dia. shaft: 5 each 10mm OD (7804K1)
- Miniature metric ball bearing, 6mm dia. shaft: 12mm OD (7804K112)
- Miniature metric ball bearings, 8mm dia. shaft: 2 each 14mm OD (7804K116)
- Brass weight: $\frac{5}{16}$ " (8mm) dia. x $\frac{3}{16}$ " (5mm) long
- Decorative cord: 8" (203mm) long
- Wire: #36 by 2" (51mm)
- Loop-end main spring, $\frac{1}{2}$ " (13mm) wide: 0.018" thick x 96" long (.5mm x 2438mm)
- Set screws: 2 each 4mm dia. x 8mm long
- Dowels, 1" (25mm) dia.: assorted scraps
- Dowels, $\frac{7}{8}$ " (22mm) dia.: assorted scraps
- Dowels, $\frac{3}{4}$ " (19mm) dia.: assorted scraps
- Dowels, $\frac{5}{8}$ " (16mm) dia.: assorted scraps
- Dowels, $\frac{1}{2}$ " (13mm) dia.: assorted scraps
- Dowels, $\frac{7}{16}$ " (11mm) dia.: assorted scraps
- Dowels, $\frac{3}{8}$ " (10mm) dia.: assorted scraps
- Dowels, $\frac{1}{4}$ " (6mm) dia.: assorted scraps
- Dowels, $\frac{1}{8}$ " (3mm) dia.: assorted scraps
- Axle peg: $\frac{1}{4}$ " (6mm) dia. x $1\frac{3}{8}$ " (35mm) long
- Screw button plug: $\frac{1}{2}$ " dia. tenon
- Screw button plug: 3 each $\frac{3}{8}$ " (10mm) dia. tenon
- Flat-head wood screw: #6 x 1" (25mm) long
- Flat-head wood screws: 3 each #4 x $\frac{5}{8}$ " (16mm) long
- Flat-head wood screw: #6 x $\frac{5}{8}$ " (16mm) long
- Round-head wood screws: #8 x $\frac{5}{8}$ " (16mm) long
- Glue: wood, cyanoacrylate (CA) glue

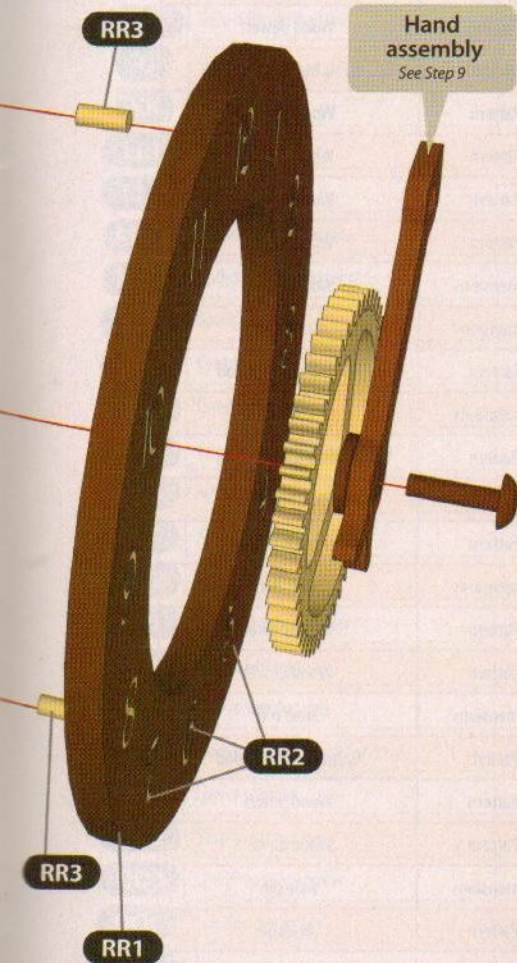
Tools:

- Blades, such as Olson Precision Ground Tooth blades: #2/0, #5
- Drill press with assorted metric bits (see Special Sources)
- Center punch
- Disc sander
- Router with bits: $\frac{1}{8}$ " (3mm) radius roundover
- Wood lathe (optional for finial, custom spacers, and hand knob)

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

SPECIAL SOURCES:

- Most of the metal parts and bearings are available from McMasterCarr, 609-259-8900, www.mcmaster.com. The part numbers are listed with each item above.
- The loop-end main spring, number 16873, is available from Timesavers, 800-552-1520, www.timesavers.com.
- A metric drill bit (#151041) set is available from Woodcraft, 800-225-1153, www.woodcraft.com.



Brian Law has designed 14 wooden gear clocks and a host of other projects that use gears of some sort. For more of his work, visit his website at www.woodenclocks.co.uk.



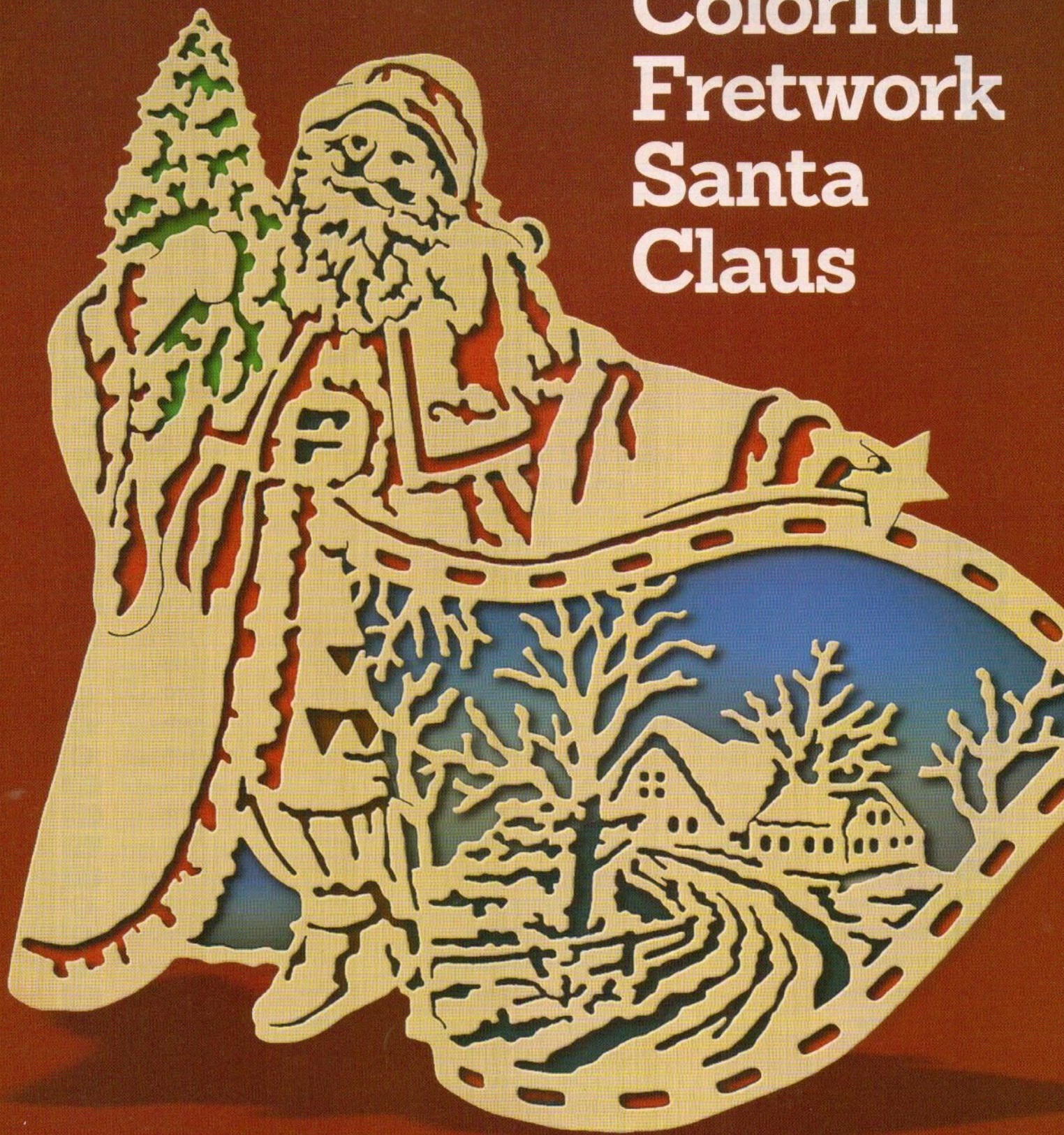
Rolf Beuttenmuller was born in Germany to a toolmaker and a seamstress. As a result, scrolling came naturally to him. Rolf started scrolling in 2005 and test cutting in early 2010. His motto, "I don't know that I can't, therefore I can," was tested by this clock.

Parts List

	Item	Qty.	Dimensions	Presentation	Material
A1	Back frame	1	$\frac{3}{8}$ " x $8\frac{1}{4}$ " x $13\frac{3}{4}$ " (10mm x 209mm x 349mm)	Pattern	Maple
A2	Back frame bearings	3	4mm-dia. shaft, 10mm OD	Dimensions	Bearings
B1	Front frame	1	$\frac{3}{8}$ " x $8\frac{1}{4}$ " x $13\frac{3}{4}$ " (10mm x 209mm x 349mm)	Pattern	Maple
B2	Front frame small bearings	2	4mm-dia. shaft, 10mm OD	Dimensions	Bearings
B3	Front frame larger bearing	1	15mm-dia. shaft, 24mm OD	Dimensions	Bearings
C1	Top frame spacer	1	$\frac{3}{8}$ " x 1" x 5" (10mm x 25mm x 127mm)	Pattern	Walnut
C2	Bottom frame spacers	2	$\frac{3}{8}$ " x 1" x 5" (10mm x 25mm x 127mm)	Pattern	Walnut
D	Frame spacer wedges	6	$\frac{5}{32}$ " x $\frac{1}{4}$ " x $\frac{7}{8}$ " (4mm x 6mm x 22mm)	Pattern	Wenge
E1	Escape wheel	1	$\frac{3}{8}$ " x 3" x 3" (10mm x 76mm x 76mm)	Pattern	Baltic birch plywood
E2	Escape wheel pins	36	2mm dia. x 16mm long	Dimensions	Steel pins
E3	Escape wheel shaft	1	4mm dia. x 95mm long	Dimensions	Steel rod
F1	Escape wheel pinions block	1	$\frac{3}{8}$ " x 1" x 1" (10mm x 25mm x 25mm)	Pattern	Baltic birch plywood
F2	Escape wheel pinions	13	3mm dia. x 36mm long	Dimensions	Steel rod
G1	Escape wheel rear inner sleeve	1	$\frac{7}{16}$ " (9mm) dia. x $\frac{5}{8}$ " (16mm) long	Pattern	Wood dowel
G2	Escape wheel rear outer sleeve	1	$\frac{5}{8}$ " (16mm) dia. x $\frac{1}{4}$ " (6mm) long	Pattern	Wood dowel
H	Escape wheel front sleeve	1	$\frac{3}{8}$ " (10mm) dia. x $1\frac{1}{2}$ " (26.5mm) long	Pattern	Wood dowel
I	Hand drive front gear	1	$\frac{3}{8}$ " x $4\frac{3}{4}$ " x $4\frac{3}{4}$ " (10mm x 121mm x 121mm)	Pattern	Baltic birch plywood
J1	Hand drive rear front sleeve	1	1" (25mm) dia. x $\frac{1}{2}$ " (13mm) long	Pattern	Wood dowel
J2	Hand drive rear middle sleeve	1	$\frac{1}{2}$ " (13mm) dia. x $1\frac{1}{2}$ " (38mm) long	Pattern	Wood dowel
J3	Hand drive rear back sleeve	1	1" (25mm) dia. x $\frac{1}{4}$ " (6mm) long	Pattern	Wood dowel
K1	Hand drive front sleeve pinion block	1	$\frac{3}{8}$ " (16mm) dia. x $1\frac{7}{16}$ " (37mm) long	Pattern	Wood dowel
K2	Hand drive front sleeve	1	1" (25mm) dia. x $1\frac{1}{16}$ " (27mm) long	Dimensions	Wood dowel
K3	Hand drive pinions	4	3mm dia. x 23mm long	Dimensions	Steel rod
L	Hand drive rear gear	1	$\frac{3}{8}$ " x $2\frac{3}{8}$ " x $2\frac{3}{8}$ " (10mm x 60mm x 60mm)	Pattern	Baltic birch plywood
M	Hand drive shaft	1	4mm dia. x 95mm long	Dimensions	Steel rod
N	Motion-transfer gear	1	$\frac{3}{8}$ " x 4" x 4" (10mm x 102mm x 102mm)	Pattern	Baltic birch plywood
O	Motion-transfer rear sleeve	1	$\frac{3}{8}$ " (10mm) dia. x 1" (25mm) long	Pattern	Wood dowel
P1	Motion-transfer pinion block	1	$\frac{3}{8}$ " x 1" x 1" (10mm x 25mm x 25mm)	Pattern	Baltic birch plywood
P2	Motion-transfer pinions	13	3mm dia. x 36mm long	Dimensions	Steel Rod
Q1	Motion-transfer front sleeve	1	$\frac{3}{8}$ " (10mm) dia. x $\frac{5}{8}$ " (16mm) long	Pattern	Wood dowel
Q2	Motion-transfer front sleeve ring	1	$\frac{1}{2}$ " (13mm) dia. x $\frac{1}{4}$ " (6mm) long	Pattern	Wood dowel
R	Motion-transfer shaft	1	4mm dia. x 95mm long	Dimensions	Steel rod
S	Hand gear	1	$\frac{3}{8}$ " x 4" x 4" (10mm x 102mm x 102mm)	Pattern	Baltic birch plywood
T1	Hand sleeve	1	$\frac{3}{8}$ " (10mm) dia. x $1\frac{1}{16}$ " (17mm) long	Pattern	Wood dowel
T2	Hand sleeve ring	1	$\frac{7}{8}$ " (22mm) dia. x $\frac{1}{8}$ " (3mm) long	Pattern	Wood dowel
U	Hand pivot pin	1	$\frac{1}{4}$ " (6mm) dia. x $1\frac{3}{8}$ " (35mm) long	Dimensions	Axle pin
V	Hand	1	$\frac{1}{4}$ " x $1\frac{1}{4}$ " x $4\frac{3}{4}$ " (6mm x 32mm x 121mm)	Pattern	Walnut
W1	Spring support arm	1	1" x $1\frac{1}{4}$ " x $3\frac{3}{4}$ " (25mm x 32mm x 95mm)	Pattern	Mahogany
W2	Spring support arm screw	1	#6 x 1" (25mm) long	Dimensions	Flat head wood screw
X1	Spring case inner cover	1	$\frac{3}{8}$ " x $2\frac{1}{2}$ " x $2\frac{1}{2}$ " (5mm x 64mm x 64mm)	Pattern	Maple
X2	Spring case inner cover screws	3	#4 x $\frac{5}{8}$ " (16mm) long	Dimensions	Flat head wood screw
Y	Spring case	1	$\frac{7}{8}$ " x $2\frac{3}{4}$ " x $2\frac{3}{4}$ " (22mm x 70mm x 70mm)	Pattern	Maple

	Item	Qty.	Dimensions	Presentation	Material
Z	Spring pin	1	4mm dia. x 22mm long	Dimensions	Steel rod
AA	Spring case outer cover	1	$\frac{3}{16}$ " x $2\frac{3}{4}$ " x $2\frac{3}{4}$ " (5mm x 70mm x 70mm)	Pattern	Maple
BB	Spring gear	1	$\frac{3}{8}$ " x $3\frac{1}{4}$ " x $3\frac{1}{4}$ " (10mm x 83mm x 83mm)	Pattern	Baltic birch plywood
CC1	Spring arbor shaft	1	8mm dia. x 68.5mm long	Drawing	Brass rod
CC2	Spring arbor stub	1	4mm dia x 10mm long	Drawing	Steel rod
DD	Spring case rear bearing	1	8mm-dia. shaft, 14mm OD	Dimensions	Bearings
EE	Spring case outer bearing	1	8mm-dia. shaft, 14mm OD	Dimensions	Bearings
FF	Spring	1	0.018"-thick x $\frac{1}{2}$ "-wide x 96"-long	Dimensions	Loop-end spring
GG1	Winder handle	1	$\frac{1}{4}$ " x $1\frac{1}{4}$ " x 3" (6mm x 32mm x 76mm)	Pattern	Walnut
GG2	Winder shaft	1	$\frac{3}{4}$ " (19mm) dia. x $1\frac{3}{4}$ " (44mm) long	Pattern	Dowel
GG3	Winder shaft pin	1	4mm dia. x $\frac{3}{4}$ " (19mm) long	Dimensions	Steel rod
GG4	Winder ratchet gear	1	$\frac{3}{8}$ " x 1" x 1" (10mm x 25mm x 25mm)	Pattern	Baltic birch plywood
HH1	Flying arm	1	$\frac{3}{8}$ " x $\frac{1}{2}$ " x 4" (10mm x 13mm x 102mm)	Pattern	Cherry
HH2	Flying arm support loop	1	#36 x 2" (51mm) long	Pattern	Fine wire
II1	Cord adjuster dowel	1	$\frac{1}{8}$ " (3mm) dia. x $\frac{3}{4}$ " (19mm) long	Dimensions	Wood dowel
II2	Cord adjuster handle	1	$\frac{3}{8}$ " (10mm) dia. x $\frac{1}{2}$ " (13mm) long	Pattern	Wood dowel
JJ	Cord	1	8" (203mm) long	Dimensions	Decorative cord
KK	Flying weight	1	$\frac{5}{16}$ " (8mm) dia. x $\frac{3}{16}$ " (5mm) long	Dimensions	Brass weight
LL1	Pawl	1	$\frac{3}{8}$ " x 2" x 3" (10mm x 51mm x 76mm)	Pattern	Cherry
LL2	Pawl pins	2	3mm dia. x 18mm long	Dimensions	Steel rod
MM1	Spindle sleeve driver	1	$\frac{5}{16}$ " x $\frac{5}{16}$ " x $\frac{5}{8}$ " (8mm x 16mm x 16mm)	Pattern	Cherry
MM2	Spindle sleeve driver pins	6	2mm dia. x 16mm long	Dimensions	Steel pins
MM3	Spindle sleeve	1	$\frac{1}{4}$ " (6mm) dia. x $4\frac{1}{2}$ " (114mm) long	Dimensions	Brass tube
MM4	Center spindle	1	4mm dia. x 172mm	Dimensions	Steel rod
NN1	Overhead support	1	$\frac{1}{2}$ " x 1" x $8\frac{1}{2}$ " (13mm x 25mm x 216mm)	Pattern	Cherry
NN2	Overhead support set screw	1	4mm dia. x 8mm long	Dimensions	Set screw
NN3	First wrap pins	2	3mm dia. x 34mm long	Dimensions	Steel rod
OO1	Finial	1	$\frac{7}{8}$ " x $\frac{7}{8}$ " x 1" (22mm x 22mm x 25mm)	Pattern	Cherry
OO2	Finial set screw	1	4mm dia. x 8mm long	Dimensions	Set screw
PP1	Sleeve bearing holder	1	$\frac{1}{2}$ " x $\frac{3}{4}$ " x 3" (13mm x 19mm x 76mm)	Pattern	Maple
PP2	Sleeve bearing	1	6mm-dia. shaft, 12mm OD	Dimensions	Bearings
PP3	Sleeve bearing cap	1	$\frac{1}{2}$ " (13mm)-dia. tenon	Pattern	Screw button plug
PP4	Sleeve bearing holder screws	2	#8 x $\frac{5}{8}$ " (16mm) long	Dimensions	Round-head wood screws
QQ1	Lower support	1	$\frac{7}{8}$ " x 1" x 7" (22mm x 25mm x 178mm)	Pattern	Cherry
QQ2	Second wrap pins	2	3mm dia. x 130mm long	Dimensions	Steel rod
QQ3	Lower support screw	1	#6 x $\frac{5}{8}$ " (16mm) long	Dimensions	Flat-head wood screw
QQ4	Lower support pin	1	3mm dia. x 16mm long	Dimensions	Steel rod
QQ5	Lower support set screw	1	4mm dia. x 8mm long	Dimensions	Set screw
RR1	Dial	1	$\frac{3}{8}$ " x 9" x 9" (10mm x 229mm x 229mm)	Pattern	Walnut
RR2	Numbers	1	$\frac{3}{8}$ " x 9" x 9" (10mm x 229mm x 229mm)	Pattern	Maple
RR3	Dial pins	2	$\frac{1}{4}$ " (6mm) dia. x $\frac{5}{32}$ " (4mm) long	Dimensions	Wood dowel
SS	Bearing covers	3	$\frac{3}{8}$ " (10mm)-dia. tenon	Dimensions	Screw button plugs

Colorful Fretwork Santa Claus



Splashes of paint highlight the details of this portrait scene

By Sue Mey

The classic image of Santa was created during the 19th century by the poet Clement Clarke Moore, who wrote "A Visit from St. Nicholas," and the artist Thomas Nast, who first drew the jolly elf for *Harper's Weekly* magazine. This version wears the iconic outfit and whiskers, but I've added a view of the sleepy homes he visits. It's easy to accent the background with color, or you can enjoy a natural wood look.

Cutting the Pieces

Cover the blank with masking or painter's tape and use spray adhesive or glue stick to attach the pattern. For extra support while you cut the frets, attach scrap wood to the back. Drill $\frac{1}{16}$ " (2mm) blade-entry holes for larger frets and $\frac{1}{32}$ " (1mm) blade-entry holes for the smaller ones. Cut the frets with a #1 blade, but do not cut the perimeter yet.

Remove the scrap support piece. Place a few dots of masking tape on the back of the fretwork and in matching locations on the backing board. Position thin double-sided tape on the masking tape; the masking tape eliminates any sticky residue from the double-sided tape. Attach the backing board to the fretwork and cut around the perimeter of the stack. Separate the pieces and remove the tape.

Finishing the Project

Hand-sand the pieces with assorted grits of sandpaper. Remove the sanding dust. For a natural project, stain the backing board with a dark stain or paint it black. For a more colorful version, paint different colors behind the frets. Allow the stain or paint to dry. Apply beads of wood glue behind the fretwork and position it on the backing board. Apply clamps and let the glue dry. Apply several thin coats of clear spray varnish to all surfaces of the project, allowing each coat to dry thoroughly before applying the next.



Materials & Tools

Materials:

- Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: fretwork, 11" x 11½" (279mm x 292mm)
- MDF or plywood, $\frac{1}{4}$ " to $\frac{1}{2}$ " (6mm to 13mm) thick: backing board, 11" x 11½" (279mm x 292mm)
- Tape: masking or blue painter's; double-sided
- Temporary bond spray adhesive or glue stick

- Wood glue
- Sandpaper
- Dark wood stain or acrylic paints in black, red, blue, and green
- Varnish: clear spray

Tools:

- Blades: #1 reverse-tooth
- Drill press with bits: $\frac{1}{32}$ " (1mm), $\frac{1}{16}$ " (2mm)
- Clamps

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

Pattern for the **FRETWORK**
SANTA CLAUS is in the
pattern pullout section.



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

Howling at the Moon

Easy intarsia of iconic Southwest image

By Glenn Fry

Whether you're a fan of John Wayne movies or looking for a souvenir from a trip to the Southwest, you'll enjoy this iconic design. Make it as a simple intarsia, shape the pieces more fully, cut and paint it as a segmentation scene, or even try woodburning the design.

Getting Started

Choose the lumber for the project. Make sure all of the wood is the same thickness. Make two photocopies of the pattern. I trace over the cutting lines with a red marker to make them stand out more.

Working with Patterns

Instead of cutting individual patterns for each piece, I use one pattern and move it from piece to piece, a method explained by Homer and Carole Bishop in *Scroll Saw Woodworking & Crafts* Spring 2011 (Issue 42). To use this technique, apply repositionable adhesive to the back of the photocopy of the pattern, and then cut the first piece. Move the uncut portion of the pattern to the second piece, and then cut the second piece. Reapply the adhesive (I use a glue stick), and move the pattern to the next piece. Repeat the process to cut all of the pieces. For the sections where the adjoining piece is already cut, cut along the edge of the paper pattern. Work quickly, and don't leave the pattern on the wood for too long. The longer you leave the pattern on the wood, the harder it is to remove.

Cutting and Shaping the Pieces

Drill $\frac{1}{16}$ " (2mm)-diameter blade-entry holes as needed to cut the inlays in the base and cactus. Then, cut the pieces, using the method explained above. For this project, I don't really shape the individual pieces, but I use a router with a $\frac{1}{16}$ " (2mm)-radius round-over bit to remove the sharp corners from the pieces, which helps to separate them. You could shape them more,

if desired. Glue together the cacti, base, moon, and coyote. Place the completed piece on the backing board, and trace around the project. Drill a blade-entry hole, and cut the area between the coyote's legs. Then, cut just inside the line around the perimeter of the backing board. Glue and clamp the intarsia to the backing board, and use a small sanding drum to remove any visible backing board. Apply a clear gloss finish, and attach a saw-tooth hanger to the back.

Materials & Tools

Materials:

- Aromatic cedar, $\frac{3}{4}$ " (19mm) thick: moon, $2\frac{3}{4}$ " x $2\frac{3}{4}$ " (70mm x 70mm)
- Poplar, light and dark green, $\frac{3}{4}$ " (19mm) thick: cacti, 3" x 11" (76mm x 279mm)
- Mahogany, $\frac{3}{4}$ " (19mm) thick: wolf, $3\frac{1}{2}$ " x $4\frac{1}{2}$ " (89mm x 114mm)
- Walnut, $\frac{3}{4}$ " (19mm) thick: wolf, $3\frac{1}{2}$ " x $4\frac{1}{2}$ " (89mm x 114mm)
- Ash, $\frac{3}{4}$ " (19mm) thick: accents, 3" x 3" (76mm x 76mm)
- Blue spruce, $\frac{3}{4}$ " (19mm) thick: base, 2" x 6" (51mm x 152mm)
- Spanish cedar, $\frac{3}{4}$ " (19mm) thick: 2" x $3\frac{1}{2}$ " (51mm x 89mm)
- Poplar, $\frac{3}{4}$ " (19mm) thick: 1" x 1" (25mm x 25mm)

- Wood glue
- Sandpaper: 120, 320 grits
- Tempered hardboard, $\frac{1}{8}$ " (3mm) thick: 6" x 10" (152mm x 254mm)
- Finish: clear gloss
- Saw-tooth hanger
- Adhesive: repositionable glue stick
- Marker: red (optional)

Tools:

- Scroll saw blades: #5 reverse-tooth
- Drill and bit: $\frac{1}{16}$ " (2mm)
- Router with bits: $\frac{1}{16}$ " (2mm)-radius round-over
- Sanding drum

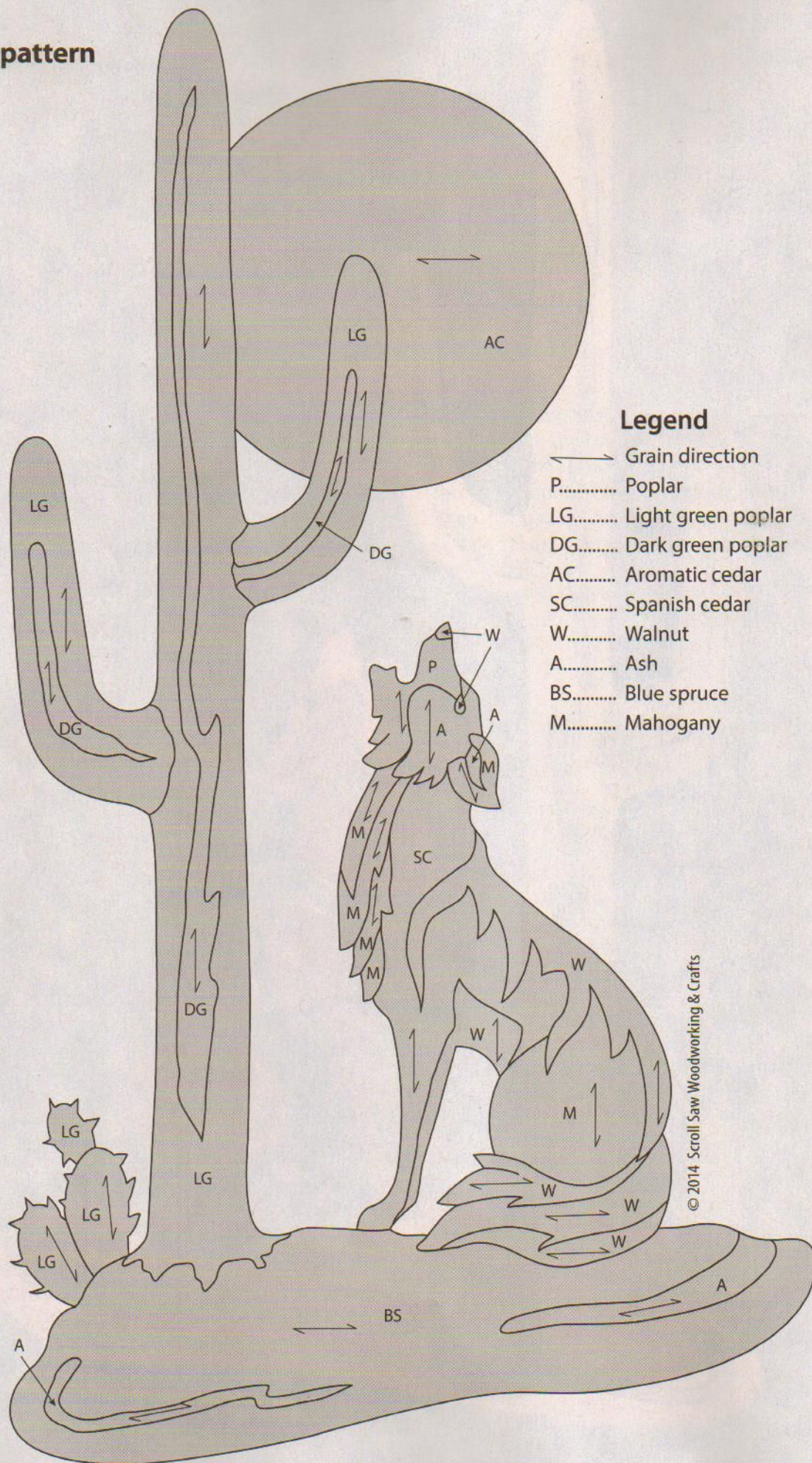
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Glenn Fry lives in Tampa, Fla., and enjoys working on and teaching caricature carvings and intarsia. For more of his work, visit www.glenco.net.



Coyote pattern



M-Power CRB7 Combination Router Base

The M-Power CRB7 Combination Router Base gives a router the flexibility and accuracy of several larger tools. It makes many scroll saw projects easier.

The base is designed to accommodate most tools without requiring any adaptors or special base plates. The CRB7 has an adjustable bar setup that allows you to fit it on any router with accessory holes; a quick online search of routers showed that nearly every full-size router available today has these accessory holes. To fit the base to your router, loosen the nut, adjust the bar to fit, and tighten the nut.

Once you mount the router on the base, the tool is set up for offset routing. The larger router base makes it easier to hold the tool flat against the blank when rounding or adding a decorative edge. It also makes it easy to chamfer or trim the backing board of an intarsia or segmentation project.

The CRB7 also takes the work out of cutting circles. The base helps you pivot the router around a pin or compass bar to cut a perfect circle. Cut thicker wood by lowering the bit and making additional passes with the router. You can use a router to cut circles up to 48" (1219mm) in diameter.

The base comes with an anti-tilt leg, for when you're rounding the top corners of a stacked-ring box or bowl. An optional Edging and Dowel Trim kit allows you to trim table edging, screw plugs, and dowels flush with the surface of the blank.

With the CRB7 and a good router, you can do many projects that usually require larger tools and/or shop-made jigs. The CRB7 offers functionality and flexibility in a single tool.



The CRB7's anti-tilt leg supports the router when cutting small or narrow pieces of wood.

The CRB7 is available from M-Power for \$109.50 by itself and for \$143.48 bundled with the edge guide and Edging Trim Kit. Visit www.m-powertools.com, or call +44 (0) 1980 629 526 (the company is based in the United Kingdom, but it has a direct distributor in Michigan). For a computer-generated video demonstrating all of the uses of the CRB7, visit www.youtube.com/watch?v=J9loBLskBhE.

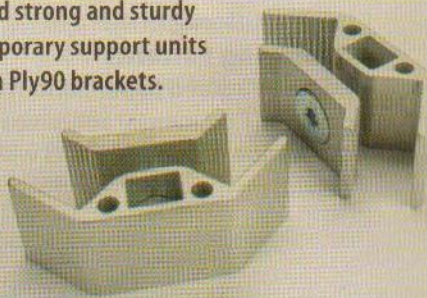
Ply90 Brackets

When you're displaying your work at craft or art shows, you often need temporary shelving or display space. The shelves need to be sturdy and solid, but you also need to be able to take them down quickly. Ply90 brackets turn ordinary 1/2" - to 3/4"-thick plywood into solid benches or shelves. You simply cut the plywood to size, allowing for the brackets, and then attach the brackets and tighten the screws. When I created a step stool from

3/4" plywood, I was able to stand and bounce on it without the clamps slipping. To disassemble the displays, unscrew the clamps and pack everything flat.

Ply90 brackets are available in sets of four (with screws for different thicknesses of plywood) for \$30 plus S&H from Plyproducts, www.plyproducts.com.

Build strong and sturdy temporary support units with Ply90 brackets.



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 3/4" (19mm) thick and check the angle of the cut using a square. Adjust the table until you get a perfectly square cut.

You can also use the kerf-test method. Take a 1 3/4" (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.

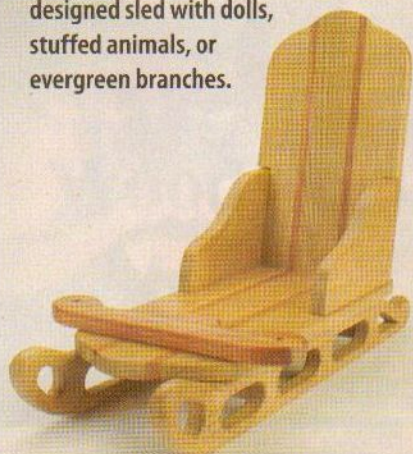


Removing Patterns

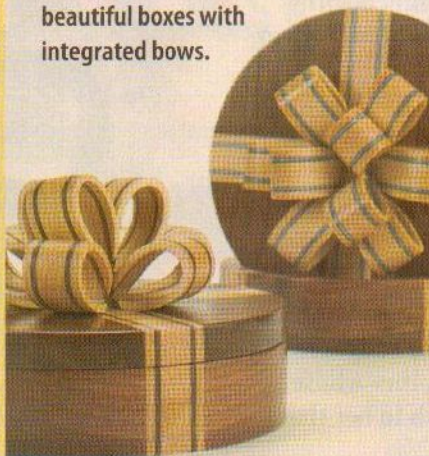
Dampen a glued paper pattern with mineral spirits to aid in removal. Commercial adhesive removers work as well. A quick wipe of mineral spirits will remove most adhesives left behind on the wood.

In our next issue...

Fill this classically designed sled with dolls, stuffed animals, or evergreen branches.



"Wrap" gifts in beautiful boxes with integrated bows.



Add color to scrolling projects with John Nelson's new technique.



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CALENDAR OF EVENTS

Scroll Saw Woodworking & Crafts accepts listings for scroll saw shows. If you would like your show printed in our Calendar of Events, send the following information to Glasmire@FoxChapelPublishing.com:

- Name of event
- Date(s)
- Location (include city, state, address and building name if applicable)
- Hours for each day of show
- Admission
- Contact information

Submission deadline for the Holiday Issue is October 1, 2014.

Sep 12-14: WINSTON-SALEM, N.C.

Woodworking in America brought to you by *Popular Woodworking* magazine. Benton Convention Center, 301 W. 5th St. 3-day pass, \$475; 1-day pass, \$195. Contact 877-746-9757, www.eiseverywhere.com/ehome/woodworkinginamerica.com/WIA2014/?&.

Aug 2-3: WODONGA, VIC, AUSTRALIA

Albury-Wodonga Woodcrafters Inc. Scroll Saw Weekend. Contact Ed Kilo, +011 (02) 6024 2482, or Jutta Vyner, Kejuvy@gmail.com.

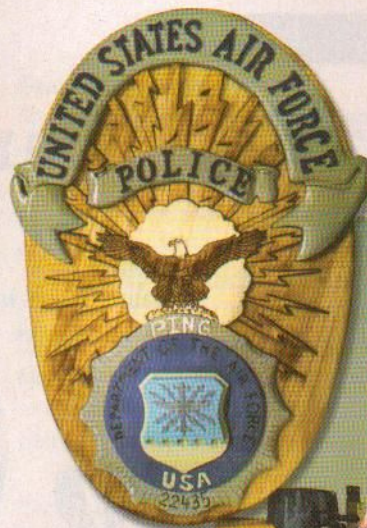
Badges of Courage

Indiana resident Sandi Alldredge is a busy mother of five, a manager for a vacation rental property, and a part-time housekeeper. Her days and nights are crammed with activities, but she somehow manages to find time for her favorite pastime—working with wood.

Sandi began scrolling 12 years ago when her father gave the family an old saw. She started with simple fretwork patterns from *Scroll Saw Woodworking & Crafts* magazines. As her skill increased, she gravitated to more complex projects and eventually began designing her own patterns.

About two years ago, Sandi began making memorial plaques for fallen heroes by recreating their badges in wood. “I made a memorial plaque for a mother whose son was in the U.S. Navy. It meant so much to her that I decided to do more of them,” she said.

The unique plaques are approximately 18" tall by 13" wide. To make them, Sandi enlarges a photo of the original badge, makes a pattern from the photo, and then scrolls the design in birch wood. “It’s all done by segmentation—kind of like intarsia, only I put my own spin on it,” Sandi explained. Sandi adds color to the plaques with stain and then seals the wood with lacquer.



Sandi Alldredge
in her home
woodshop in
Nashville, Ind.



One of Sandi's unique
service plaque designs.

In addition to the memorial plaques, Sandi also makes plaques for those who are still serving. “I want to use this talent God has given me, and that I shared with my father for many years, to send the message that God loves and is with them all the time, including the hard times when it’s not as easy to see.”

You can reach Sandi at halfinwoodart@gmail.com.

Old Saw, New Business

With a light tap of her foot, Teresa Holcomb makes her New Rogers cast-iron treadle scroll saw jump to life. Teresa found the late-1800s beauty in an antique store in Boston 10 years ago, and she knew it would be perfect for her scrolling business.

Teresa's husband is a luthier who makes violins and dulcimers, and Teresa used to be in the insurance business. In her spare time, she fiddled with her husband's Dewalt scroll saw, trying to make good use of his wood scraps. She eventually began designing and selling wooden bookmarks.

The designs are elegant, but there's a lot of competition at art shows. Teresa thought an antique scroll saw would help the couple stand out. “I searched for several years before I found the perfect treadle scroll saw in working condition with no missing parts. Then it took several months of practice before I felt comfortable producing my original bookmark designs on the treadle scroll saw.”

The bookmarks were so successful that Teresa left the insurance business entirely. Now she makes around 400 bookmarks each week for distribution to more than 100 galleries across the United States.

“I enjoy the freedom to work the hours and days that I want and the opportunity to spend more time with my family,” she said. “I find that I have less stress and am able to do things that I have never had the courage to do in the past. Plus, I really love working on my treadle scroll saw.”

You can reach Teresa at wvdulcimers@frontier.com.

Teresa uses cherry,
maple, and sassafras
for her bookmarks.



Teresa Holcomb
cuts bookmarks on
an antique treadle
scroll saw.

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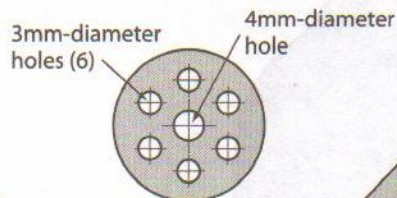
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Flying Pendulum Clock

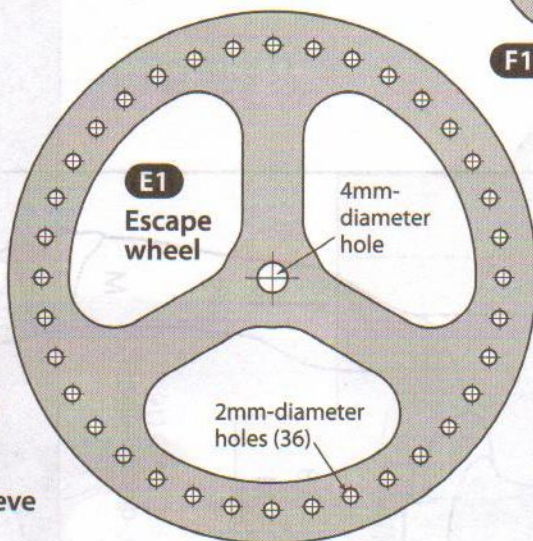
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SSWC Issue 56

Designer: Brian Law



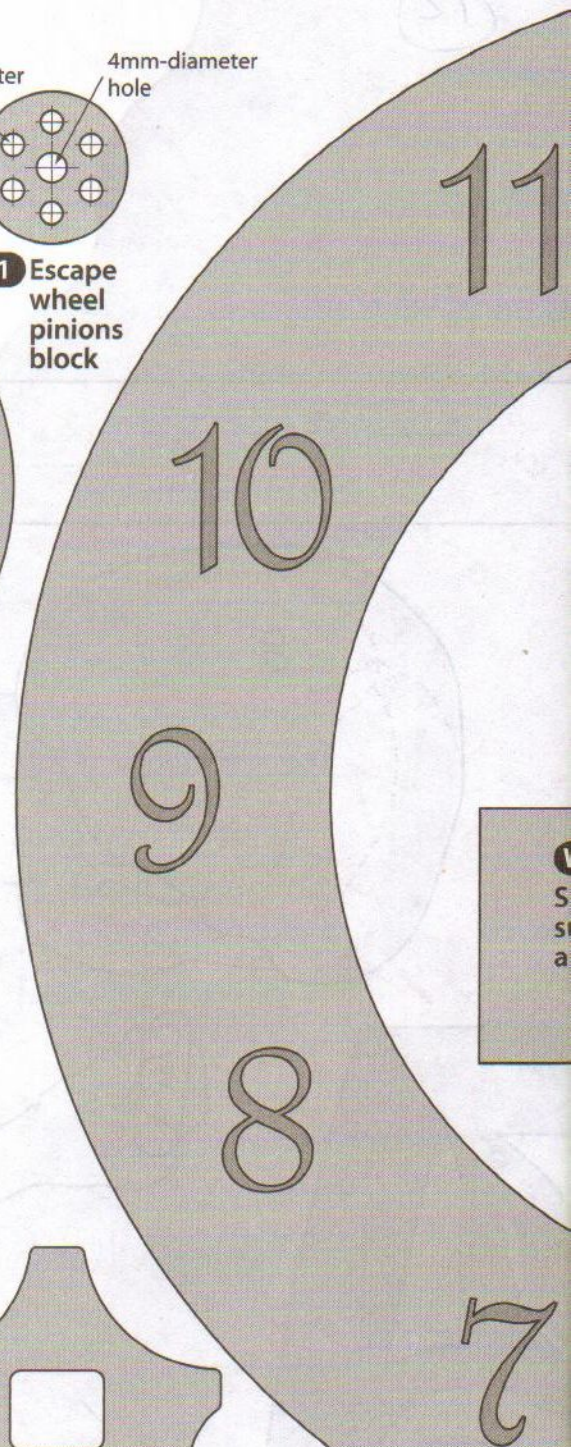
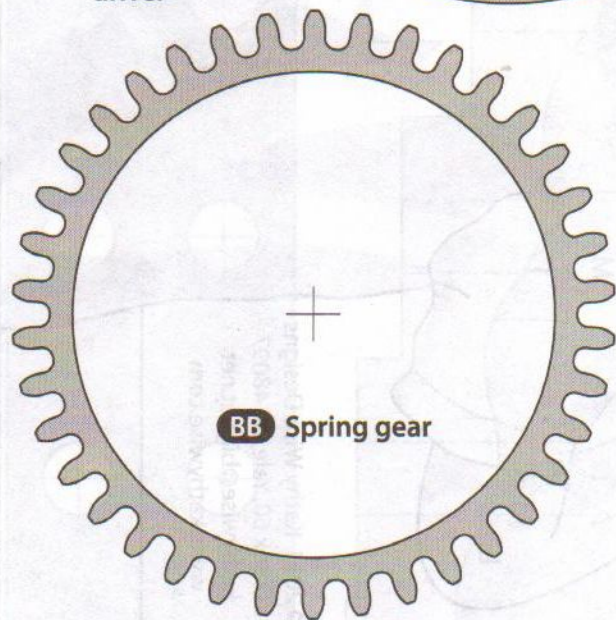
F1 Escape wheel pinions block



2mm-diameter holes (6)

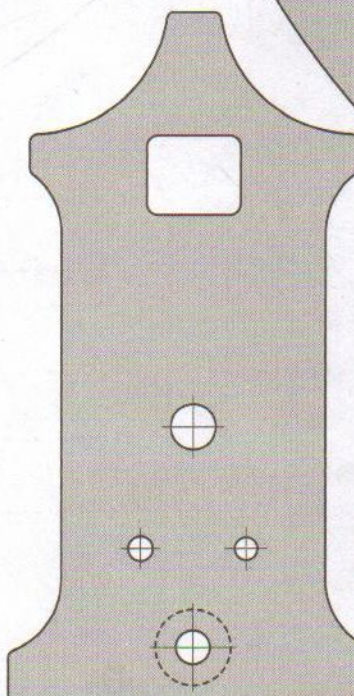
5mm-diameter hole

MM1 Spindle sleeve driver

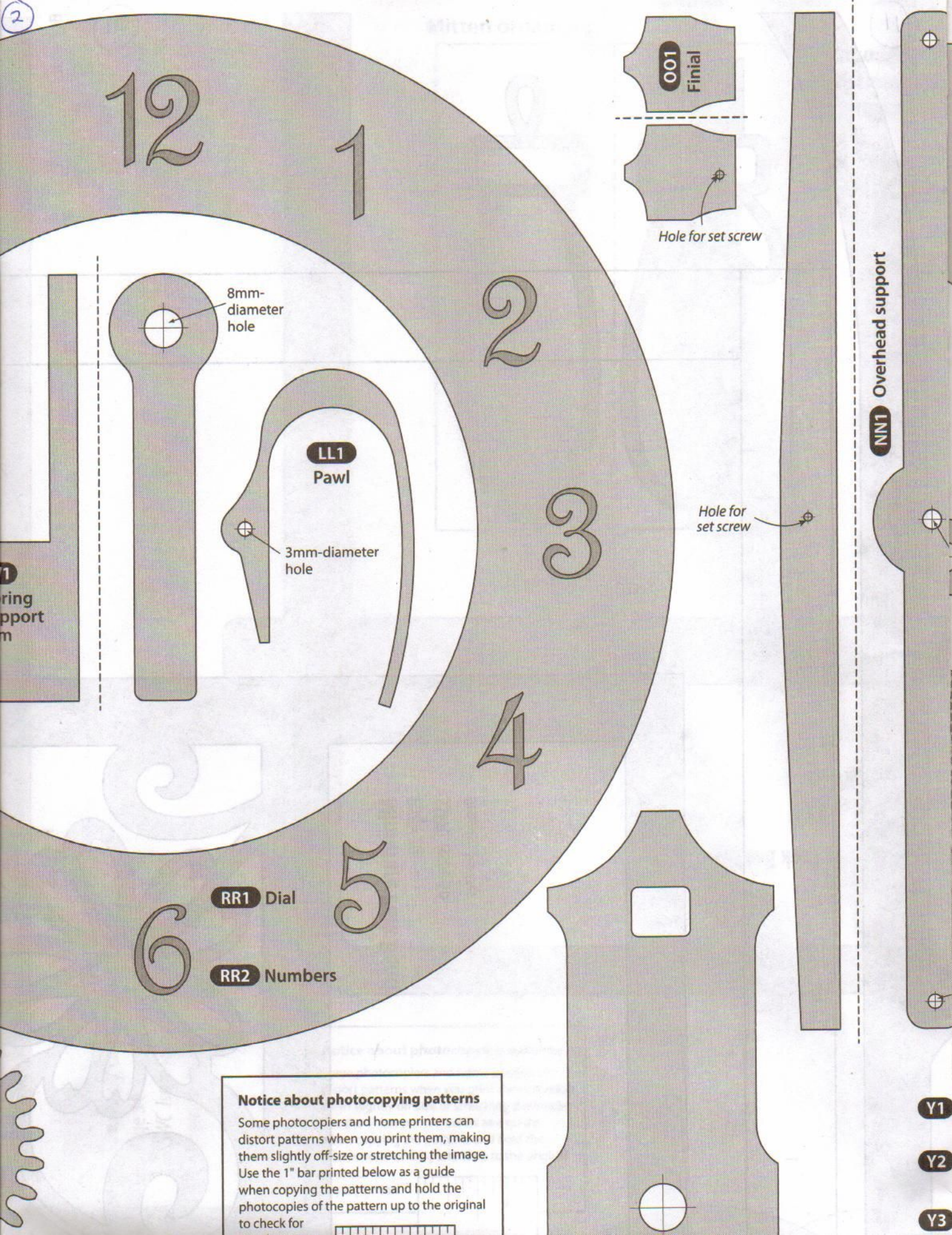


10mm-diameter hole with 12mm counterbore (6mm deep)

5mm-



L Sub assembly 2 rear gear



12

1

2

3

4

5

6

RR1 Dial

RR2 Numbers

LL1
Pawl

8mm-
diameter
hole

3mm-diameter
hole

001
Finial

Hole for set screw

Hole for
set screw

NN1 Overhead support

Y1

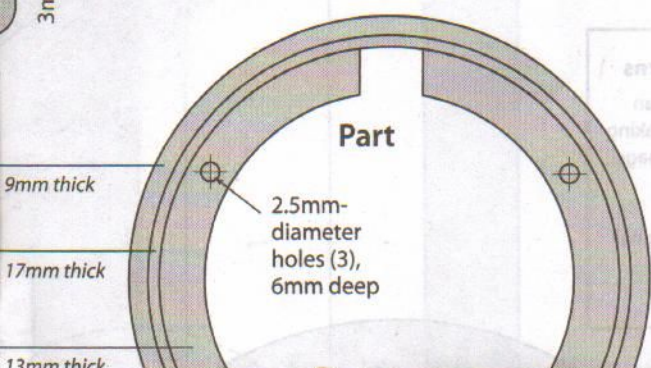
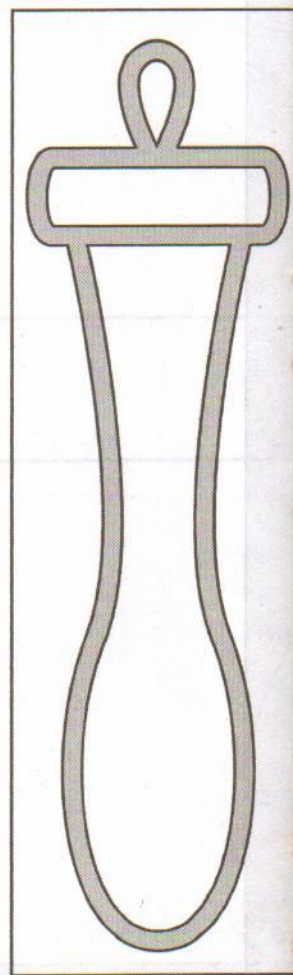
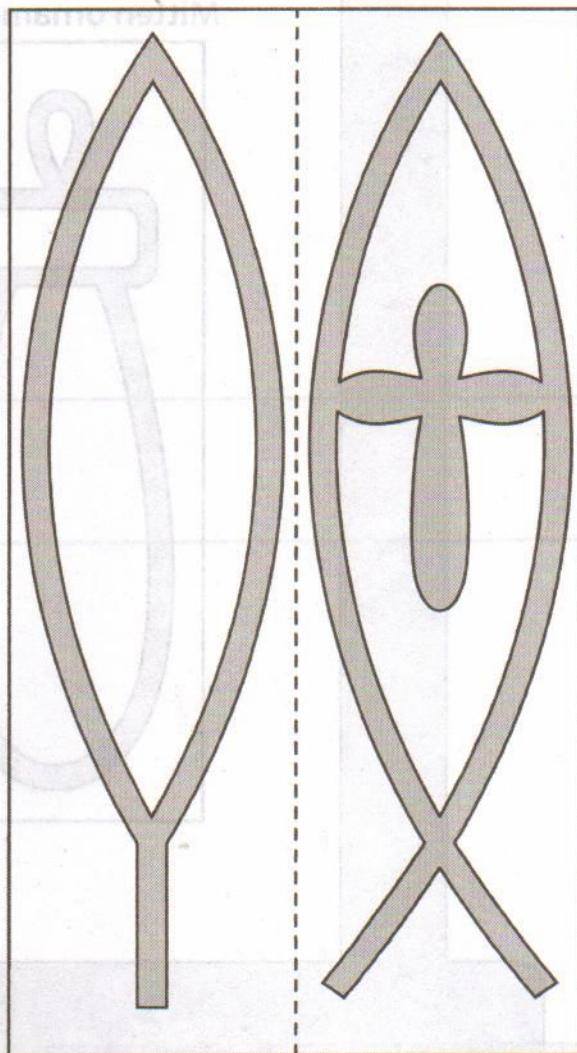
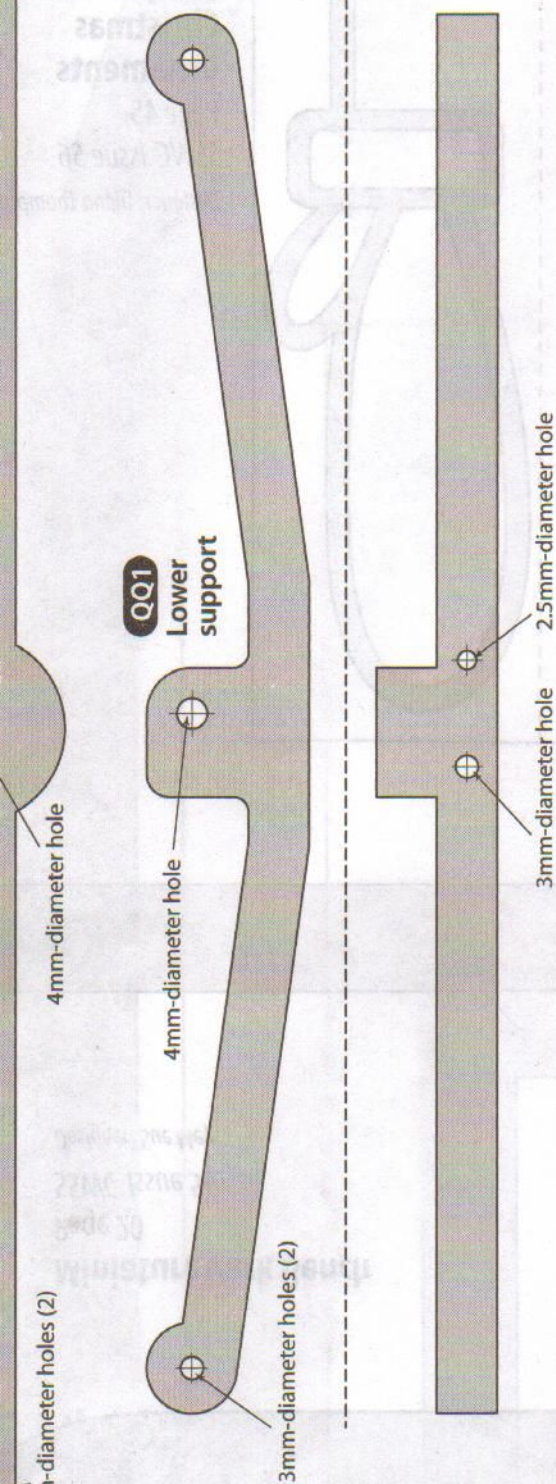
Y2

Y3

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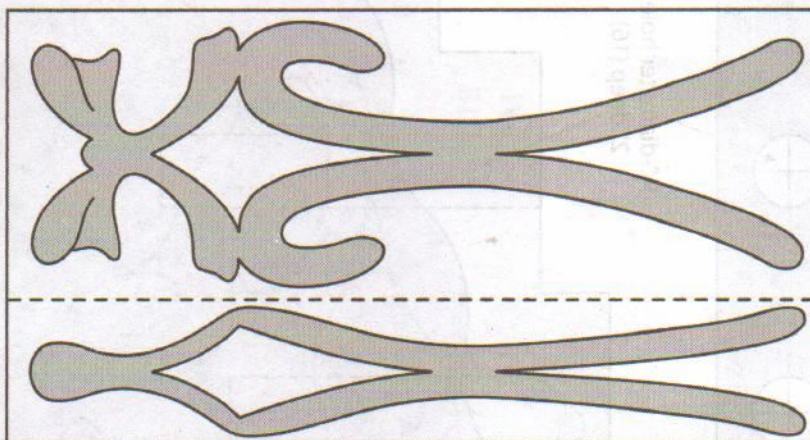
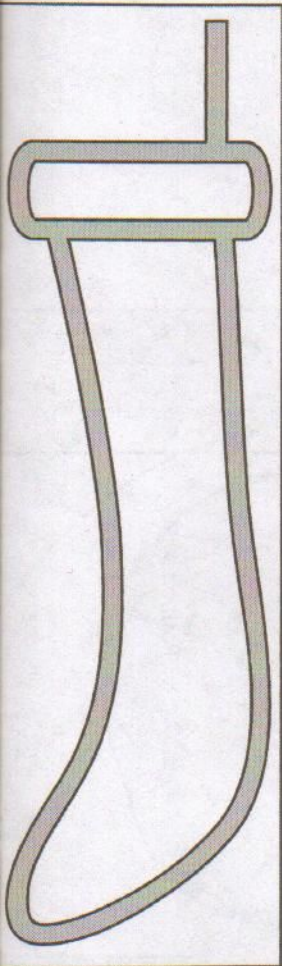


All patterns to be copied at 100% unless otherwise indicated.

All patterns on this pullout section: © 2014 Scroll Saw Woodworking & Crafts

The Old Mill	18	Creating the Crayonator	34
Miniature Park Bench	20	Compound Christmas Ornaments	45
Chalkboard Kids	30	Flying Pendulum Clock	52

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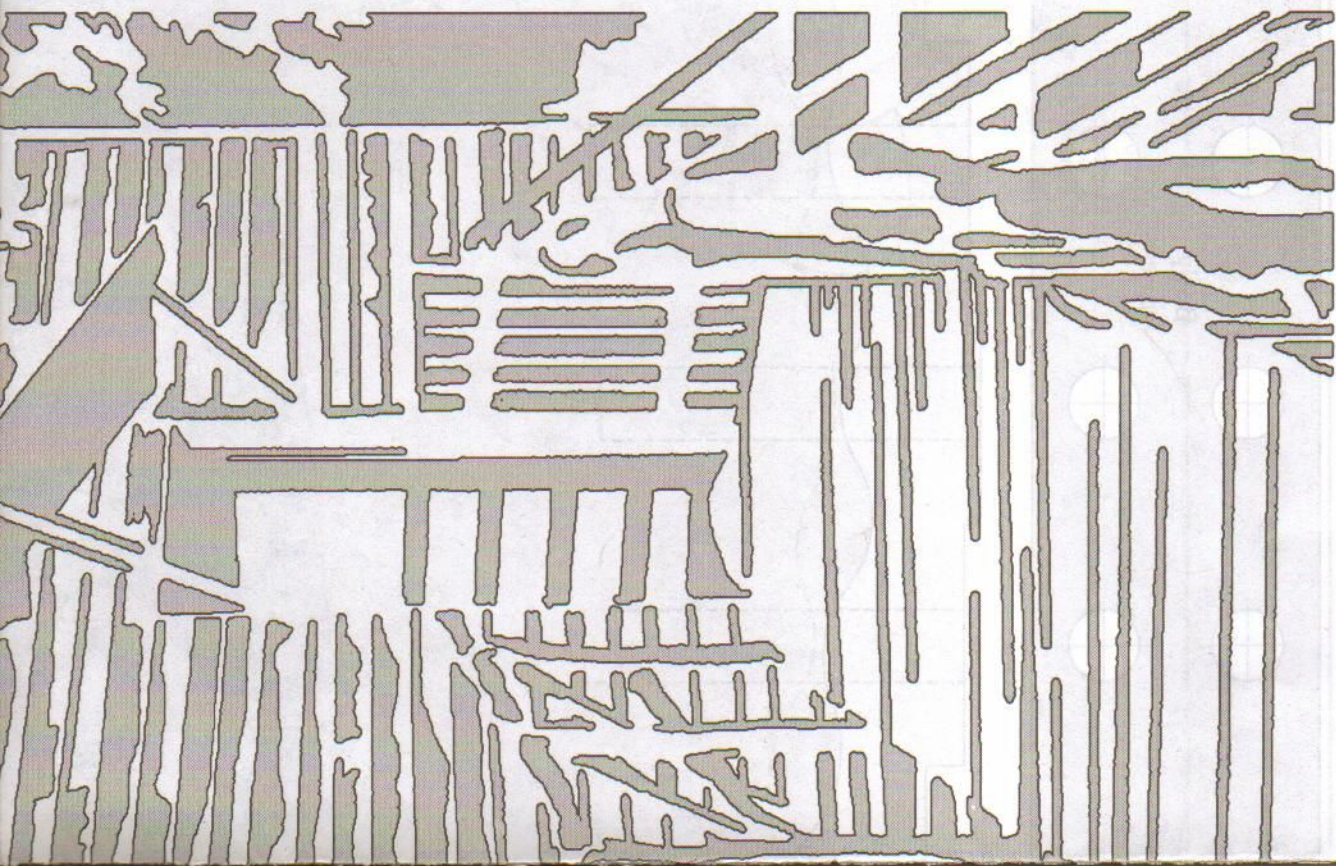


Compound Christmas Ornaments

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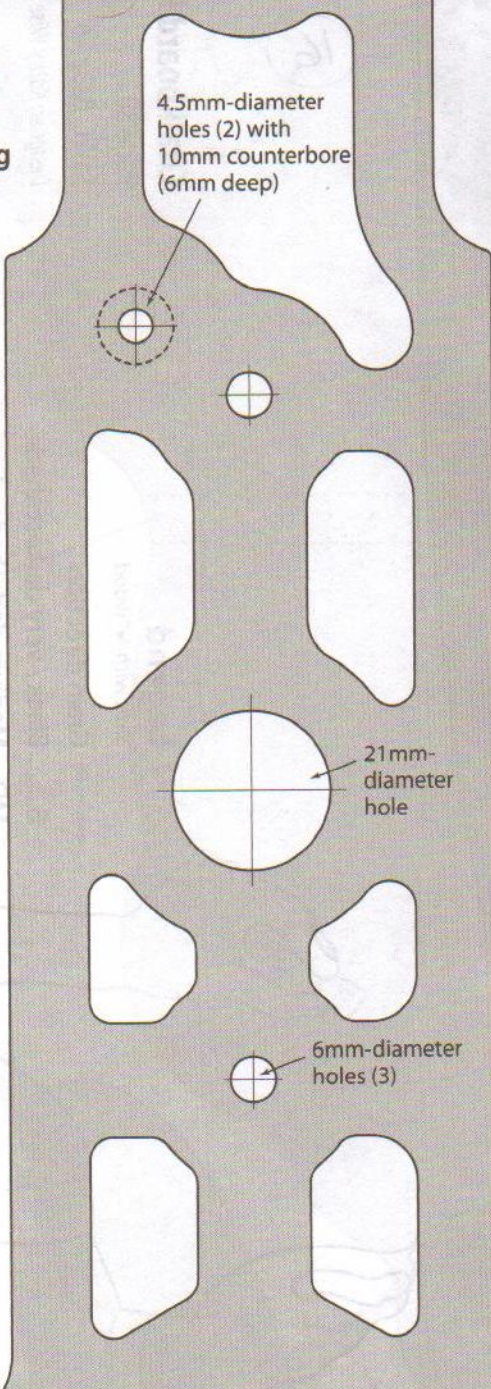
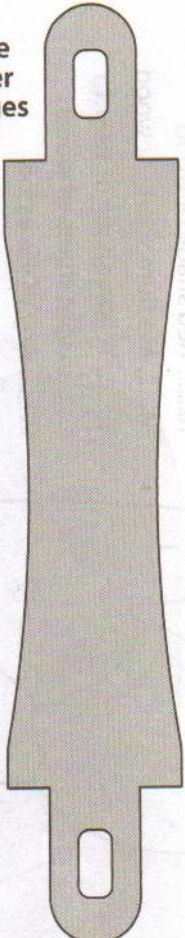
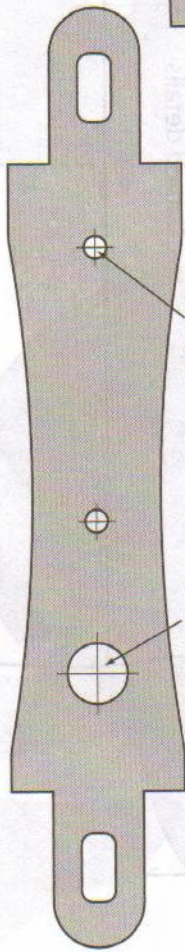
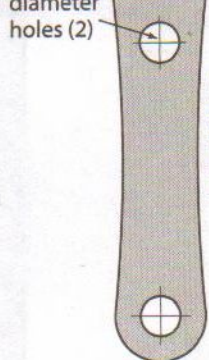
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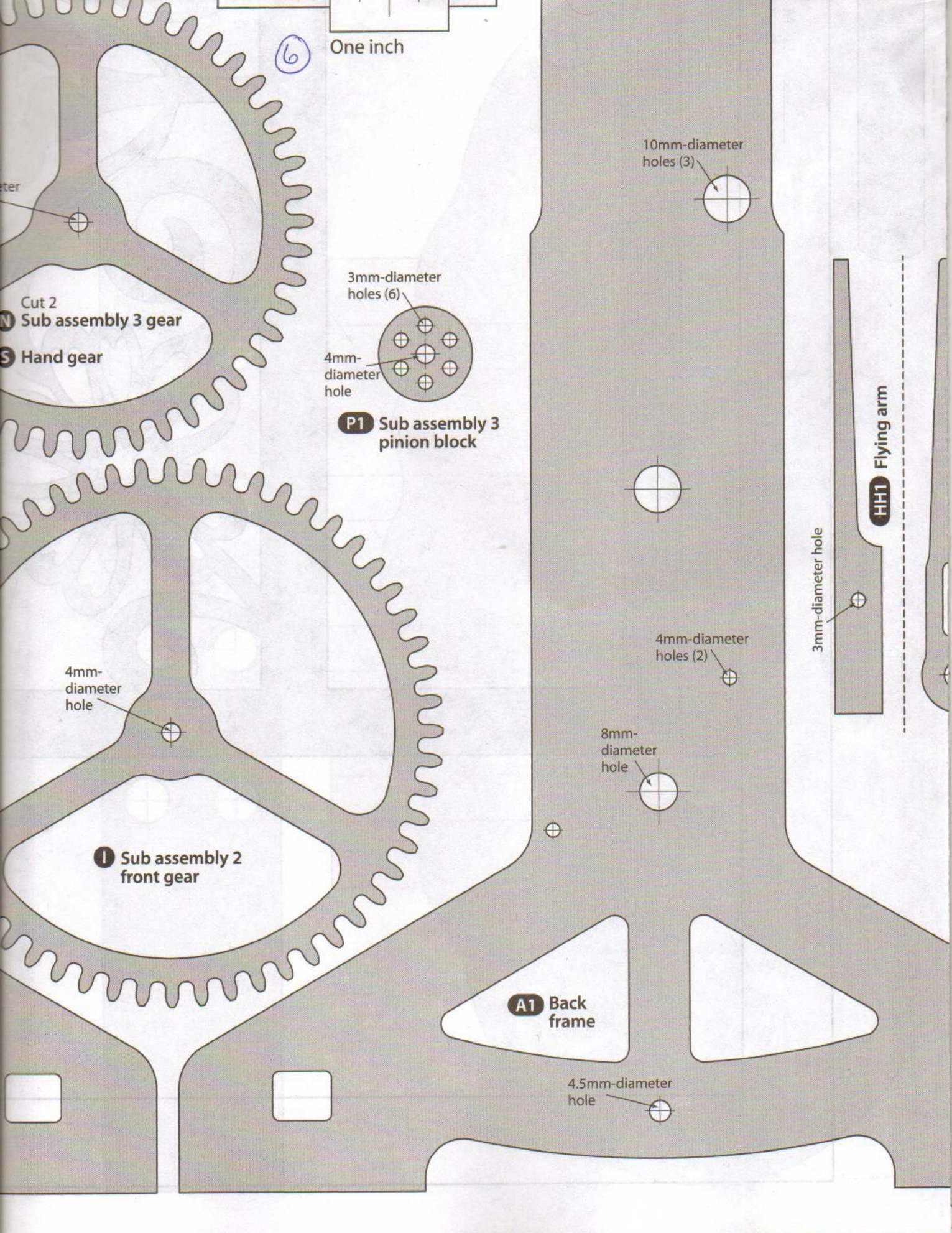
Designer:
Diana Thompson



5

EA
ZA
LA





6

One inch

10mm-diameter
holes (3)

3mm-diameter
holes (6)

4mm-
diameter
hole

P1 Sub assembly 3
pinion block

Cut 2
N Sub assembly 3 gear

S Hand gear

4mm-
diameter
hole

1 Sub assembly 2
front gear

4mm-diameter
holes (2)

8mm-
diameter
hole

3mm-diameter hole

HH1 Flying arm

A1 Back
frame

4.5mm-diameter
hole

7

Spring case

9mm-diameter hole with 12mm counterbore (4mm deep)

AA
Spring case outer cover

4mm-diameter hole

X1
Spring case inner cover

2.5mm-diameter holes (3), countersunk

6mm-diameter hole

GG1 Winder handle

GG2

Winder shaft

20mm dowel

Drill after assembly

8mm-diameter hole

GG4

Winder ratchet gear

The Old Mill

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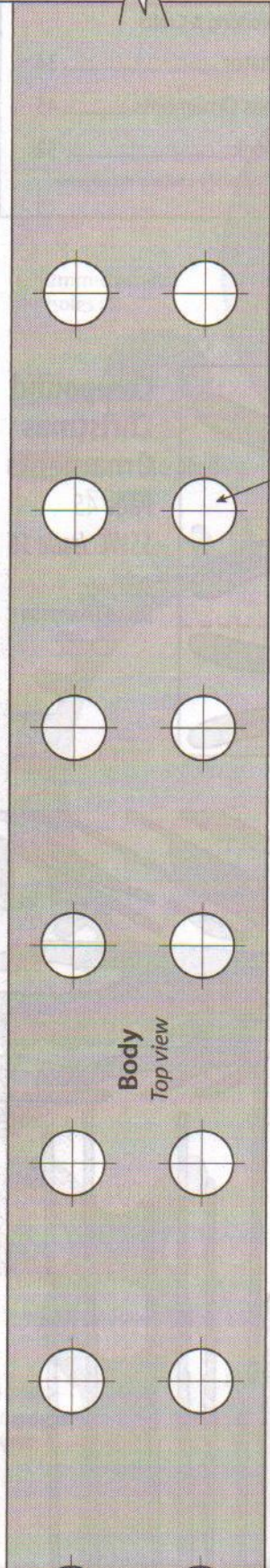
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Designer: Charlie Dearing



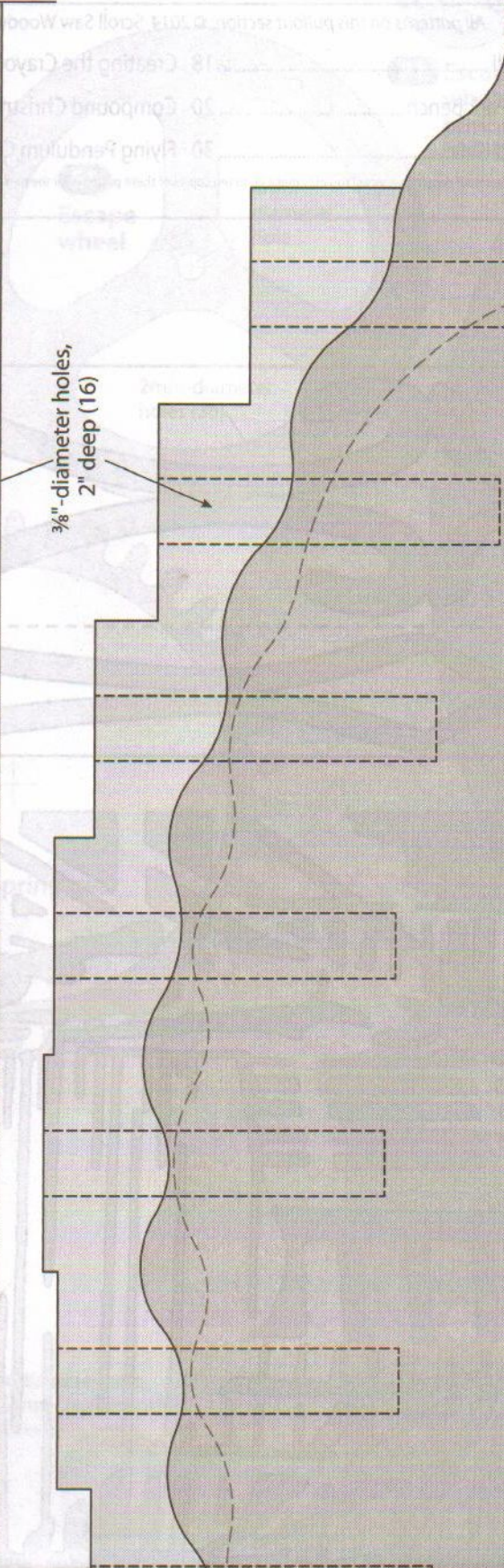
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woodworking
SCROLL SAW
CRAFTS



Body
Top view

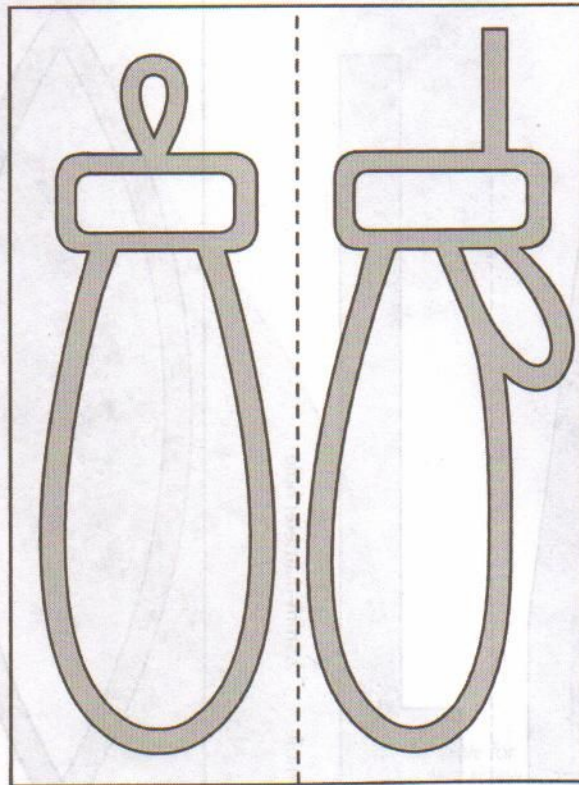
$\frac{3}{8}$ "-diameter holes,
2" deep (16)



Position of
side

Body
Side view

Mitten ornament

Compound
Christmas
Ornaments

Page 45

SSWC Issue 56

Designer: Diana Thompson

Creating the Crayonator

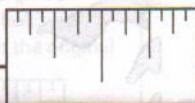
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Designer: Paul Meisel

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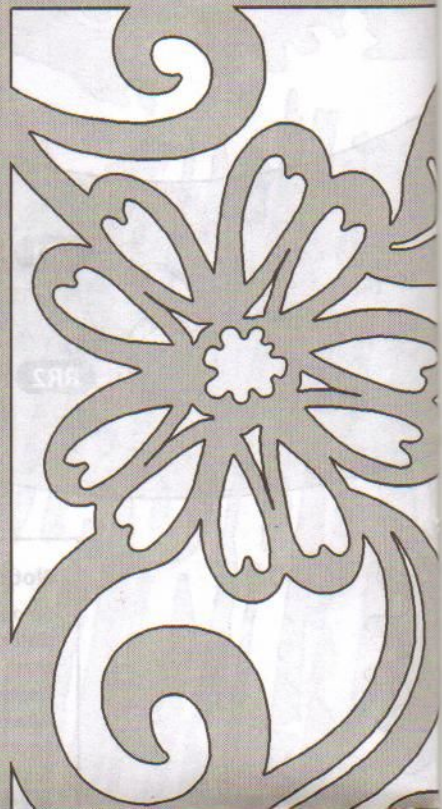


Miniature Park Bench

Designer: Sue Mey

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Miniature Park Bench

Page 20

SSWC Issue 56

Designer: Sue Mey



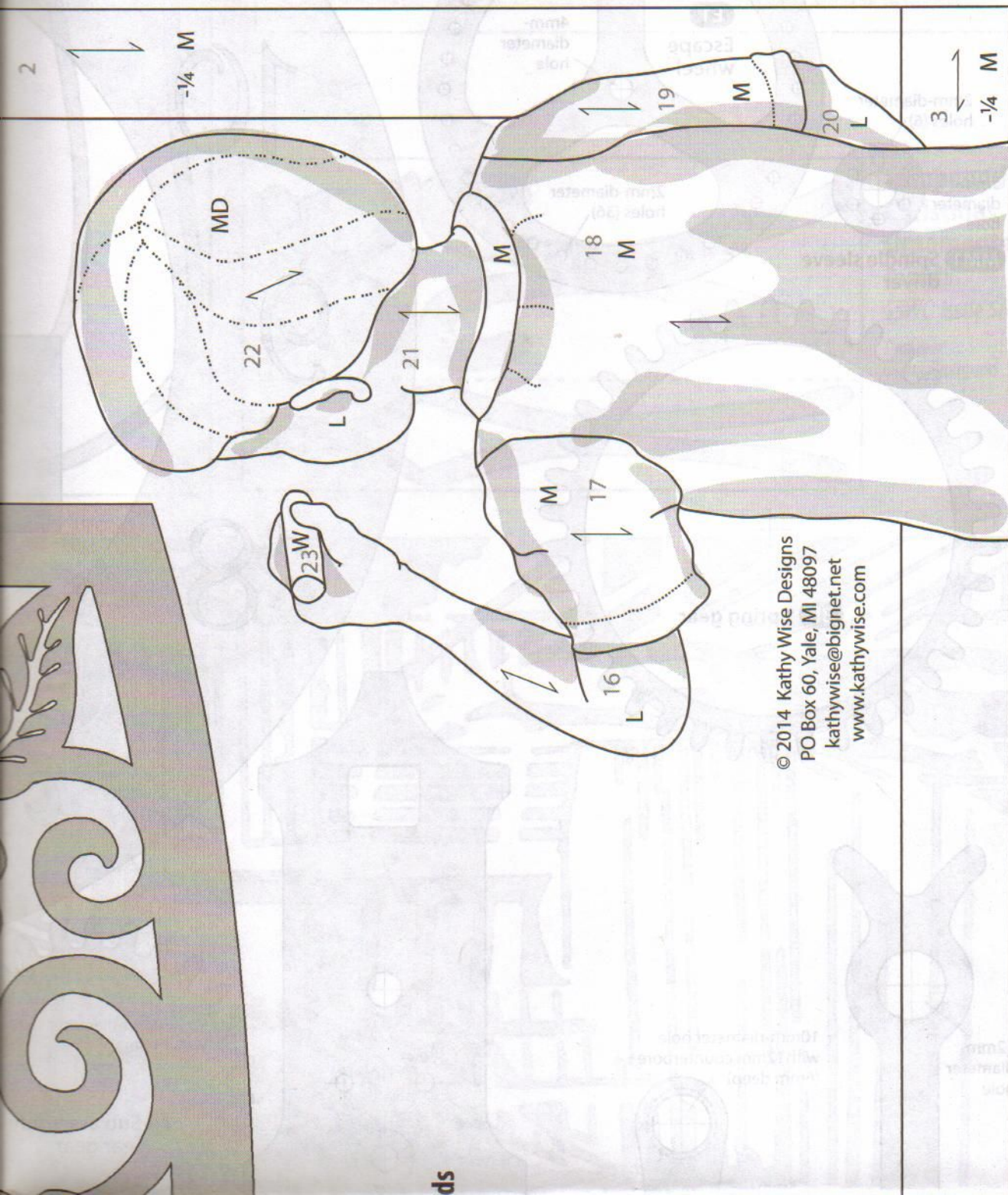
1 1/2" for 25" x 18"

5mm-
diameter
hole

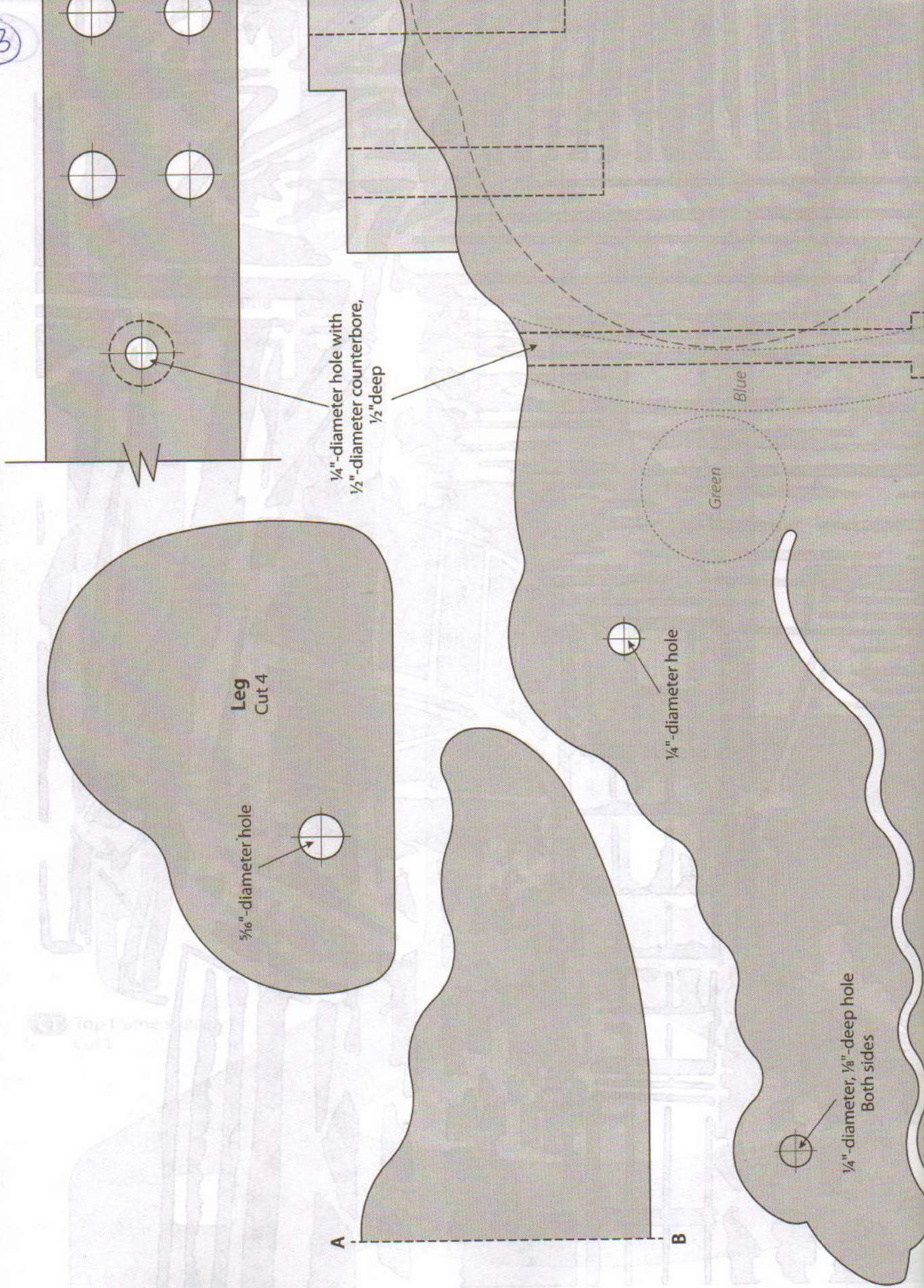
1/2"

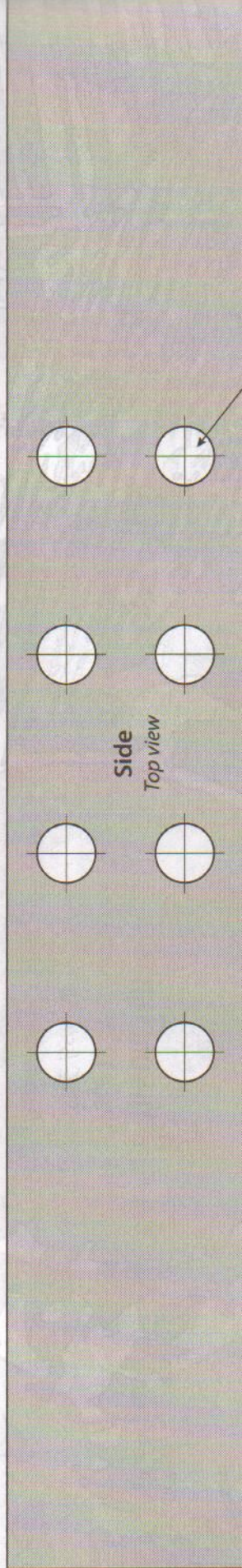
note

the following patterns
are provided for your
reference and should
be used as a guide
only. The patterns
are not to be used
as a template for
cutting the material.



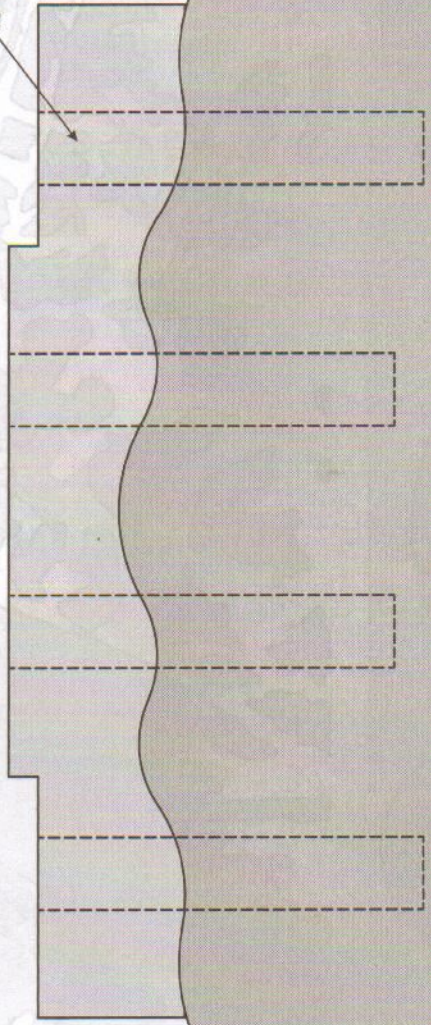
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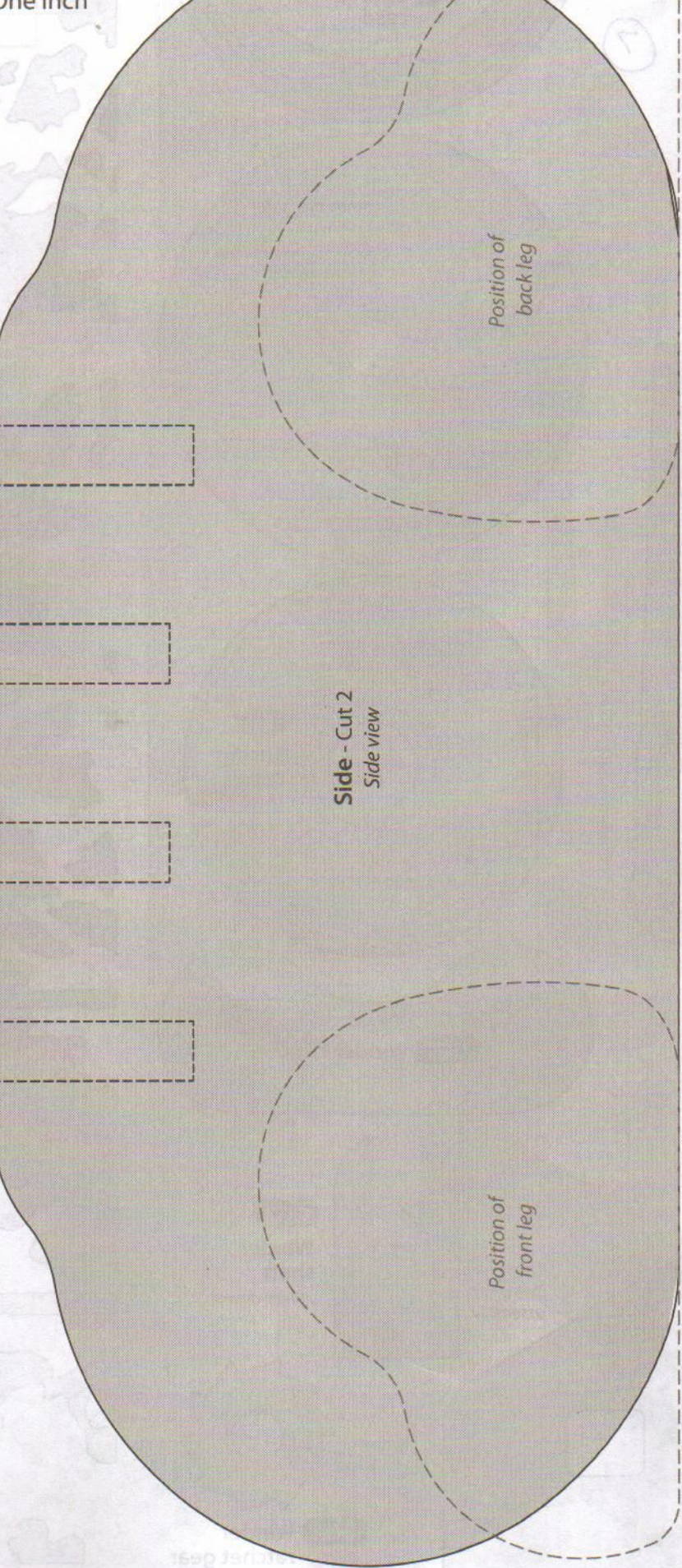


Side
Top view

$\frac{3}{8}$ "-diameter holes,
2" deep (8)



Side - Cut 2
Side view



Position of
front leg

Position of
back leg



15

1/4" M



one only

15

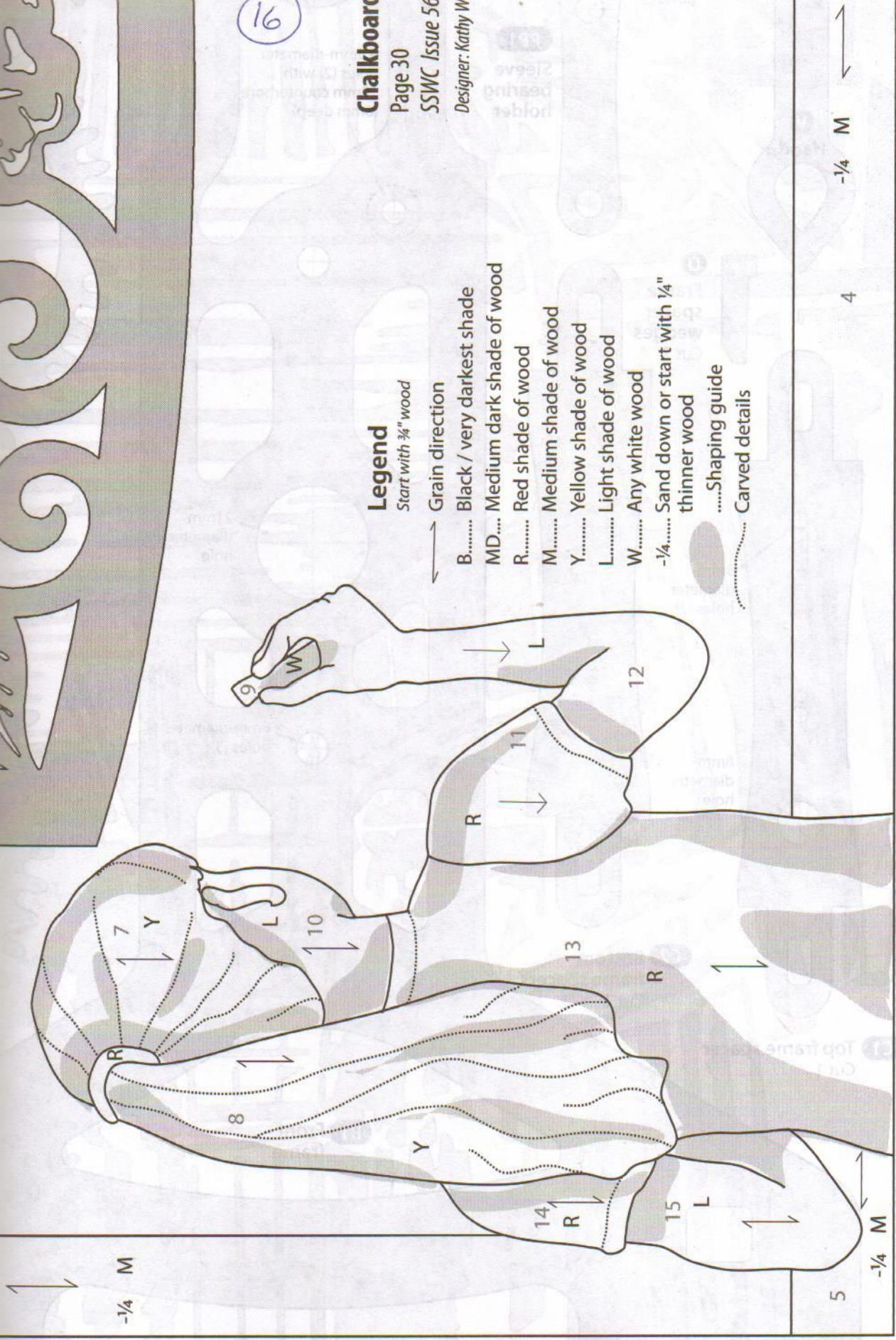
15

Legend

Start with 3/4" wood

Grain direction

- B..... Black / very darkest shade
 - MD.... Medium dark shade of wood
 - R..... Red shade of wood
 - M..... Medium shade of wood
 - Y..... Yellow shade of wood
 - L..... Light shade of wood
 - W..... Any white wood
 - 1/4..... Sand down or start with 1/4" thinner wood
- Shaping guide
..... Carved details



5

-1/4 M

12

13

11

9

10

8

-1/4 M

4

-1/4 M