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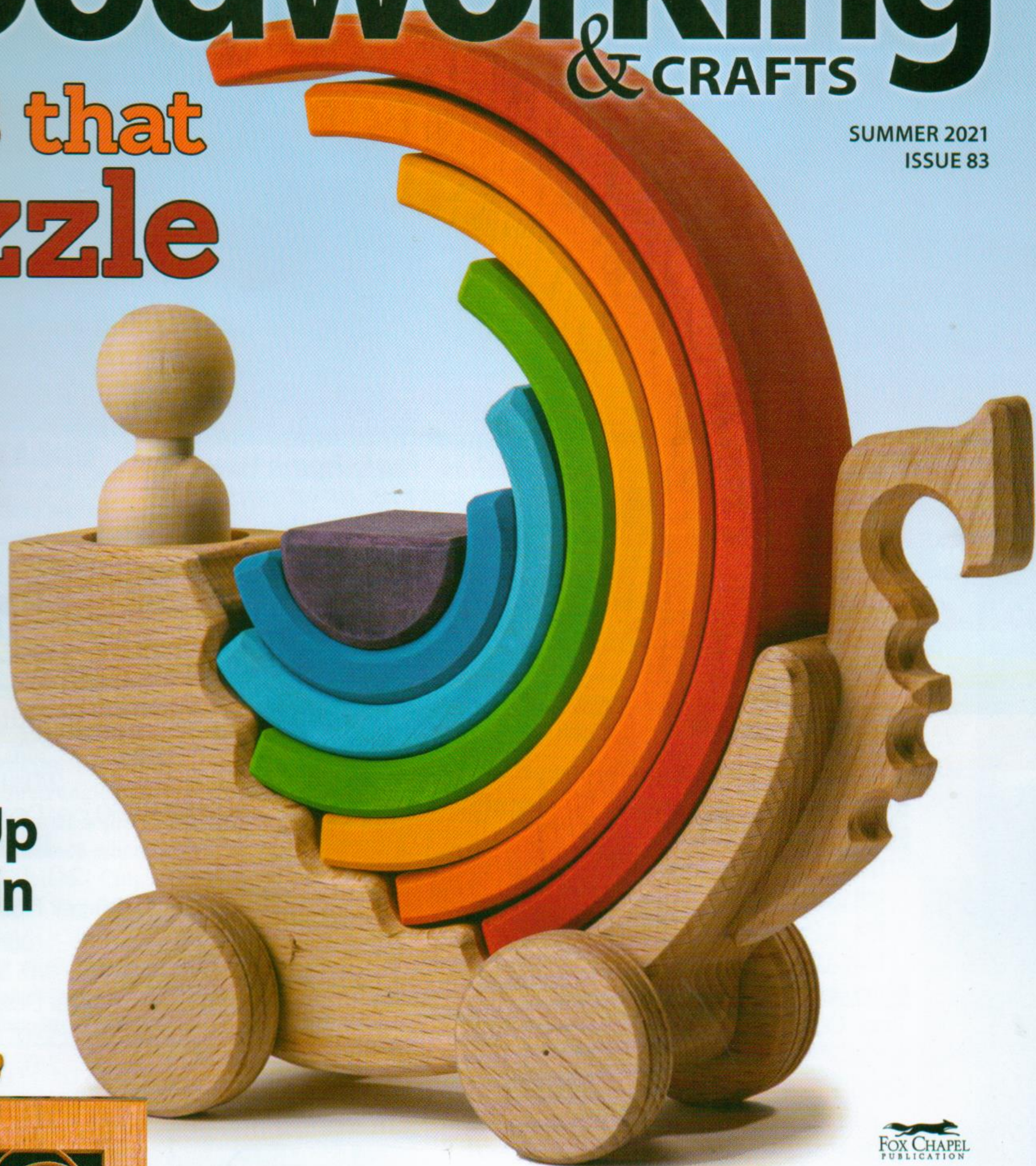
SCROLLSAW

WOODWORKING & CRAFTS

SUMMER 2021
ISSUE 83

Toys that Dazzle

- *Stackable Rainbow*
- *Ice Cream Puzzle Box*
- *Classic Pirate Ship*



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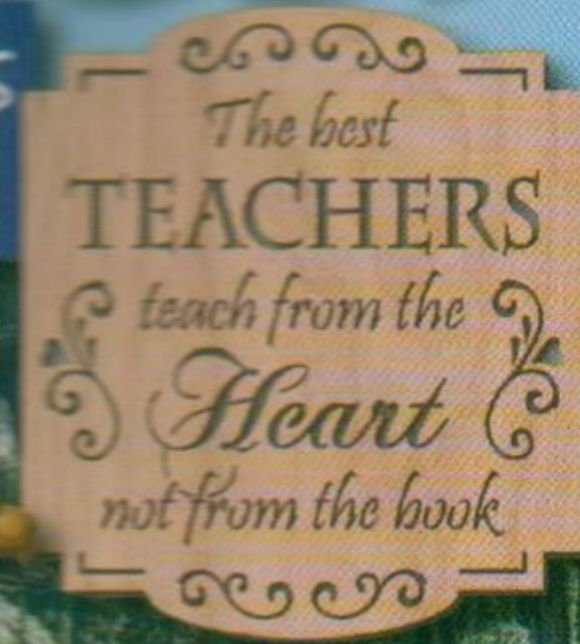


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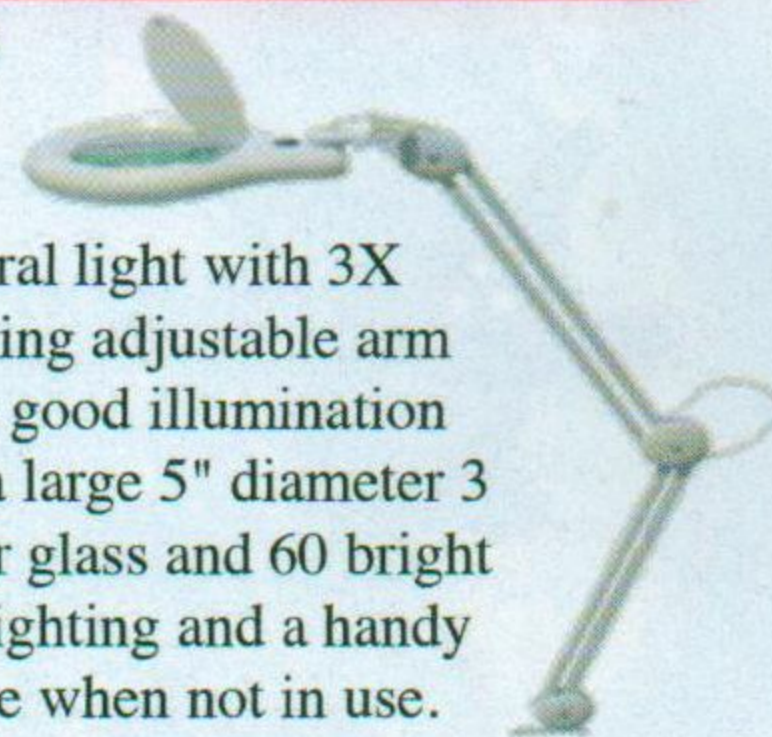
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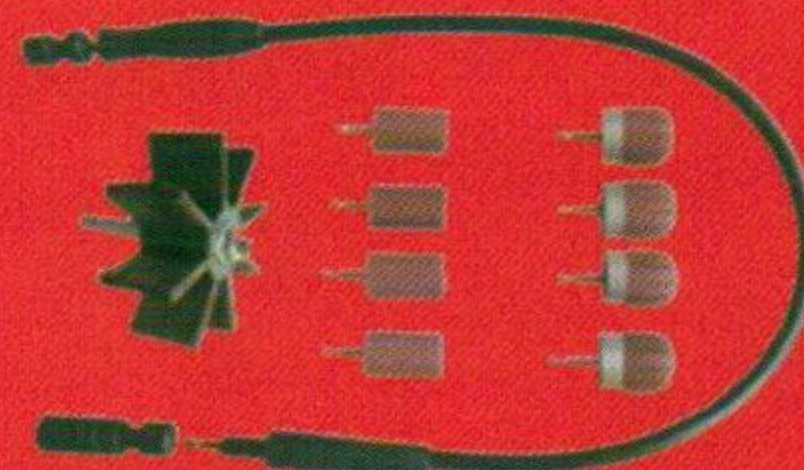
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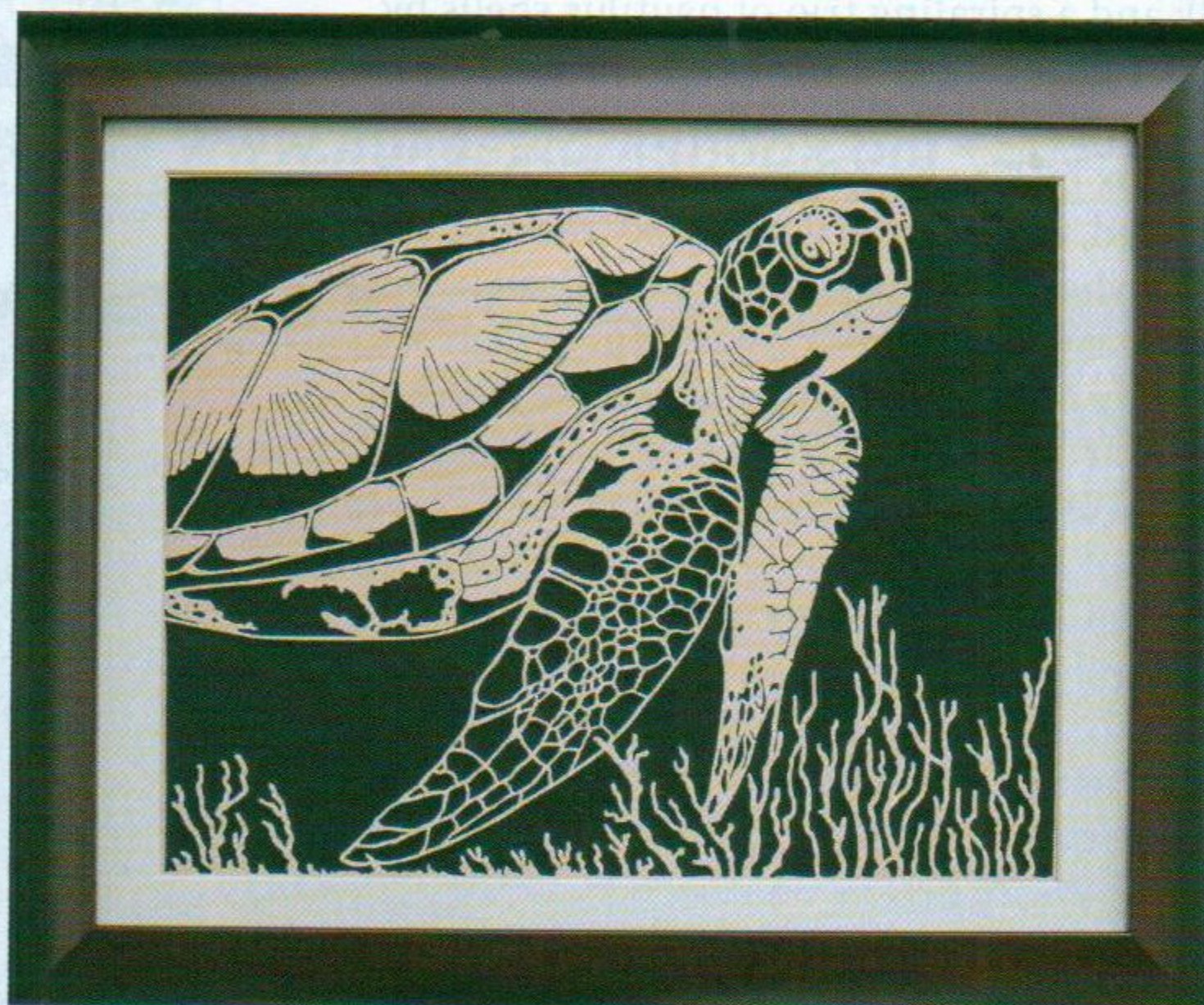
Try out three techniques—inlay, box-making, and compound-cut—in one striking project

By Carole Rothman

62 *Enhancing Scroll Sawn Work with Resin*

Let this stunning beehive inspire you to incorporate a versatile medium into wood projects

By Daniel D. Brown



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Find these free extras at

SCROLLSAWER.COM

- **Bonus Video** – Watch Dmitry Bogomazov bring his Rainbow Boat Toy (page 18) to life in a short film.
- **More Inspiration** – Visit our website for more ideas for enhancing projects with resin.
- **Free Woodimal Project** – Scroll a freestanding feline that's perfect for display or play.
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Correspondence

There's something special about getting a letter in the mail, intended just for you. The value doesn't only lie in the time and effort it took to prepare; more than that, the very act of reading a letter, with care and attention, can be good for your brain. You get to peer into someone else's mind for a moment—to experience how they see life. And at the end, whatever you choose to do with that information, you are richer for it.

Every issue of *SSW&C* is like that for us. Each week, we gleefully unwrap projects from all over and “unpack” each artist's unique approach to that blocky, whirring tool we all love: the scroll saw. This issue is no exception. For three summer favorites with a twist, check out Anatoly Obelets' clever take on a beachcombing hermit crab (and then add texture using a cool Japanese technique!) (page 44); let AJ Favorito teach you how to shade a fierce reptile design with a blowtorch (page 54); or follow along with Patrick Wayner as he accents an exquisite segmented seahorse using paint splatter and Mod Podge® (page 25). Each article offers a glimpse into a new way of thinking about scrolling, like a letter from a pen pal across the world.

If you love fretwork, try it three ways—on beginner-friendly coastal scenes by Sheila Bergner-Landry (page 42); a majestic sea turtle by Charles Hand (page 38); and a spiraling trio of nautilus shells by Fiona Kingdon (page 58). The especially intrepid can venture into box-making, compound-cut, and double-bevel inlay all in one achingly beautiful magnolia jewelry box by Carole Rothman (page 47). Or, if multimedia is more your speed, experiment with epoxy resin in a glorious hive of intarsia honeybees by newcomer Daniel Brown (page 62). Trust us, these are projects you'll want to write home about.

Last but not least, you may notice that we've included a handful of “postcard projects” in this issue: Dave Van Ess's simple pirate ship (page 33), Janette Square's elegant seashell (page 35), and Rita Cels' tempting ice cream puzzle box (page 22). The plans for each one are small enough to fit on a 4x6 postcard, perfect for long-distance woodworking with family or friends. We'll be publishing more projects like this in a future issue, and we want you to be in on it—so we're issuing a Postcard Challenge to all subscribers. Send in an original postcard-sized design for the scroll saw by May 18 for a chance to be featured in our fall issue. We'd love to see how *you* saw! (More details on page 6.)

As you thumb through this volume, we hope you're awestruck (as we often are) by just how vast the scrolling community is, and the wealth of knowledge it contains. We've gathered “letters” from some of the best artists out there, and we're thrilled to share them with you.

Happy scrolling!

Kaylee Schofield, Editor
schofield@foxchapelpublishing.com

These postcard-sized project plans are great for long-distance woodworking with a friend.



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

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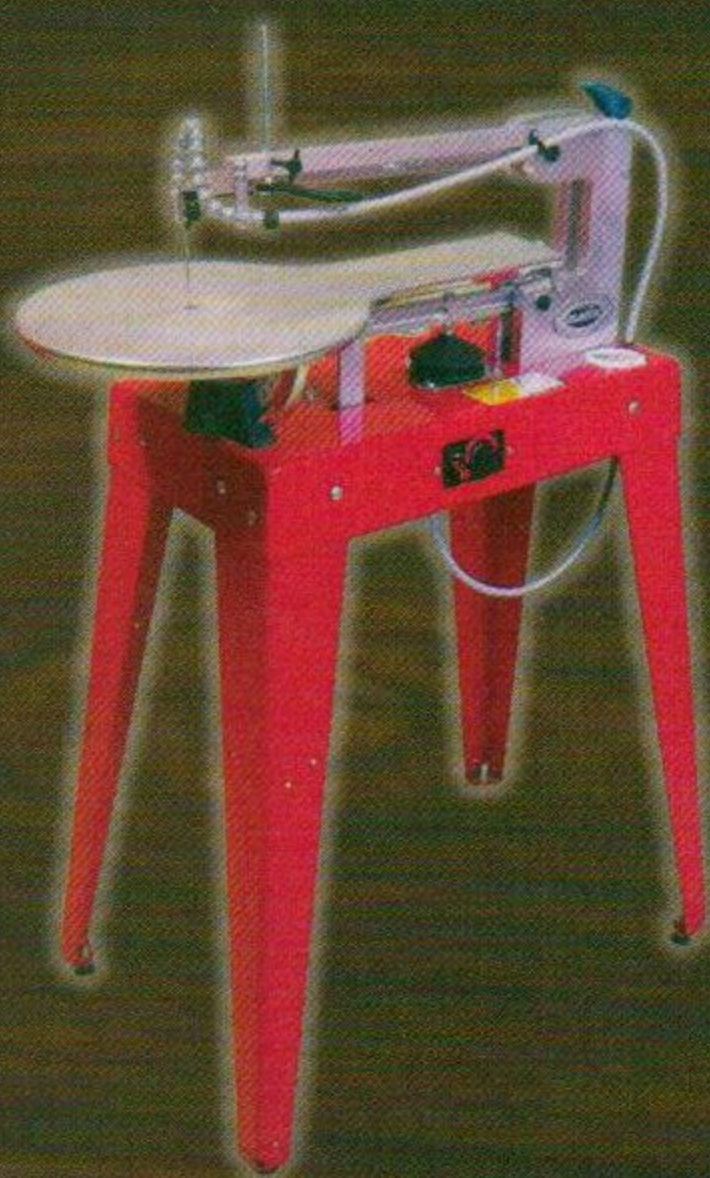
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Challenge Accepted ◀ I have been scrolling for about three decades. I am 85 years old and still like a challenge—and Fiona Kingdon’s “Bread and Cheese” from the winter issue (#81) was one.
Grouer Irish Flint, Mich.

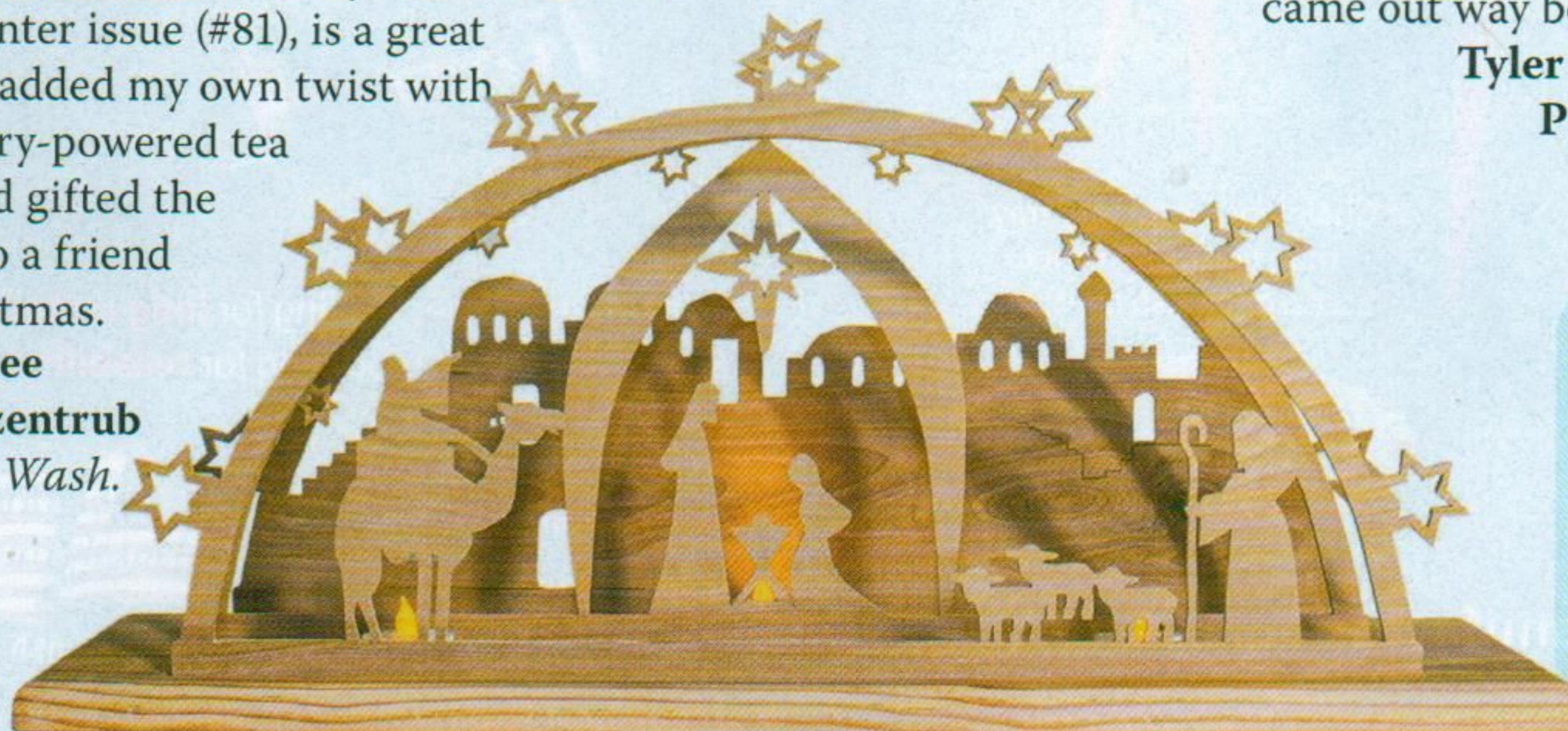


The Perfect Gift ▲ I enjoy scrolling Sarah Lyn Chamberlain’s puzzles. The rocket ships were featured in issue #81, and the ambulance is from issue #78. They were Christmas gifts for a friend’s grandson.
Christine Pelletier Québec, Canada



Abacadabra ▲ I love compound-cut projects, so when I saw Al Baggetta’s wands in the fall issue (#80), I knew I had to try them. They came out way better than expected.
Tyler Dalton, “The Artisan Pirate” Burlington, N.C.

German Holiday Arches ▼ Beatrix Brockman’s nativity scene, featured in the winter issue (#81), is a great design. I added my own twist with the battery-powered tea lights and gifted the project to a friend for Christmas.
**Arthur Lee
Schwartzentrub
Tacoma, Wash.**

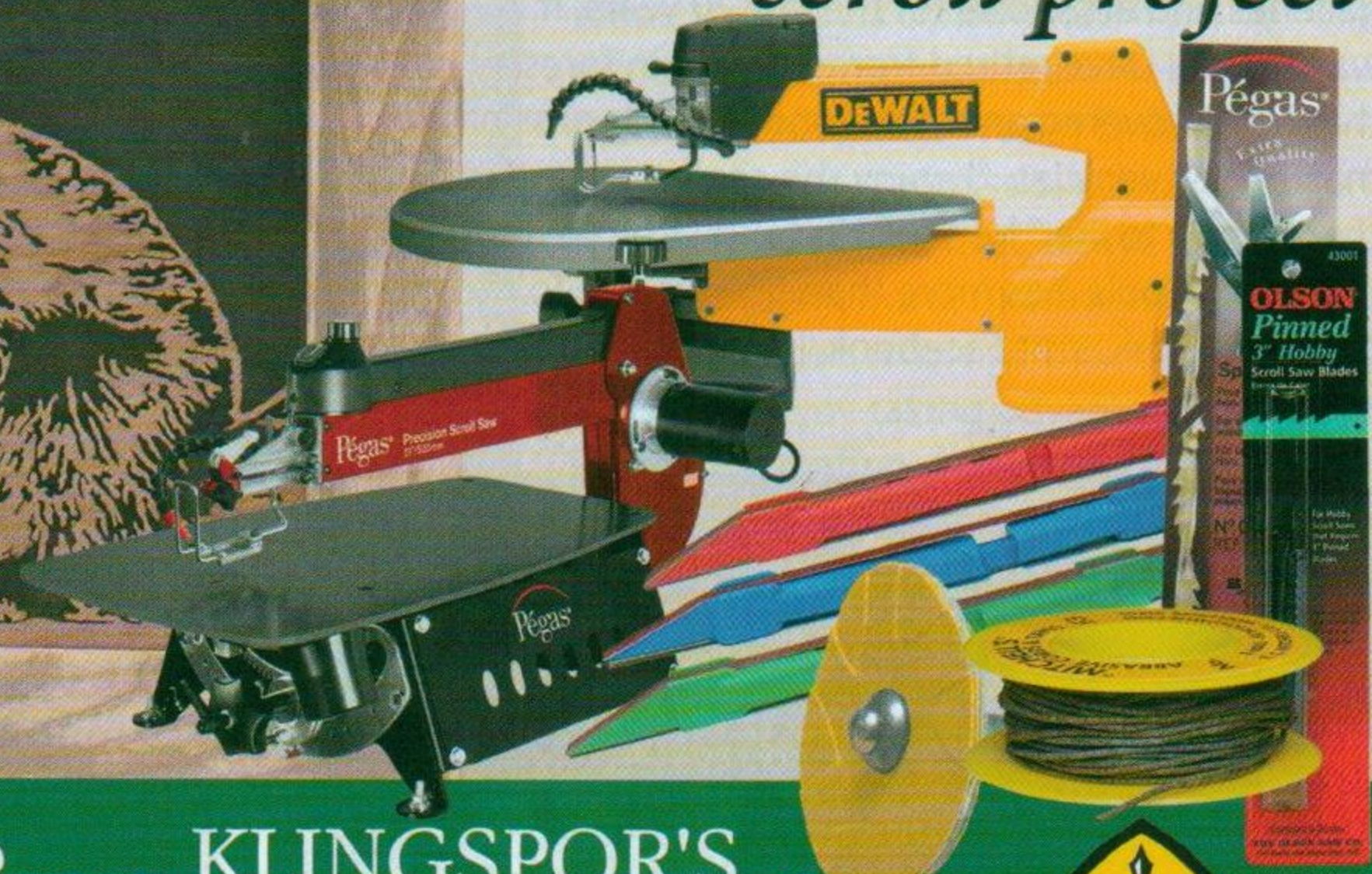


Postcard Challenge!
Send original plans measuring no more than 4" x 6" (10.2cm x 15.2cm), to editors@scrollsawer.com by May 18. We’ll feature our favorites in the Letters section of the fall issue.

We have what you need to finish your scroll project



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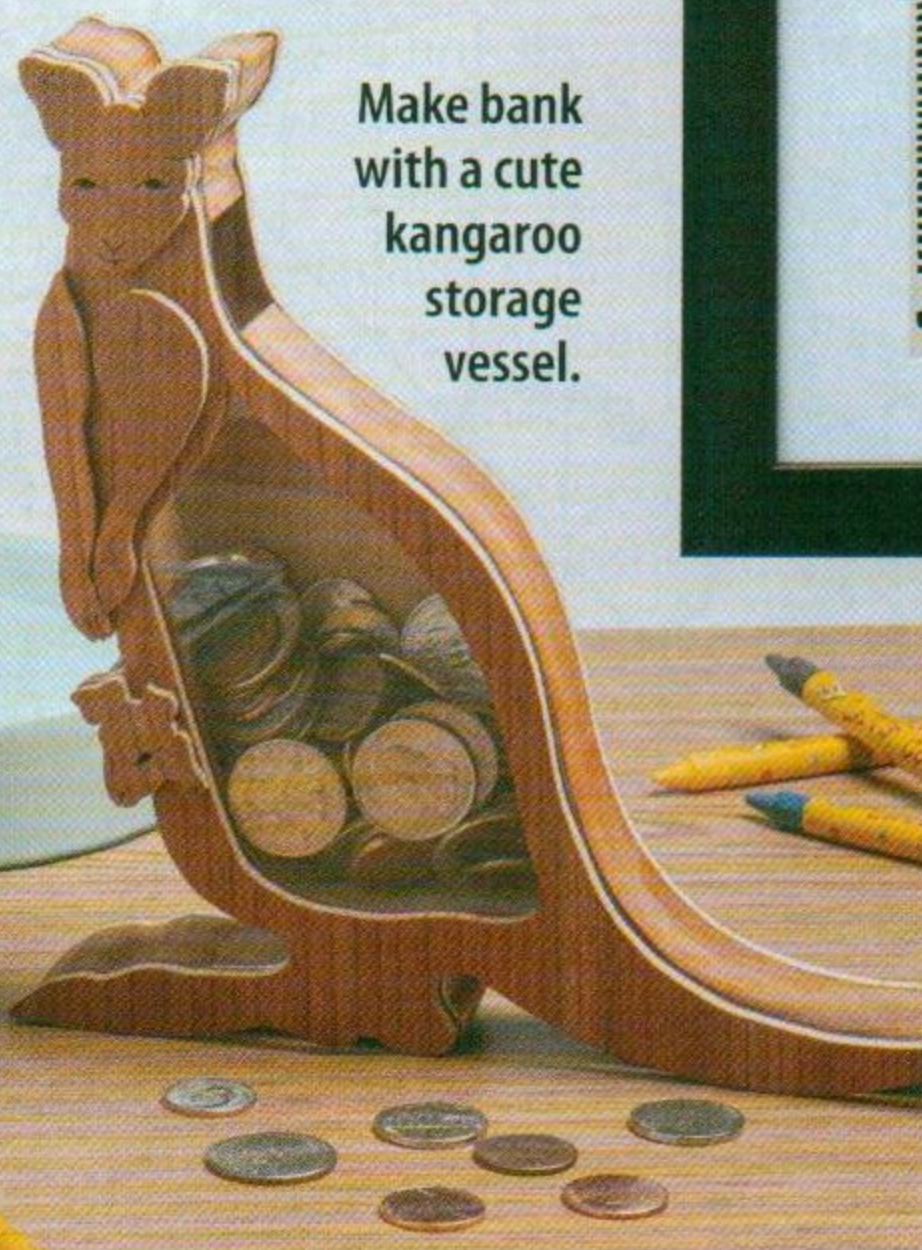
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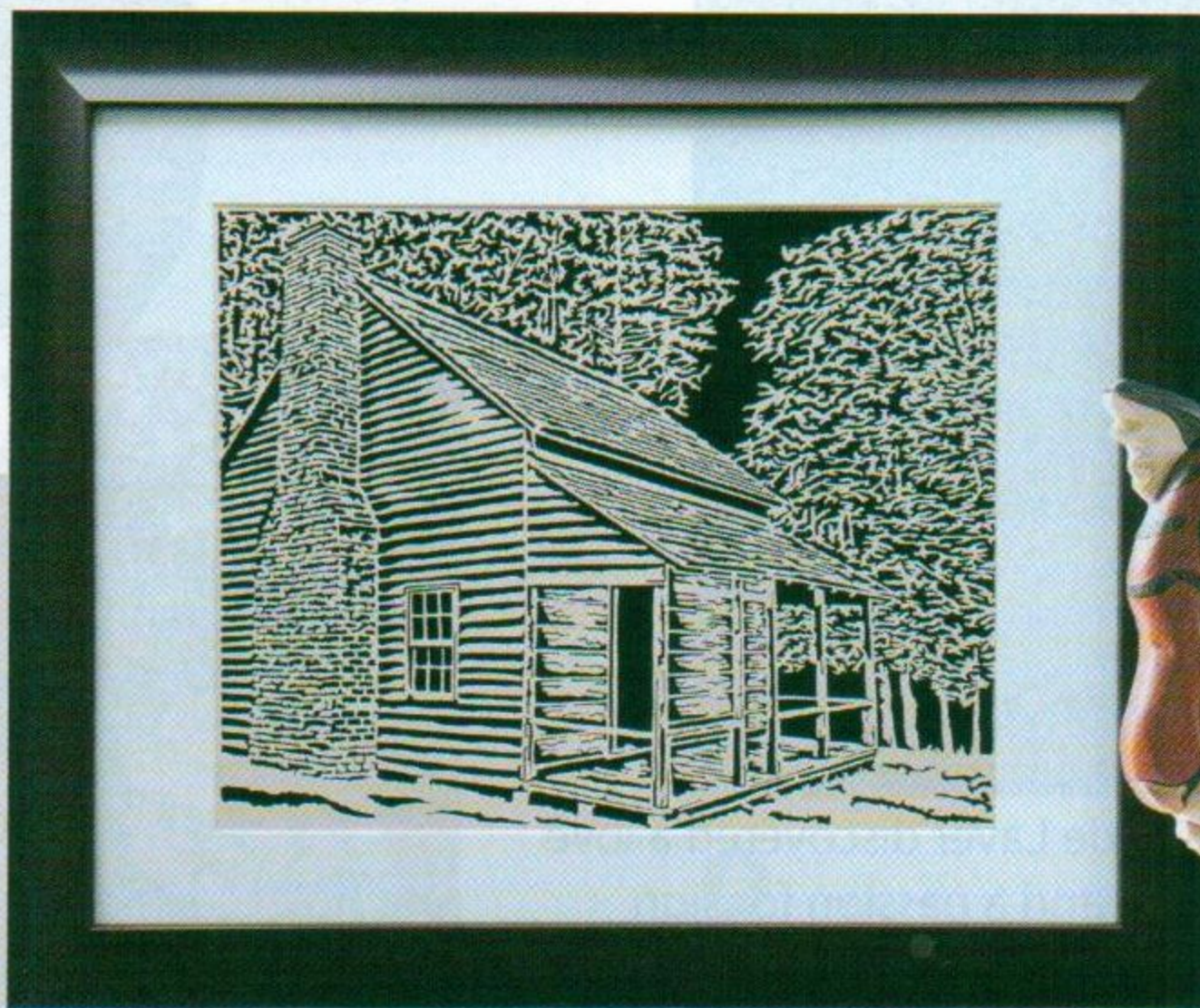
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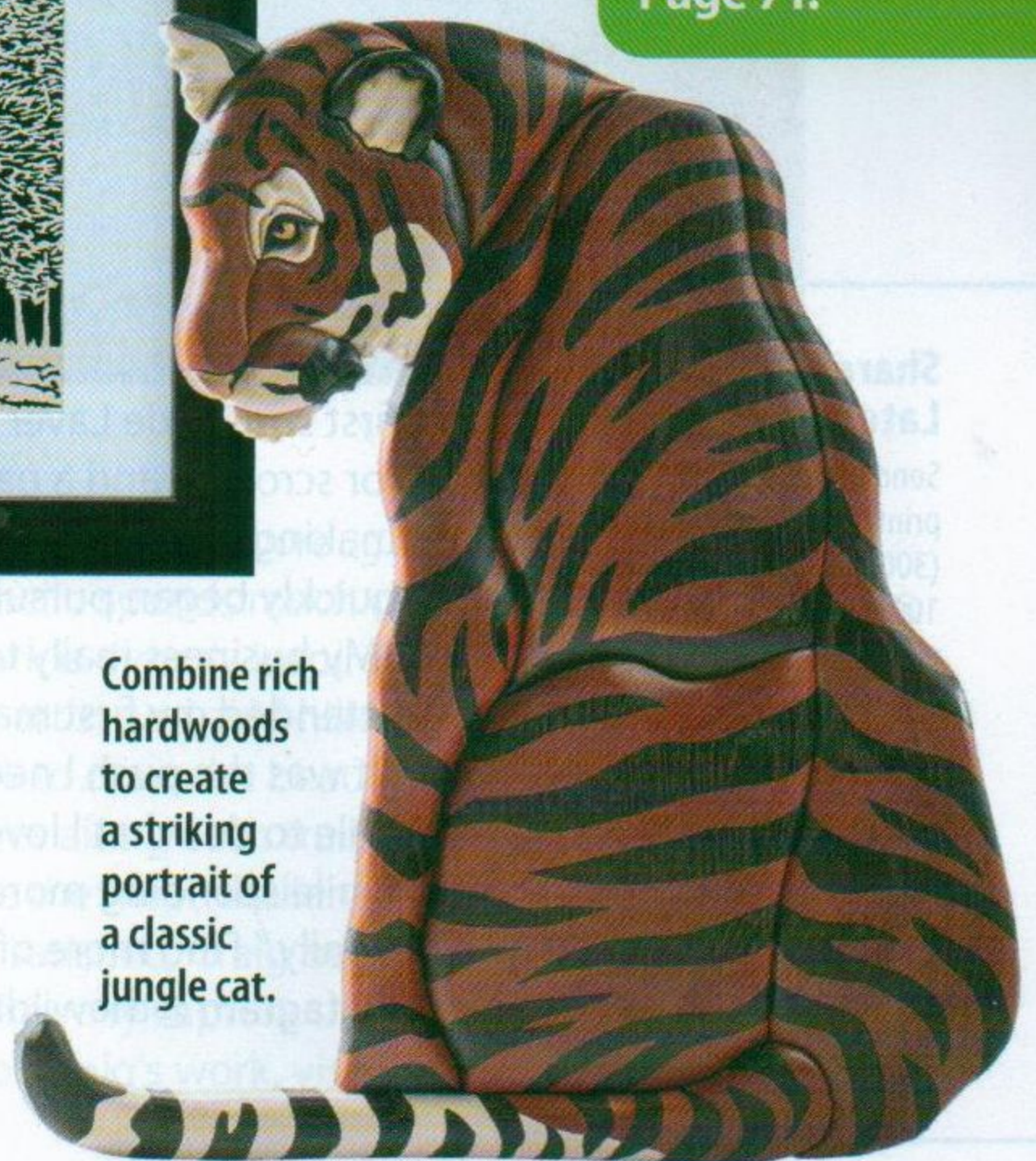
Look for these projects in our fall issue!



Make bank with a cute kangaroo storage vessel.



This cozy scene will have you reaching for your cast iron skillet and flannel pajamas.



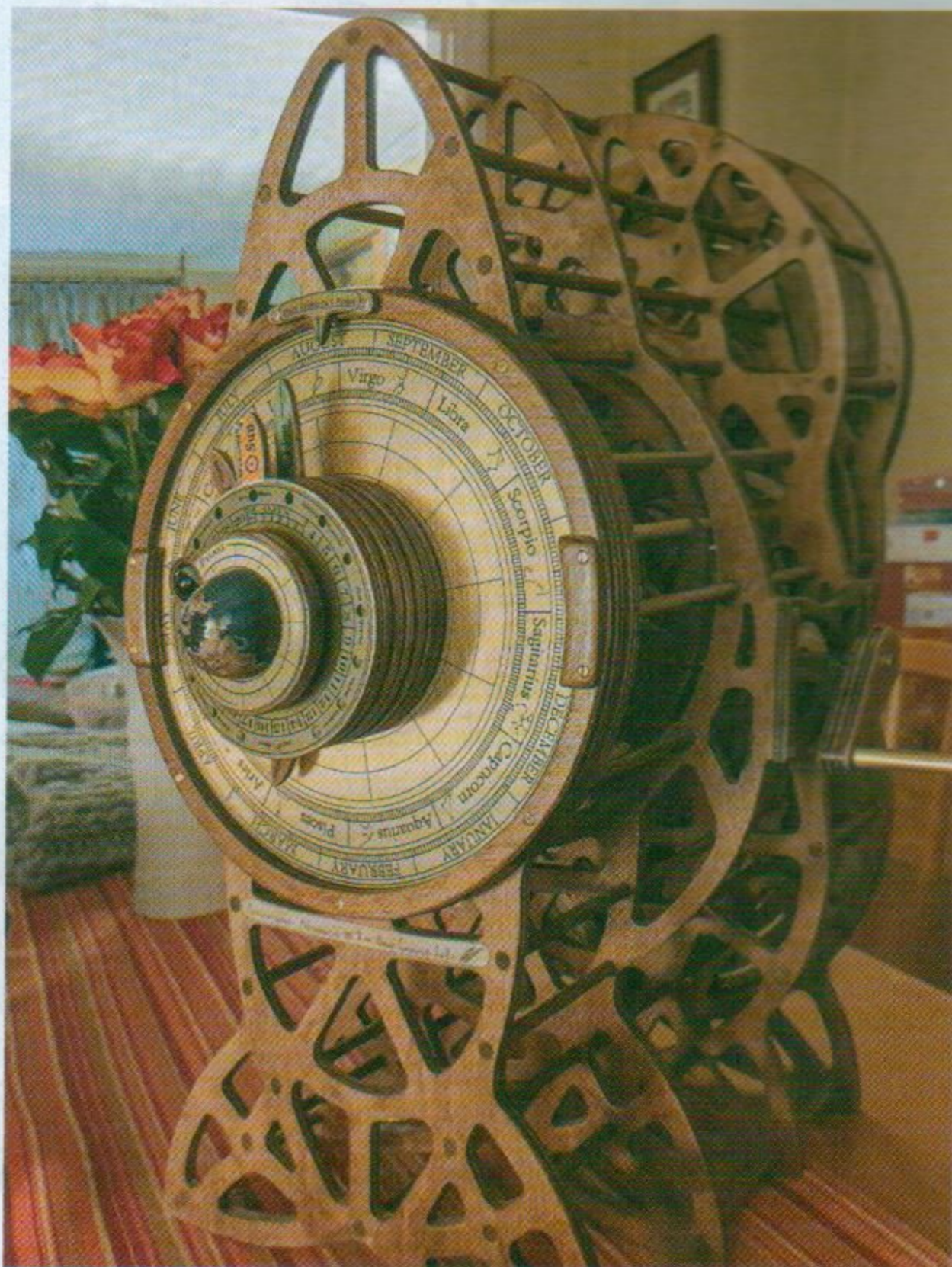
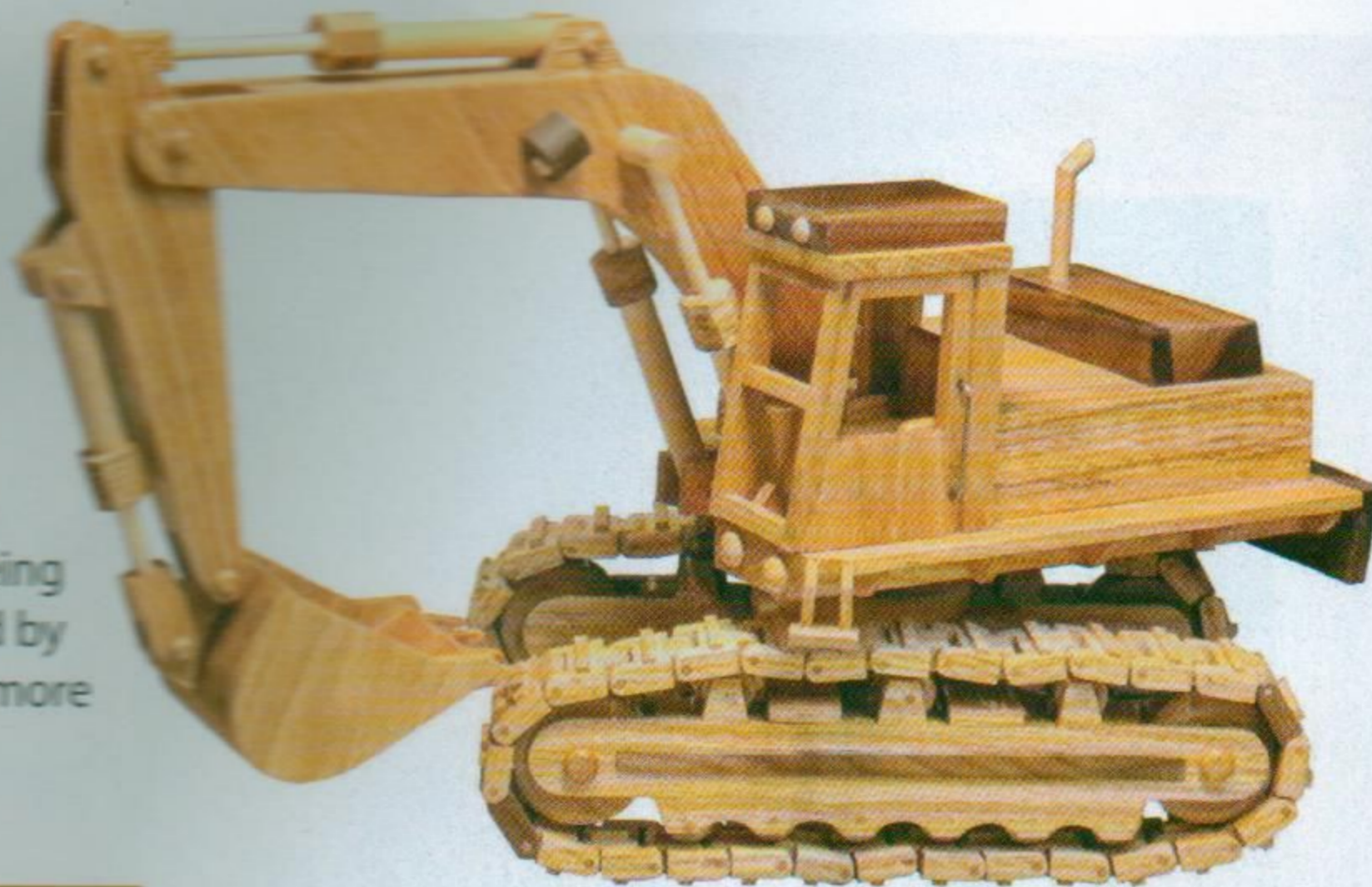
Combine rich hardwoods to create a striking portrait of a classic jungle cat.

Look for the Fox Hunt Winners on Page 71!



Dave Dorosh *Prince Albert, Canada*

Dave Dorosh has always considered himself an intarsia artist; his work has been featured in local galleries and art shows for the last 20 years. It wasn't until Dave retired from a career in forestry that he discovered another woodworking passion: making toy vehicles. "I enjoy the challenge and seeing them come to life," he said. His excavator, designed by Lee Valley Tools, has more than 500 pieces. To see more of Dave's work, visit [Facebook/Images in Wood](#).



David Goodchild *Marham, England*

Since childhood, David Goodchild has been fascinated with the ancient Greek Antikythera mechanism—a primitive hand-powered model of the solar system. Created more than 2,100 years ago, the Antikythera accurately predicted solar and lunar eclipses, moon phases, and other astrological positions. "The decision to build a replica came when I realized that no one else had, with the exception of a few university professors. I've been at it for almost seven years now." To see more of David's work, visit [@antikythera_man](#) on Instagram.

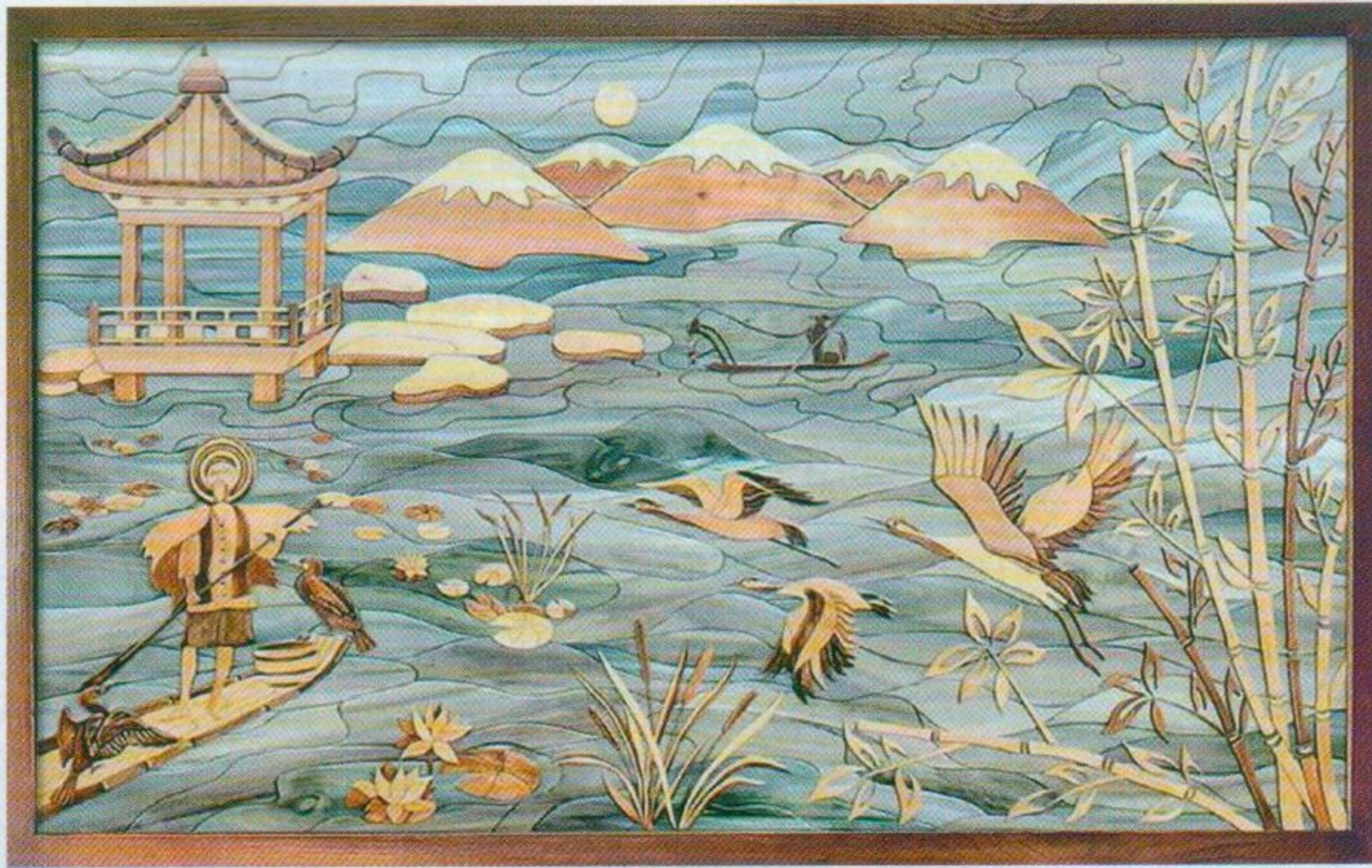


Lexie Lavers *Ontario, Canada*

While on maternity leave with her first son, Lexie Laver discovered a love for scrolling and a passion for sign making. Captivated by the craft, she quickly began pursuing it full-time. "My business really took off after I attended my first market," she said. "It was the push I needed. Now I am able to do what I love for a living while spending more time with my family." Find more of Lexie's work on Instagram [@thewildtimber](#).

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 Artists to Watch, *Scroll Saw Woodworking & Crafts*, 903 Square Street, Mount Joy, PA 17552 or e-mail editors@scrollsawer.com.



Antonio Morales *Matanzas, Cuba*
 Antonio Morales has pursued marquetry for more than 20 years, mostly on shop-made scroll saws constructed from refrigerator compressors and sewing machines. His piece, "Water Dream," is part of a series commissioned for a local restaurant. Antonio used native woods, such as majagua and mahogany, and enhanced their colors with oxidizing agents. "I enjoy taking advantage of natural lines, and creating shapes and figures," he said. To see more of Antonio's work, visit [Facebook/Tony Morales Varona](https://www.facebook.com/TonyMoralesVarona).



Debbie McGinnis *Beavercreek, Ohio*
 Debbie McGinnis has always enjoyed working with her hands. Before learning woodworking, she was a stained glass artist. Now she likes to create smaller scroll sawn items, such as trinkets, boxes, and bowls, and considers her workshop to be her happy place. "Working with wood is great therapy," she said. "I have struggled with Parkinson's disease for the last seven years and find that scrolling helps with my tremors." To see more of Debbie's work, visit [@debbies_woodworking](https://www.instagram.com/debbies_woodworking) on Instagram.



Craig Altobello *Peterborough, N.H.*
 Craig Altobello spends much of his time in the mountains, and his work is directly inspired by his experiences in nature. An artist and avid hiker, Craig often carries a sketchbook to draw the beautiful landscapes, flowers, and trees he sees along each trail. "Drawing and composing tends to be the most challenging part of my work," he said. Once satisfied, Craig begins searching for the right wood to naturally capture the essence of the image. To see more of Craig's work, visit craigaltobello.com.

Gnarly Art

Instead of tossing old, beat-up skateboards, this artist scrolls them

By Hannah Carroll



Sneaker.

Inga Guzyte spent her childhood shredding sidewalks. Now she shreds skateboards on the scroll saw. Having grown up in Germany, where skateboarding is a big part of street culture, she comes by this focus honestly. For more than a decade, Inga has celebrated her past by creating artworks made from fragments of broken boards. She regards the scroll saw, which she took up six years ago, as the tool that has refined her unique style.

“The scroll saw elevated my work and allowed me to express myself in more detail,” Inga said.

But how exactly does one scroll a skateboard? Decks are made of seven layers of maple veneer—and, unlike regular veneer, are curved and about $\frac{3}{8}$ " (1cm) thick. Inga’s process is simple. She peels off the grip tape (the bumpy, asphalt-like surface on top of the board), then flips the deck over. The bottom of the board—typically covered in skateboard graphics—becomes her color palette. She uses her Excalibur scroll saw to cut the skateboard into pieces of the colors she needs. Once the elements are cut, she arranges them together like a mosaic.

The closer you get to her work, the more detail you see. Every mark and nick picked up from the unforgiving concrete is intentionally included.

“These blemishes share a story only the streets could tell you,” she said.

The possibilities for busted skateboards are endless, and other artists around the world are putting their own spin on the trend.

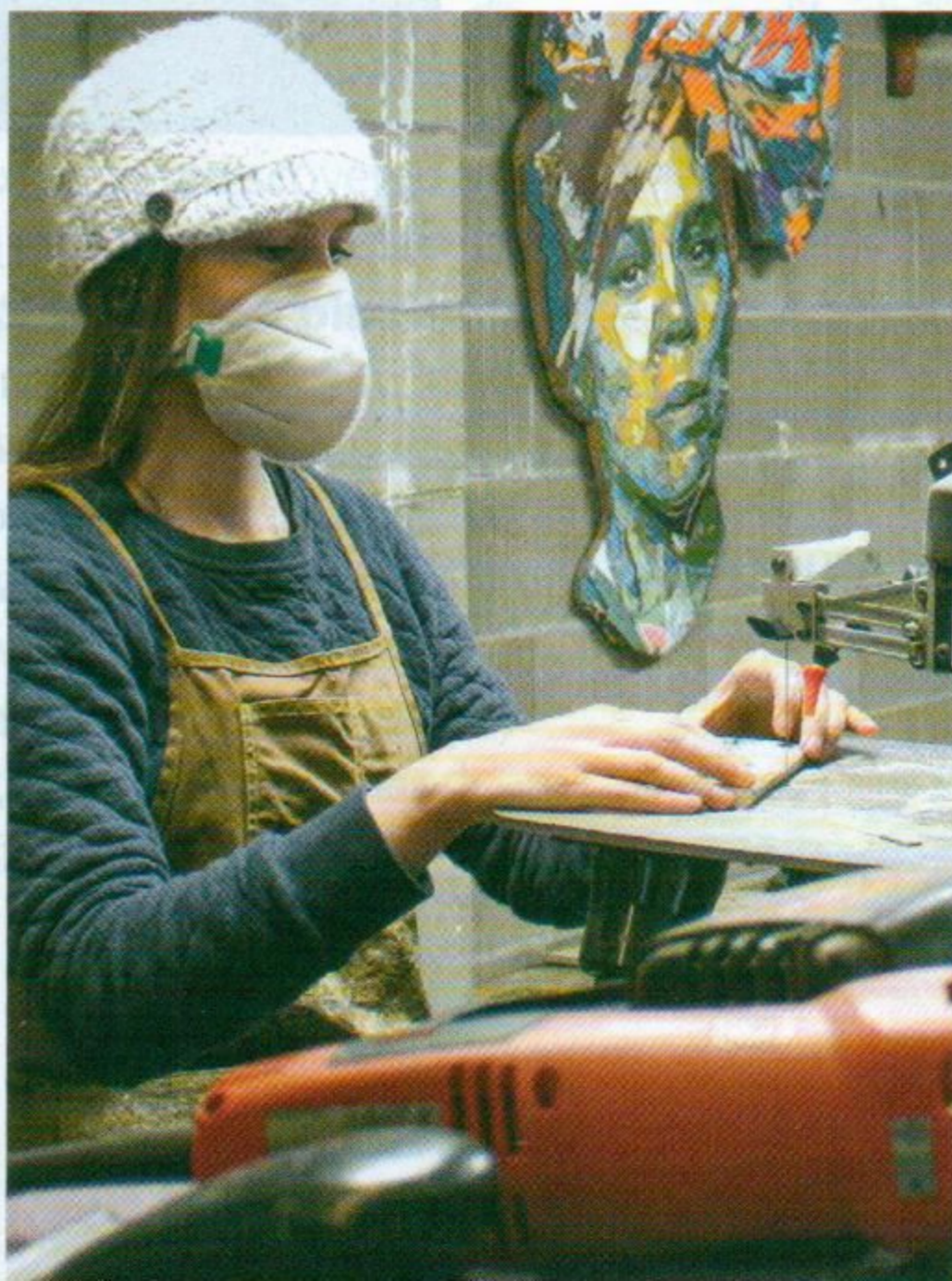
Germany’s Christoph “Willow” Wildgrube incorporates them into modern and stylish furniture pieces; Japanese skateboarder and self-taught woodworker, Haroshi, uses skateboards for his handcarved sculptures; and Ohio artisan David Sheppard turns bowls, bottle stoppers, and earrings on a lathe. Keenan Perren, of Sarasota, Fla., has been making skateboard collages on the scroll saw for the last four years. An avid artist and skateboarder, Keenan taught himself how to scroll by watching videos on YouTube. Each of these artists applies principles of traditional woodworking to a nontraditional medium. And the results are remarkable.

Like her peers in the upcycled-skateboard realm, Inga seeks striking subjects to highlight. She enjoys creating portraits inspired by current issues. Her latest body of work—*Rebel Women*—portrays women of influence who have important stories to tell.

“I enjoy using the scroll saw because I can be spontaneous, yet still feel in control,” she said. “At times, it feels as if I am drawing. There is no fear of the tool, only respect for what it can do.”

To see more of Inga’s work, visit ingaguzyte.com or [@ingaguzyteart](https://www.instagram.com/ingaguzyteart) on Instagram.

Inga slicing up skateboards.



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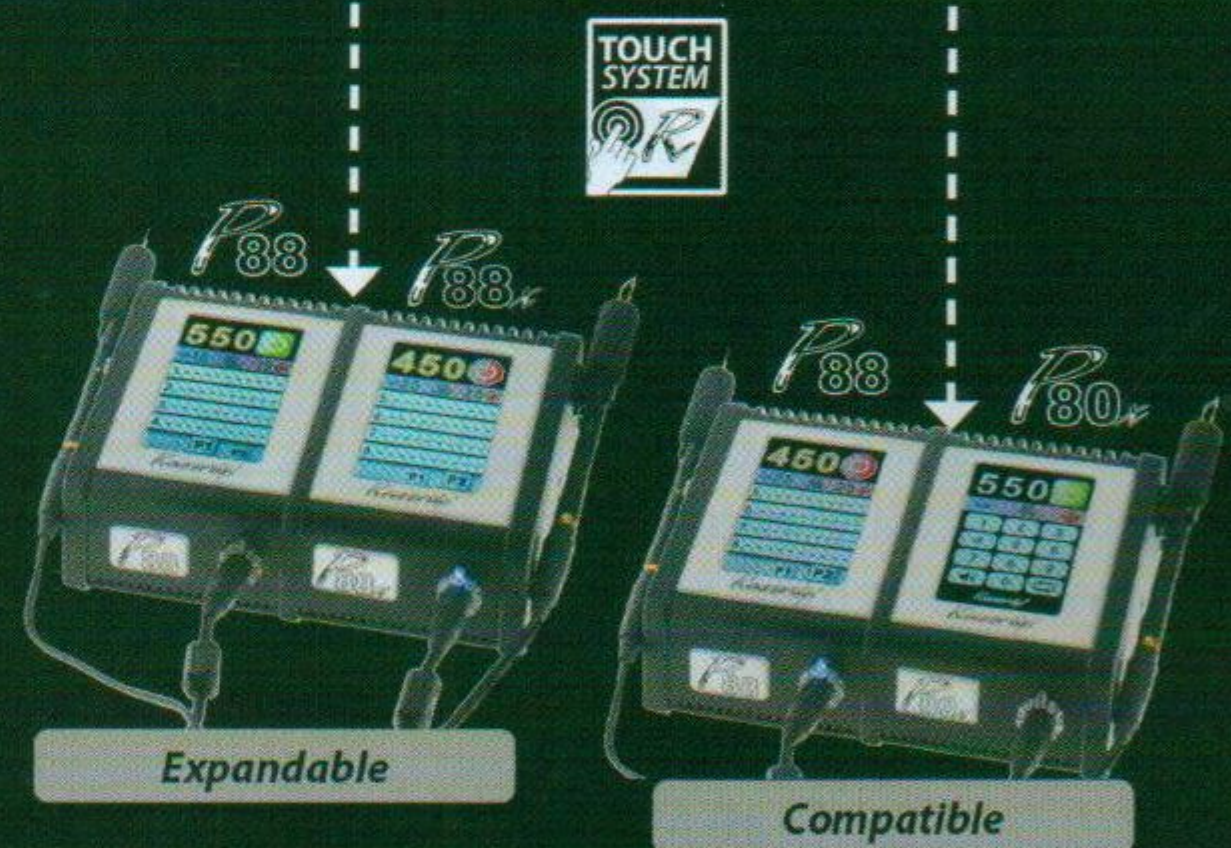
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Dust Collection ROUNDUP

Consider these options for keeping your woodshop—and lungs—free of dust

By Jon Deck, Magazine Art Director

As woodworkers, we ardently pursue our passion as often as our time and skills allow. But the by-product of our endeavors creates a common nuisance and even potential danger—sawdust. Dealing with sawdust goes beyond tidying up the woodshop. Woodworking tools create airborne dust that can compromise breathing and, depending on the material being worked, cause serious health concerns. Scrollers in particular use a machine that not only makes very fine sawdust, but has an air nozzle that distributes that dust into the air surrounding the user. Intarsia artists extend that process by sanding nearly every piece they cut. It's not hard to see that hours spent in the shop could affect your health.

There are many options for casual hobbyists to protect themselves in their workspace. It is essential not to rely on a single solution, but to take a multifaceted approach instead. This includes immediate personal protection, dust collection at the source, and ambient air filtration.

Choices range from shop-built solutions to professional dust collection equipment. Make sure what you can afford is the most efficient for your shop and the type of work you do.

Masks

	Make/Model	Price	Body	Filter
A	GVS SPR457	\$27.99	Thermoplastic half mask	Dual pleated HEPA
B	RZ M2.5	\$36.95	Nylon, mesh, neoprene	Carbon
C	Parcil PT-60	\$69.97	Plastic half mask	Dual carbon canister



Personal Protection

The primary means of sawdust protection is the simplest—wearing a dust mask. A mask is portable and inexpensive, and requires nothing more than a proper fit to your face. That said, there are a wide variety of masks available. It's best not to skimp on this first line of defense. Bypass a paper or cotton fiber mask in favor of a more effective model that has a cloth or rigid body and replaceable filters. Make sure your mask is comfortable, as well. The better a mask fits and feels, the more effective it will be, and the more likely you will be to wear it.



Benchtop Collectors

	Make/Model	Price	Filter Rating	Fan/Impeller	CFM
A	Grizzly G9955	\$179.95	5 micron pleated	Dual fans	400
B	Tornado 1000	\$429.00	MERV-8 pleated	Variable speed impeller	1000
C	Oneida Benchtop DC	\$579.00	Dual filters MERV-15	Six variable speed fans	535

Source Collection

Collecting airborne dust while working with a tool is a key way to protect your lungs and help keep your work areas cleaner.

Employing a benchtop dust collector allows you to clear dust-laden air at the source without installing a dust collection system. Portable and efficient, they work best with fine airborne dust and can easily be moved to any work area in your shop. They are most effective when placed close to the working tool. Professional models have strong impellers or multiple fans to pull dust away from the operator, and massive filters that expel clean air on the opposite side. They come with a hefty price tag, but are worth

Shop-built budget-friendly dust collector.



every penny if one serves as your primary collection device.

Alternately, you could construct a shop-built version by encasing a 20" (51cm) box fan in a wooden frame with a pair of 20" by 20" (51cm by 51cm) furnace filters. Sandwich the fan between the filters, using a lower-efficiency filter on the intake side and a

high-efficiency HEPA filter on the exhaust side. I have built two such boxes, using one for source collection and one suspended from the ceiling to serve as air filtration in my home shop. While not nearly as effective as their professional counterparts, they do a good job, showing signs of trapped dust with each use. And at roughly \$50 to construct, they can make a big difference in air quality to a small shop on a budget.

Whether these units are store-bought or shop-built, be vigilant in maintaining them. Frequently vacuum accumulated dust from filter surfaces, and replace them as needed or recommended by the manufacturer.

Dust Collection Systems

Most other methods of source collection are extended features of a complete dust collection system, all anchored to a main dust collector machine. These occur as breaks in a system's ducting, used to drop a hose to collect dust with a bench top hood or a connection to a downdraft table. Each such break terminates at a sliding blast gate when not in use to keep the system as closed as possible. The end of the

system ducting attaches to the dust ports of major shop tools (table saw, planer, band saw, etc.) that produce hoards of sawdust and chips.



System Collectors

	Make/Model	Price	Filtration	Motor/Air Flow
A	Harbor Freight Central Machinery	\$209.99	5 micron	2-HP/1550CFM
B	Rockler Dust Right	\$269.99	30 micron (optional upgrades available)	¾-HP/650CFM
C	JET DC1100VX	\$749.99	2 micron canister	1½-HP/1100CFM

The installation of such a system is a major undertaking. The planning itself takes in variables such as ducting material, size, and length; the suction capability of the dust collector unit; the number of tools attached to the system; and dozens more. Entire volumes have been published on the subject, and one should consult as many sources as possible before embarking on a build. (For more on dust collection systems, see Sidebar below.)

Pre-Separators

A pre-separator connects between the dust collector and the beginning of the ductwork run. Its job is to create a vortex within a container that will reduce the amount of dust and woodchips that will enter the dust collector—by 90% or more, depending on the separating device.

The main advantage of a pre-separator is that it can extend the life of your dust collector. The dust



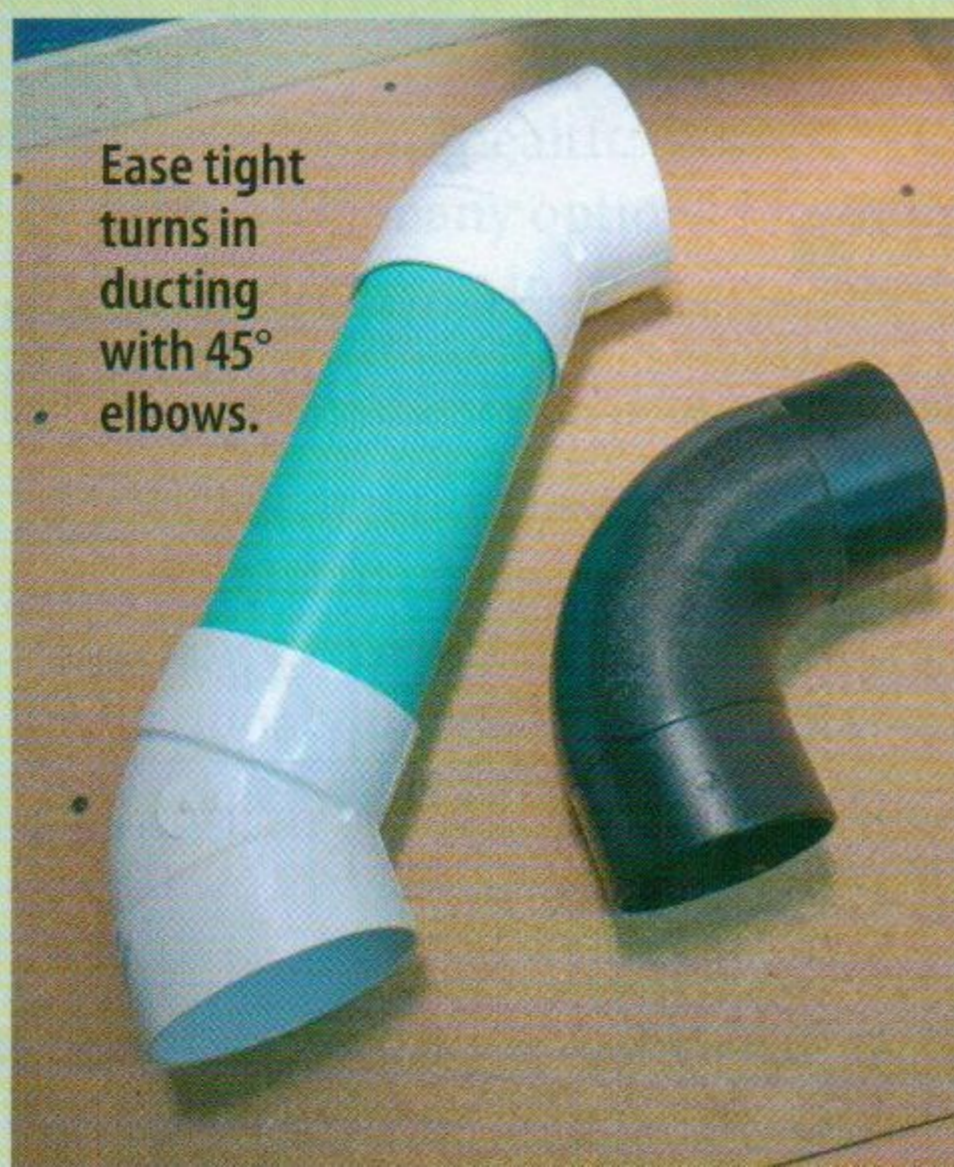
Pre-Separators

	Make/Model	Price	Pairs With	Container
A	Powertec Cyclone Kit	\$18.99	System collector	Not included
B	Dustopper Separator	\$50.97	Shop vacuum	5-gallon bucket (not included)
C	Dust Deputy Deluxe Kit	\$99.95	Shop vacuum	5-gallon bucket
D	Jet Cyclone Separator	\$249.99	System collector	20-gallon bin

5 Tips on Building Your Own Dust Collection System

I wouldn't dream of giving specific advice, but having recently constructed a system in our woodshop, I will pass along a few universal truths.

- 1. Use smooth wall ducting.** Most of your system ducting should be metal or PVC pipe. Plastic corrugated hose may be cheaper, and can flex around obstacles, but it will rob you of optimal air flow. And straight runs are always better than a meandering tube.
- 2. Tight turns in ducting slow air flow significantly.** 90° turns are great for plumbing, but not dust collection. If you need to make a turn, use two 45° elbows with a length of duct between to allow the air to move freely.



Ease tight turns in ducting with 45° elbows.



Make ducting joints airtight.

- 3. Keep connections as airtight as possible.** While I did not glue my PVC ductwork together with PVC cement, I did run a bead of DAP caulking around the inside of fittings. Aluminum ducting tape can be wrapped around a joint, as well.
- 4. Be prepared to get creative with dust collection components.** No matter where you buy your 4" (10.2cm) couplings, hoses, and connectors, they will rarely fit seamlessly together—even if they're all the same brand. Furthermore, matching these components to box store PVC pipes is more of a challenge. I recommend you get all elbows and tees for your main run where you buy the pipes so they all match up. Cut a bunch of 1½" (3.8cm) and 3" (7.6cm)-wide rings from your PVC pipe to use as insets and collars. You'll use these to help connect

fittings that don't match. You must also transition connections from PVC pipe to a 4" (10.2cm) flex hose with a 4" (10.2cm) splice coupling.

- 5. Make your dust collector the best it can be.** For our company shop, I inherited a beast of machine that was neglected for many years. After a good cleaning, most of the problem was the collector's cloth bags. Not only were they tattered and dust-caked; they also had web straps to hold them onto the machine, which failed and were reinforced with duct tape. For a small investment, I ordered a new 2.5 micron bag for the top, plastic collection bags for the bottom, and two metal band clamps to securely hold them in place. The filtration is now highly efficient, and the lower bag gets discarded instead of emptied.



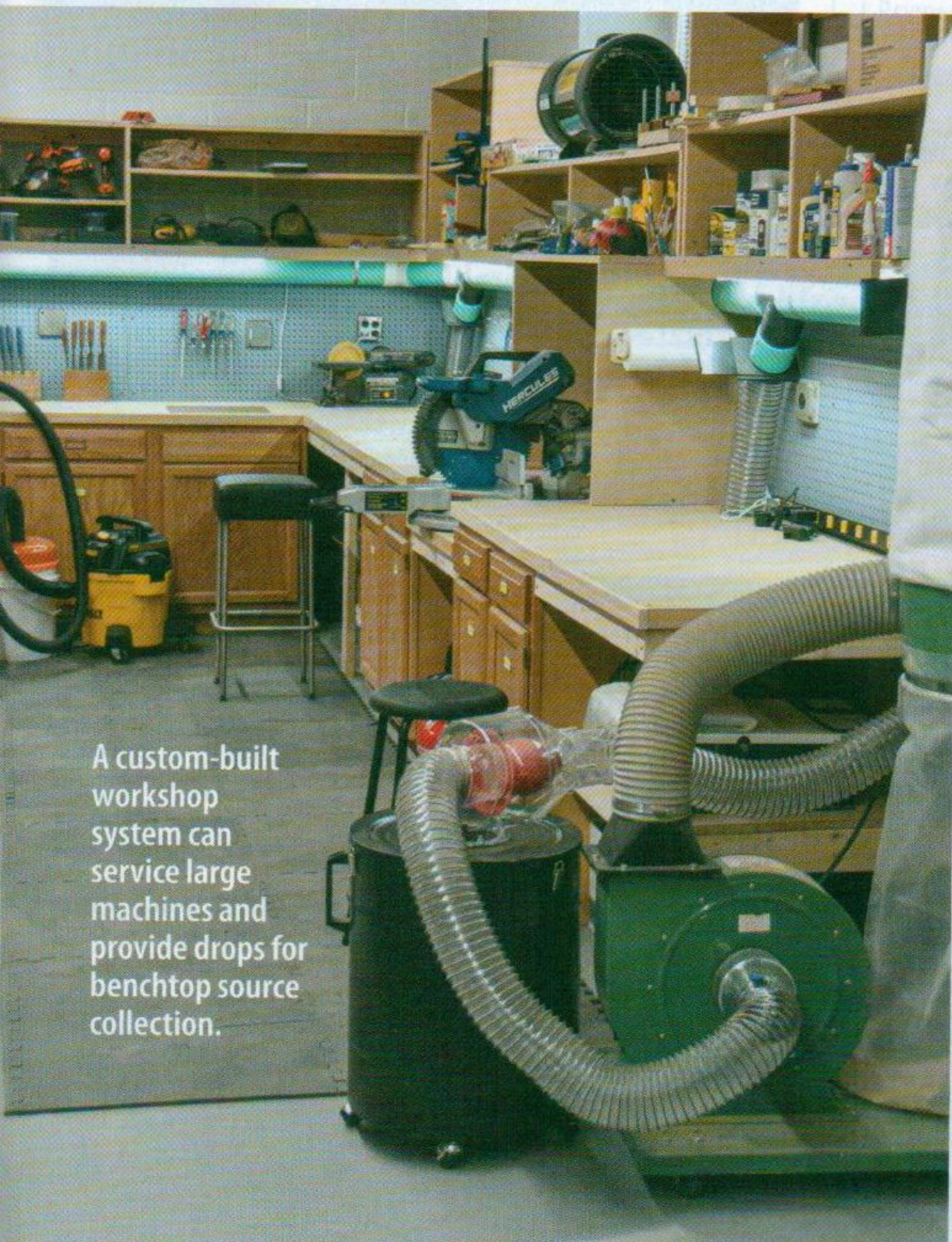
Transition ill-fitting joints with rings of PVC pipe.

A Word About Shop Vacuums

I believe the shop vacuum is the most abused piece of equipment in any shop. Ever since I vacuumed up piles of drywall dust years ago, I decided never to use a shop vacuum without a paper collection bag inside. What a mess—and a uselessly clogged filter to boot! Always use a collection bag to protect the filter in your vacuum and keep the inside clean.

When you consider that your vacuum does most of the heavy lifting in keeping floors and benchtops clean—serving as source collectors for smaller power tools, as well as maintaining the rest of your dust collecting equipment—it behooves you to take extra care of these workshop custodians. Employing a pre-separator will prevent the bag from filling with larger bits of wood and other debris you vacuum from the floor—making for fewer bag change-outs. Coupled with a good filter and collection bag inside, the pre-separator will boost the efficiency and extend the life of any shop vac.

collector will receive much less wear, with large volumes of dust, chips, and chunks of wood or pieces of metal being deposited in the pre-separator instead of passing through the unit's impeller. Metal objects that strike the impeller blades could cause a spark, resulting in a fire or explosion of igniting dust. Then there's the convenience of not having to change out the collection bag as often.



A custom-built workshop system can service large machines and provide drops for benchtop source collection.



Air Filters

	Make/Model	Price	CFM	Filter	400sq. ft. exchange
A	WEN 3410	\$134.53	400	1 micron	7.5 times per hour
B	Jet AFS-1000B	\$359.99	1000	1 micron	19.5 times per hour
C	Axiom Stratus	\$399.99	850	1 micron	N/A

Air Filtration

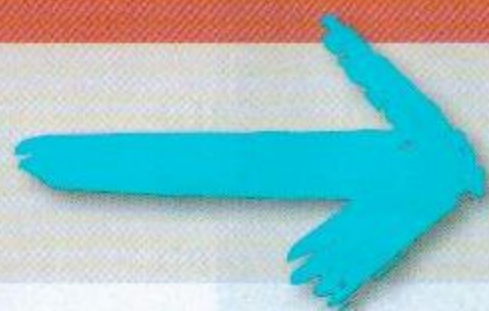
With all these options available, you can feel confident about creating a safe environment. But when you turn off your tools, power down the dust collector, and remove your mask, there is still a certain amount of microscopic dust in the air. This ambient dust lingers the longest and (because it contains the finest particles) can pose the most serious threat of ending up in your lungs. So the final step of clarifying the air is to use an air filtration unit.

Air filtration units are most often hung from the ceiling of a shop in a central location. They tout different features: multi-speed fans, multiple layers of filters, electrostatic collection, remote controls, and more—but their common purpose is to clean the ambient air of micro-dust particles. Manufacturers measure their units based on room size and rate of air exchange. When choosing an air filtrator, make sure the unit is right for your workshop.

Conclusion

There are many products available to help arrest dust and control air quality. The investment in proper dust collection equipment can be costly. If you're on a budget, start small with shop-built collectors and a good mask—but don't ignore a multi-faceted approach to cleaner air. You can always upgrade your equipment over time. With careful planning—and without breaking the bank—you can achieve the convenience and protection necessary to make your shop safer.

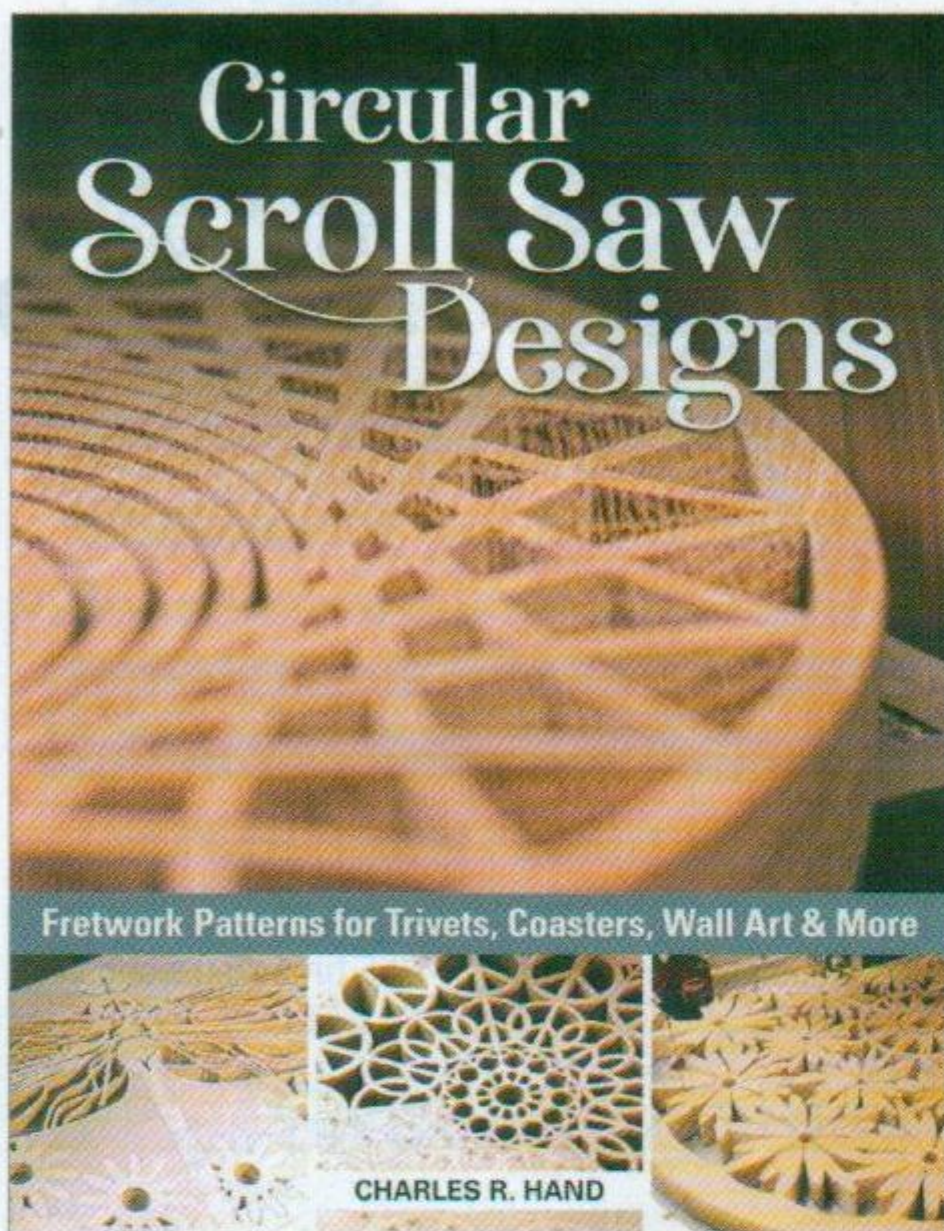
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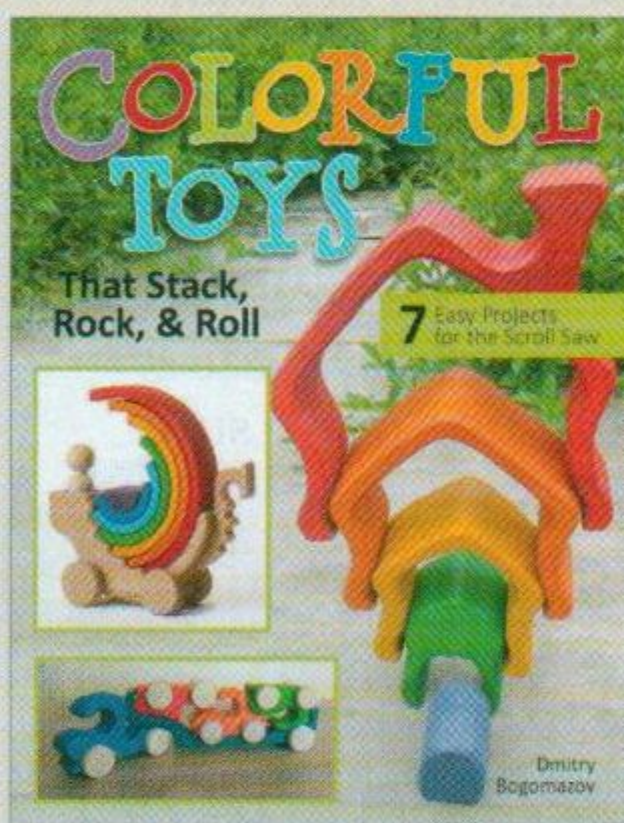
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Author **CHARLES HAND** is an accomplished designer and award-winning scroll saw artist with a love for fretwork, intarsia, segmentation, and inlay. A regular contributor to *Scroll Saw Woodworking & Crafts* magazine, he also sells his work to a worldwide clientele on his website, Making Dust with Charles Hand (www.scrollsawart4u.weebly.com).

“The first time I saw one of Charles' fretwork designs, I was hooked. His unique style and detail are both challenging and visually stunning. This collection is very different with its circular format. Charles has restored my joy in doing fretwork.”

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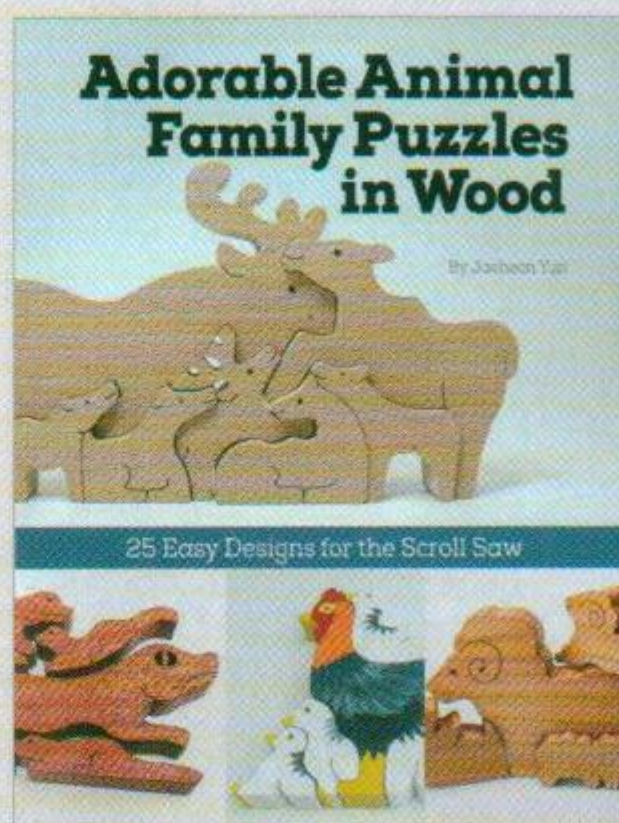
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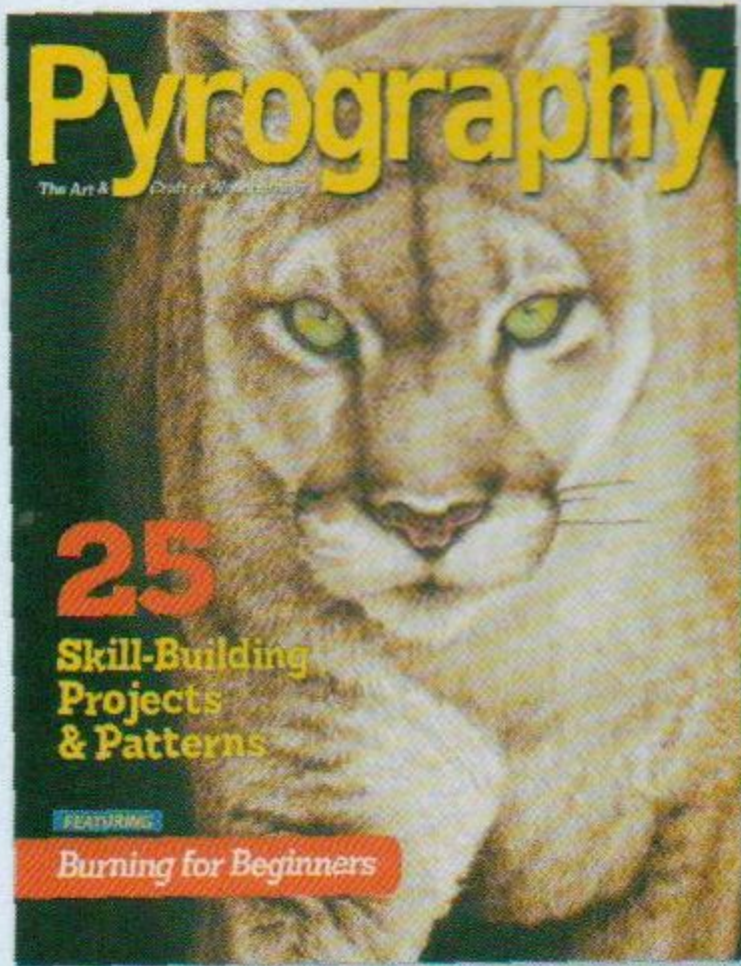
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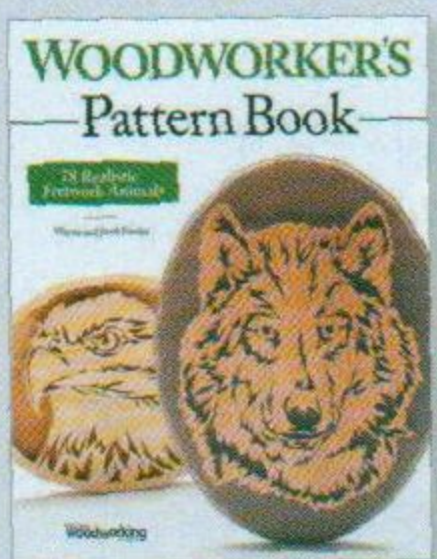
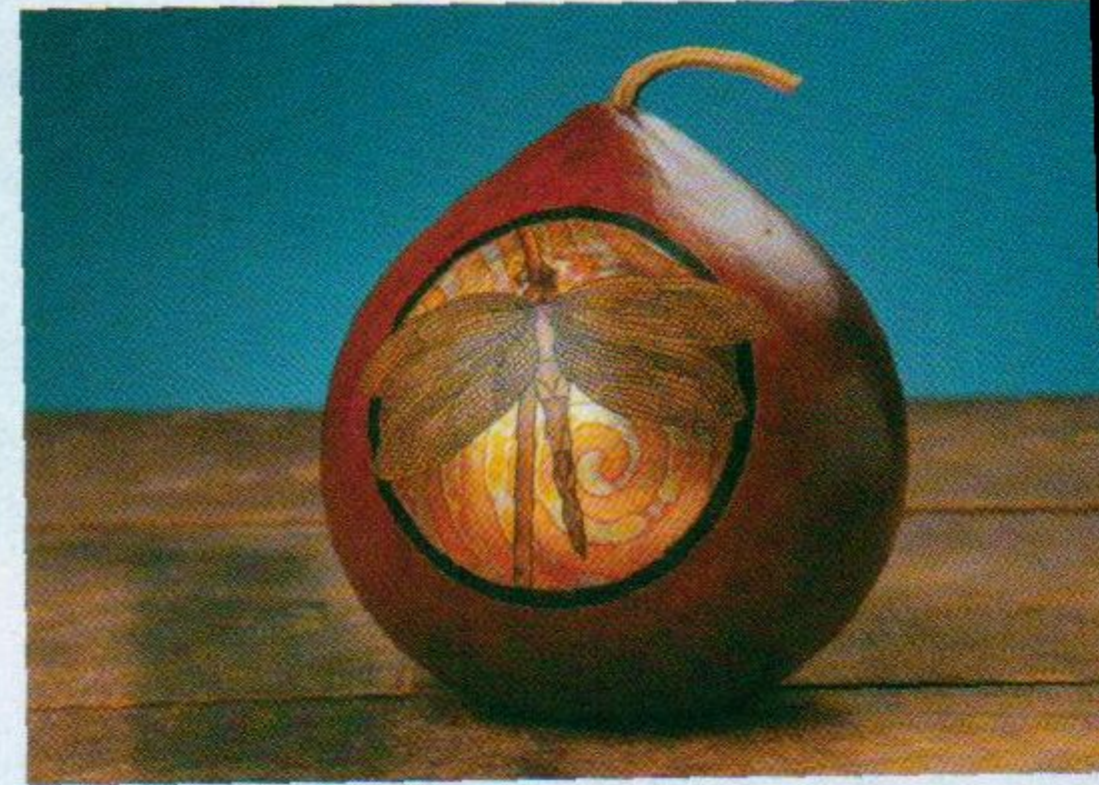


Must-Have Books for Your Woodworking Library



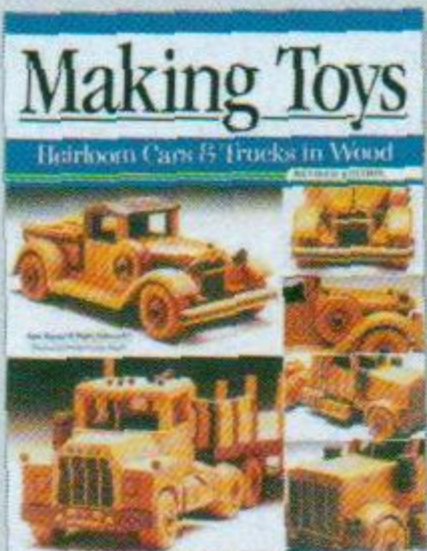
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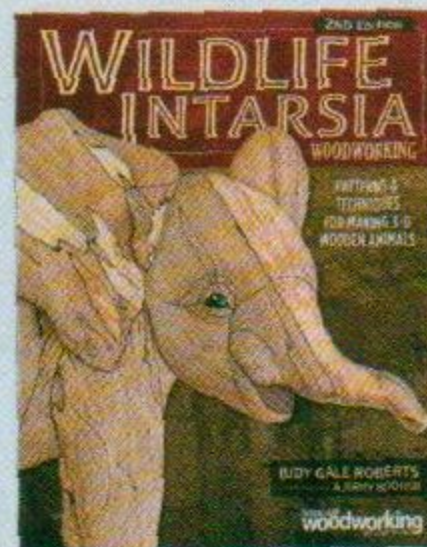
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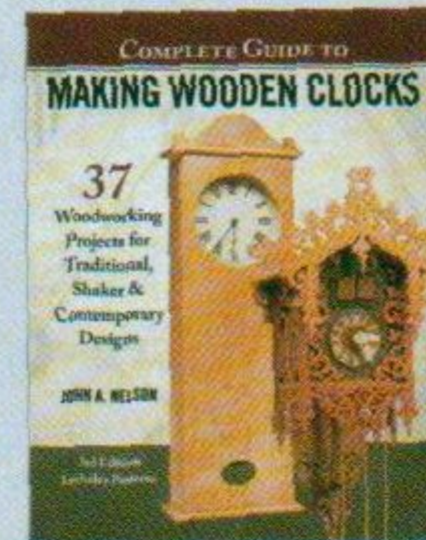
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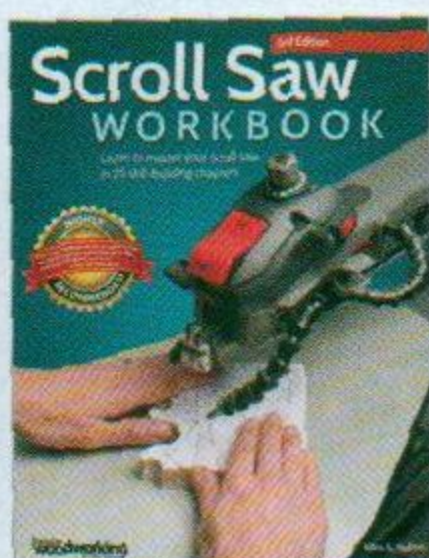
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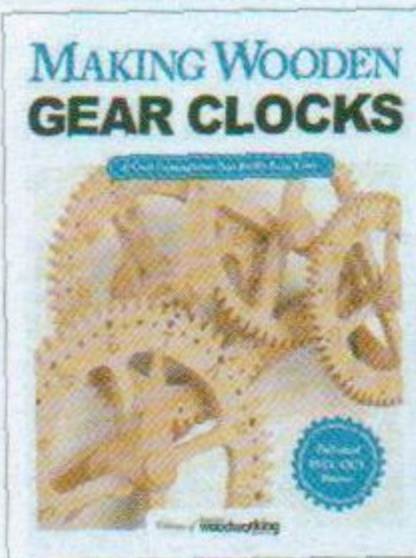
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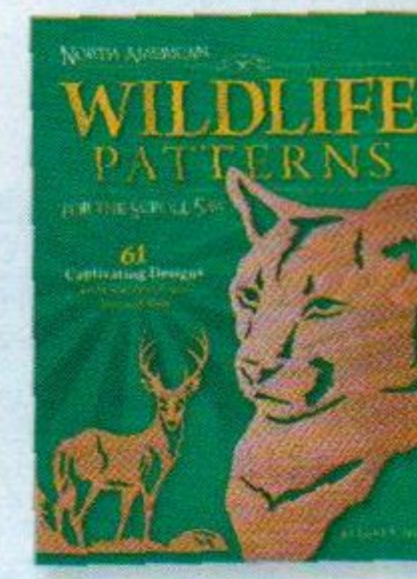
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Rainbow Boat Toy

Rollable, stackable pieces team up in a clever contraption that kids will love

By Dmitry Bogomazov

My simple rainbow boat toy is a lot of fun to cut and color. You can leave the body natural to show off the wood grain and then paint the rainbow segments with a medium of your choice. This sturdy toy is one that kids will love to interact with—from rolling it across the floor to stacking the pieces in different pleasing arrangements. If desired, you can scale the pattern down slightly based on your scroll saw's capabilities. *Note:*

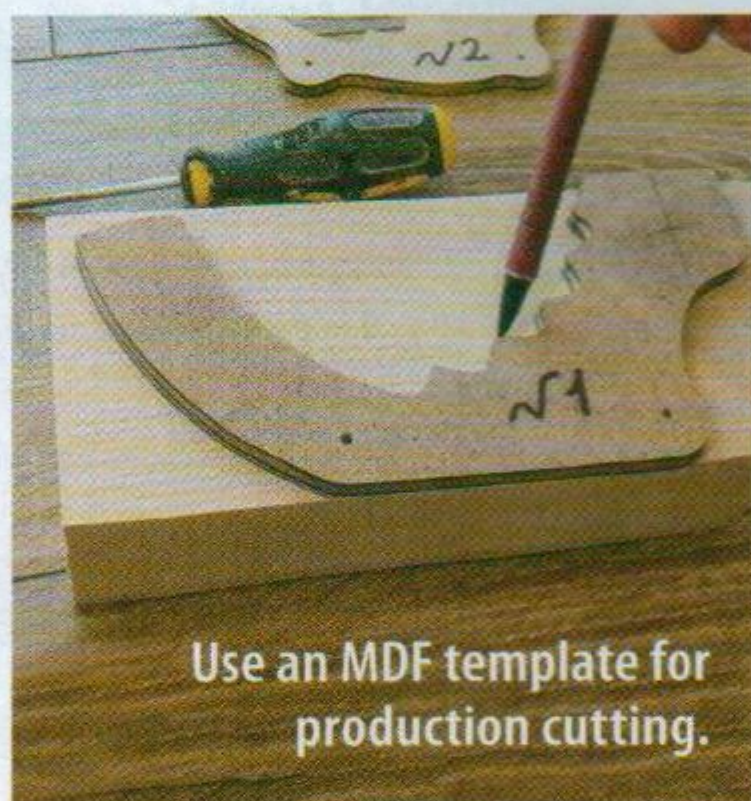
This project requires a router. If you do not have a router, see Alternate Assembly Sidebar on page 20.

Getting Started

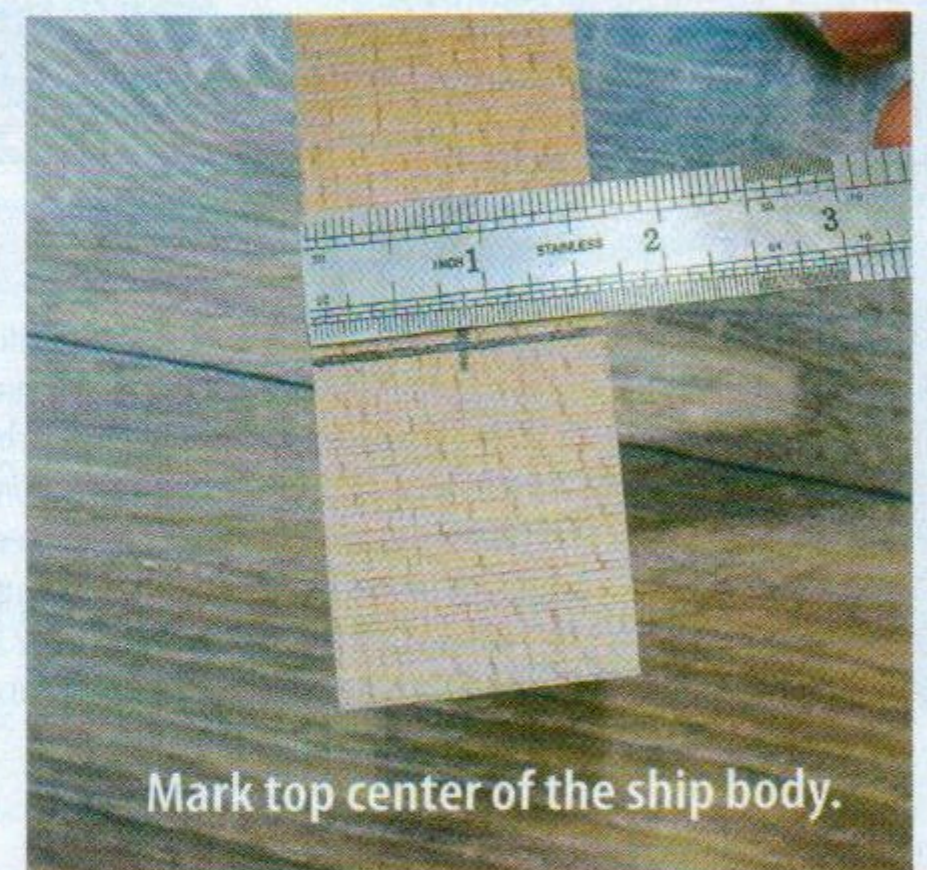
Pre-sand the blanks to 220-grit. Photocopy the pattern elements and attach them to the

wood with repositionable spray adhesive, making sure to use Template 1 for the boat body; you will apply Template 2 after adding the groove for the prow. (If you're making a bunch of toys at once, consider making a reusable template to save paper, as I did; I use ¼" [6mm] MDF and trace it with a pencil.) Mark the two drilling points for the wheels with an awl. Use the dotted lines on the pattern,

a ruler, and a square to mark out the area on the top of the ship body where the captain will sit. Locate the center of this area. Indent it with an awl to create the drilling point.

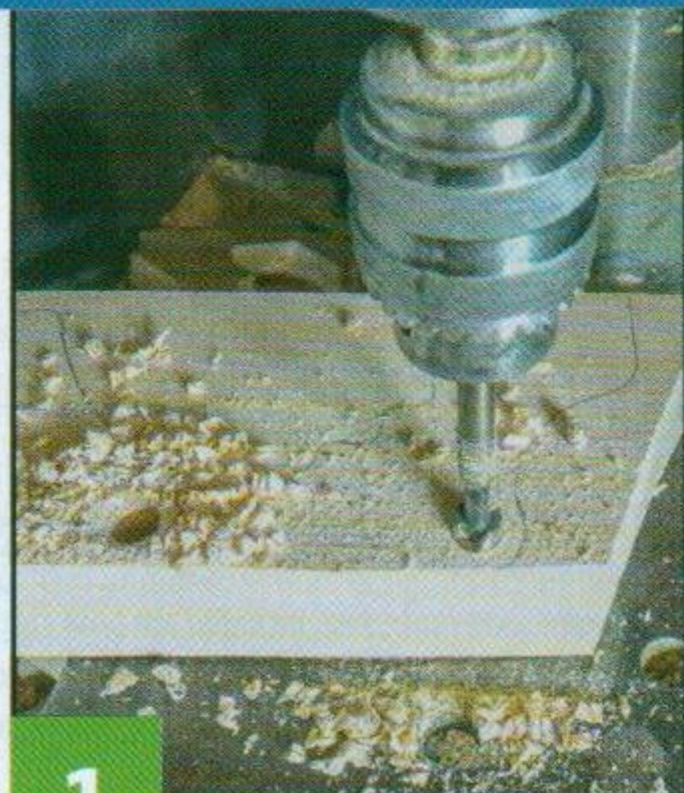


Use an MDF template for production cutting.



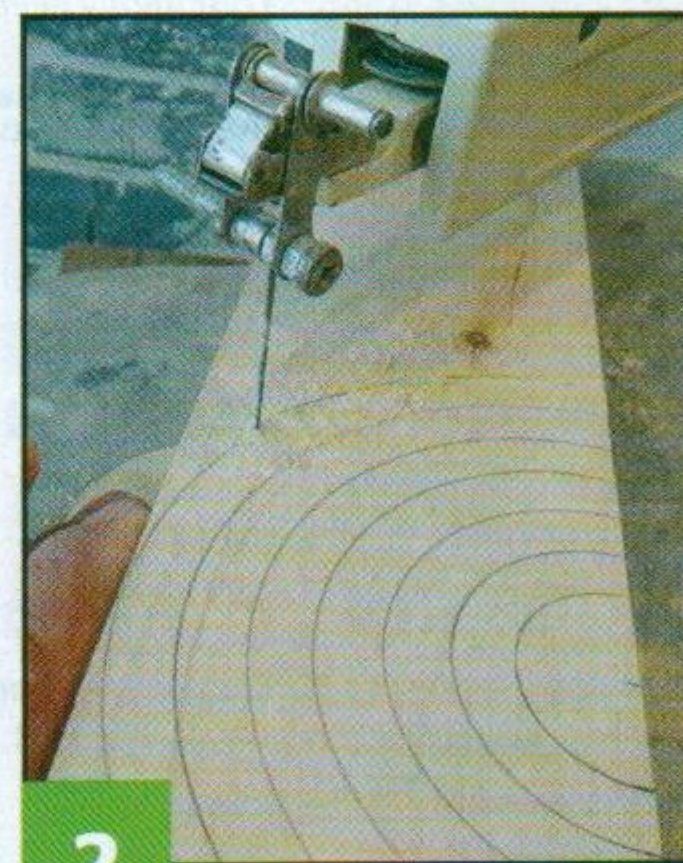
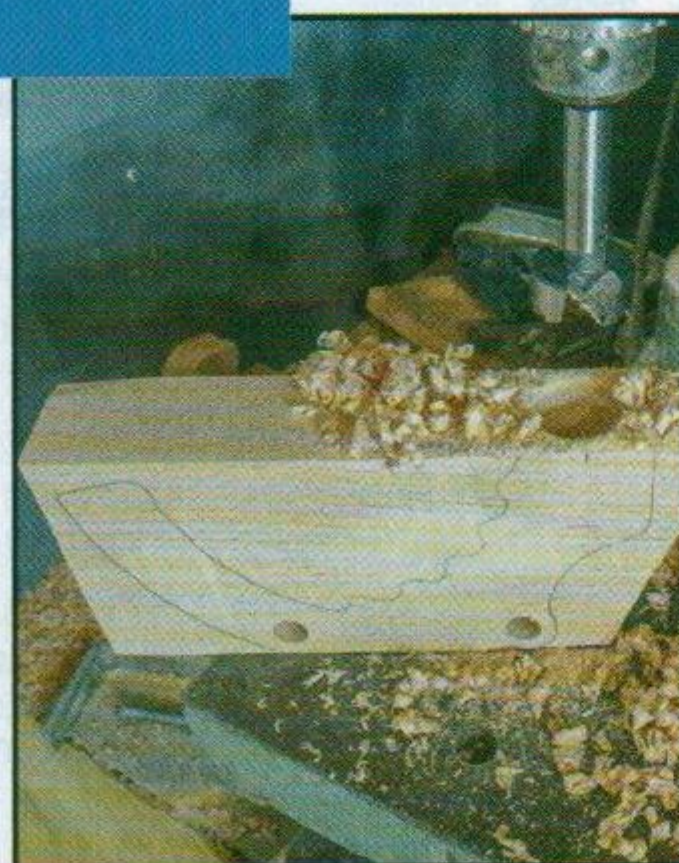
Mark top center of the ship body.

PREPPING & CUTTING



1

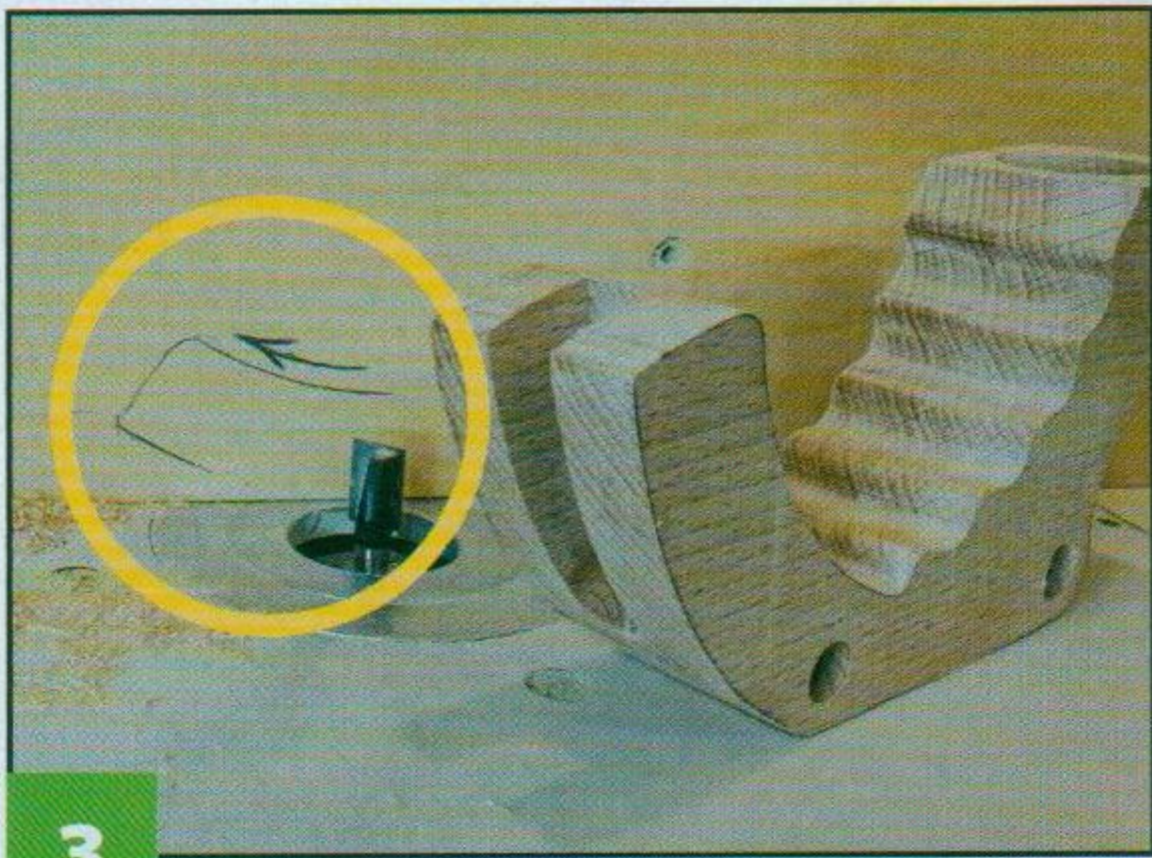
Drill the ½" (1.3cm) holes for the wheels. I used a Forstner, but you could use a brad-point bit, if desired. Drill all the way through the blank. Then flip the workpiece upright and drill the 1⅝" (3cm) hole for where the captain will sit, about 1" (2.5cm) deep. *Note:* Be sure to stabilize the wood in a vise before drilling.



2

Cut the rough boat body (Template 1), rainbow, and prow. Use a scroll saw. *Note:* For the captain, I used a premade peg doll. These are available online from a variety of sellers. The size of the hole for the captain may need to be adjusted based on the size of the peg doll used.





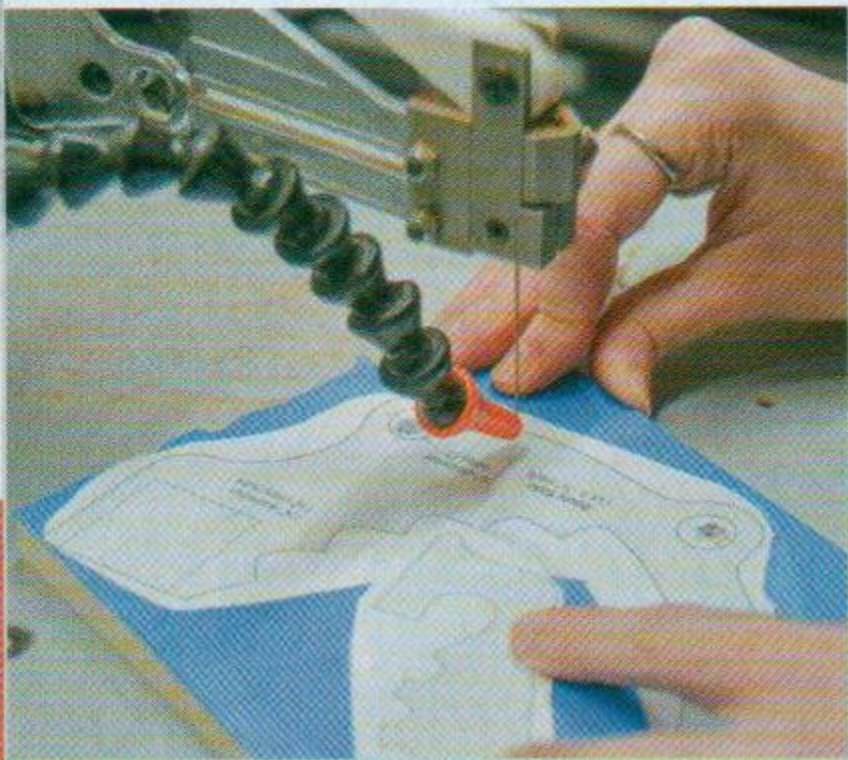
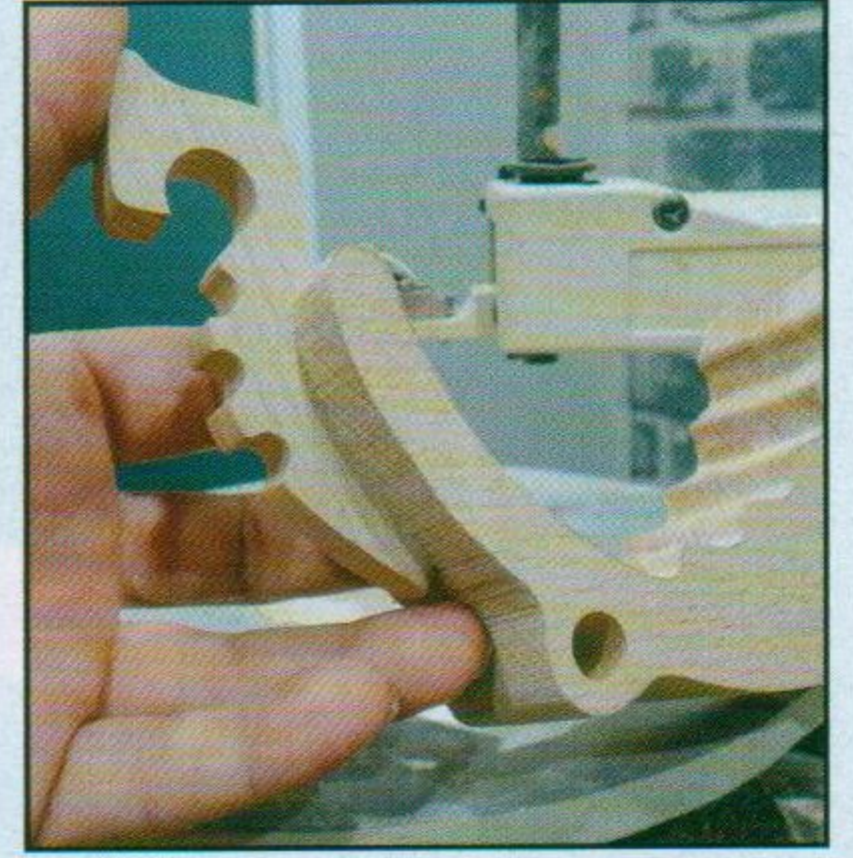
3

Cut the slot for the prow. Using a ½" (13mm) straight bit in a router, slide the rough boat body across the router table, positioned as indicated in the sketched area in the photo. If you do not have a router, see Alternative Assembly Sidebar below.



4

Refine the boat body. Apply Template 2 to the rough boat body and then cut it on the scroll saw. Dry-fit the prow in the groove.



Alternate Assembly

If you do not have access to a router, use the alternate patterns on the pullout and follow the instructions below.



- Attach the patterns. Mark any drilling points with an awl. Cut the boat layers.
- Glue the layers together—the outer layers will sandwich the middle layer with the prow. Clamp and let dry overnight. Sand the glued-up edges until smooth.
- Secure the workpiece in a vise. Drill the ½" (1.3cm)-dia. through holes for the wheels. Then drill a 1 ⅛" (3cm)-dia. hole for where the captain will sit, about 1 ¼" (3.2cm) deep. Then move to Step 5.



5

Make the wheels. I make my own by slicing a 1 ½" (3.8cm)-dia. dowel into ½" (1.3cm)-thick pieces on a band saw. Drill a ⅜" (1cm)-dia., ⅜" (1cm)-deep hole in the center of the wheel for the axle. Sand each one smooth.

SANDING & FINISHING



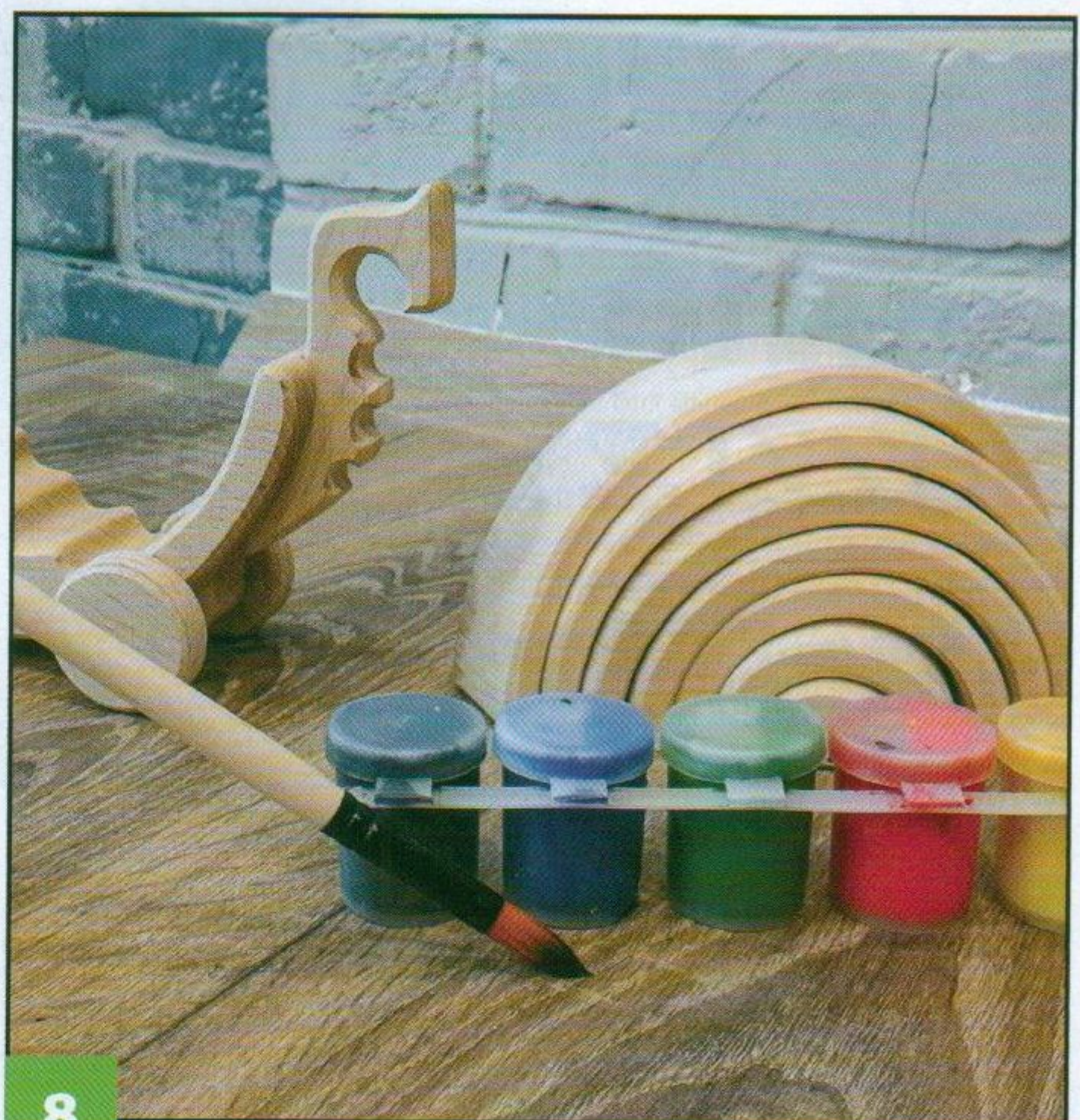
6

Sand all of the pieces smooth. Start by sanding the flat surfaces on the belt sander, and then refine the edges with a sanding drum, moving up progressively through the grits to 220. Chamfer the edges of the boat body, prow, and each piece of the rainbow using a pneumatic drum sander or a router with a chamfer bit. Remove excess dust with a soft cloth.



7

Cut the dowels for the axles to size. Lubricate the axles and wheels with paste wax and polish with a soft cloth. *Note: Make sure not to get wax into the holes in the wheels and at the ends of the axles.* Apply the same finish to the boat body and prow, let dry, and polish. Glue the prow in place. Thread the dowels through the axle holes and add the wheels, gluing the axle ends to the holes in the wheels. *Note: The holes in the wheels must be equal in diameter to the axles. The axle holes in the boat body must be larger than the dowel to allow for free rotation.*



8

Add color. I used color wax to paint the rainbow, but you could use acrylics if desired. Once dry, spray the rainbow pieces individually with several coats of clear satin spray. Apply the same clear finish to the captain, and let all pieces dry thoroughly.

Materials & Tools

Materials

- Wood, such as beech, 1 1/16" (4cm) thick: ship body, 3 1/16" x 7 7/8" (10cm x 20cm)
- Beech, 1/2" (1.3cm) thick: prow, 2" x 4 3/4" (5.1cm x 12cm)
- Basswood, 1 1/16" (4cm) thick: rainbow, 3 9/16" x 7 1/16" (9cm x 18cm)
- Wooden dowel, 1 1/2" (3.8cm) thick.: wheels, approx. 3" (7.6cm) long
- Wooden peg doll, 1 3/16" (2cm)-dia.: captain, 3" (7.6cm) long
- Wooden dowels, 3/8" (1cm)-dia.: axles, 2 each 2 1/2" (6.4cm) long
- Spray adhesive: repositionable
- Sandpaper: assorted grits to
- Pencil
- Soft cloths
- Wood glue
- Color: acrylic paints or color wax, such as Biofa
- Finish, such as Krylon® COLORmaxx clear satin spray (for rainbow, ship body, captain, and prow)

- Finish, such as paste wax (for wheels and axles)

Tools

- Scroll saw with blades: #3 spiral, #7 skip-tooth
- Drill press with Forstner bits: 1/2" (13mm); 1 1/8" (30mm)-dia.
- Clamps: assorted
- Vise
- Ruler
- Square
- Awl
- Sanders: belt, pneumatic drum
- Sanding drums: 120-, 180-, and 220-grit
- Router with bits: 5/16" (8mm) chamfer (optional); 1/2" (13mm)-dia. straight
- Paintbrush
- Band saw (optional)

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

Patterns for the **RAINBOW BOAT TOY** are in the pullout section.



Dmitry Bogomazov is a 37-year-old DIY blogger living in Krasnodar, Russia. He designs a variety of colorful projects, but wooden toys are his favorite. Find more of his work on YouTube at RadugaGrad.

Ice Cream Cone PUZZLE BOX

Mix and match colorful overlays on this easy-scroll sweet treat

By Rita Cels

Who doesn't love ice cream? Celebrate this delicious summertime snack with a fun little puzzle box. Use the hidden chamber to cleverly hold a ring, pair of earrings, or any small treasure. To show just how much fun you can have with colors in this project, I've used nine different combinations, mostly utilizing the natural hues of the wood.

Getting Started

Select the wood you will use for this project. I like to experiment with different wood varieties for unique looks. If colorful hardwoods aren't available, or if you only have bland wood on hand, you could always paint or dye your "scoops" in later steps for a colorful alternative. Cover the main body blank with painter's tape and attach the "Top View" pattern to the surface of the tape with spray adhesive. Print two additional copies of the "Top View" pattern. Trim one to use for the upper scoop and the other for the lower scoop. Attach each pattern to its matching blank, orienting the grain horizontally.

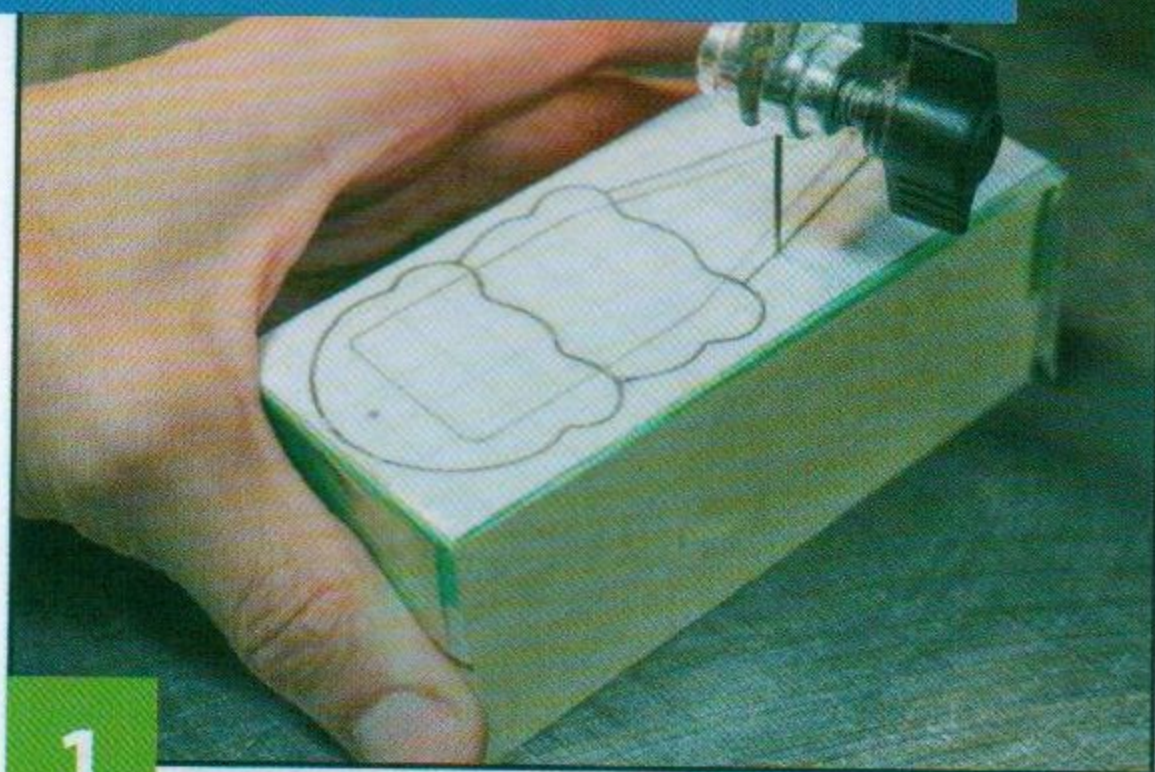
Note: If you're making more than one box, follow the instructions for stack-cutting the scoops in Step 7.



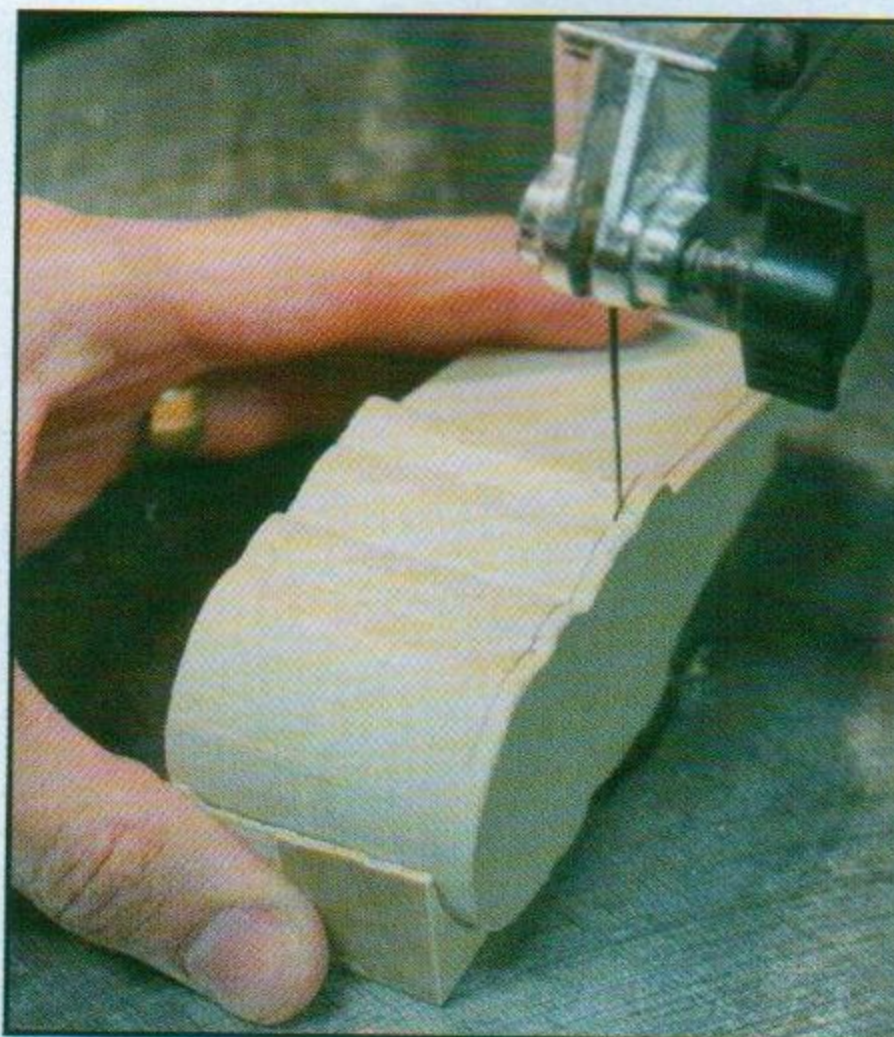
The cherry is the key to this clever puzzle box design.



CUTTING THE PIECES



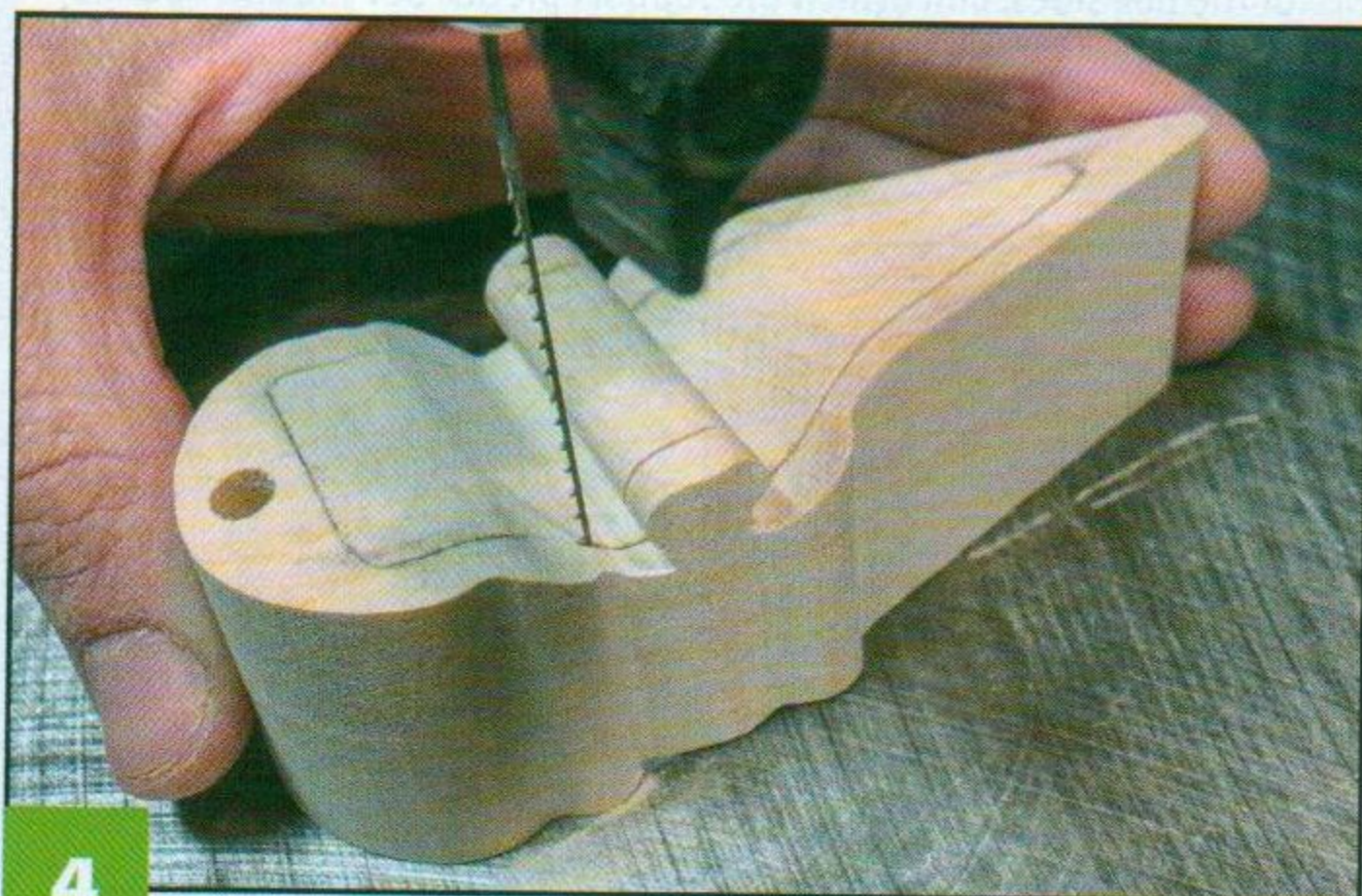
1 **Cut the perimeter.** Use a #7 reverse-tooth blade. Mark the location of the keyhole. Remove the pattern, keeping the waste pieces for use in later steps.



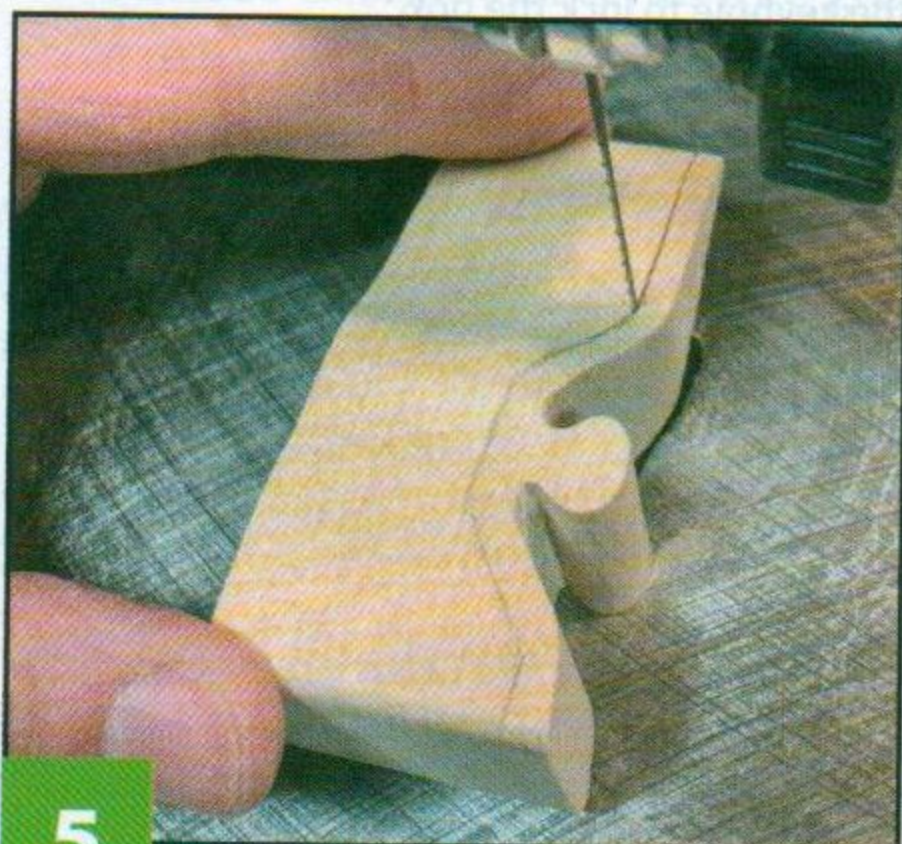
2 **Cut the bottom of the box.** It is absolutely essential that your blade be square with the table for this step and all following it. Using the 'Side View' pattern as a guide, cut $\frac{1}{8}$ " (3mm) off the bottom of the box using a #7 reverse-tooth blade. Set aside. (Because of the irregular shape of the bottom, it is helpful to rest the cone shape in the waste wood from Step 1 while cutting the bottom.) Then, using a $\frac{13}{64}$ " (5.1mm) drill bit, drill a $1\frac{1}{4}$ " (3.2cm)-deep hole in the keyhole marked on the 'Top View' pattern.



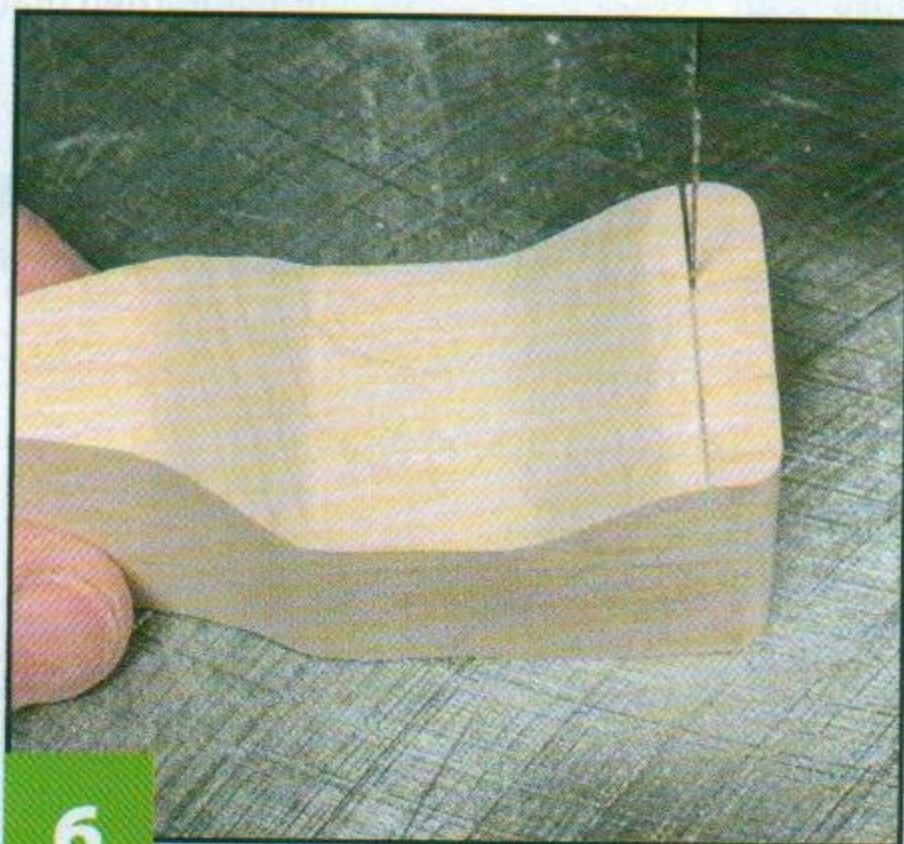
3 **Cut the box lid.** Using the 'Side View' pattern as a guide, draw a cut line along the top of the blank. Using a #7 reverse-tooth blade, cut the lid off the cone blank. Be careful not to rush or pull the blade. Again, using the waste piece for a level surface is very helpful in this step. Slide the lid off and set aside.



4 **Cut the chamber.** Using the 'Top View' pattern as a guide, mark the perimeter of the inside chamber. Drill a $\frac{1}{16}$ " (2mm) blade-entry hole at the bottom of the cone. Using a #5 reverse-tooth blade, make the interior cut. Set the outside of the box aside.



5 **Cut the chamber lid.** Draw a line about $\frac{1}{8}$ " (3mm) down from the top of the solid piece cut in Step 4, following the general contour of the piece. Using a #5 blade, cut along the line. Set aside.

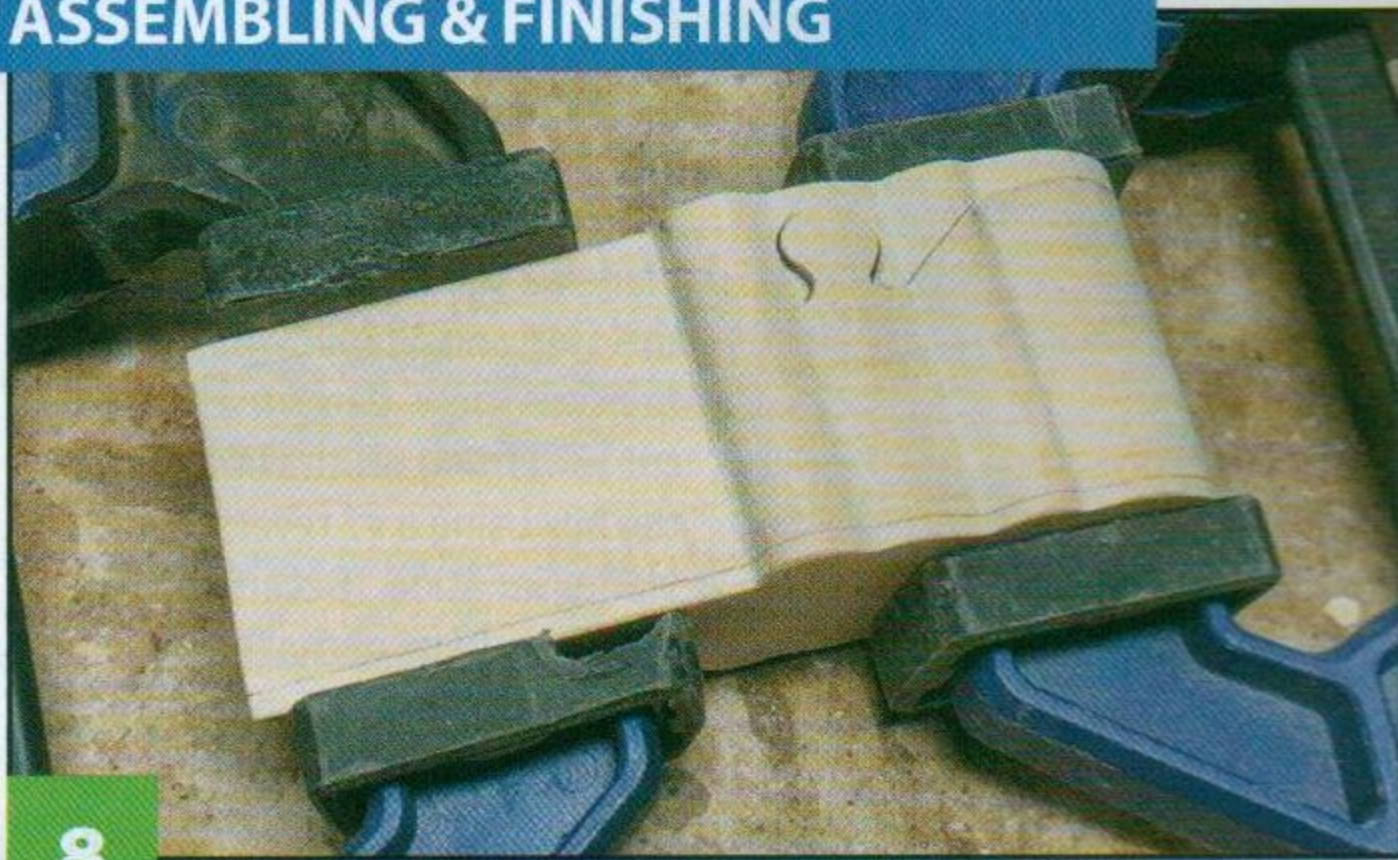


6 **Cut the support pieces.** From the remaining chamber piece, cut a small piece off of each end. These will act as supports for the chamber lid.



7 **Cut out the ice cream scoops.** I used a #1 reverse-tooth blade. *Note: If making more than one box, stack-cut the scoops as shown in the photo, above. Use two contrasting blanks, sized so that the grain runs horizontally across the scoop.*

ASSEMBLING & FINISHING



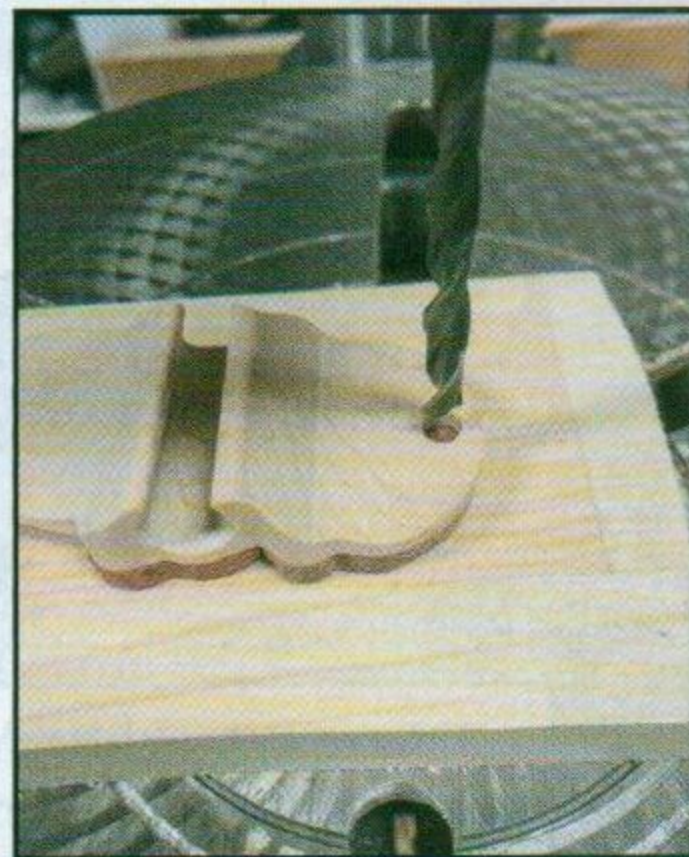
8

Assemble the box. Glue and clamp the bottom panel to the box body, and remove the excess glue. *Note: Set the sliding lid aside for this part, as the rim of the box body provides a flat enough surface for clamping.* Let dry. Apply a small amount of glue to the inside ends of the box sides, and attach the support pieces. Set the chamber lid down on top of the supports and slide the top lid carefully into place to ensure a proper fit. Clamp the assembled box until dry.



9

Attach the ice cream. Glue and clamp the ice cream to the top of the box. When dry, turn the lid upside down and drill the keyhole through the ice cream using the drill press with the $1\frac{3}{64}$ " (5.1mm)-dia. bit. If desired, add striations to the cone using a woodburner with a skew nib or a tool of your choice.



10

Finish the box. Sand all of the rough edges with a medium-grit sanding sponge, and switch to a fine-grit sponge to refine the pieces. Wipe off excess dust with a tack cloth, and glue a lining to the bottom, if desired. You could add flocking or velvet, but I left mine natural. Apply a finish of your choice; I brushed a coat of Danish oil over the outside. Paint the top of the axle peg red, let dry, and then place in the keyhole to lock the box.

Materials & Tools

Materials

- Wood, such as birch, $1\frac{1}{2}$ " (3.8cm) thick: box body, $1\frac{3}{4}$ " x 4" (4.4cm x 10.2cm)
- Wood, such as purpleheart, $\frac{1}{8}$ " (3mm) thick: scoop 1, $1\frac{3}{4}$ " (4.4cm) square
- Wood, such as padauk, $\frac{1}{8}$ " (3mm) thick: scoop 2, $1\frac{3}{4}$ " (4.4cm) square
- Wooden axle peg, $\frac{1}{4}$ " (6mm)-dia.: $1\frac{1}{4}$ " (3.2cm) long
- Painter's tape
- Spray adhesive
- Tack cloth
- Finish, such as Danish oil
- Acrylic paint, such as Apple Barrel: red apple

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

- Wood glue
- Velvet or flocking (optional)

Tools

- Scroll saw with blades: #1, #5 and #7 reverse-tooth
- Drill press with bits: $\frac{1}{16}$ " (2mm), $1\frac{3}{64}$ " (5.1mm)-dia.
- Sanding sponges: medium, fine-grit
- Clamps
- Paintbrushes
- Variable-temperature woodburner with nib: skew (optional)

Patterns for the **ICE CREAM CONE PUZZLE BOX** are in the pullout section.



Rita Cels is a retired teacher and self-taught scroller. Although much of Rita's time is spent making wooden children's toys, in her spare time, she loves designing special boxes using a variety of woods

and techniques. Find more of her work @ritacelscreations on Instagram and Etsy.

Stylized Seahorse

This underwater creature is a festival of patterns and textures

By Patrick Wayner

My family and I love the beach. And if you're like us, you know the worst part is having to head home. I came up with this seahorse project to bring some ocean vibes back with us (minus the pocket full of sand). The goal was to achieve a weathered look, similar to something that might hang at your favorite beach house.

I chose design elements like golden wave art paper and metallic splatter to mimic the sun's shimmer. The yellows of an early sunrise and the blues and grays of a beach night became my color palette.

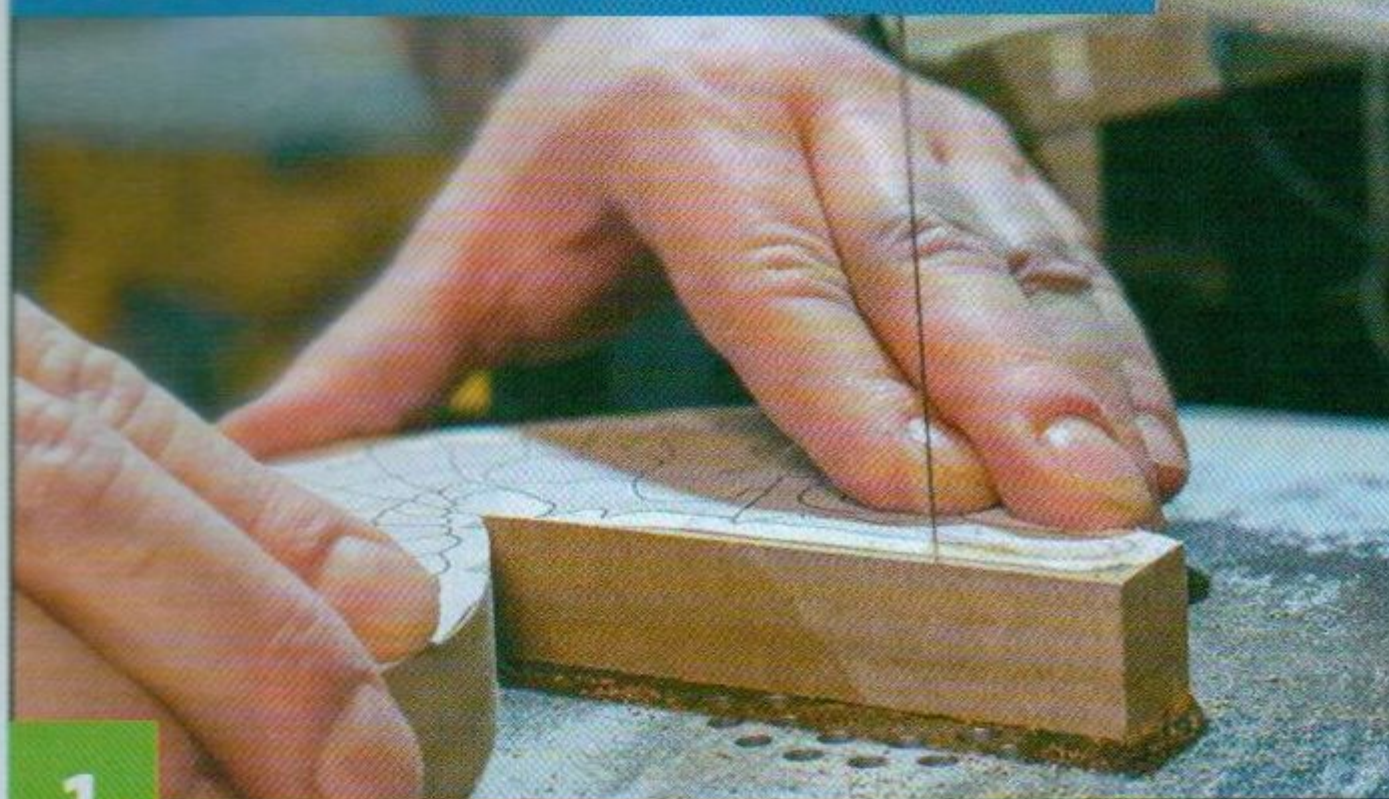
The seahorse's curvy shape makes this project a fun ride on the scroll saw. The design elements and color pattern leave room for creative interpretation, so you can adapt them based on personal preference.



Getting Started

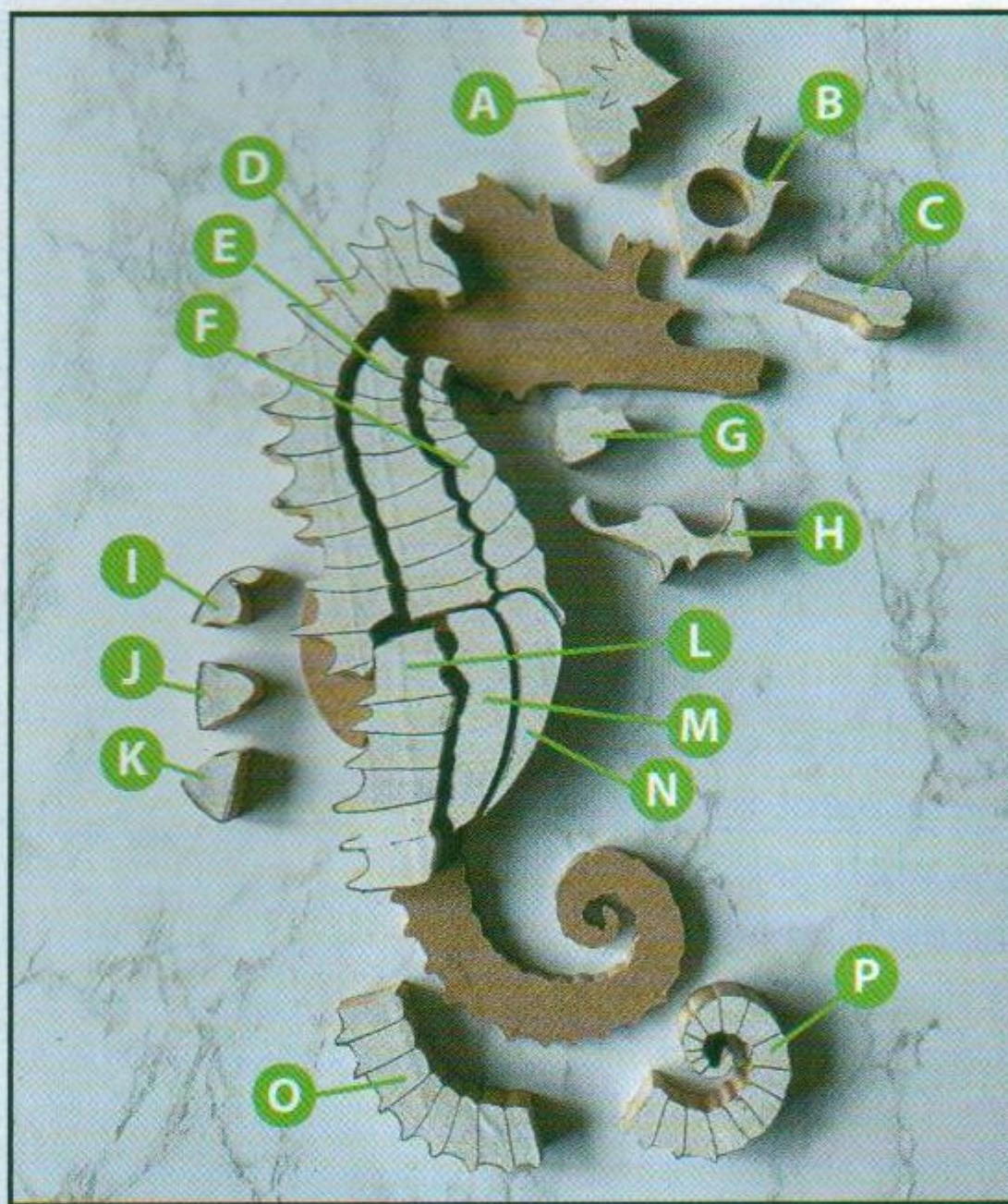
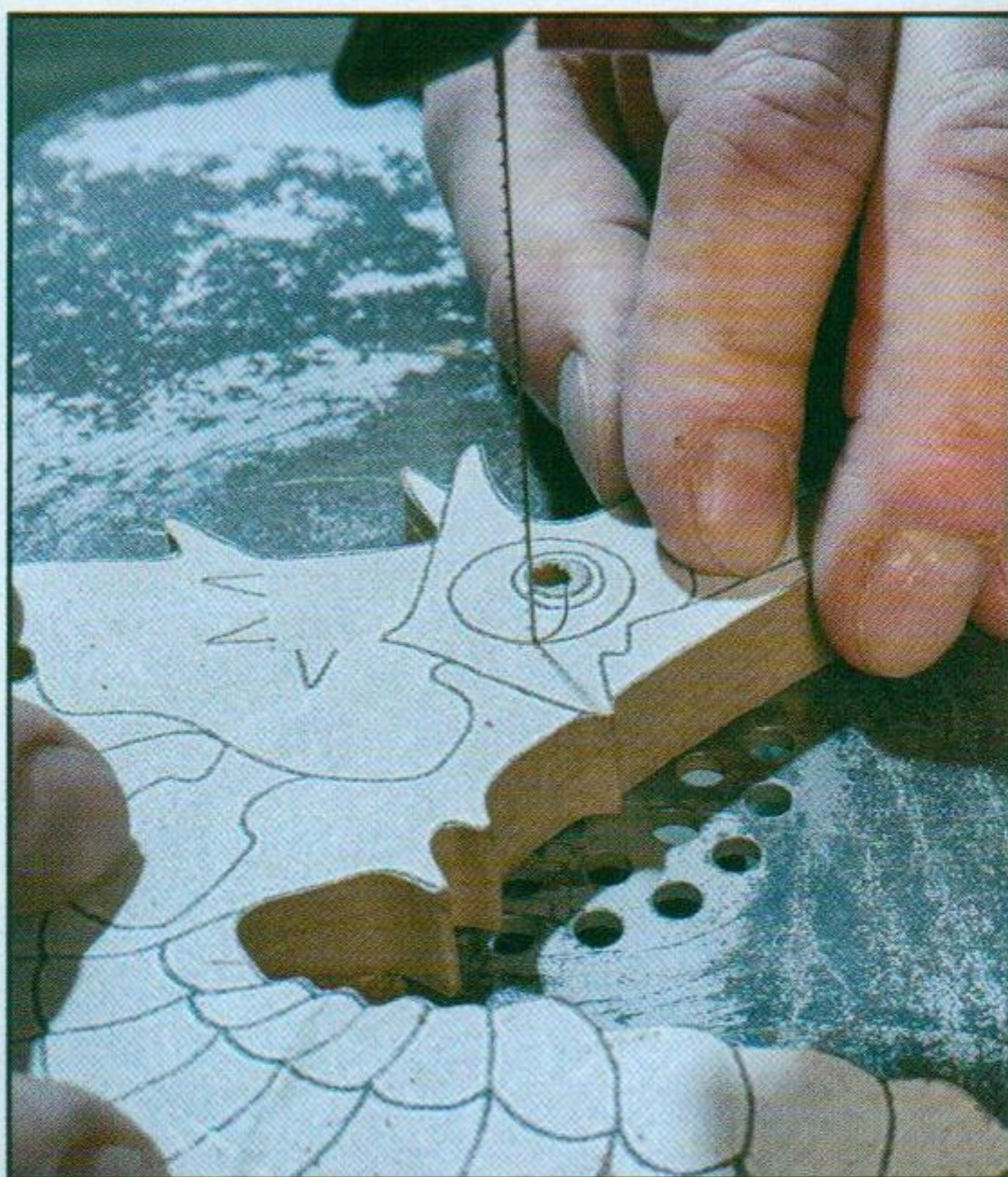
Photocopy the pattern and prepare the stock. You'll cut the shaped pieces from $\frac{1}{2}$ " (1.3cm) MDF and the backer from $\frac{1}{4}$ " (6mm). Stack the two pieces and attach them together using your preferred method; I used a 23-gauge pin nailer with $\frac{1}{4}$ " (6mm) brads, placing a pin in each of the four corners (outside the pattern lines). You could also secure the edges using cyanoacrylate (CA) glue or clear packaging tape. Cover the surface of the stack with contact paper or painter's tape. Then apply the pattern to the surface of the paper or tape using spray adhesive. I also apply a layer of clear packaging tape over the entire surface of the blank to reduce burning, but you can leave this step out if desired.

CUTTING & SHAPING



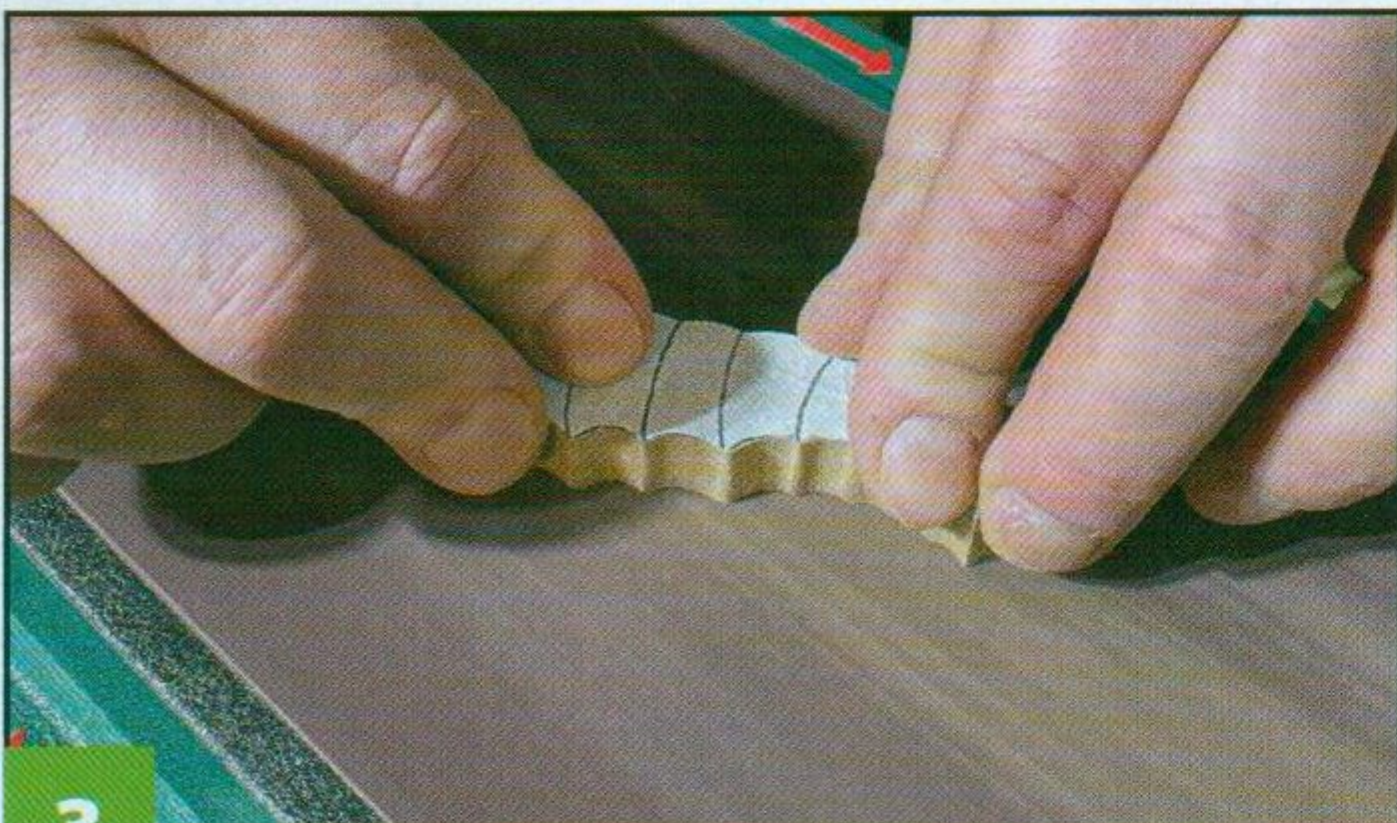
1

Cut the perimeter of the seahorse. Use a scroll saw with a #3 reverse-tooth blade. *Note: This is a very curvy pattern. You may want to reduce your scroll saw speed to 80%. Separate the two MDF layers and set the backer aside.*



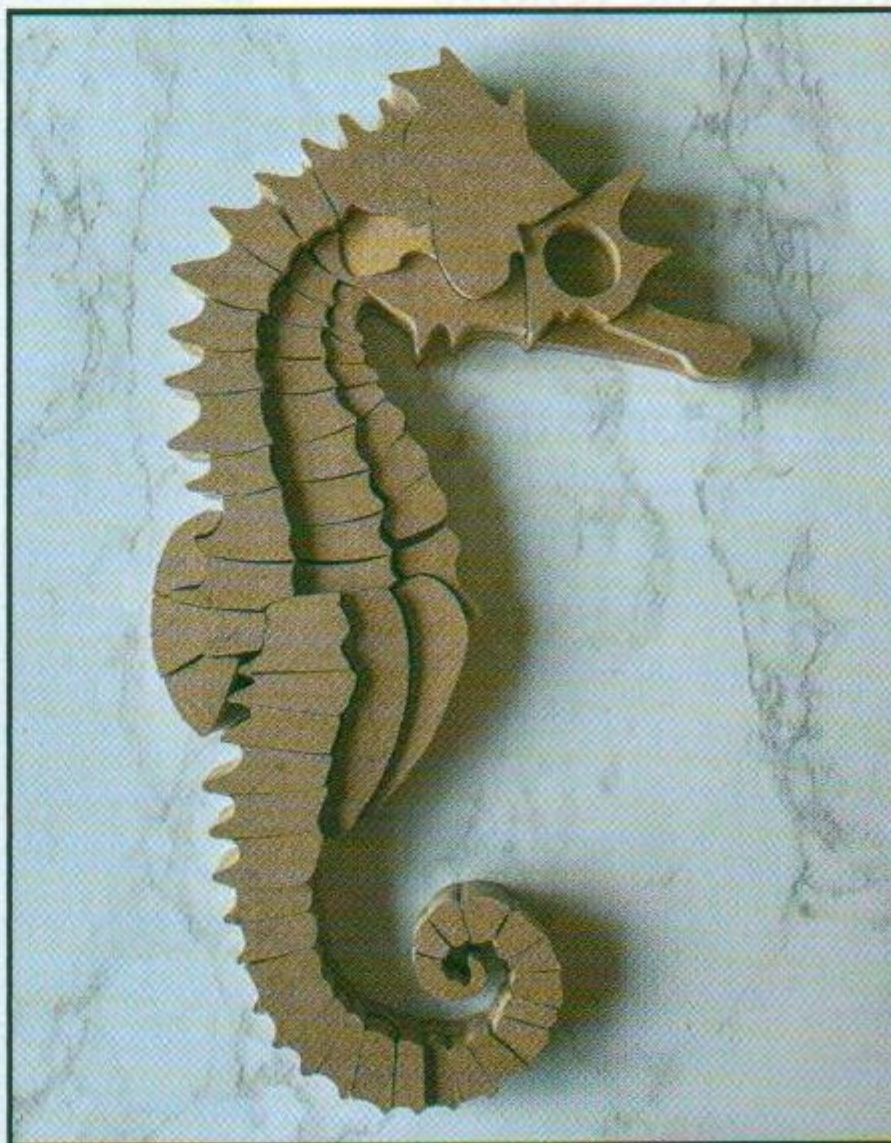
2

Drill the pilot hole for the eye. Then cut out the eyeball area on the scroll saw and cut the seahorse into smaller sections. I cut the chest and belly areas down the two vertical lines (forming sections DEF, LMN) and then cut the tail area into two smaller sections (O,P). Place the pieces back on the backer as you go to keep them organized.



3

Create the levels. For each main body section (head, neck and chest, belly and tail), leave the first piece to the left alone. Then reduce depth in $\frac{1}{8}$ " (3mm) increments from the following two pieces (center and right) on a belt sander with an 80-grit sanding belt. This will give your seahorse more dimension and interest.

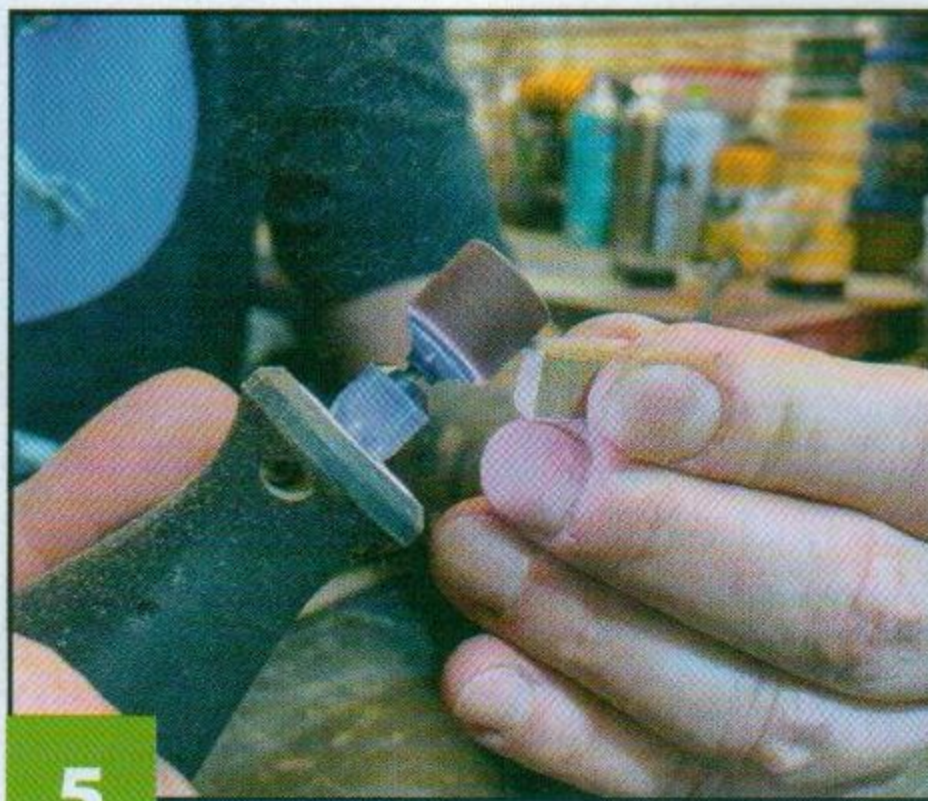


4

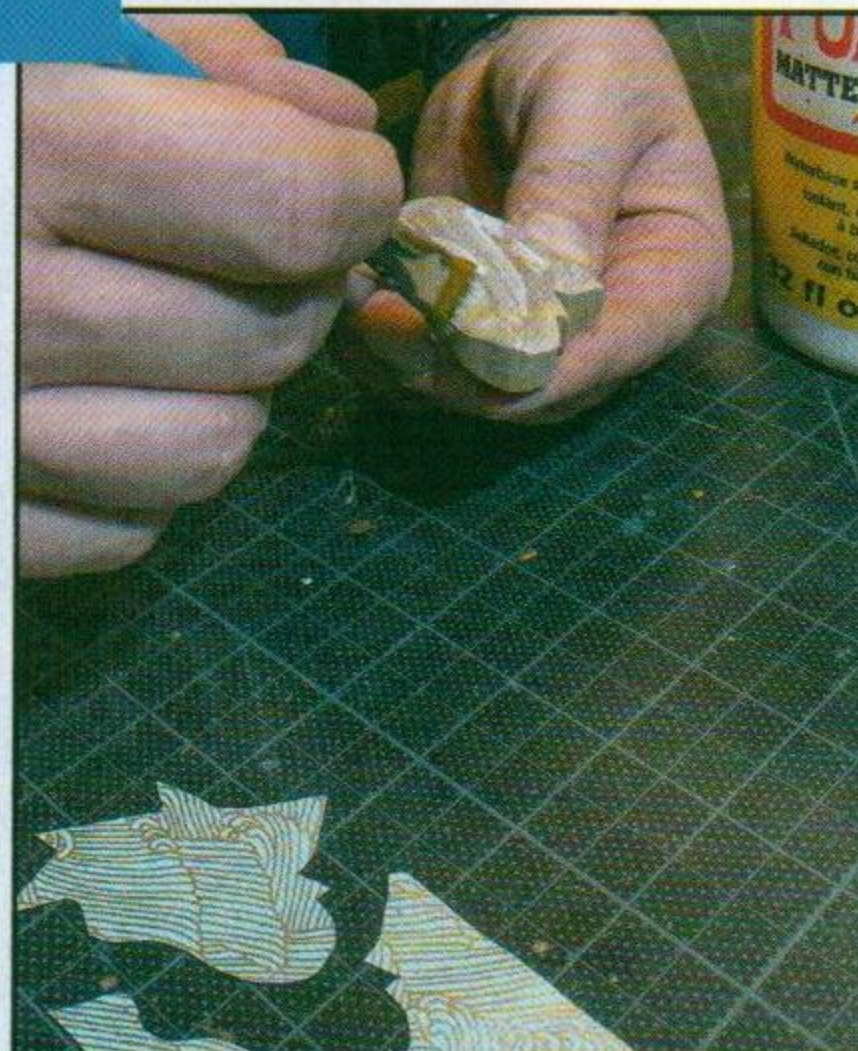
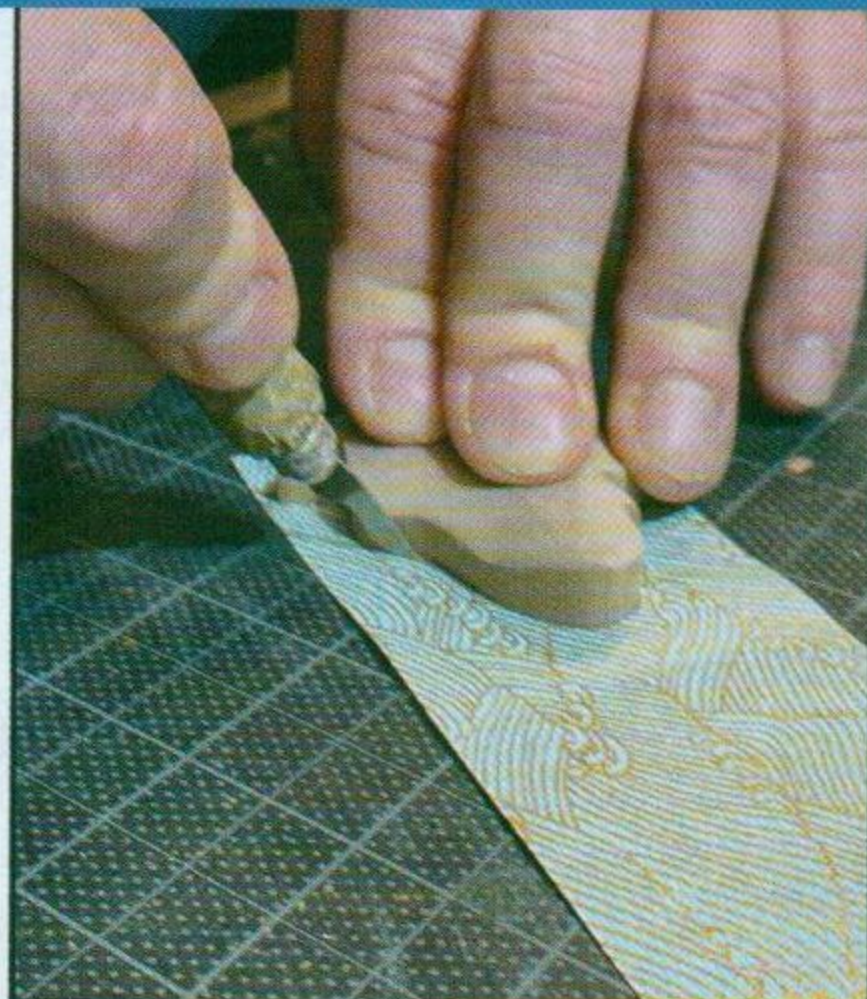
Separate the remaining sections. As before, place the pieces on the base as you cut them. Remove the pattern as you go.

TIP**STAYING ORGANIZED**

Organization is key when you're cutting smaller pieces. It is difficult to remember how the pattern goes back together if the pieces get out of order. Always use your backer or a second copy of the pattern to help keep the smaller pieces together. If desired, you could also stick them to a piece of painter's tape.

**5**

Shape the pieces. Arrange the unshaped elements in order with about a 1/2" (1.3cm) space between the pieces. Using the belt sander with a 120-grit belt, begin to round over the edges on the larger pieces. It is best to pull the pieces toward you in a sweeping motion on each edge. Repeat this step on each edge of every piece of the seahorse. Once you reach the lower tail section, you may want to use a rotary tool with a 120-grit sanding drum to round the edges. The smaller the piece, the harder it will be to do on the belt sander. Once the edges are roughly rounded over, hand-sand them with 400-grit sandpaper to refine the contours. Remove excess dust with a tack cloth. Dry-fit the pieces and make any necessary adjustments.

**PAINTING & FINISHING****6**

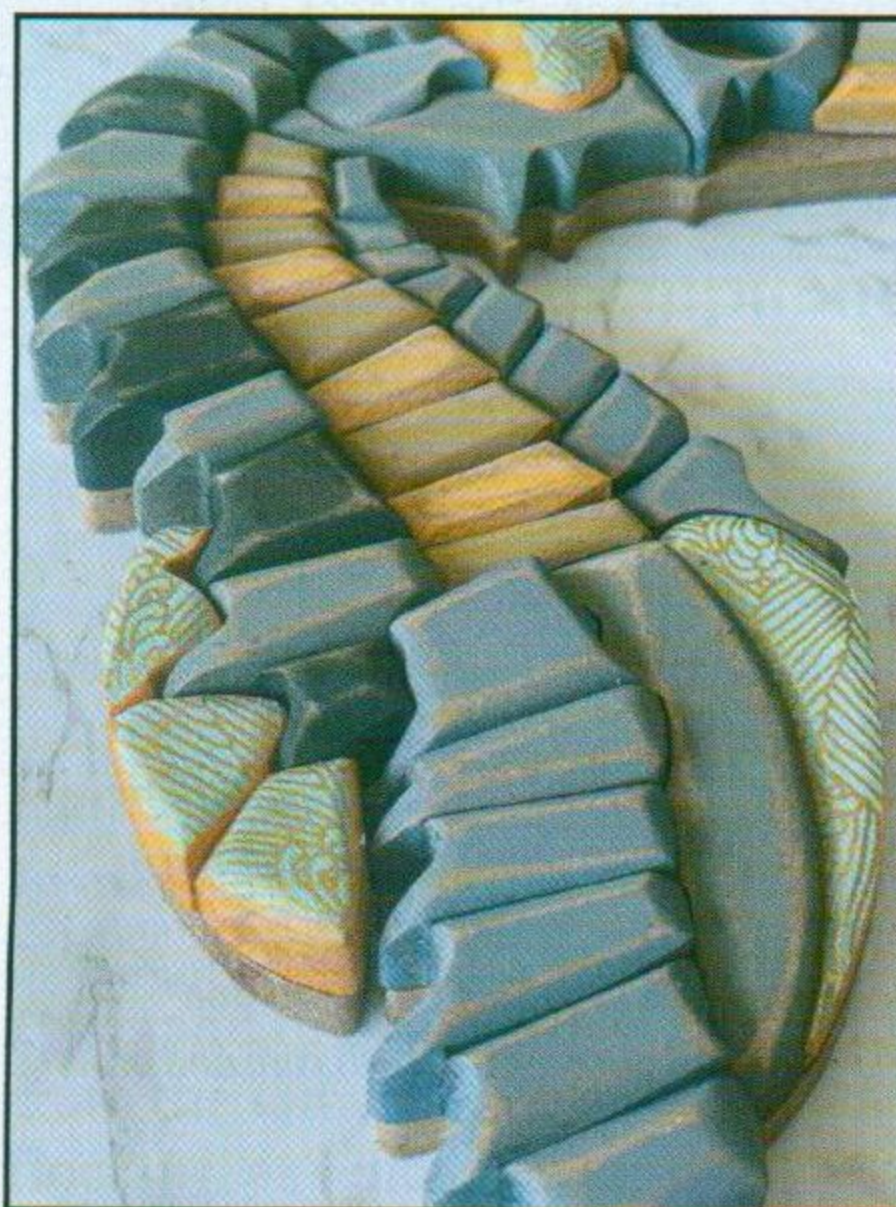
Apply art paper to the desired pieces. *Note:*

You can buy patterned art paper online or at popular craft store chains. Alternatively, use old maps or interesting book covers for this step. Have fun with it! Using the pieces you want to cover as a template, cut around each one with a utility blade, or trace around the pieces and cut along the lines with scissors. Then apply a liberal amount of craft glue to the tops of the pieces with a flat head brush. Wait a few minutes for the glue to become tacky, or speed up the process slightly with a blow dryer. Tightly press the art paper onto each desired piece, and lightly sand the edges of the paper with 400-grit sandpaper to help fuse them to the wood. Apply one more coat of craft glue to the top and let dry. Place the pieces back on the base.

7

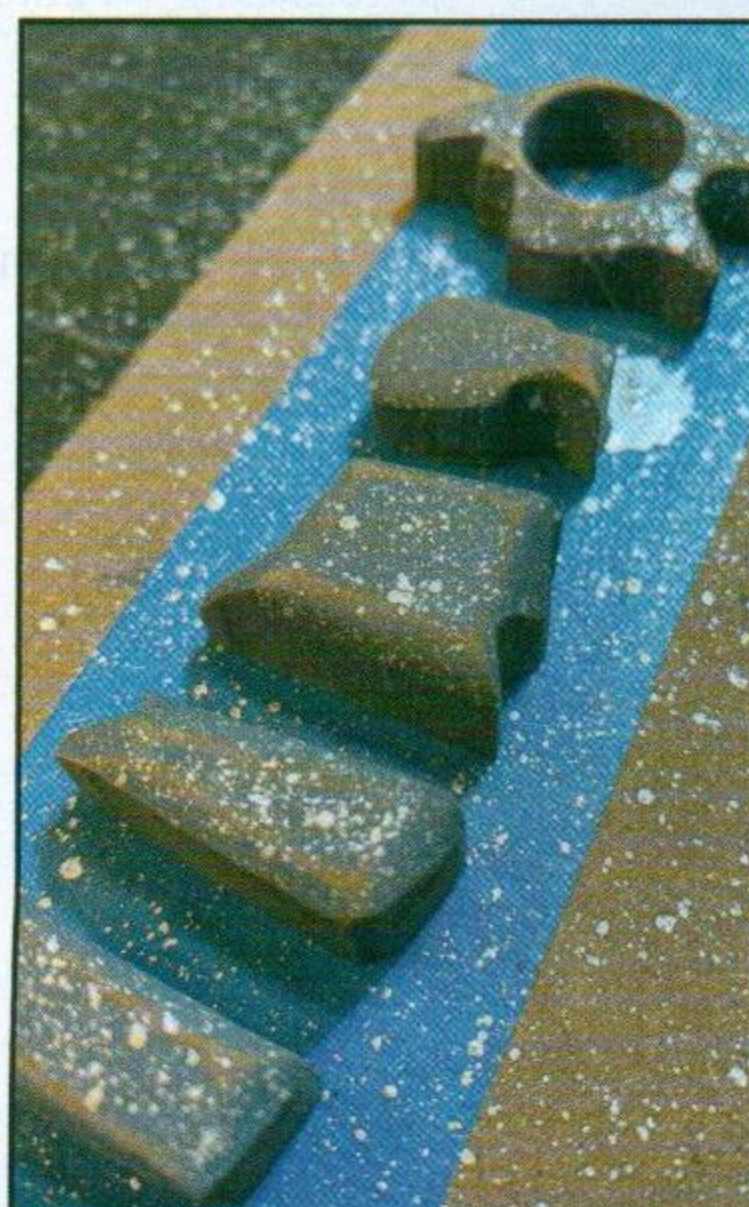
Add color. I

recommend choosing five different colors to help define the sections. I used a mixture of latex house paint and artist acrylics. Apply the paint to the pieces as desired, using an acrylic 1/4" (6mm) filbert brush. Once dry, distress the edges with 400-grit sandpaper to make the facets pop.

**8**

Add the painted

details. I embellished the painted pieces by splitting the elements into sections and applying different techniques to each (see Sidebar on page 28).





9

Assemble the project. First, make sure there is no paint on the bottom of your pieces (sand if needed). Then begin to attach the pieces to the backer using cyanoacrylate (CA) or wood glue, starting with the head. A little goes a long way here, so don't overdo it. Let the head area dry and then attach the adjacent sections, moving progressively across the body a little at a time. Use the curves of the edges on the base to make sure your pieces are lined up.

TIP

USING ACCELERATOR

You can use an accelerator to speed up glue drying time. The trade-off for this method is that the glue will dry very quickly, so work fast.



10

Apply a finish. I used several light coats of a clear polycrylic, letting the finish dry fully between applications. Glue in the eyeball. *Note: I used a clear taxidermy eyeball because it allowed me to paint the area around the pupil any color I chose. However, you could use a pre-colored glass eye if desired.* Add a hanger to the back, if desired.

Materials & Tools

Materials

- Wood of choice, such as MDF, ¼" (6mm) thick: seahorse segments, 5½" x 10" (14cm x 25.4cm)
- Wood of choice, such as MDF, ½" (1.3cm) thick: backer, 5½" x 10" (14cm x 25.4cm)
- Painter's tape or contact paper
- Spray adhesive
- Glue: cyanoacrylate (CA) or wood
- Glue accelerator, such as Starbond (optional)
- Sandpaper: assorted grits to 400
- Tack cloth
- Craft glue, such as Mod Podge®
- Latex house paint
- Acrylic paints, such as Liquitex: cobalt green, light blue violet, Naples yellow hue, neutral gray, titanium white
- Metallic paint, such as Montana Liquid Gold: silver
- Glass eye: clear back ⅝" (16mm)
- Art pattern paper of choice
- Clear polycrylic spray, such as Minwax
- Hanger (optional)

Tools

- Scroll saw with blades: #3 reverse-tooth
- Drill press with bit: ⅛" (3mm)-dia.
- Pin nailer with brads: ¼" (6mm)
- Belt sander: 6" (15.2cm) with 80- and 120-grit belts
- Utility knife
- Rotary tool with sanding drum: 120-grit
- Acrylic paintbrushes: ¼" (6mm) filbert, ½" (13mm) flat head
- Liner brush: 0
- Blow dryer or heat gun (optional)

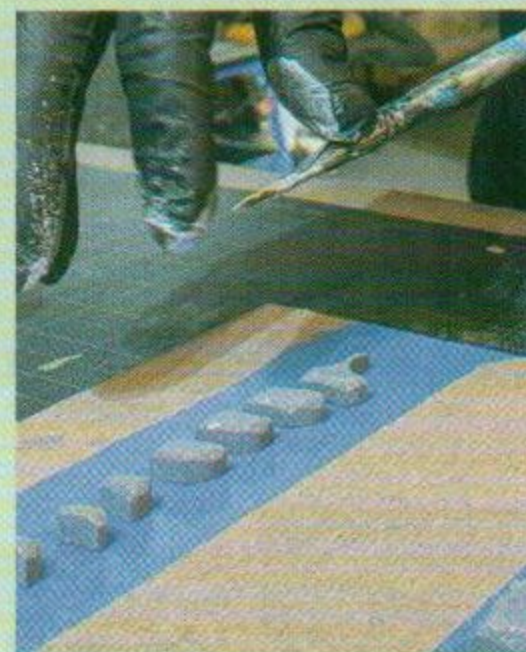
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

More on Painted Details



Line Work

To add visual interest, I painted the edges of a few pieces with a contrasting color and then used that same color to create an outline with a liner brush. I used the shape of the piece to dictate the flow of the inner decorative line work.



Paint Splatter

For the splattered pieces, I used silver paint and the flat brush. Dip the brush into the paint. Holding the brush, use your finger to place pressure on the bristles, letting the paint splatter off onto the pieces. I used painter's tape to keep the pieces secure during the process.

Pattern for the **STYLIZED SEAHORSE** is in the pullout section.



Patrick Wayner is a trophy husband and father to two wildling boys. He resides in Columbus, Ohio. He started working with a scroll saw seven years ago and has been hooked ever since. His goal is to bring his unique perspective to the craft. You can find more of Patrick's work at paintedpatch.com and on Instagram @paintedpatch.

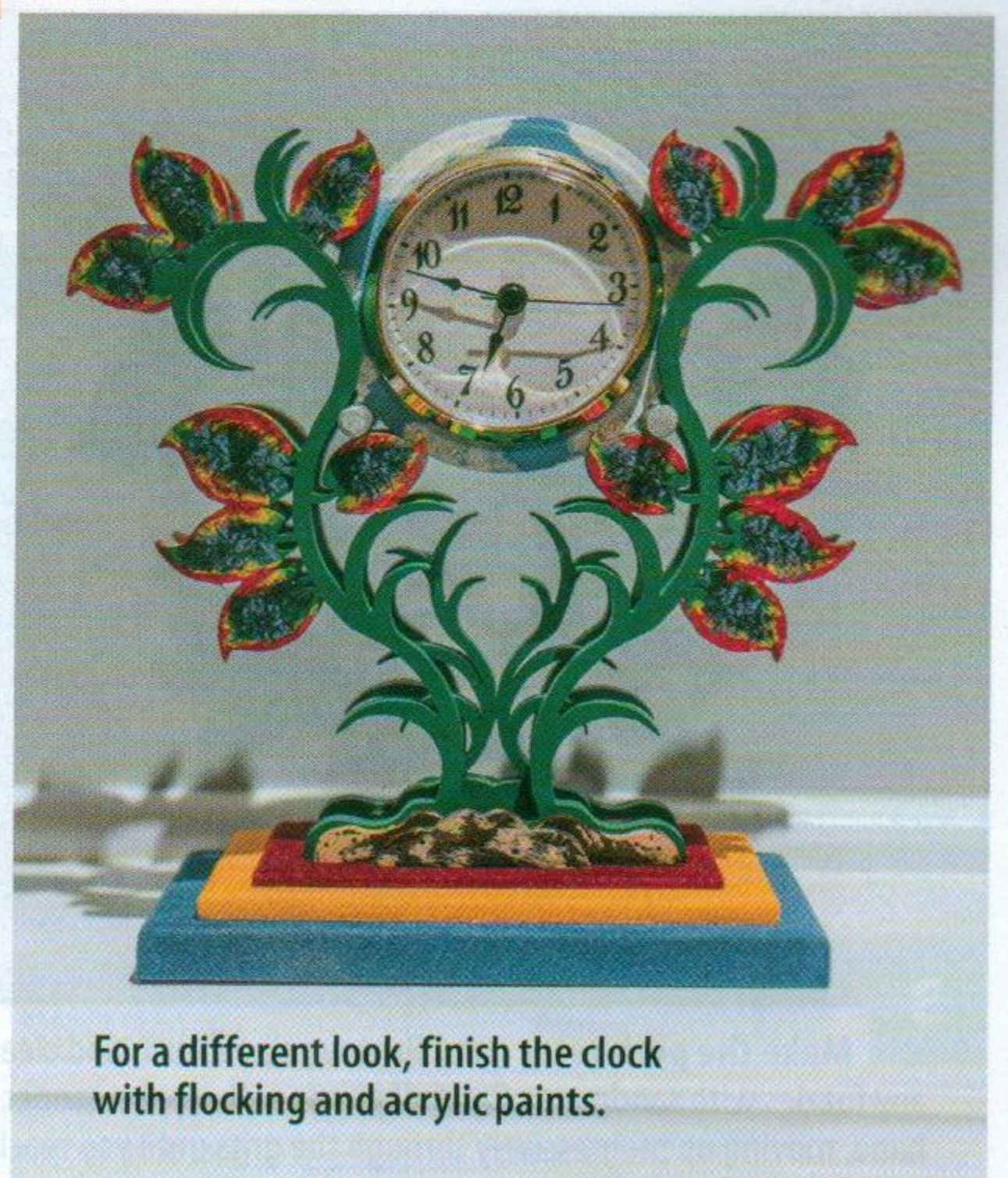


Wild Garden Clock

Give nature a nod with this zany and colorful appliance

By Dan Wilckens

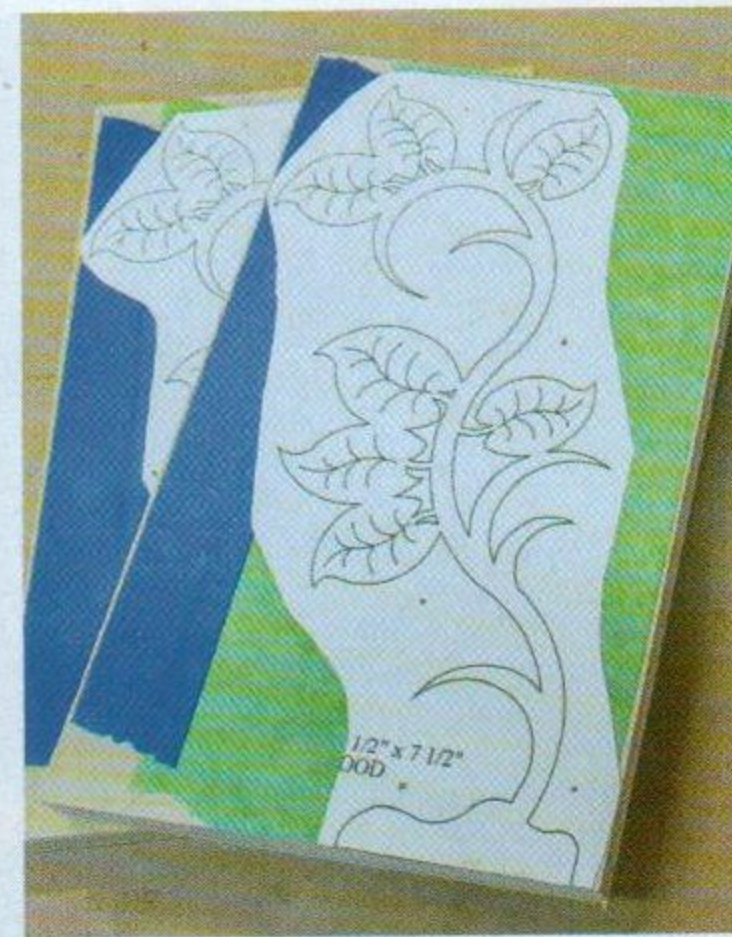
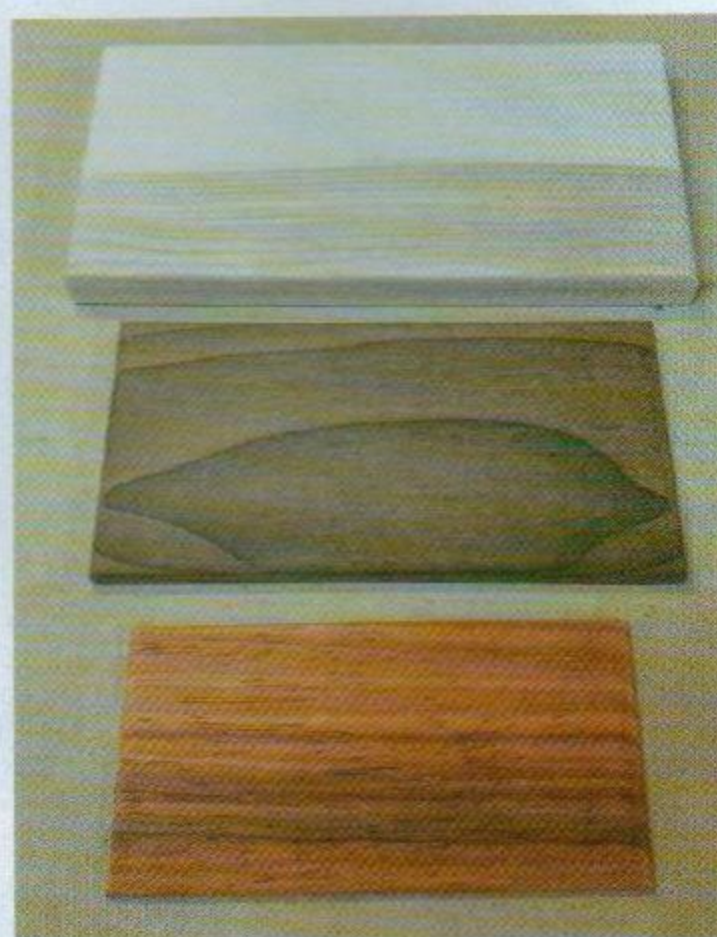
One of the things I love most about fretwork is that you can layer a variety of contrasting wood types to create a strong, unified visual effect. And what better place to find a jumble of colors and shapes for inspiration than a garden in all its summery glory? I designed this little cradle clock with a wild garden theme in mind, but you can alter the wood types and finishes as desired; you could even cut the pieces from the same bland wood and add color with acrylics and flocking, as I did in the inset photo at right.



For a different look, finish the clock with flocking and acrylic paints.

Getting Started

Cut the base pieces to size. Soften the top edges using a belt sander or a 1/4" (6mm) roundover bit in a router. Cover the remaining stock (minus the clock ring layers) with blue painter's tape and apply the patterns to the tape with spray adhesive. Drill the blade-entry holes; for the leaf areas, I drilled holes in the bottom of each central vein, as this was least conspicuous. Drill the holes in the dirt overlays, placing them randomly across the blank. Round the edges of the dowels with sandpaper.

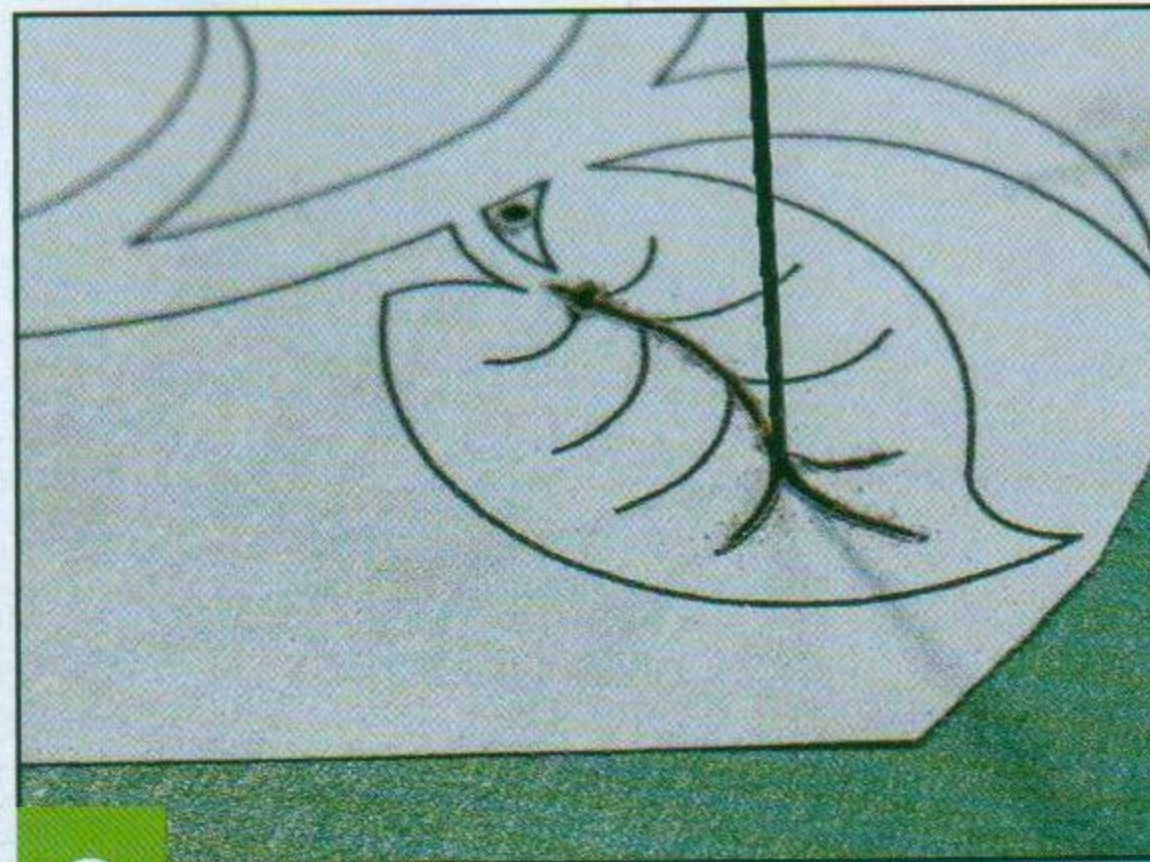


CUTTING & ASSEMBLING



1

Make the base. Smooth the base pieces all over, moving up progressively through the grits until you reach 320. Glue and clamp the bottom two layers together, making sure everything is centered. Once dry, glue and clamp the third layer in place. Then do the same for the vine spacer.



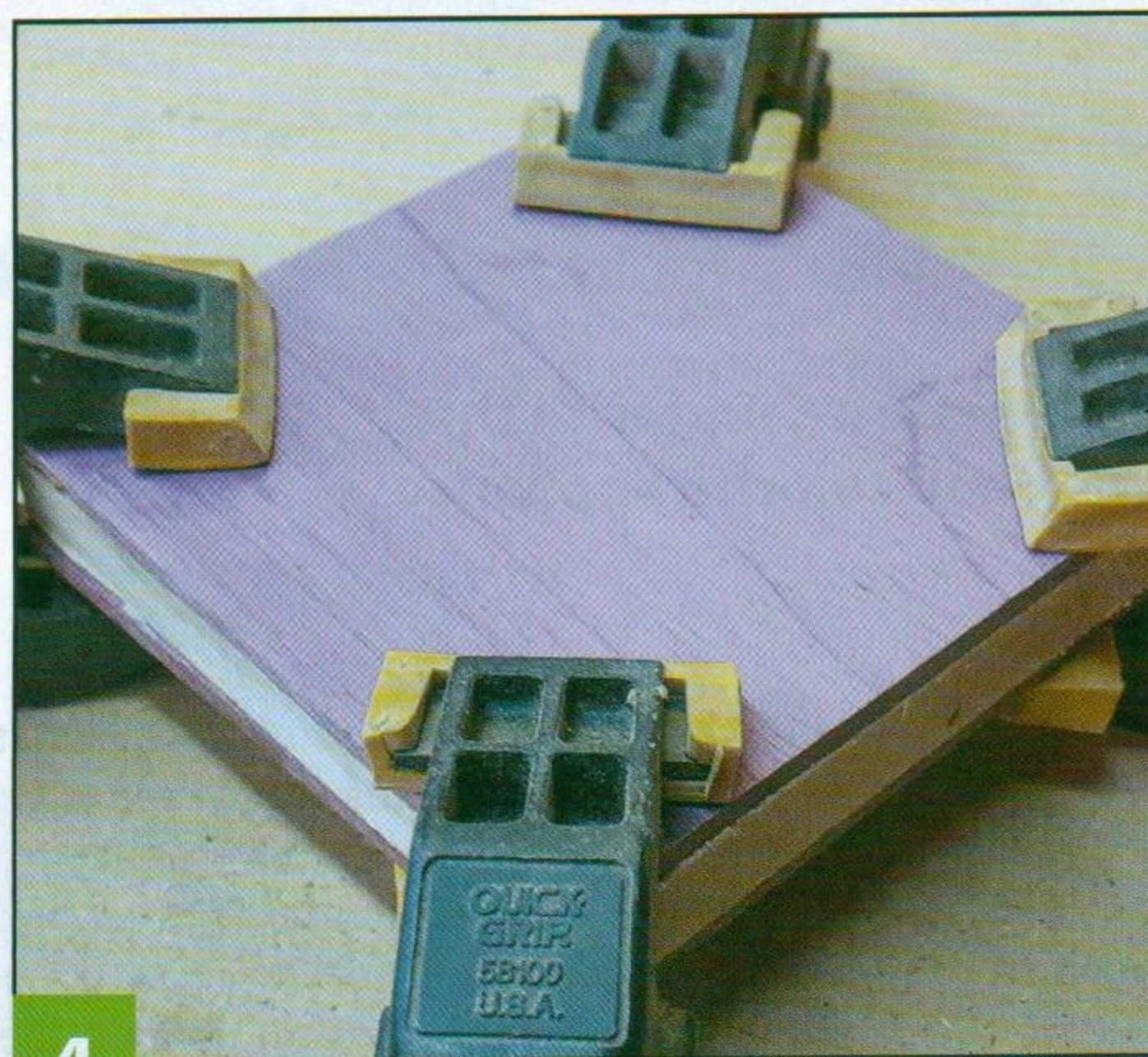
2

Make the interior cuts. Go slowly and let the blade do the work.



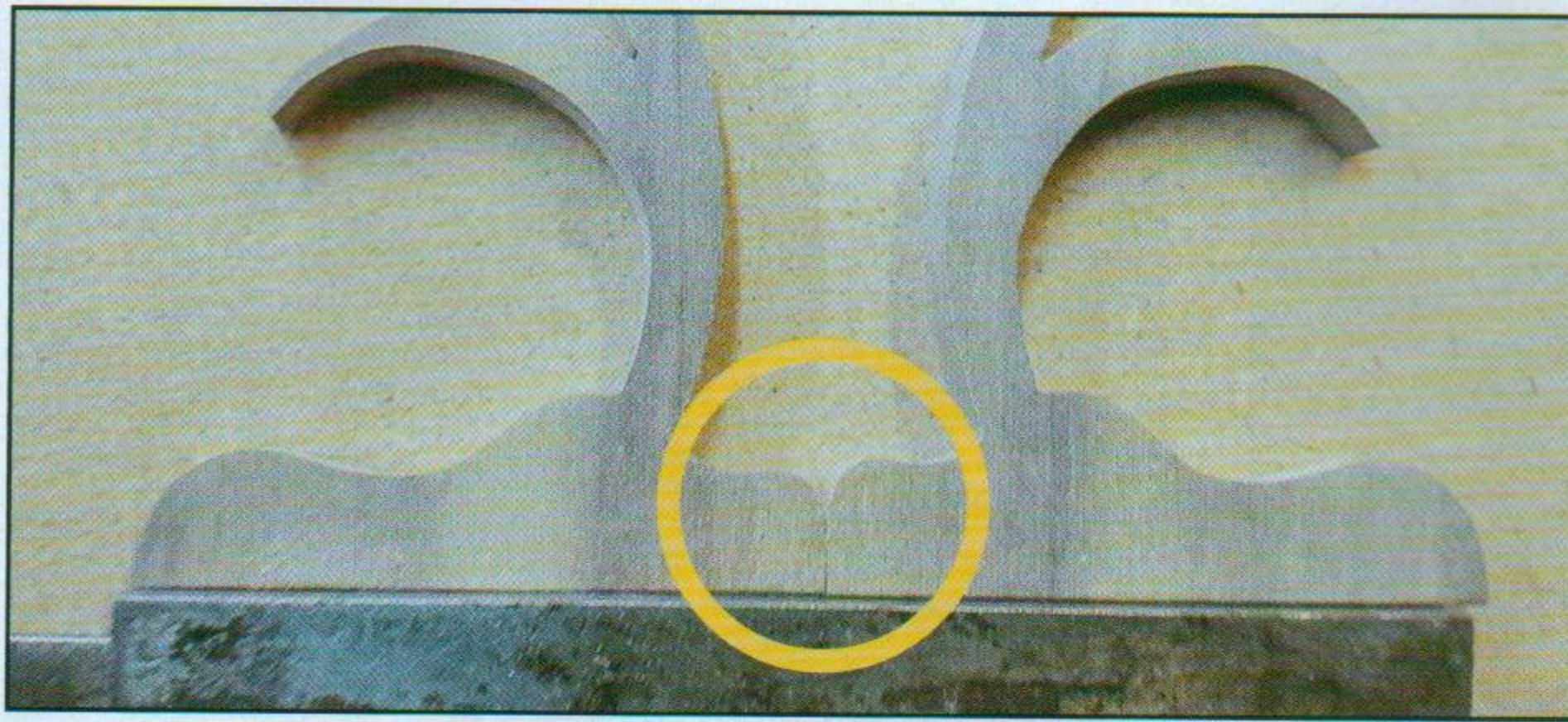
3

Make the perimeter cuts. Remove all patterns and clean up any fuzzies with sandpaper. Sand all pieces with a palm sander or by hand, moving up progressively through the grits until you reach 320.



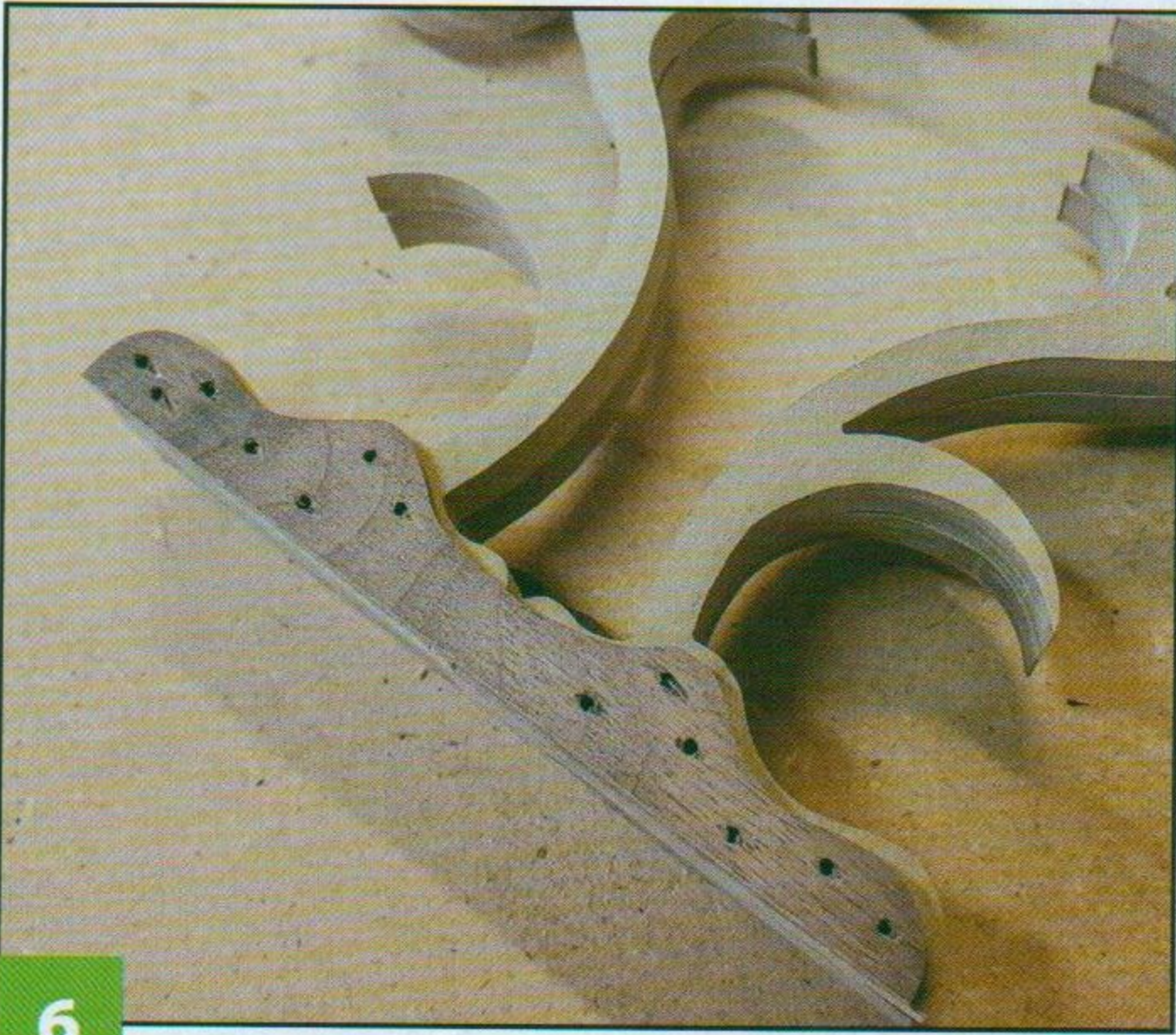
4

Glue up the clock ring layers. Clamp them together tightly and let dry. Apply the pattern as directed in Getting Started and cut the ring. Remove the pattern and sand the edges smooth.



5

Separate the four vine pieces into two pairs. Set each pair on a flat surface, with straight ends touching (see circle), and bottom edges forming a straight line. Place a ruler or square against the bottom edge to verify line straightness, and correct any irregularities with a belt sander. Apply glue to the mating parts, and then press the bottom together firmly to set the bond. Let the glue dry.



6

Glue and clamp the inner dirt overlay onto the vine bottom over the glued area. Then add the outer dirt overlay to each of the two vine layers using the same method. Make sure it is centered.



7

Add the central vine layer to the base. Make sure to center it on the vine spacer.

Parts List

	Part	Quantity	Materials	Dimensions	Presentation
A	Base Bottom	1	Birch, 1/2" (1.3cm) thick	3 1/4" x 6 1/2" (8.3cm x 16.5cm)	Dimensions
B	Base Middle	1	Cambia, 1/4" (6mm) thick	2 3/4" x 5 1/2" (7cm x 14cm)	Dimensions
C	Base Top	1	Padauk, 1/8" (3mm) thick	2 1/4" x 4 1/2" (5.7cm x 11.4cm)	Dimensions
D	Vine Spacer	1	Poplar, 3/4" (1.9cm) thick	1/4" x 3 1/2" (6mm x 8.9cm)	Dimensions
E	Outer Vine	4	Poplar, 1/4" (6mm) thick	4 5/32" x 7 1/4" (10.6cm x 18.4cm)	Pattern
F	Vine Center	1	Poplar, 1/4" (6mm) thick	2 3/8" x 3 5/32" (6cm x 8cm)	Pattern
G	Outer Dirt Overlay	2	Pine, 1/8" (3mm) thick	1/2" x 2" (1.3cm x 5.1cm)	Pattern
H	Inner Dirt Overlay	2	Walnut, 1/8" (3mm) thick	1 5/32" x 3 1/2" (1.2cm x 8.9cm)	Pattern
I	Clock Ring	1	Glueup three layers 1 - Poplar, 3/4" (1.9cm) thick (center) 2 - Purpleheart, 1/8" (3mm) thick (faces)	3 1/2" (8.9cm)-dia.	Pattern
J	Dowel Pin	2	5/16" (8mm)-dia.	1 3/4" (4.4cm) long	Dimensions



8

Add the vine assemblies to the base. Glue and clamp them in place and let dry. Then slide in the clock ring and secure it in place with the dowels.



9

Apply a finish. Spray the entire assembly with 2-3 coats of Minwax satin spray lacquer, letting the finish dry completely between coats. Add the clock insert and display.

Materials

- Wood, such as birch, 1/2" (1.3cm) thick: base bottom, 3 1/4" x 6 1/2" (8.3cm x 16.5cm)
- Wood, such as cambia, 1/4" (6mm) thick: base middle, 2 3/4" x 5 1/2" (7cm x 14cm)
- Wood, such as padauk, 1/8" (3mm) thick: base top, 2 1/4" x 4 1/2" (5.7cm x 11.4cm)
- Wood, such as poplar, 1/4" (6mm) thick: outer vines, 4 each 4 5/32" x 7 1/4" (10.6cm x 18.4cm)
- Wood, such as poplar, 1/4" (6mm) thick: vine center, 2 3/8" x 3 5/32" (6cm x 8cm)
- Wood, such as poplar, 1/2" (1.3cm) thick: clock ring center, 3 1/2" (8.9cm)-dia.
- Wood, such as purpleheart, 1/8" (3mm) thick: clock ring faces, 2 each 3 1/2" (8.9cm)-dia.
- Wood, such as walnut, 1/8" (3mm) thick: inner dirt overlay, 2 each 1 5/32" x 3 1/2" (1.2cm x 8.9cm)
- Wood, such as walnut, 1/8" (3mm) thick: outer dirt overlay, 2 each 1/2" x 2" (1.2cm x 5.1cm)
- Wood, such as poplar, 3/4" (1.9cm) thick: vine spacer, 1/4" x 3 1/2" (6mm x 8.9cm)
- Wood dowels, 5/16" (8mm)-dia: 2 each 1 3/4" (4.4cm) long
- Tape: blue painter's
- Spray adhesive
- Sandpaper: assorted grits to 320

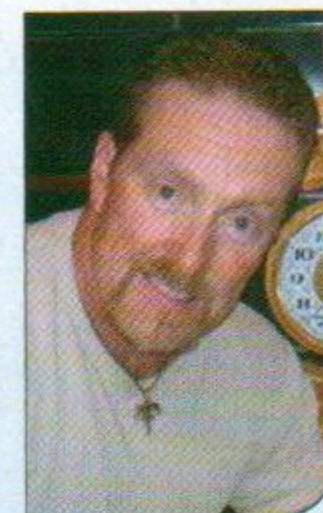
Materials & Tools

- Wood glue
- Finish, such as Minwax clear spray lacquer
- Clock insert: 2 3/4" (7cm)-dia.

Tools

- Table saw (optional)
- Scroll saw with blades: #2 to #5 reverse-tooth
- X-Acto blade and/or needle pick
- Drill press with bit: 1/16" (2mm)-dia.
- Sanders: belt, palm
- Router with bit: 1/4" (6mm) roundover (optional)
- Clamps

Pattern for the **WILD GARDEN CLOCK** is in the pullout section.



Dan Wilckens and his father, Ray, started scrolling 25 years ago as a hobby, and then began designing their

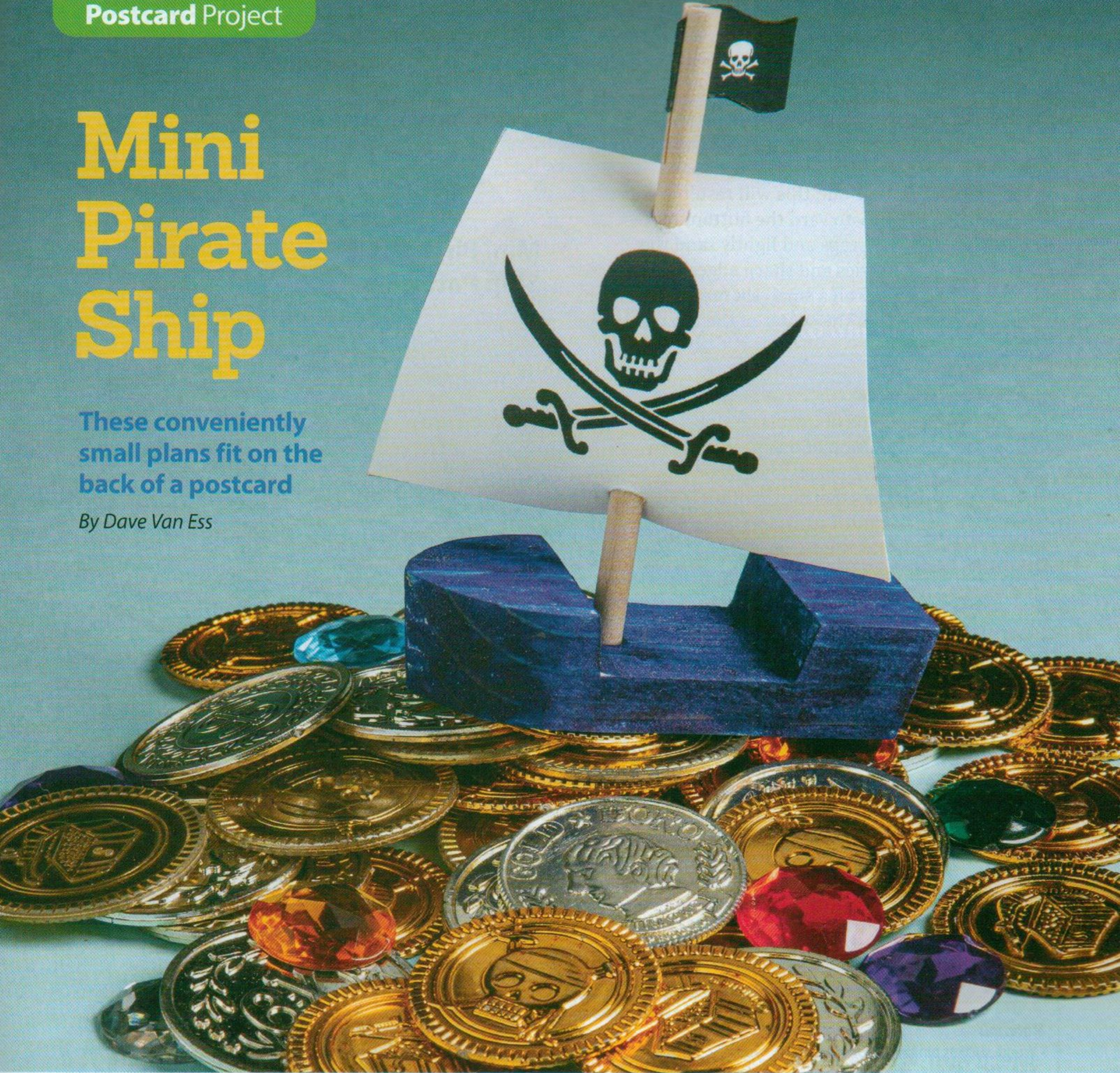
own patterns and making them available for others to enjoy. Dan's background is in tool design and tool and die work. See more of his work at wilckenswoodworking.net.

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

Mini Pirate Ship

These conveniently small plans fit on the back of a postcard

By Dave Van Ess



I have often wondered just how small I could make a total set of project plans. For a challenge, I restricted myself to the surface area of a 4x6 postcard, and this tiny pirate ship was the result. You can cut it from inexpensive and easy-to-obtain pine, and it's simple enough that you can make a bunch in an afternoon. In addition, you can mail the patterns to all of the budding woodworkers in your life—for the price of a few postcard stamps.

Prepping and Cutting

Choose a kind of wood; I used pine, but you could also use a fine-figured hardwood, such as walnut or cherry. *Note: If you do use pine, you could just cut the hull from a standard 1x2, as it has the correct thickness and width.* Photocopy the pattern views and attach them to the wood with repositionable spray adhesive. If you are making only a few, you can copy the pattern for each project. However, if you're making a large quantity, I recommend making a template from 1/8" (3mm) MDF or cardboard and tracing it on each blank with a pencil to save paper and time.

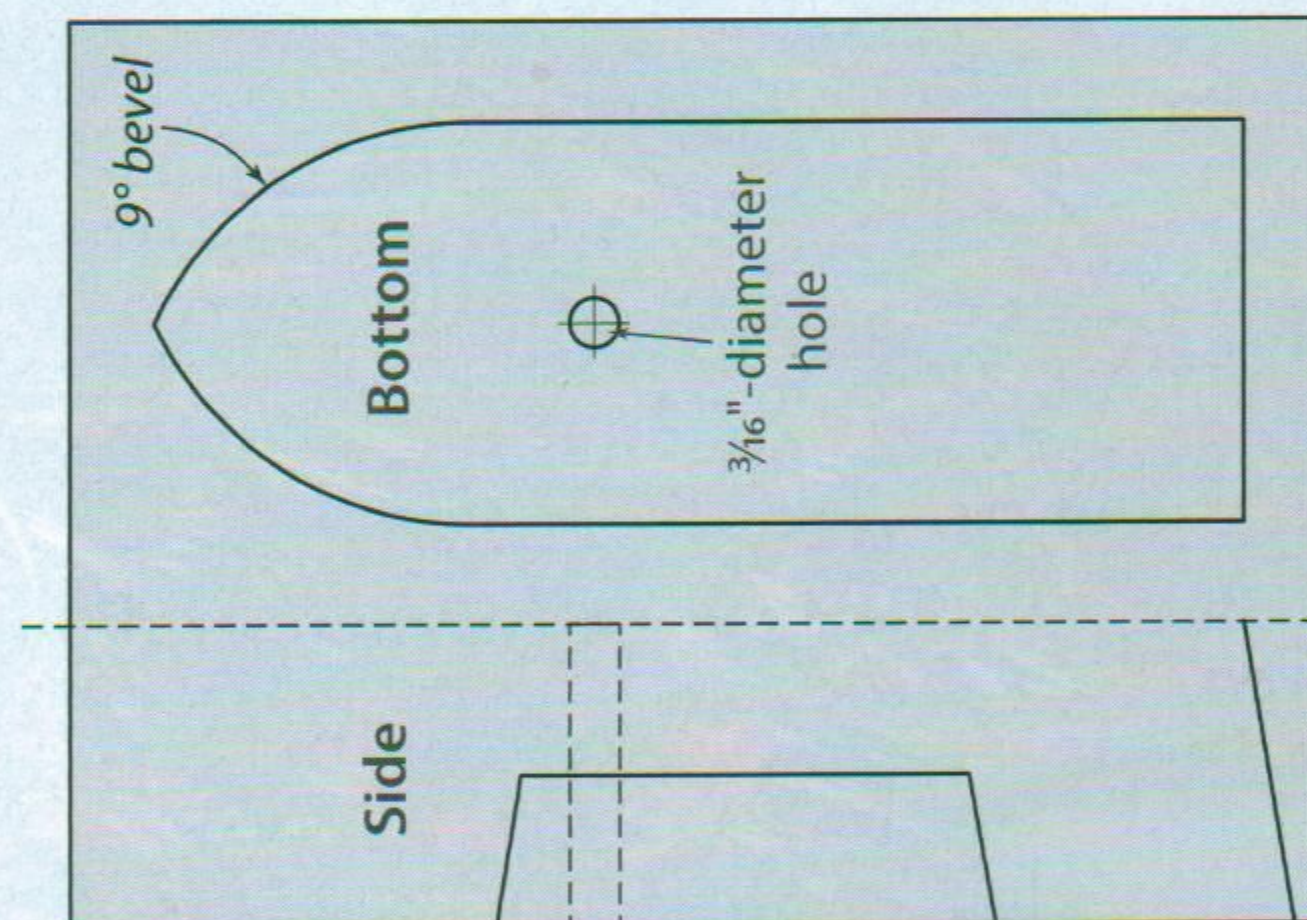
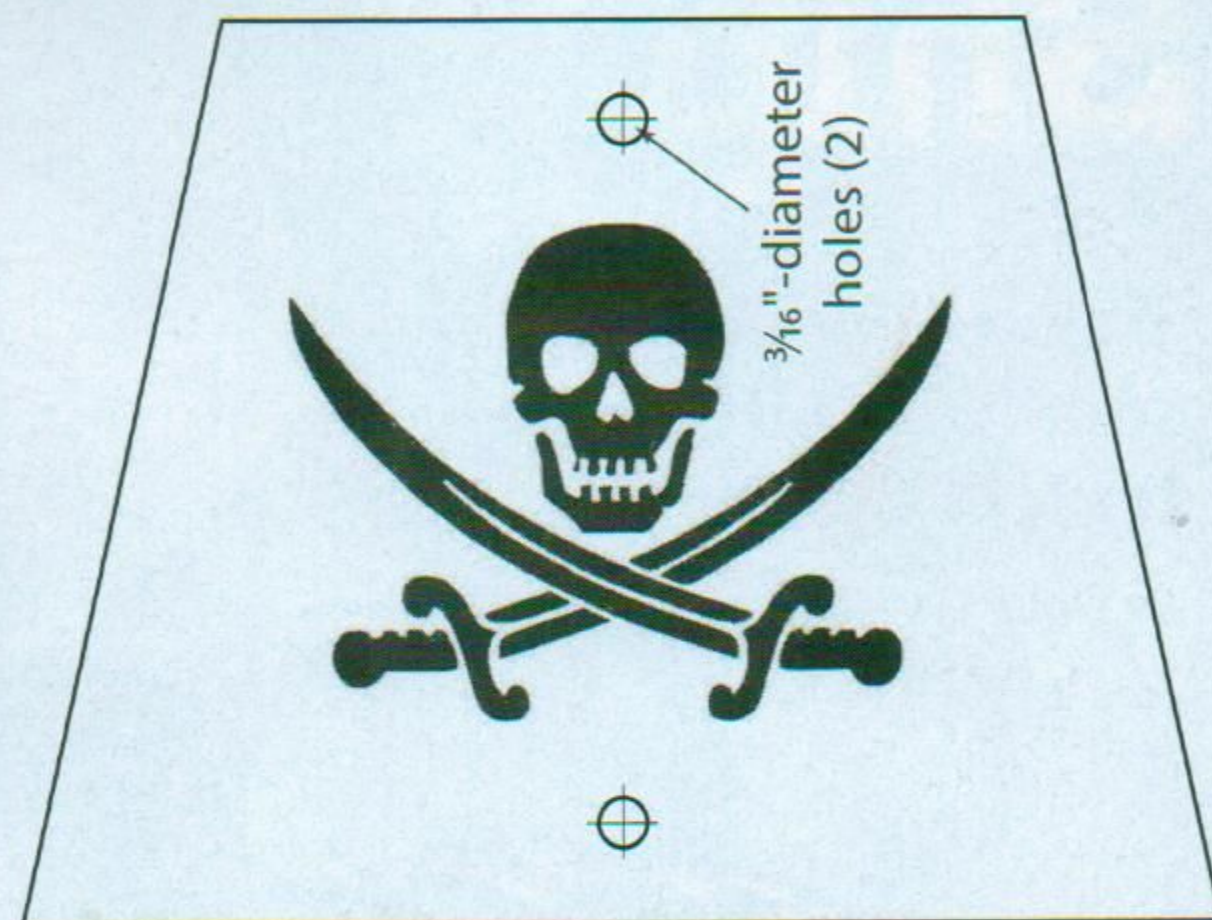
Drill a $\frac{3}{16}$ " (5mm) hole for the mast. Then place the wood on its side, cut the side view, and discard the scrap piece. Use the angle on the side pattern to set the table angle for the top view cuts. Flip the piece bottom-up and make the top view cuts, bevel-out; this will result in a ship that tapers slightly toward the bottom on all sides. Discard the scraps and lightly sand the corners to remove fuzzies and sharp edges. Cut the mast to size and scroll a small slit (around 1" or 2.5cm long) through the center of the top end where the flag will go.

Painting and Finishing

Apply a finish. For some of my pirate ships, I dip the hull into a solution of one part Unicorn SPiT® gel stain and seven parts water. For others, I use brown shoe polish. Another fun option is to heat the hull with a hair dryer and then apply crayons. Buff when cool. This method allows different colors to be applied for intricate shading.

Add the final touches. Copy the sail and flag onto a piece of card stock. Cut out the sail, punch $\frac{3}{16}$ " (5mm) holes where marked, and thread the mast through it. Attach the mast to the hull with wood glue. Fold and glue the flag together, and place it in the slot at the top of the mast. Display as desired; these ships make fun place cards at gatherings. You could also swap out the sail for a photo of a loved one.

Mini Pirate Ship Patterns



Materials & Tools

Materials

- Wood, such as pine, $\frac{3}{4}$ " (1.9cm) thick: hull, $1\frac{1}{2}$ " x 3" (3.8cm x 7.6cm)
- Piece of card stock (for sail and flag)
- Wood dowel, $\frac{3}{16}$ " (5mm)-dia.: mast, 4" (10.2cm) long
- Spray adhesive: repositionable
- MDF or cardboard, $\frac{1}{8}$ " (3mm) thick: template (optional)
- Pencil (optional)
- Sandpaper: 220-grit
- Wood glue
- Finish, such as Unicorn SPiT® or brown shoe polish
- Crayons: assorted (optional)

Tools

- Scroll saw with blade: #3 reverse-tooth
- Drill with bit: $\frac{3}{16}$ " (5mm)-dia.
- Paintbrushes: assorted small
- Hair dryer (optional)

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



Dave Van Ess is a retired engineer living in Chandler, Ariz. He has been woodworking for 45 years and scrolling for 35. He is the past president of the Arizona Woodworkers (a greater Phoenix area woodworking club), and volunteers his time and resources to providing wood projects for kids. E-mail him at davevaness21@gmail.com.

Intarsia Seashell

Store-bought beach art can't hold a candle to this elegant conch

By Janette Square



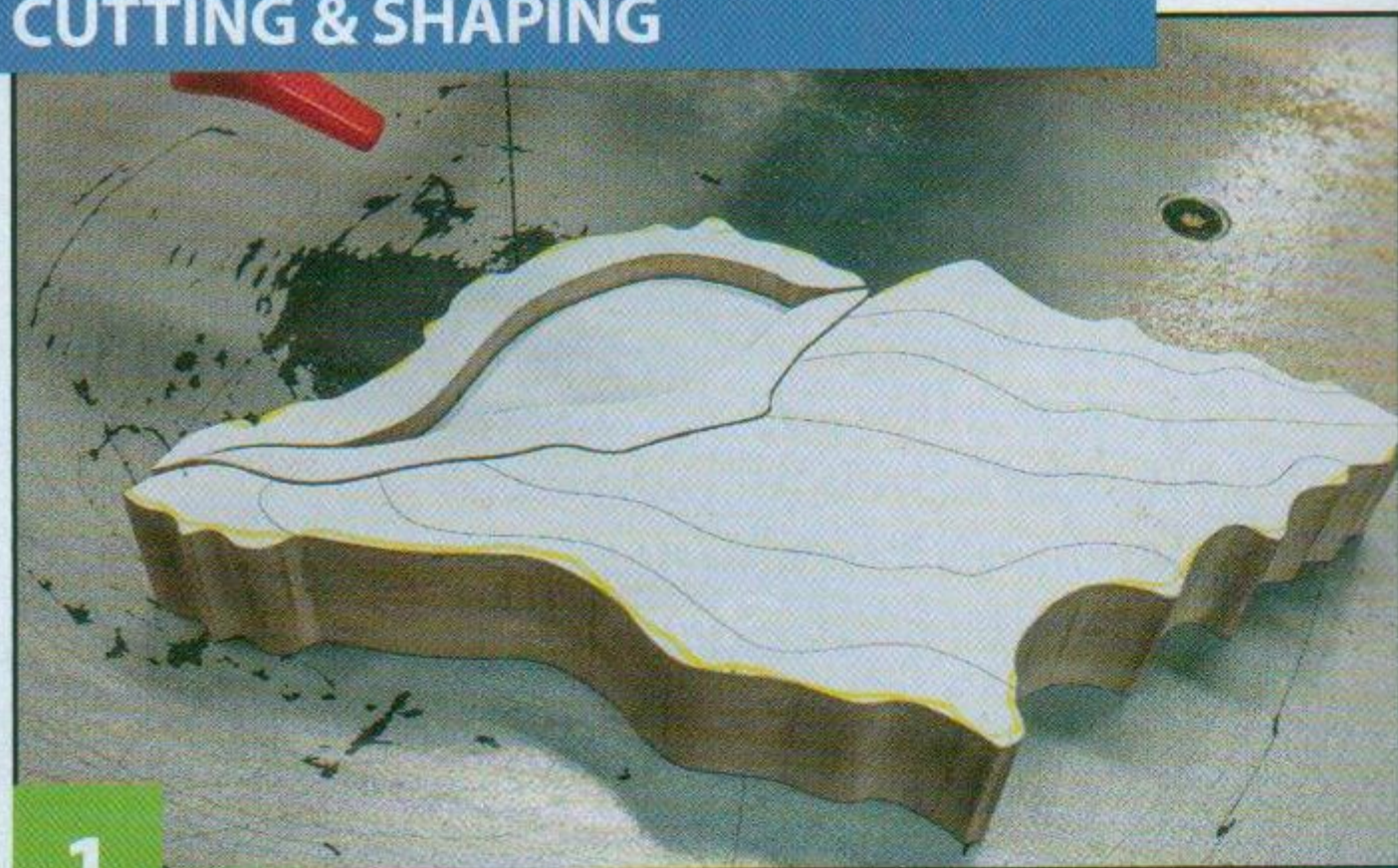
Who doesn't love looking for seashells at the beach? Here's one you can create yourself—and if you're like me, hunting for interesting wood is as much fun as hunting for shells. By using quarter sawn sycamore or another uniquely grained wood, you can create a simple yet ornate shell to gift to an ocean-loving friend or add to your own beach themed décor. It's a simple design to cut, but by spending a bit of extra time on the wood selection and shaping, you can create an ornate, high-quality piece of art.

Getting Started

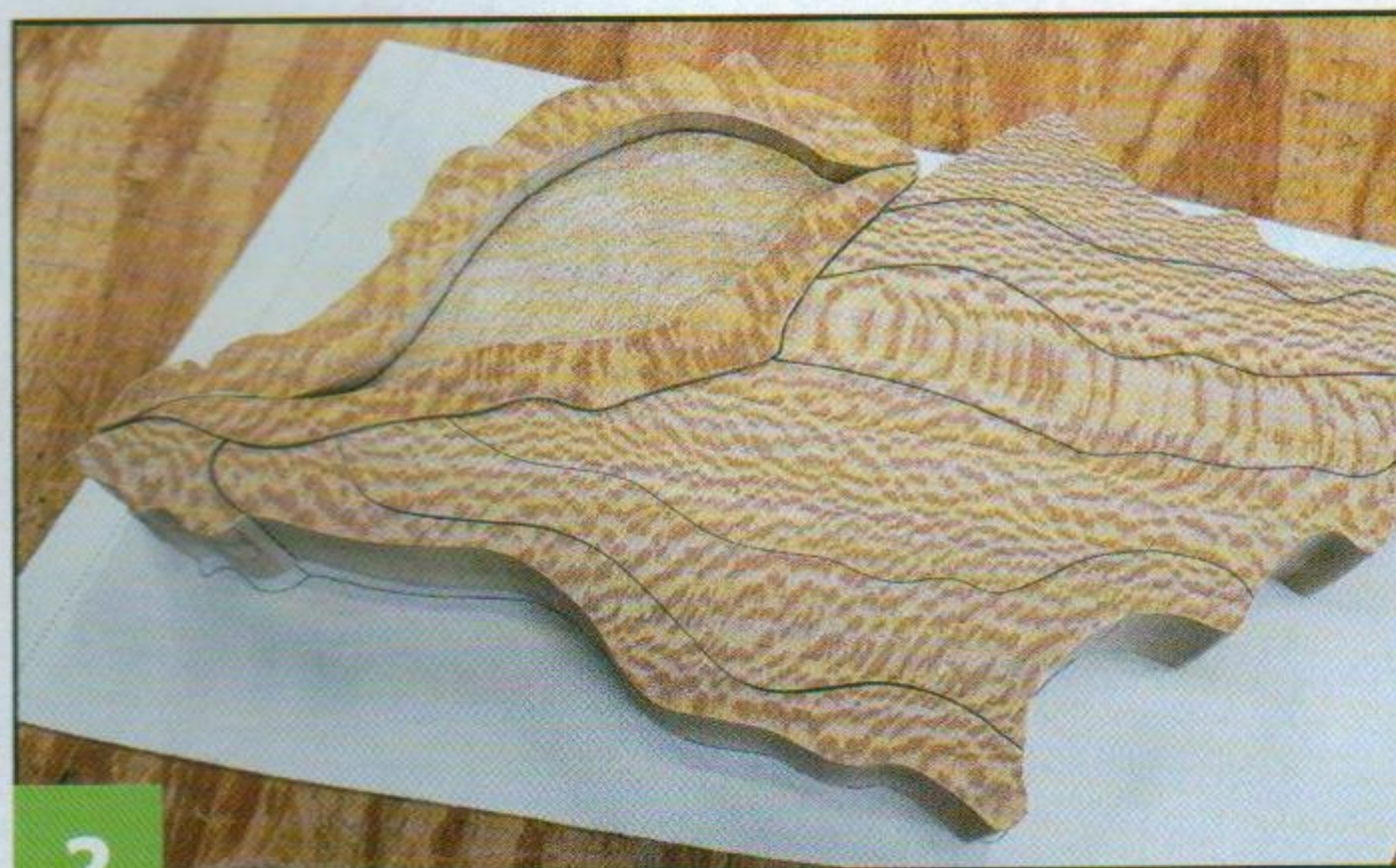
Choose wood with a unique grain; I chose sycamore and curly maple. As you contour these wood varieties,

the grain changes, so each piece will be truly unique. Attach clear packing tape to the surface of the wood and apply the pattern to the tape using spray adhesive. *Note: I split the pattern into three separate sections—the main shell body (A), the hollow area (B), and the area framing the hollow (C).* I cut the main body of the shell and the area framing the hollow from one piece of sycamore and then divided it into the required number of segments. I used curly maple for the hollow area. This allowed for more grain variation, which gave the piece added interest. You could also just use a single 4" by 6" (10.2cm by 15.2cm) piece for the entire shell.

CUTTING & SHAPING



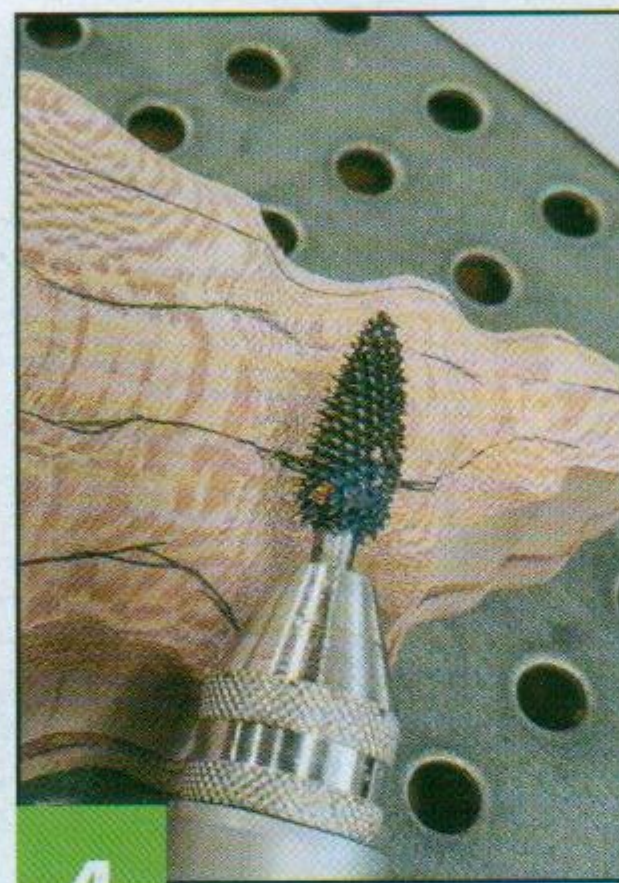
1 **Scroll the main pieces.** Cut the two frame pieces, the hollow area, and the perimeter of the main body of the shell using a #7 reverse-tooth blade.



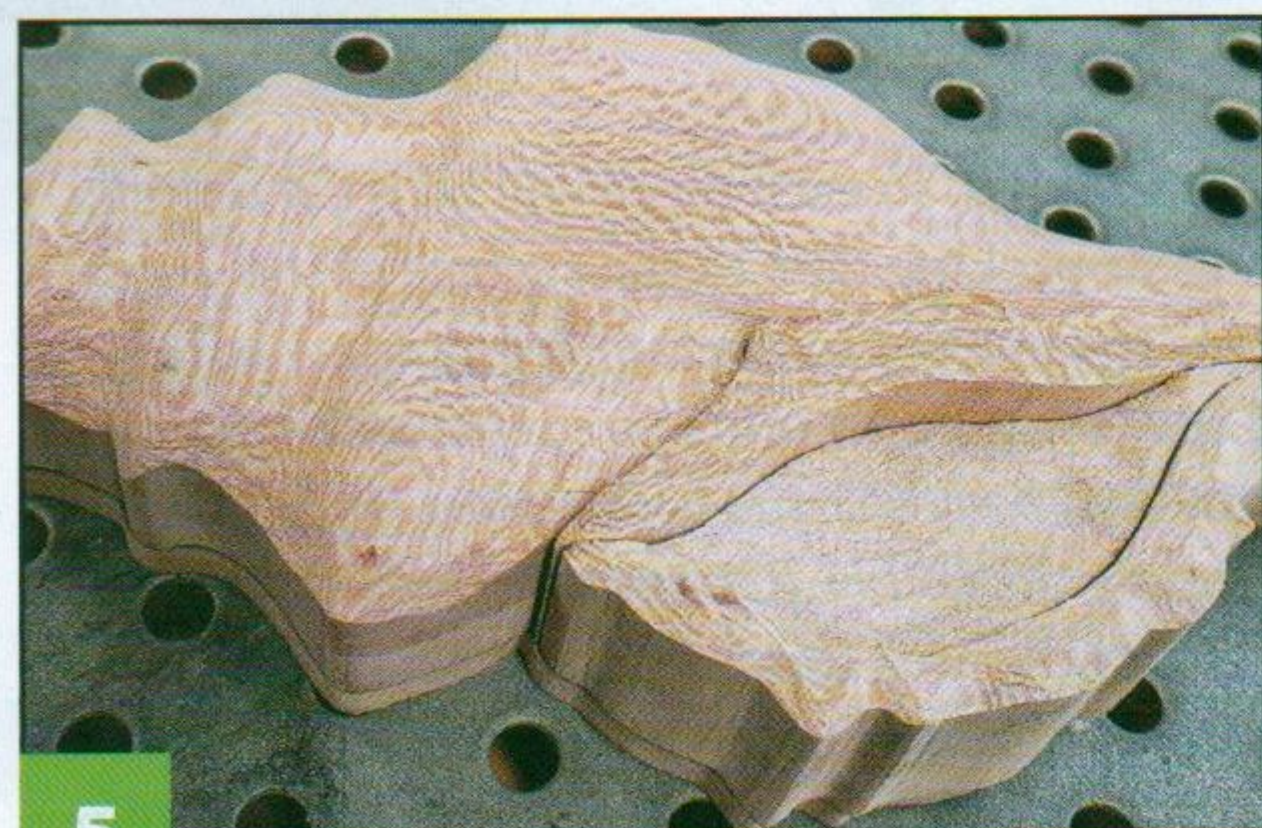
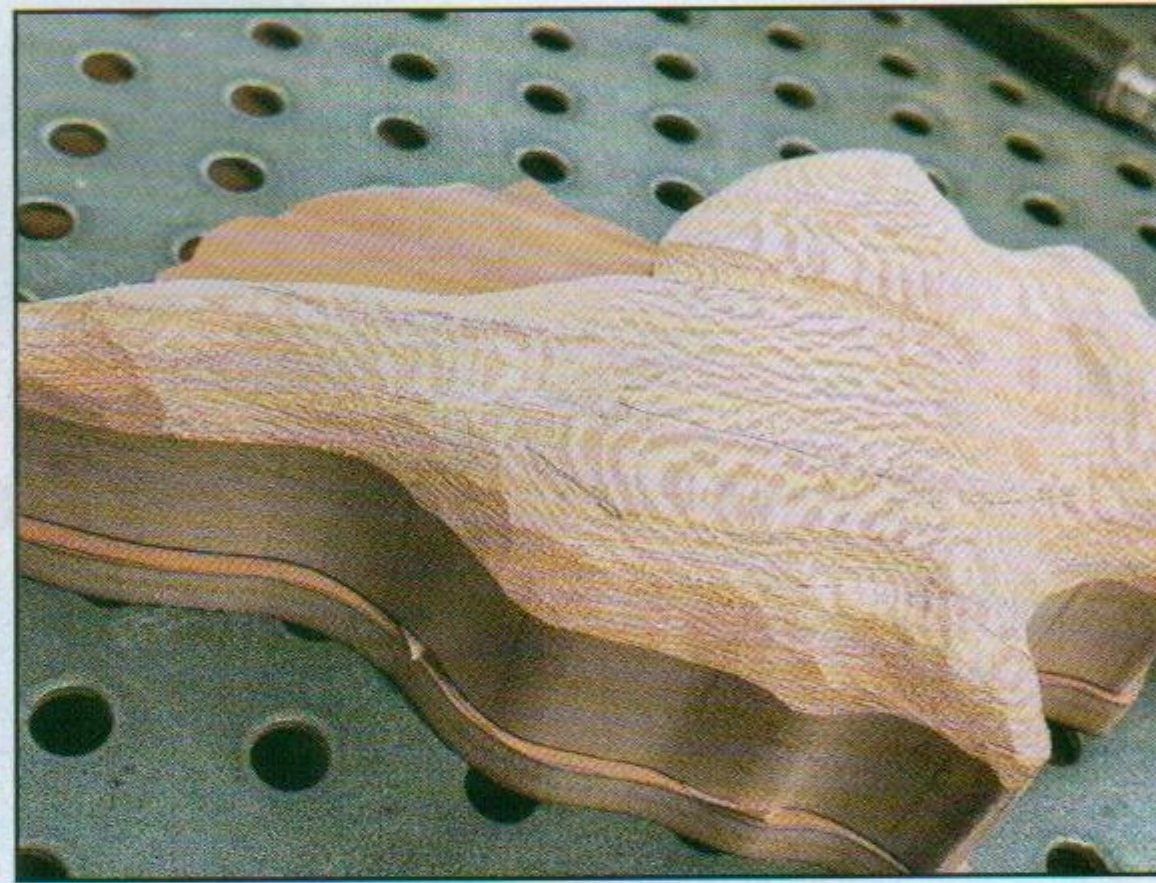
2 **Cut the main body into segments.** Use a #2 or #3 blade. The smaller kerf will allow the pieces to reconnect with a tighter fit. Remove the patterns and reassemble the piece.



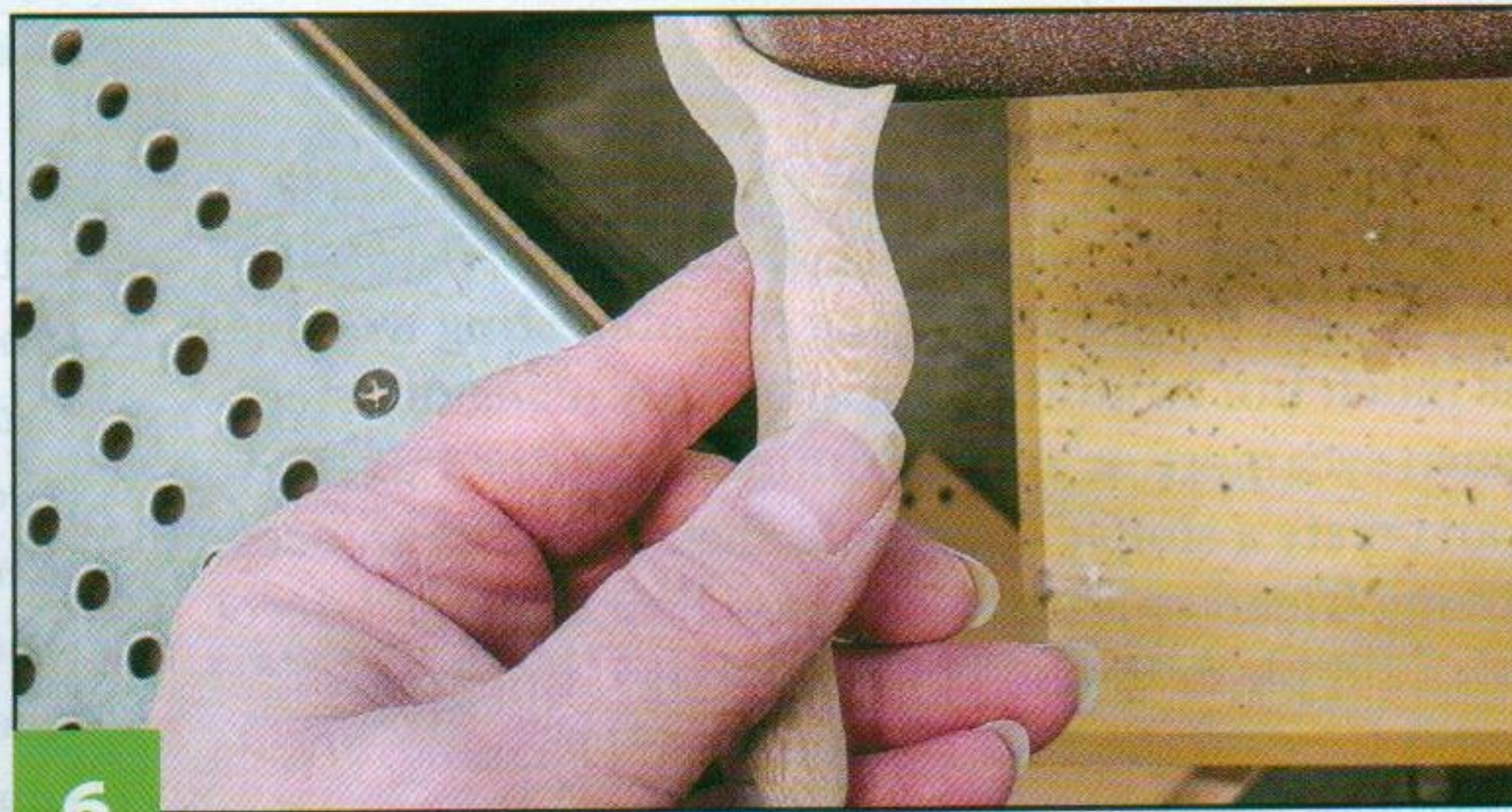
3 **Make the sanding shim.** Trace the perimeter of the shell onto a piece of 1/4" (6mm) plywood and cut it on the scroll saw with the #2 or #3 blade. Then, using double-sided tape, attach the main part of the shell to the shim. Roughly shape the overall body using a flex drum sander with 120-grit sandpaper.



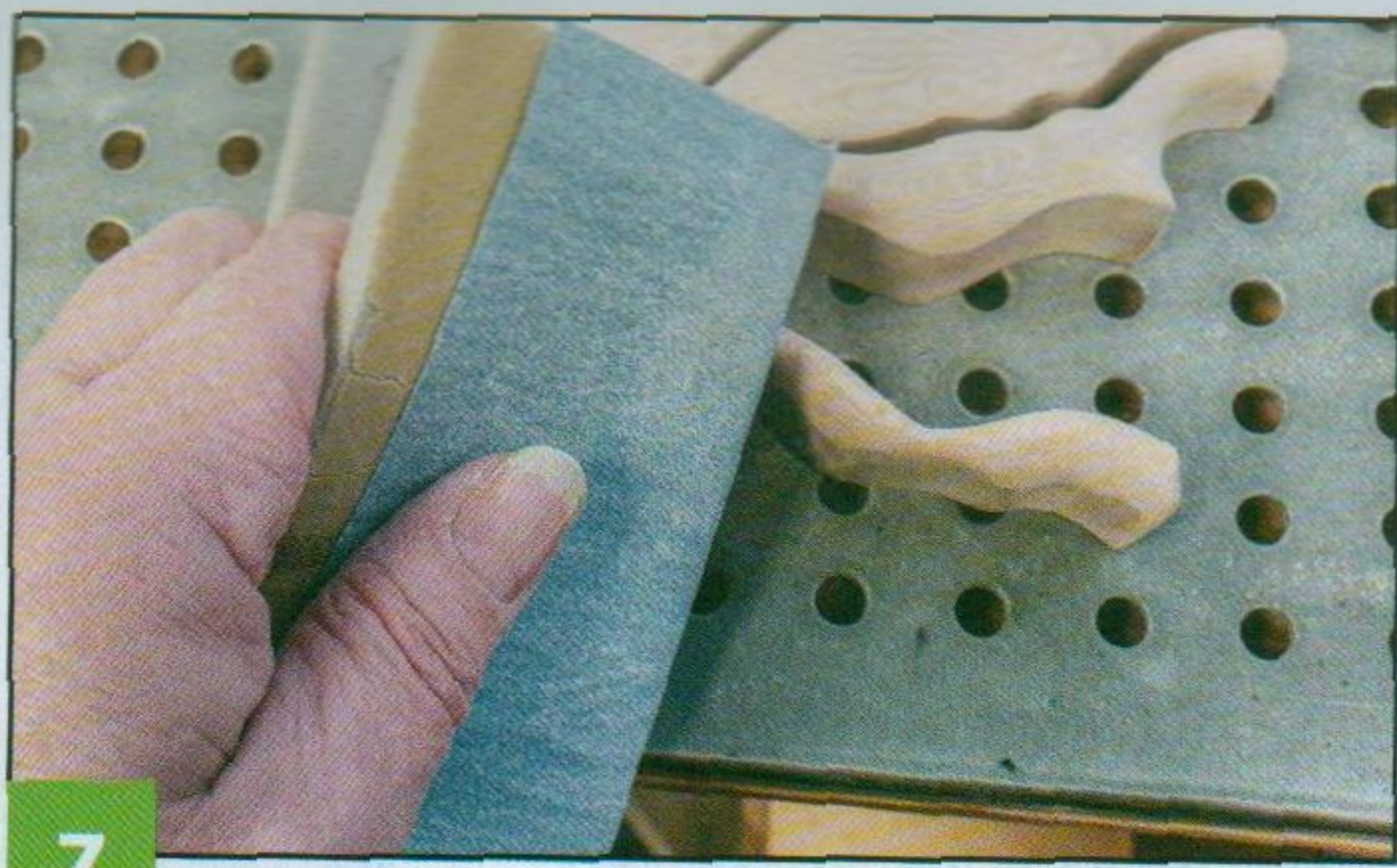
4 **Rough shape the shell.** Draw the lines for the main shell sections to make the segments easier to see. Then, using a rotary tool with a medium-grit flame-shaped typhoon burr, rough-shape the main shell body (A), leaving the hollow (B) and framing pieces (C) untouched for now. You want to create "hills and valleys" to simulate the highs and lows of the shell. Every shell is unique, so have fun with the shaping process on this one! Once you have established a consistent overall shape, continue with the individual segments of the body, adding even more interest. The end product should have a rippled effect resembling waves.



5 **Shape the piece representing the concave hollow of the shell.** Lower the side closest to the main body to give the illusion that this area is descending down into the shell. Then shape the framing two pieces to align with the rest. Use the same tool as in Step 4.

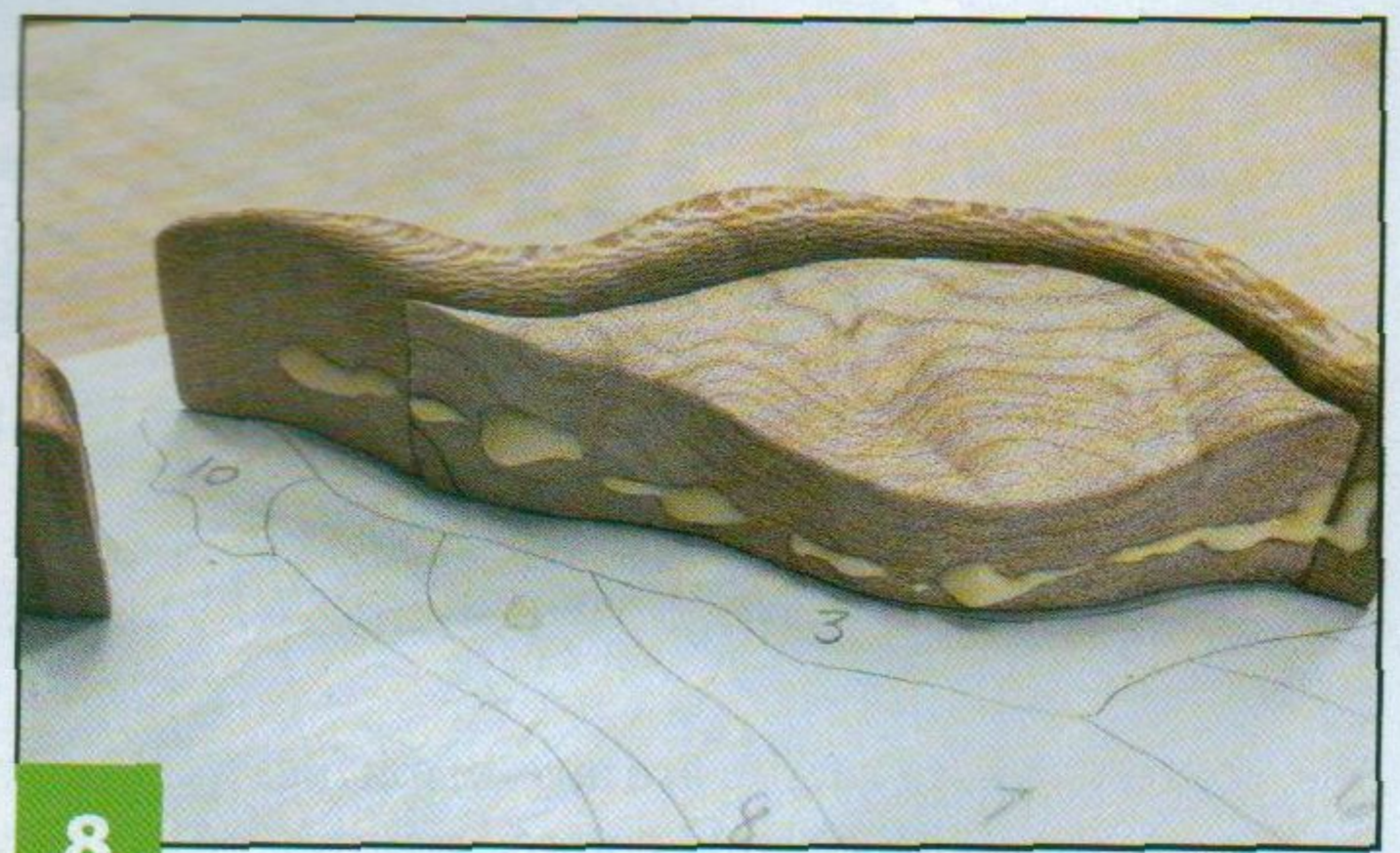


6 **Refine each individual piece.** Use the rotary tool with the medium-grit flame-shaped typhoon burr. Then smooth out and eliminate the scratches with 120-grit paper in the flex drum sander. Using the edge of the sander helps to get into some of the tighter areas. Extra hand-sanding with 120- or 180-grit sandpaper may be necessary.



7

Give the elements a final sand. I used a combination of hand-sanding and a mop sander.

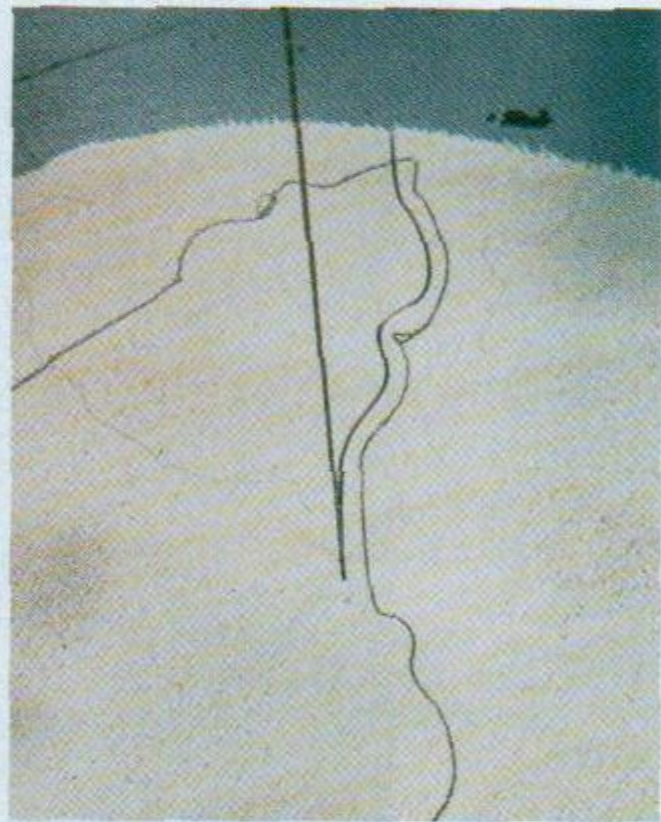


8

Assemble the shell. Place wax paper over your extra pattern from Getting Started and assemble the shell on top of it. Look at the assembled shell from all angles. Once satisfied with the overall shape, edge-glue each piece to its neighbor. Allow the assembly to dry fully.

Finishing

Choose a finish. I prefer a satin gel varnish because it doesn't require sanding between coats and gives each piece a rich, hand-rubbed look. Always wear protective eyewear and gloves when applying finish.



Apply the finish. Remove the excess with paper towels, and then use an air compressor, if desired, to get the remainder out of the cracks. A rubber tipped dental tool is handy for getting into the grooves, as well. Let dry. Then add the backer. Trace the shell onto a piece of $\frac{1}{8}$ " (3mm) Baltic birch plywood or your preferred material. Cut $\frac{1}{16}$ " to $\frac{1}{8}$ " (2mm to 3mm) inside the line and sand the backer with a mop sander. Glue the backer on, let dry, and sign your work. Add a hanger, if desired.



Materials

- Wood, such as quarter sawn sycamore, $\frac{3}{4}$ " to 1" (1.9cm to 2.5cm) thick: shell, approx. 4" x 6" (10.2cm x 15.2cm)
- Curly maple, $\frac{3}{4}$ " to 1" (1.9cm to 2.5cm) thick: shell hollow, approx. 2" x 4" (5.1cm x 10.2cm)
- Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: backer, 4" x 6" (10.2cm x 15.2cm)
- Scrap plywood, $\frac{1}{4}$ " (6mm) thick: sanding shim, 4" x 6" (10.2cm x 15.2cm)
- Tape: double-sided, clear packaging
- Spray adhesive
- Sandpaper: assorted grits
- Wax paper
- Wood glue
- Finish: clear satin gel varnish
- Clean paper towels
- Hanger (optional)

Tools

- Scroll saw with blades: #2 or #3, #7 reverse-tooth
- Sander: flex drum with 120- and 220-grit sandpaper; mop (optional)

Materials & Tools

- Rotary tool with burr: medium-grit flame-shaped typhoon
- Dental tools: rubber-tipped
- Air compressor (optional)

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

Pattern for the **INTARSIA SEASHELL** is in the pullout section.



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

Sea Turtle Fretwork

This regal reptile will add seaside flair to any space

By Charles Hand

Loggerhead sea turtles are awe-inspiring creatures. These richly colored reptiles often lay their eggs on beaches, where their young are vulnerable to a host of predators. Newly hatched loggerheads have to cross these beaches on their maiden voyage to the sea—and once they reach the water, they continue migrating all their lives, sometimes traveling up to 10,000 miles annually for food.

Prepping and Cutting

Sand the front and back of the blank thoroughly. Blow off the dust or remove it with a tack cloth. Attach removable Con-Tact® creative covering paper to the top of one blank. Apply spray adhesive to the back of the pattern. Let the adhesive set for two to three minutes, and then press the pattern down onto the paper, eliminating any air bubbles.

Stack the portrait blanks with the pattern on top. Hold the wood flat and the stack securely while you wrap blue painter's tape around the perimeter. Drill blade-entry holes and cut the frets. Since I use spiral blades, I sand the bottom of the stack every 10 cuts to remove the fuzzies.

Sanding and Finishing

Remove the tape from the perimeter and peel off the Con-Tact® paper. Sand the portraits carefully. For large, open areas, such as those around the eyes, insert the cutout pieces before sanding to protect the delicate bridges. Use needle files to clean up tight areas.

Remove the sander dust with compressed air. Apply a clear spray finish if you don't plan to use a picture frame with glass. Attach black felt to the back of the portrait with blue painter's tape. Remove the backing board and mat from the picture frame, and set the portrait in place on the back side of the mat opening. Replace the backing board and secure the portrait in the frame.

Framing Notes

A standard 11" by 14" (27.9cm by 35.6cm) mat opening is normally 10½" by 13½" (26.7cm by 34.3cm), so I designed my patterns to suit that size. Take a tape measure when shopping for a picture frame, and make sure the mat opening is exactly 10½" by 13½" (26.7cm by 34.3cm).

Materials & Tools

Materials

- Baltic birch plywood, ⅛" (3mm) thick: 2 or 3 each 11" x 14" (27.9cm x 35.6cm)
- Sandpaper: 180- to 220-grit
- Tack cloth
- Tape: blue painter's
- Self-adhesive shelf liner, such as Con-Tact® removable covering
- Spray adhesive, such as Elmer's or 3M Super 77
- Finish: clear spray lacquer

- Felt backing, black: 11" x 14" (27.9cm x 35.6cm)
- Photo frame, matted: standard 11" x 14" (27.9cm x 35.6cm)

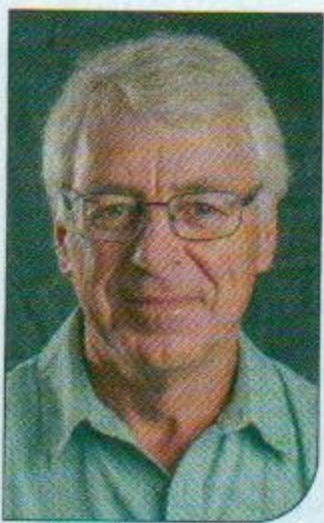
Tools

- Scroll saw with blades: #2/0 to #1 spiral (interior cuts), #3 or #5 reverse-tooth flat (straight cuts)
- Drill press with bits: ⅜" (1mm)-dia. or #56 wire size, ⅛" (2mm)-dia. or #53 wire size

- Palm sander: fine-grit
- Needle files
- Air compressor (optional)

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

Pattern for the **SEA TURTLE FRETWORK** is in the pullout section.



Charles Hand is retired from a career in electrical/mechanical design, graphic arts, and senior project management. He enjoys intarsia, fretwork, segmentation, inlay, and just about everything there is to cut with a scroll saw. Charles has won best of show and several other awards for his work and designs at local craft and woodworking shows. For more information and a tutorial on Charles' Con-Tact® paper method and framing technique, or for more of his patterns, visit scrollsawart4u.weebly.com.

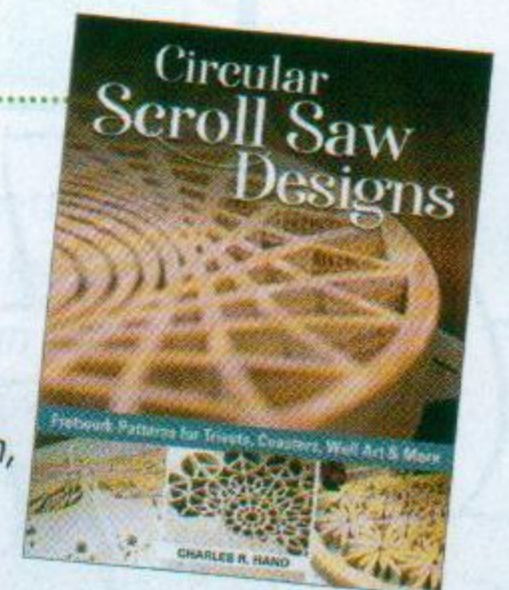
FURTHER READING

Circular Scroll Saw Designs

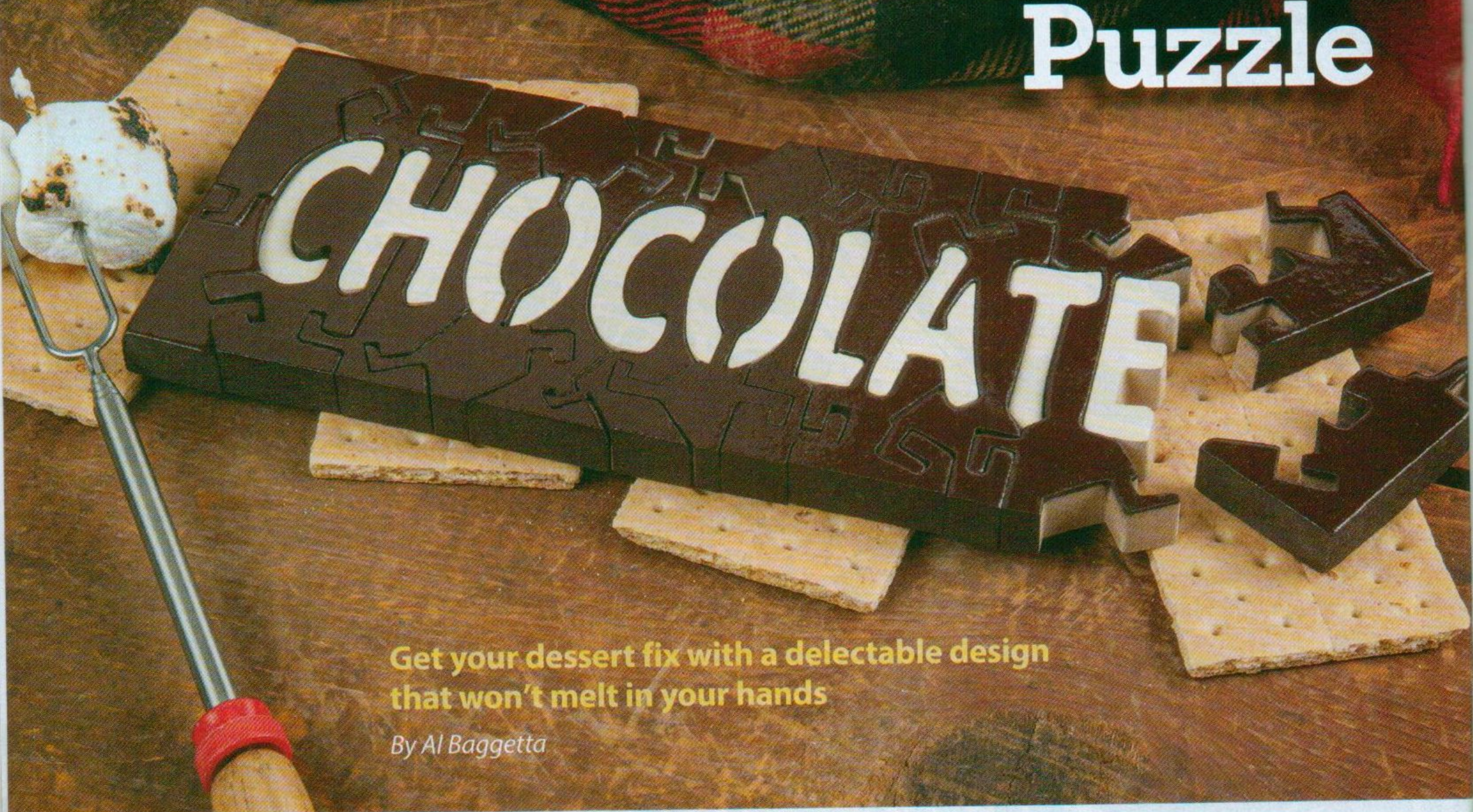
By Charles Hand

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Chocolate Bar Puzzle



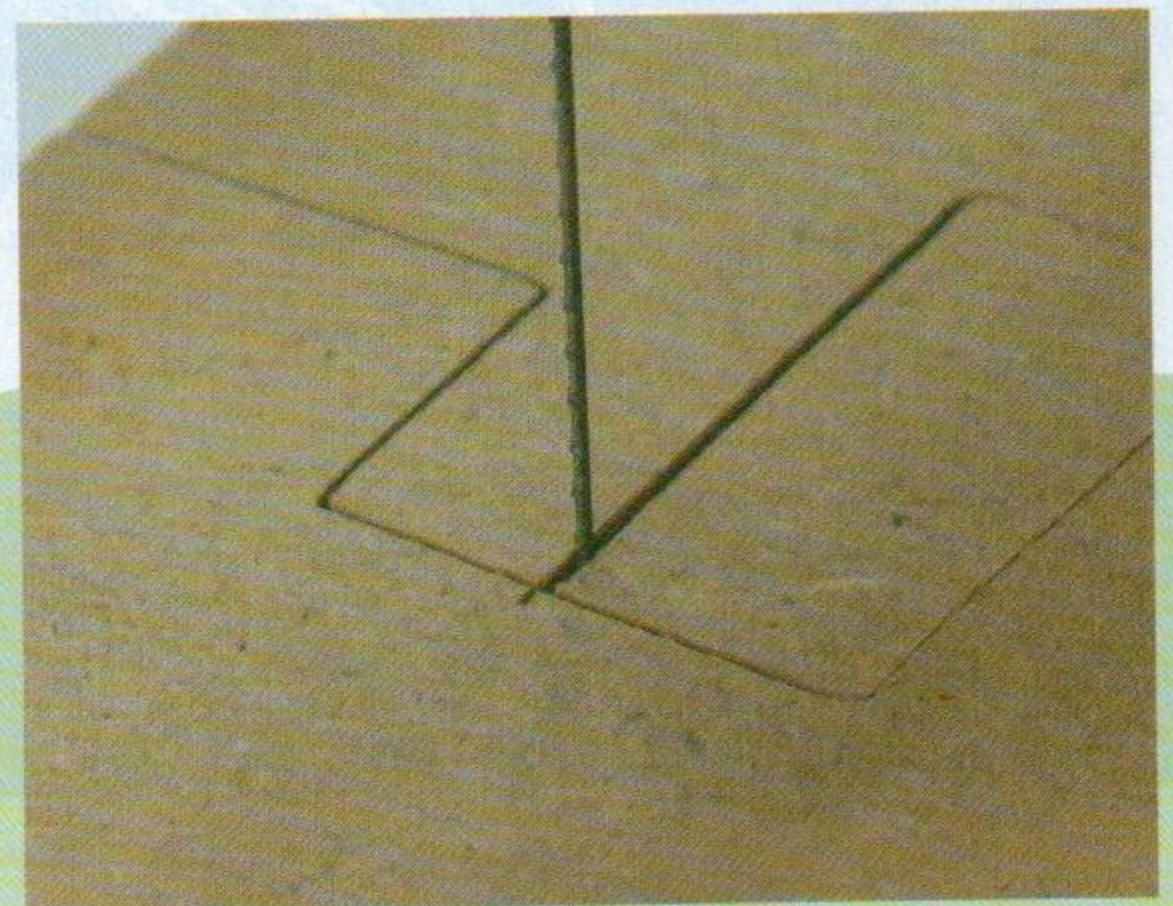
Get your dessert fix with a delectable design that won't melt in your hands

By Al Baggetta

As far as traditions go, there's nothing quite like a campfire on a summer night. And what pairs more perfectly with campfires than a s'more or two? I designed this luscious-looking puzzle to celebrate that classic treat and all the heart-warming customs surrounding it. The irregularly shaped pieces are a challenge to put together, but once done, you'll be rewarded with the ease of just dropping the letters into place. I spray-painted most of the bar with a dark brown (because dark chocolate is my favorite), but you can color yours based on your preferred variety. All chocolate is good chocolate, after all!

Getting Started

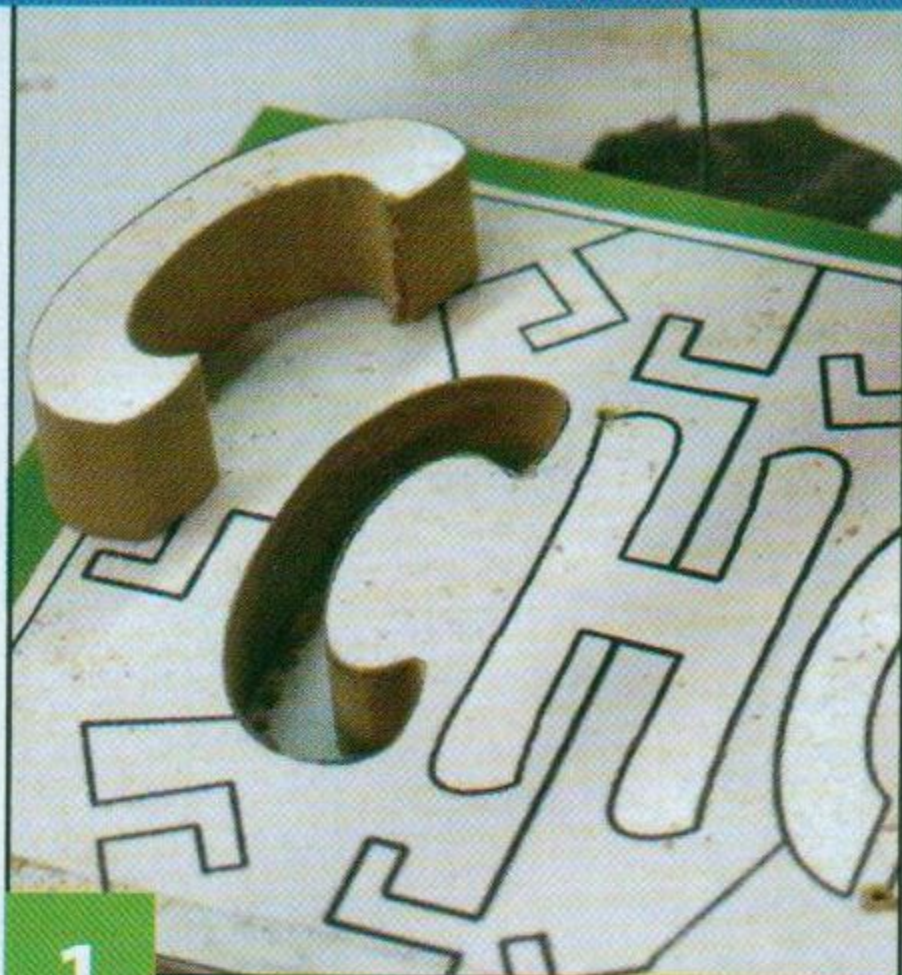
Photocopy the pattern. Cover the wood with painter's tape and attach the pattern to the tape with spray adhesive or a glue stick, smoothing it down to remove any bubbles. Drill the blade-entry holes at inconspicuous points in the corners of letters; use a $\frac{1}{16}$ " (2mm)-dia. drill bit or smaller.



Keeping it Square

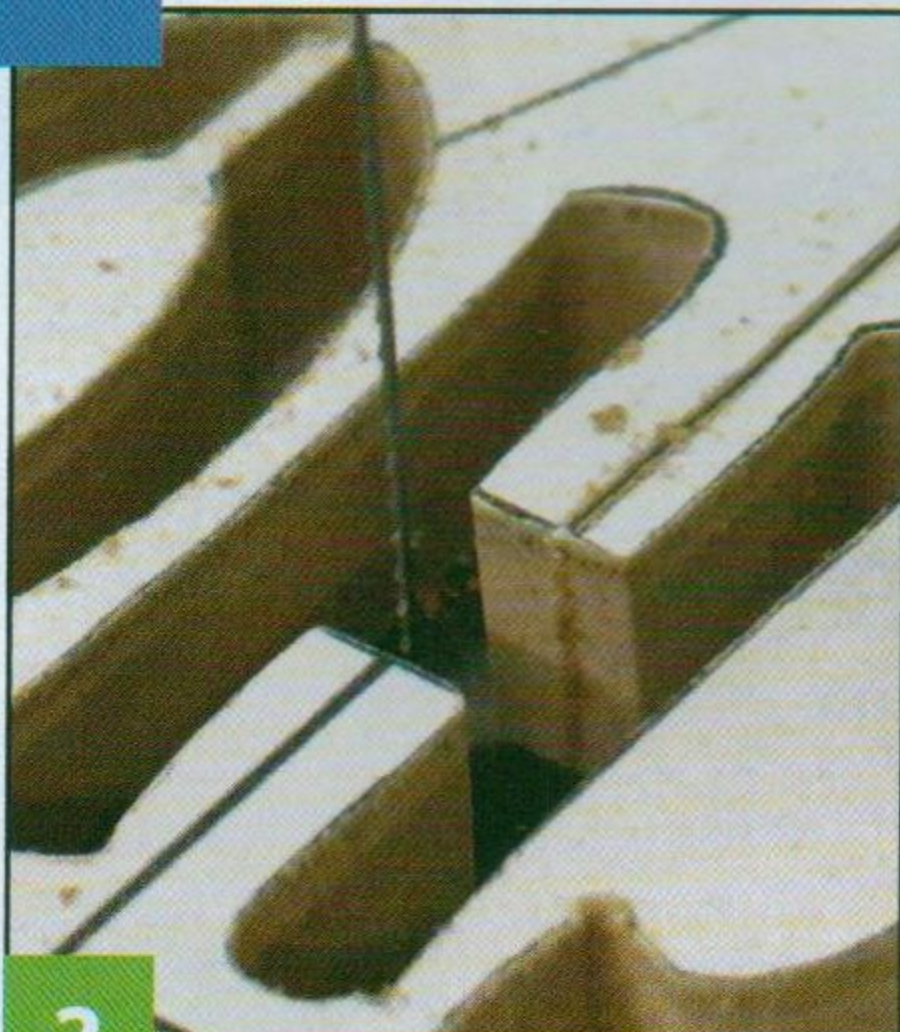
Before you start cutting the pieces, it's important to ensure that your blade is square (90°) to the table. First, run a test on a scrap piece of MDF of the same thickness as your puzzle blank by cutting a small rectangle shape in the scrap. The piece should slide out of the bottom and top of the hole with ease. If it doesn't, adjust the angle of your saw table until you can cut a perfectly square piece.

CUTTING & FINISHING



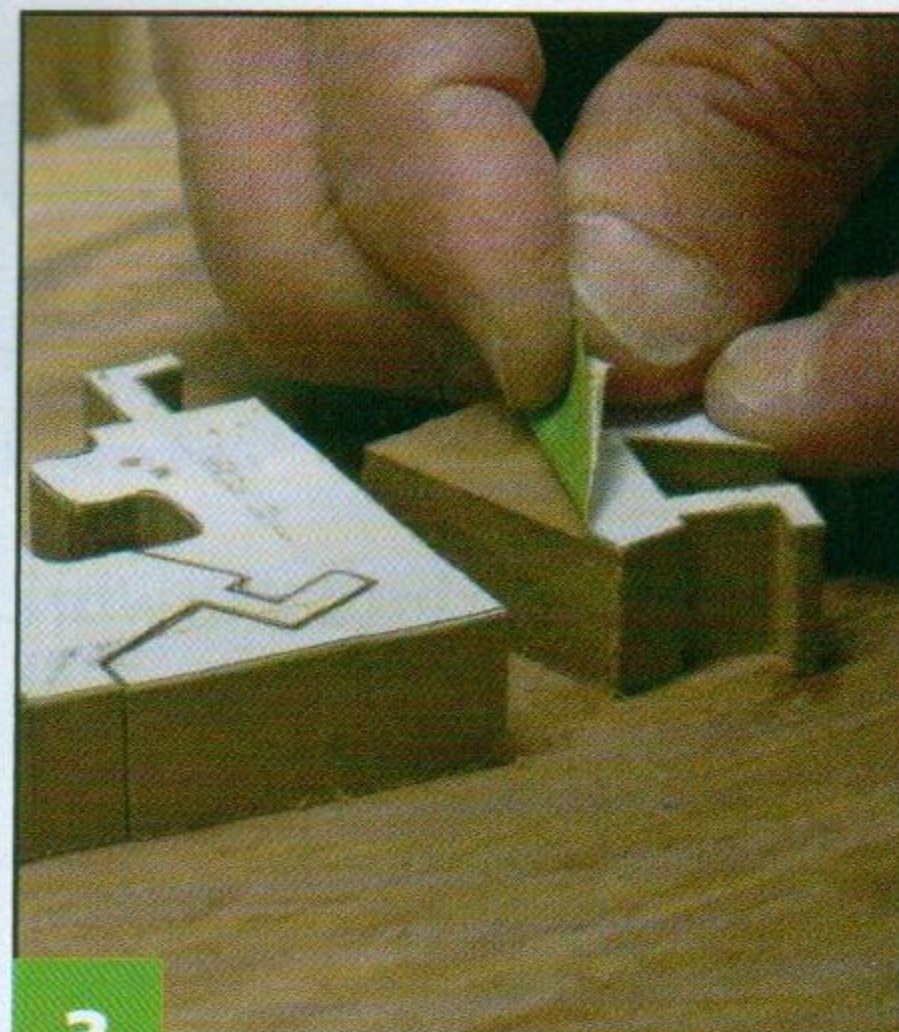
1

Cut the letters. These pieces don't contain anchors, so they should be fairly easy to cut. Set them aside for the time being.



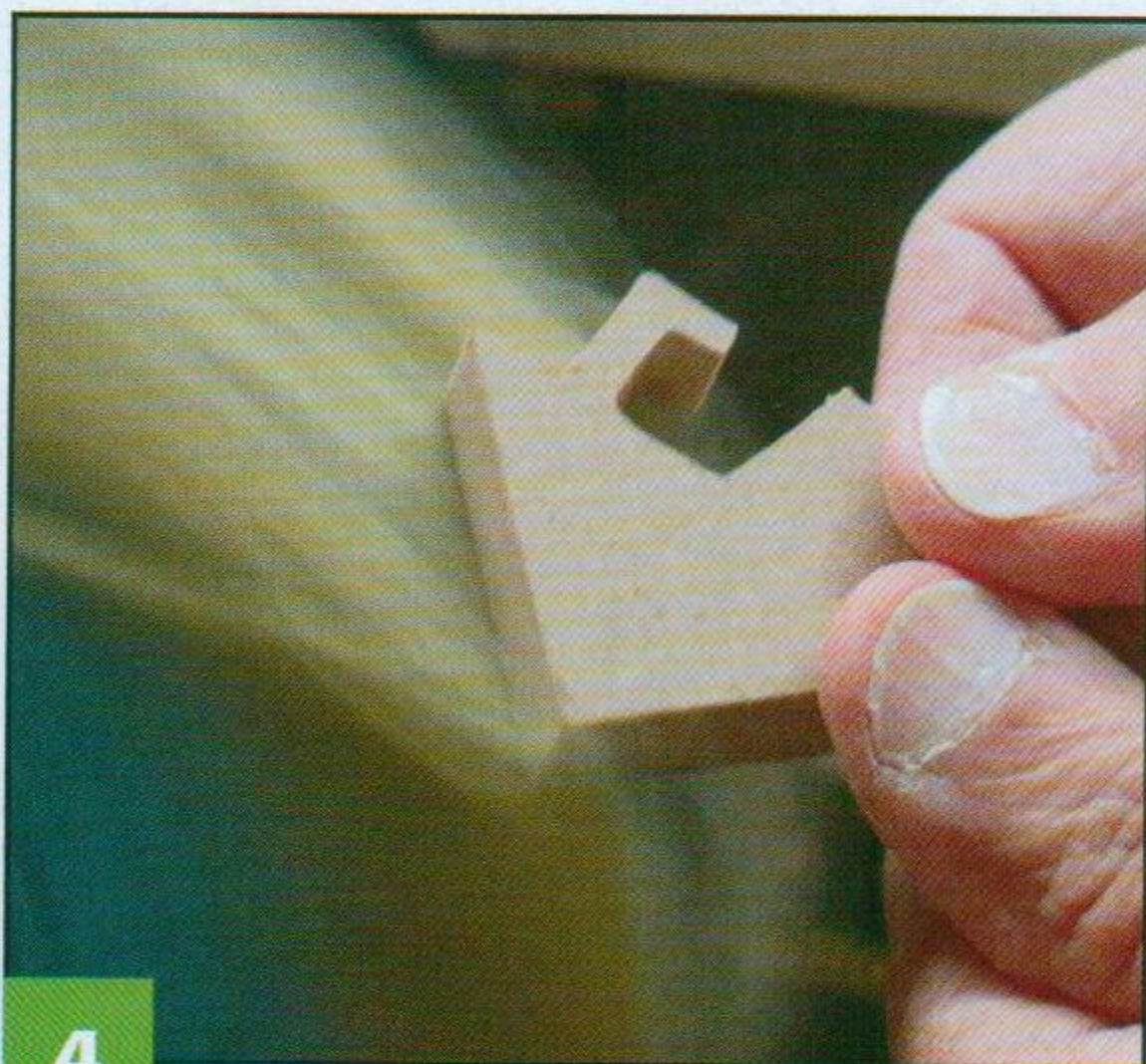
2

Cut the smaller pieces. No entry holes are required for the body of the bar, so you can start anywhere. I like to assemble the pieces as I cut, to save time later.



3

Carefully remove the patterns.



4

Sand the pieces. Round over the surfaces and edges of each piece slightly to remove any sharp corners and fuzzies. I used a sanding mop, but you could also sand by hand, sanding progressively through the grits to 320.



5

Paint and finish. Disassemble the puzzle and spray the pieces with colors of your choice, making sure the lettering contrasts nicely with the bar. Let dry and coat with a thin layer of semigloss spray lacquer, if desired. *Note: Avoid spraying the puzzle while it is assembled, as the pieces could stick together.* Reassemble and gift to your favorite chocolate-lover.

Materials

- Wood, such as MDF or Baltic birch plywood, 1/2" (1.3cm) thick: 4" x 9 1/4" (10.2cm x 23.5cm)
- Tape: painter's
- Spray adhesive or glue stick
- Sandpaper: assorted grits to 320
- Spray paint: white, dark brown
- Clear spray lacquer: semigloss

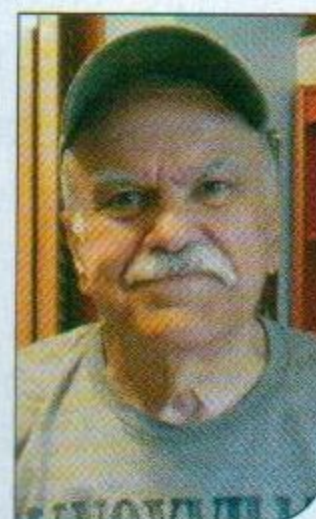
Tools

- Scroll saw with blades: #5 reverse-tooth
- Drill with bit: 1/16" (2mm)-dia.
- Sanding mop (optional)

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

Materials & Tools

Pattern for the **CHOCOLATE BAR PUZZLE** is in the pullout section.



Al Baggetta is a retired English teacher and former musician who took a liking to scroll sawing. Visit his pattern site at baggetta.com.

Lighthouse & Sailboat Portraits

Dip your toes into the world of fretwork with two classic nautical designs

By Sheila Bergner-Landry
Cut by Robert Carpentier

Do you yearn to be swept into a swashbuckling tale complete with moonlit ships, mysterious lighthouses, and buried chests full of rubies and doubloons? Then this is the project for you! My intermediate fretwork designs are simple, clean, and well suited to a variety of décor styles. I even gave them the look of an old-fashioned woodcut for a slightly vintage feel.

Getting Started

Photocopy the original patterns and keep them for future reference. Prepare the wood; this is an excellent pattern for stack-cutting several copies at once. I recommend three layers of $\frac{1}{8}$ " (3mm)-thick plywood. If stack-cutting, tape the stack together, binding all four edges tightly with clear packaging tape.

Place a layer of blue painter's tape over the top layer and apply the pattern to the tape with spray adhesive. Drill the blade-entry holes for all inside cuts.

Cutting and Finishing

Make the interior cuts; I used a #2/0 blade, but you could use a larger blade if cutting a denser material or a thicker stack. I used a #5 spiral blade for the rock

formation details under the lighthouse, drilling the entry holes with a $\frac{3}{64}$ " (1.2mm)-diameter bit. Once all of the interior cuts are made, cut the perimeter. Then cut the backing board.

Remove the pattern pieces and sand the wood by hand or with an orbital sander, moving up progressively through the grits until you reach 320. Be very careful not to catch any delicate pieces while sanding. Clean off excess dust with a tack cloth.

Apply a finish; I sprayed on several thin coats of clear satin polyurethane for the blue pine backer, letting the finish dry thoroughly and sanding lightly between coats (I used 600-grit, but use any high-grit paper you have). Because I cut the front layer from plywood, I used two coats of ebony stain to create a contrast. If you use a stain and want the wood grain to be visible, wipe the stain off immediately with a clean, dry rag. When the stain has dried, spray with several coats of satin polyurethane, sanding with a high-grit paper between coats as you did with the backer. Glue and clamp the portrait to the backer and let dry. Place in a frame for hanging, if desired.

Patterns for **LIGHTHOUSE & SAILBOAT PORTRAITS** are in the pullout section.

Materials & Tools

Materials

- Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: portrait, 8" x 10" (20.3cm x 25.4cm) (stack-cut 3, if desired)
- Wood, such as blue pine, $\frac{1}{8}$ " (3mm) thick: backer, 8" x 10" (20.3cm x 25.4cm)
- Tape: blue painter's, clear (if stack-cutting)
- Spray adhesive
- Sandpaper: assorted grits to 600
- Wood glue
- Stain, such as Varathane ebony (optional)
- Spray finish, such as clear satin polyurethane
- Frame: 9 $\frac{1}{2}$ " x 11 $\frac{3}{4}$ " (24.1cm x 29.9cm) (optional)
- Clean, dry rags or tack cloths

Tools

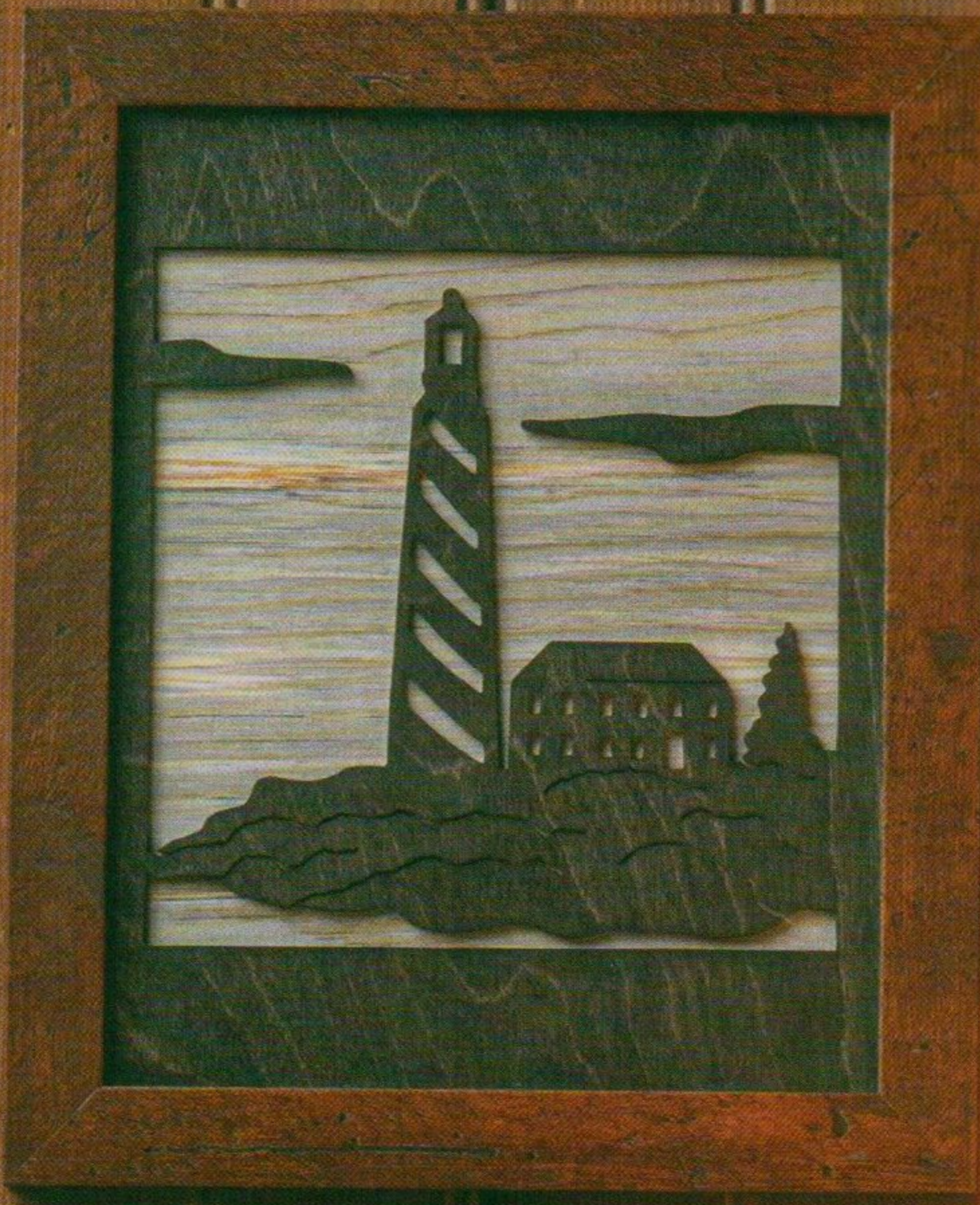
- Scroll saw with blades: #2/0 or higher, if desired, #5 spiral (for rock formation details)
- Drill with bit: $\frac{1}{16}$ " (2mm), $\frac{3}{64}$ " (1.2mm)-dia.
- Sander: orbital
- Clamps

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



Sheila Bergner-Landry grew up in the Chicago area and began her woodworking and painting career when her daughter Danielle was born, more than 20 years ago. A friend, Cari Denison, introduced her to scroll

sawing. Sheila relocated to Nova Scotia, Canada, where she has found new inspiration for designs. For more of her patterns, call 902-482-7174 or visit sheilalandrydesigns.com.



Blue pine makes an attractive sky backer.



Cheeky Hermit Crab

Cut and shape a scuttling creature with as much sass as Sebastian

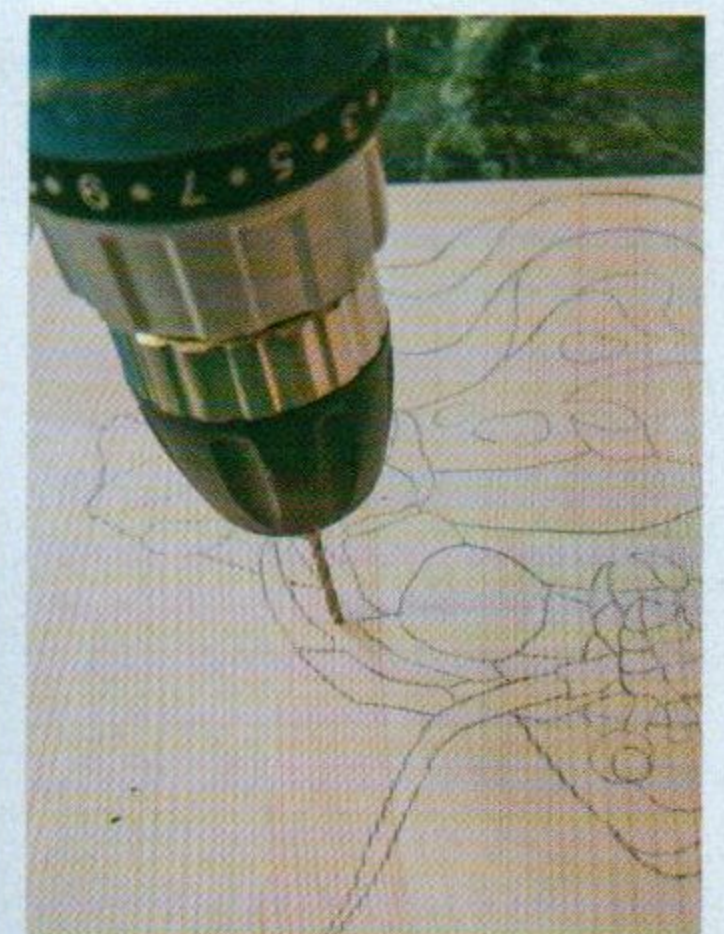
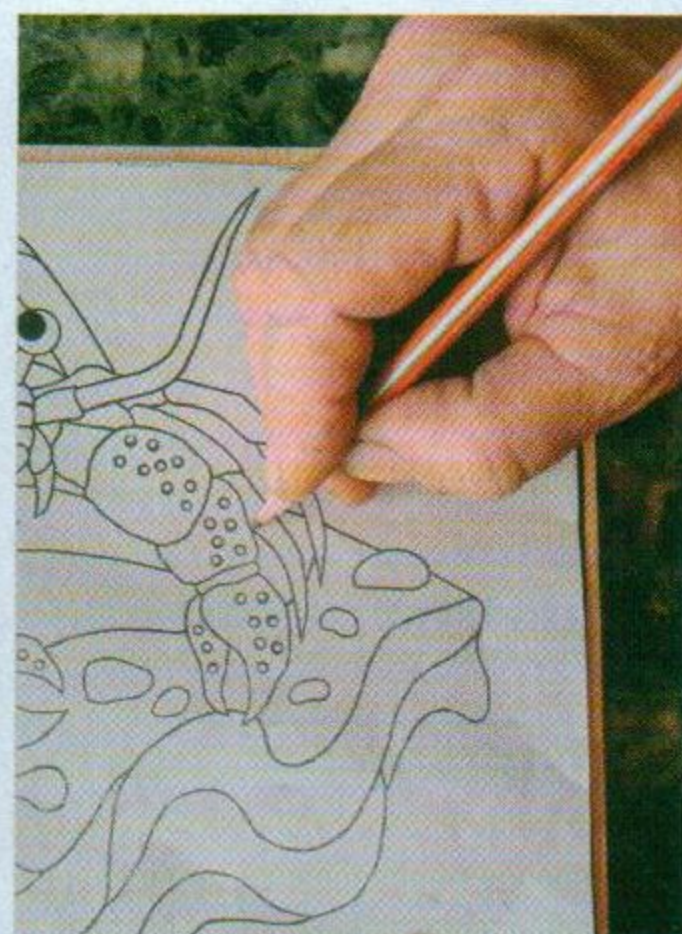
By Anatoly Obelets

Let this curious little hermit crab remind you of sunny days spent collecting pebbles and seaglass at the beach. For an extra challenge, I've incorporated the Japanese *ukibori* (or pop-up carving) technique, which allows you to cover the exoskeleton with characteristic "freckles" as if by magic. You can apply this technique to other scrolled projects, too—for example, to make the tendons stand out on a hand or to emphasize the ripples in a pool of water. The possibilities are endless!

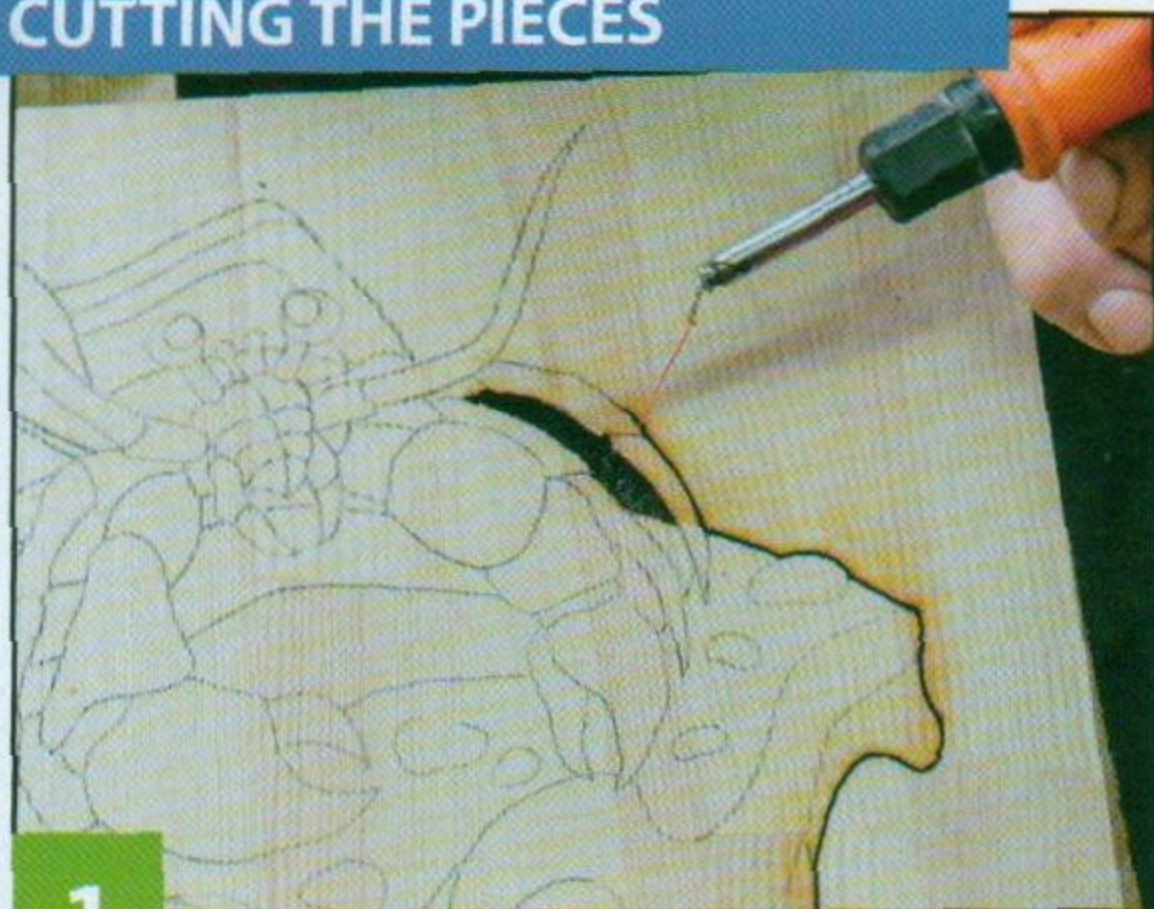
Getting Started

Cut the pine to size and sand it smooth with 100- and then 150-grit sandpaper. Photocopy the pattern and transfer it to the blank; I use graphite paper and a pencil, but you can save time by attaching the design

directly. Cover the wood with blue painter's tape and stick the pattern to the tape with spray adhesive. Attach the backer wood to the pine by wrapping clear packaging tape around the edges of the boards; you'll be removing it about halfway through the cutting process. Then drill the single blade-entry hole between the rightmost crab leg and the one below it.

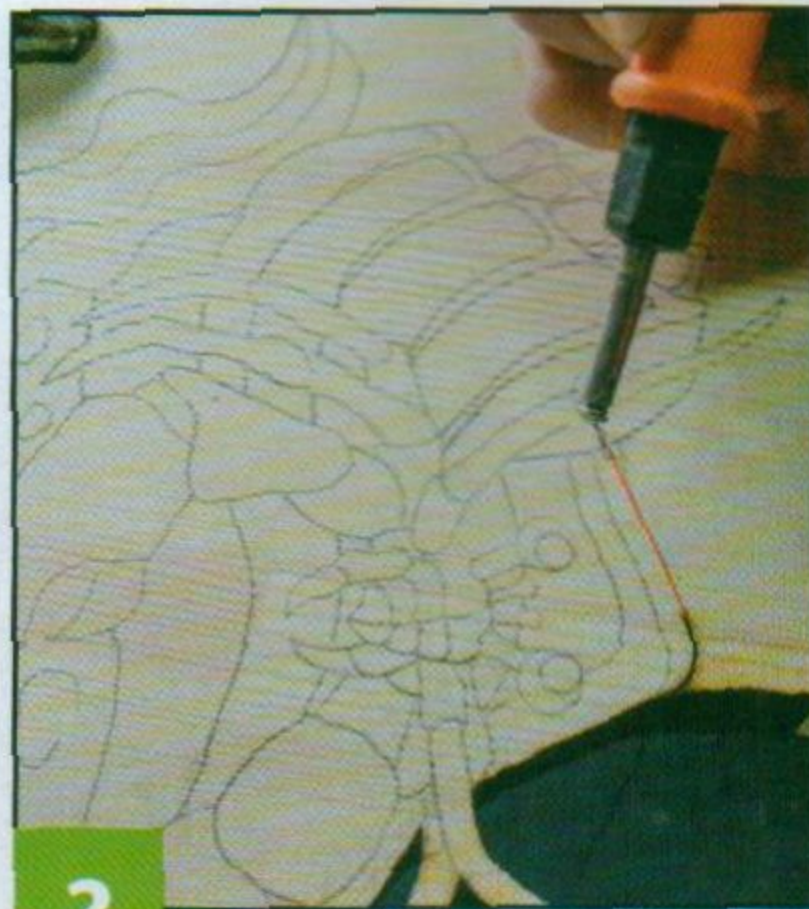


CUTTING THE PIECES



1

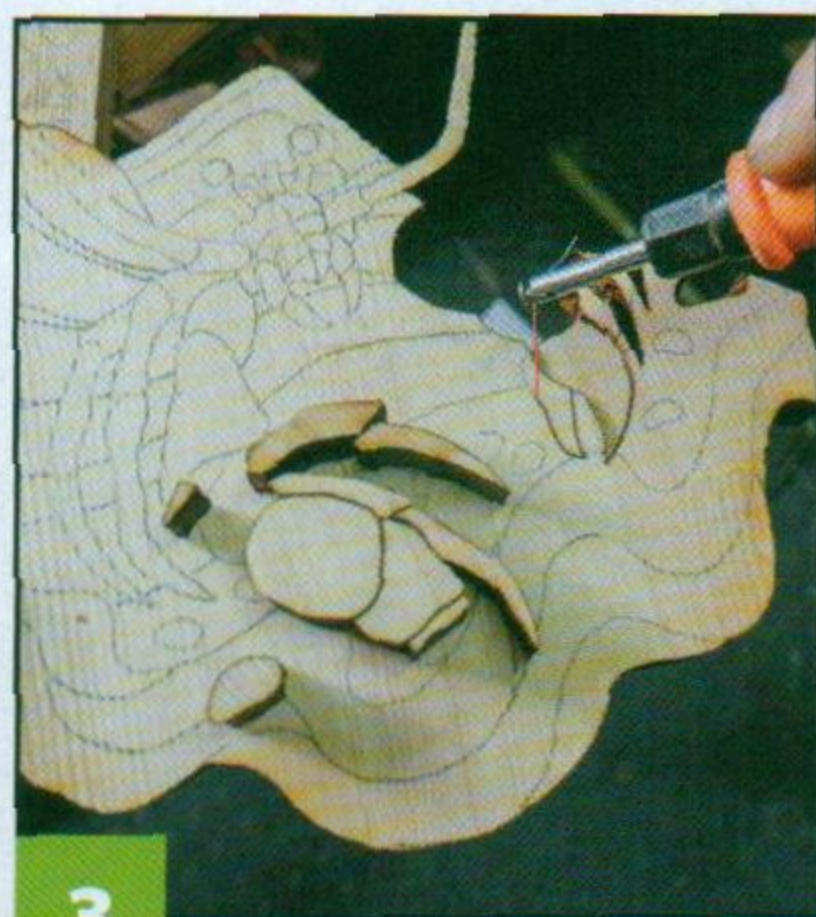
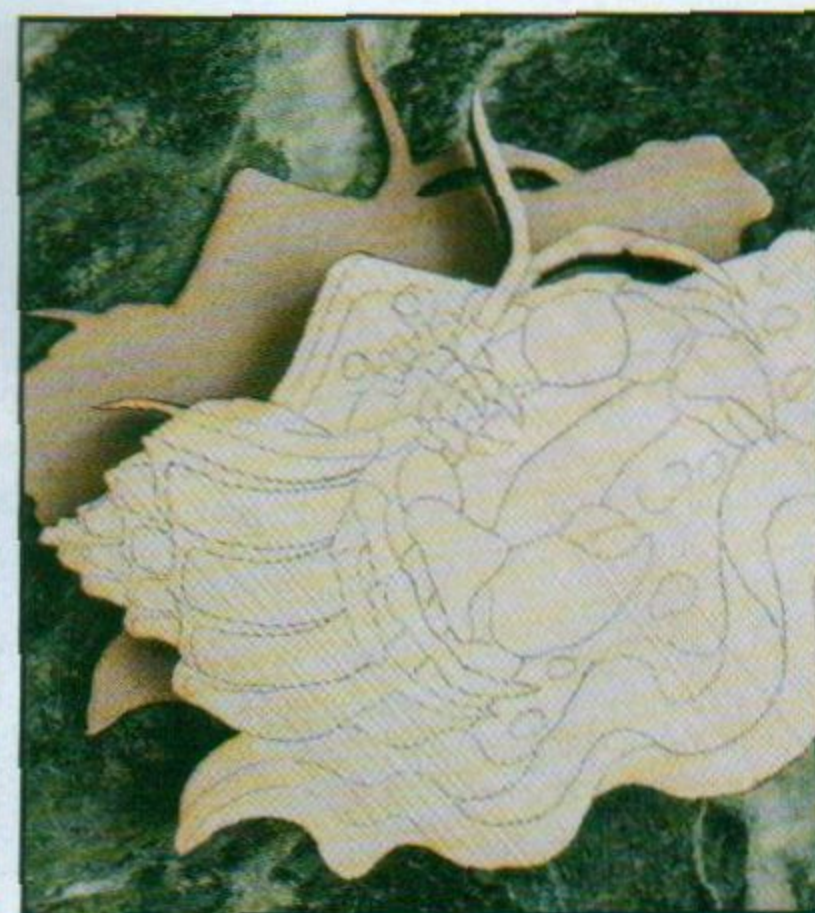
Make the single interior cut. Use a #7 blade or one of your choice. (I used a Pyrosegmentator—a precision cutting device I invented—but you can use a scroll saw.) Then begin to cut the perimeter of the scene.



2

Carefully make the remaining cuts around the perimeter.

Note: Keep in mind that you are cutting the plywood backer at the same time. Separate the pine from the backer and set the backer aside.

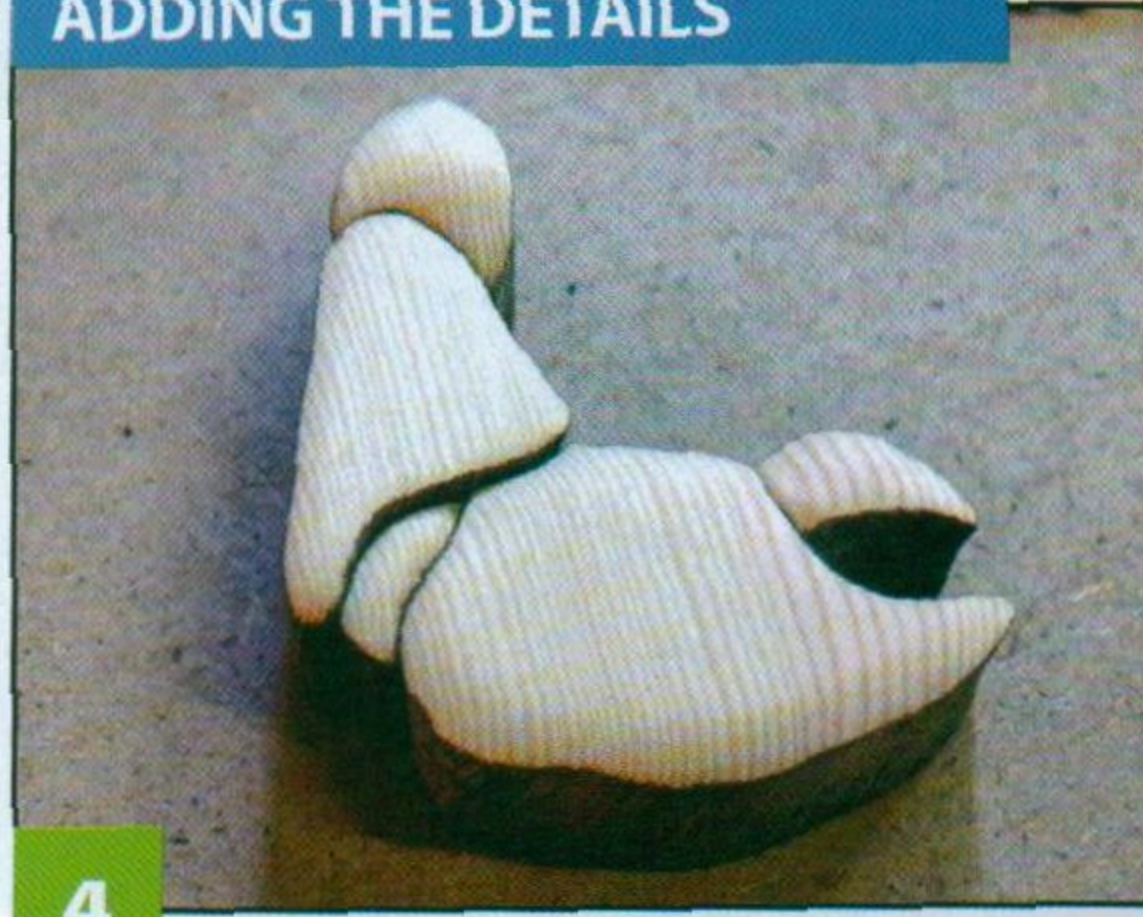


3

Cut the remainder of the pieces. Cut them as you would a segmentation or puzzle. Use a #2 blade or one of your choice. Reassemble the pieces to prepare them for shaping.

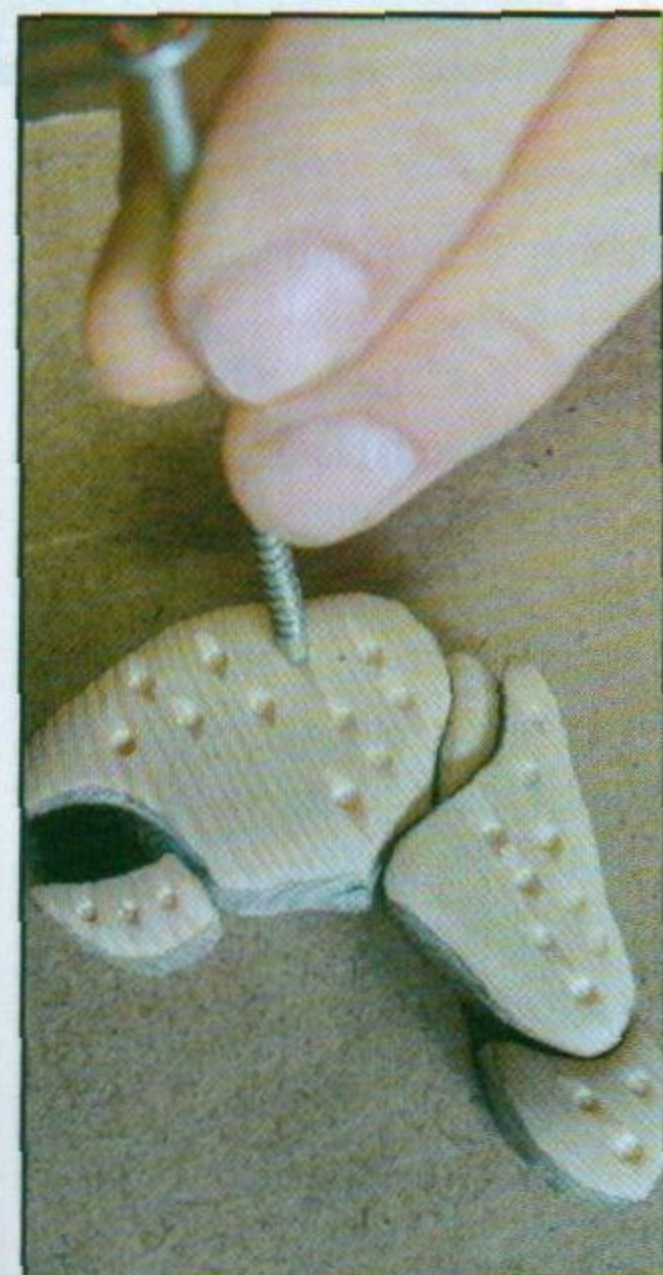


ADDING THE DETAILS



4

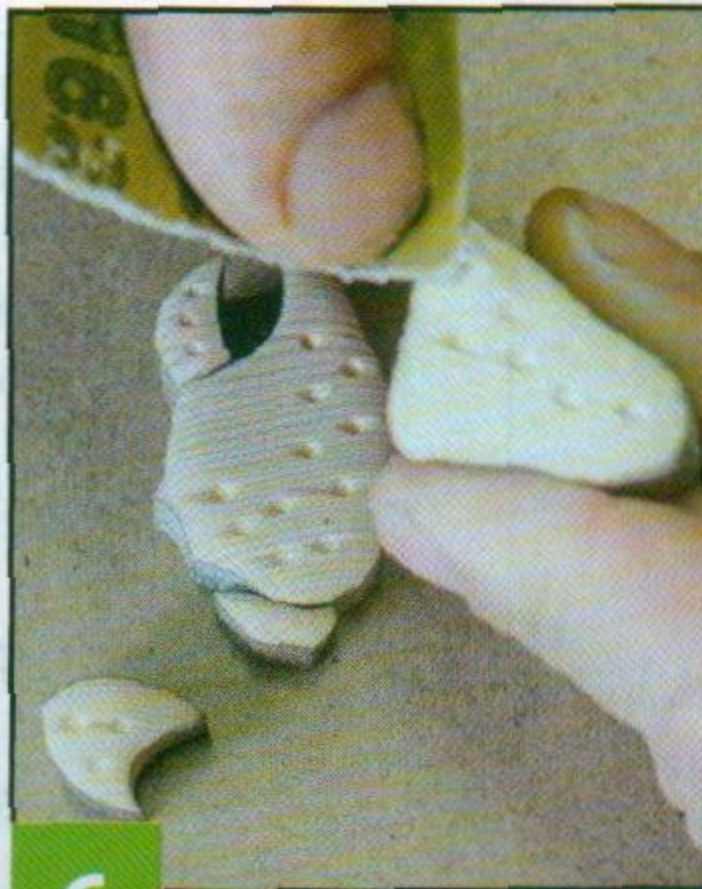
Shape the big claw. Use a flex drum sander to round each element.



5

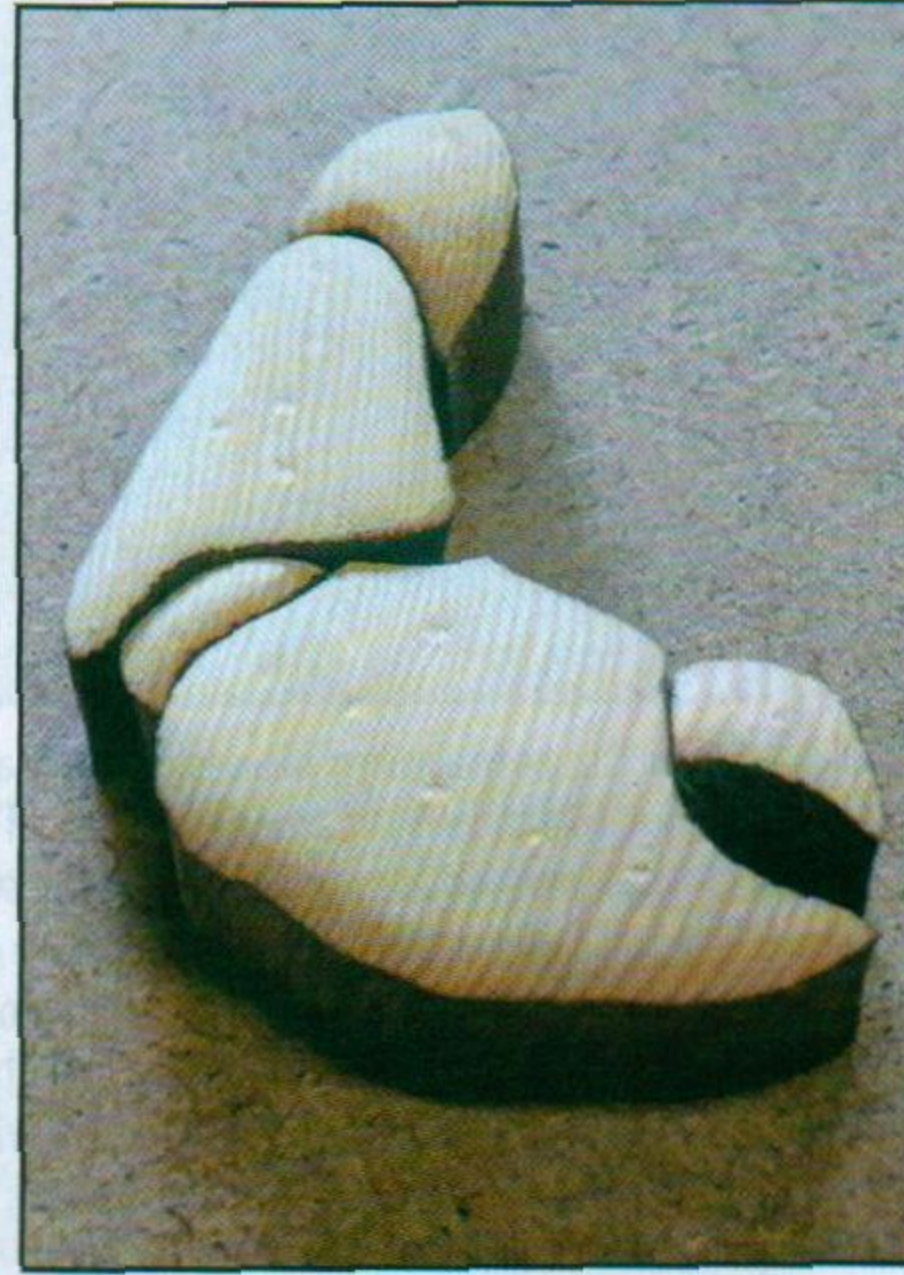
Add texture.

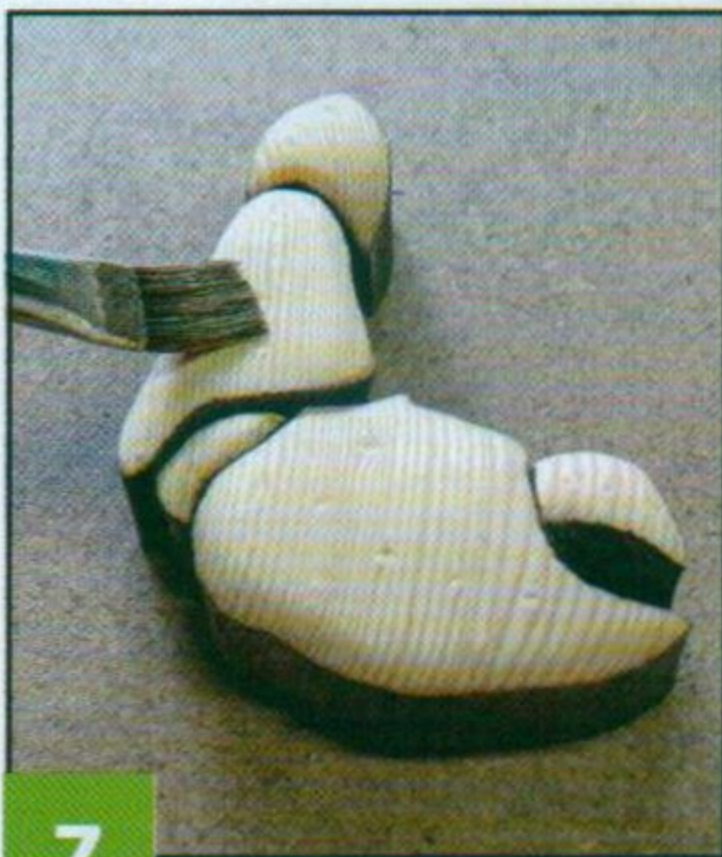
I applied the Japanese *ukibori* technique for visual interest. On the previously rounded surface of the claw, apply a series of shallow dents using a hammer and a metal rod. *Note: You can make your own by rounding off the end of a screw or nail with sandpaper.*



6

Re-sand the surface of the claw. When you are done, the surface should look almost entirely smooth again.

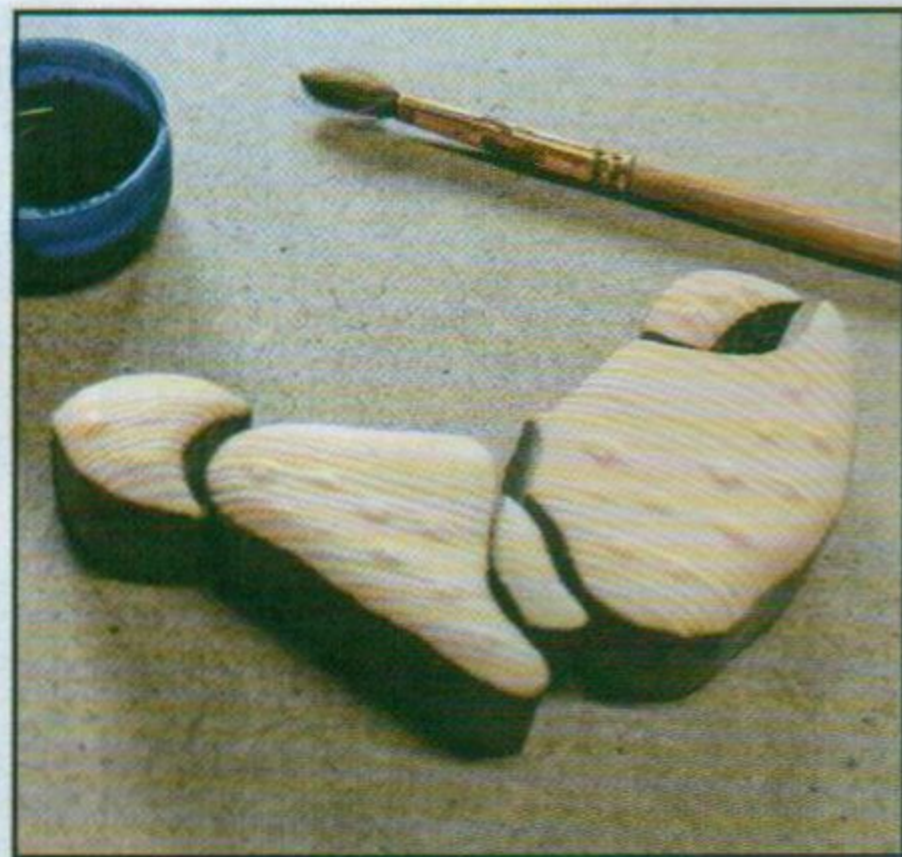




7

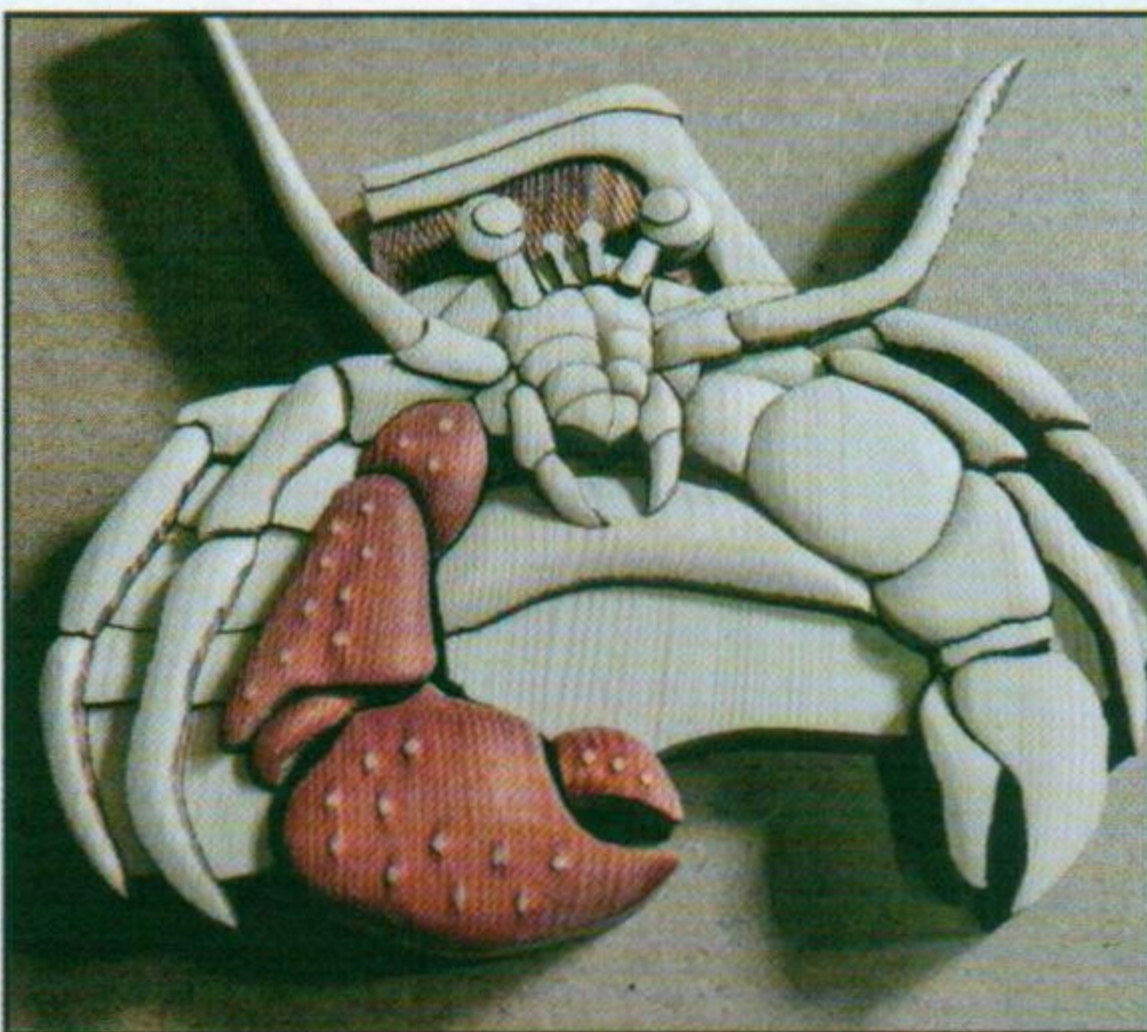
Prepare a small bowl of hot water (122° Fahrenheit, 50° Celsius).

Then paint it over the surface of the claw with a small paintbrush. Shortly after, the dented areas will turn to raised “freckles.” *Note: It’s important to raise the wood soon after depressing it—if you wait until the next day, the technique won’t work.*



8

Apply a stain. I used a cherry-colored stain for all of the crab’s exoskeleton, but for now, just stain the big claw. Let dry, and sand lightly with 220-grit sandpaper.



9

Round the remaining details.

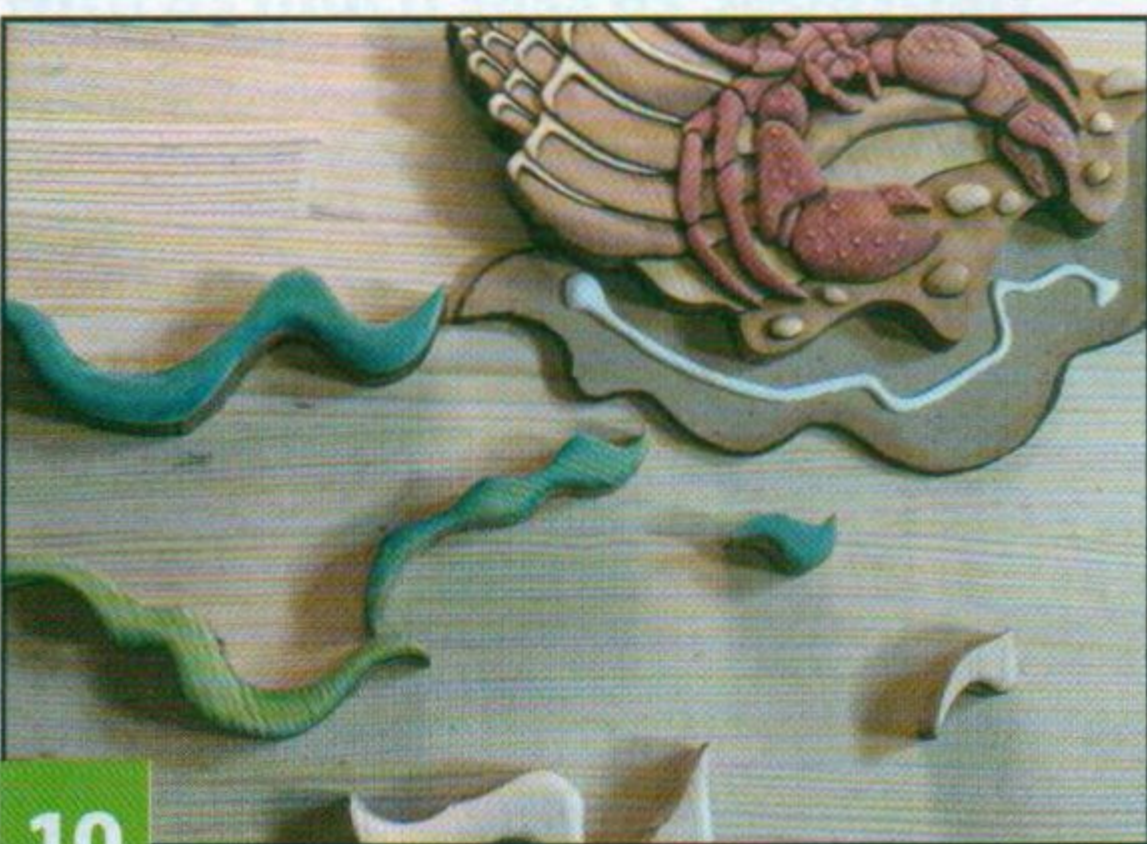
Use a combination of a palm sander and the flex drum sander. The crab and shell should be thickest, followed by the waves and rocks. The sand will be the lowest layer, giving the final piece depth and dimension. In this design, I waited until the crab was completely shaped before moving on to the surrounding scene; this ensures that I can adjust the thickness of the other pieces based on the final thickness of the crab. Then, once all of the pieces are shaped, apply the *ukibori* technique from Steps 5-7 to the second claw.



Anatoly Obelets of Kherson, Ukraine, has been engaged in intarsia work for over 15 years. One of his favorite subjects to portray is sunflowers; his

friends jokingly call him the “Ukrainian Van Gogh.” Find more of Anatoly’s work at [Facebook.com/anatoly.obelets](https://www.facebook.com/anatoly.obelets).

Pattern for the **CHEEKY HERMIT CRAB** is in the pullout section.



10

Color the remaining pieces.

The advantage of a light wood like pine is that many colors will work for this project. I went with bold alcohol-based stains and dyes, but you could go with something more subtle. Once the stains or dyes have dried, gently sand along the edges to create a faded, antiqued look. Then glue the pieces to the backer, one by one. Finish with clear matte varnish, let dry, and display as desired; I added a hanger to the back.

Materials & Tools

Materials

- Pine, 3/4" (1.9cm) thick: crab scene, 8 5/8" x 11" (21.9cm x 27.9cm)
- Plywood or tempered hardboard, 1/8" (3mm) thick: backer, 9 1/2" x 12" (24.1cm x 30.5cm)
- Tape: blue painter’s, clear packaging
- Spray adhesive
- Graphite paper (optional)
- Pencil
- Sandpaper: assorted grits to 220
- Hot water
- Assorted alcohol-based stains and dyes, such as fireside cherry, golden pine, light fern, light oak, mahogany, and teak
- Varnish: clear matte

- Wood glue
- Hanger: D-ring (optional)

Tools

- Scroll saw with blades: #2, #7 reverse-tooth
- Drill with bit: 3/64" (1.2mm)-dia.
- Sanders: palm, flex drum
- Metal rods or old screws, slightly rounded: 1/16" to 1/8" (2mm to 3mm)-dia.
- Small hammer
- Clamps
- Paintbrushes

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

Magnolia Jewelry Box

Try out three techniques—
inlay, box-making, and
compound-cut—in
one striking project

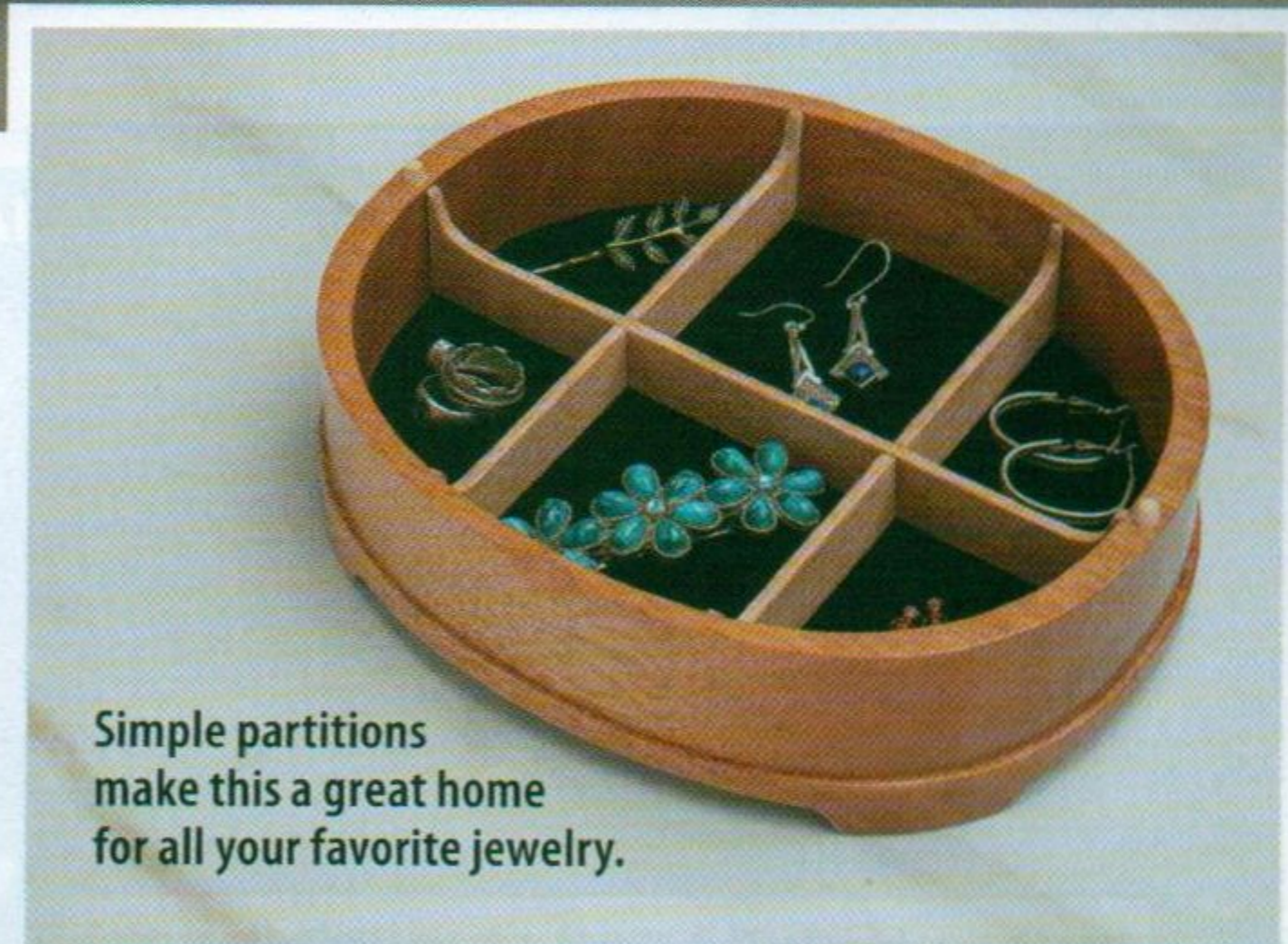
By Carole Rothman



The magnolia, long valued for its beauty, is the perfect topper for this generously sized jewelry box. The exterior features inlaid leaves and a contoured base, while the interior contains a velvet-lined bottom and graceful dividers. Although it may look complicated, it's assembled from components made with standard scroll saw techniques, such as compound-cutting and double-bevel inlay. This approach makes less demanding versions possible without diminishing the overall effect.

Choosing Materials

Choice of materials is important, both for realism and ease of cutting. I used mahogany for the box. Its medium brown color contrasts nicely with the decorations, and a #9 blade easily handled the 1½" (3.8cm)-thick stock used for the body. Walnut and cherry are also good choices, although somewhat harder to cut. Poplar is a natural for the leaf inlays,



Simple partitions
make this a great home
for all your favorite jewelry.

and aspen is a superb choice for the petals; it is both soft and strong, and looks like porcelain when sanded and finished. Since details often make the difference between "attractive" and "stunning," don't cut corners with stamen choice: look for "large pointed tip flower stamens," in yellow. They produce amazingly realistic effects and are available online.

Getting Started

Draw intersecting registration lines across the upper face of the box blank and the lower face of the lid blank. Attach one pattern to each blank using repositionable spray adhesive, matching registration lines. Mark the dowel drilling points on both patterns with an awl. Use a $\frac{3}{16}$ " (5mm)-dia. drill bit to drill holes precisely at these points, $\frac{1}{2}$ " (1.3cm) deep for the box body and $\frac{3}{16}$ " (5mm) deep for the lid.

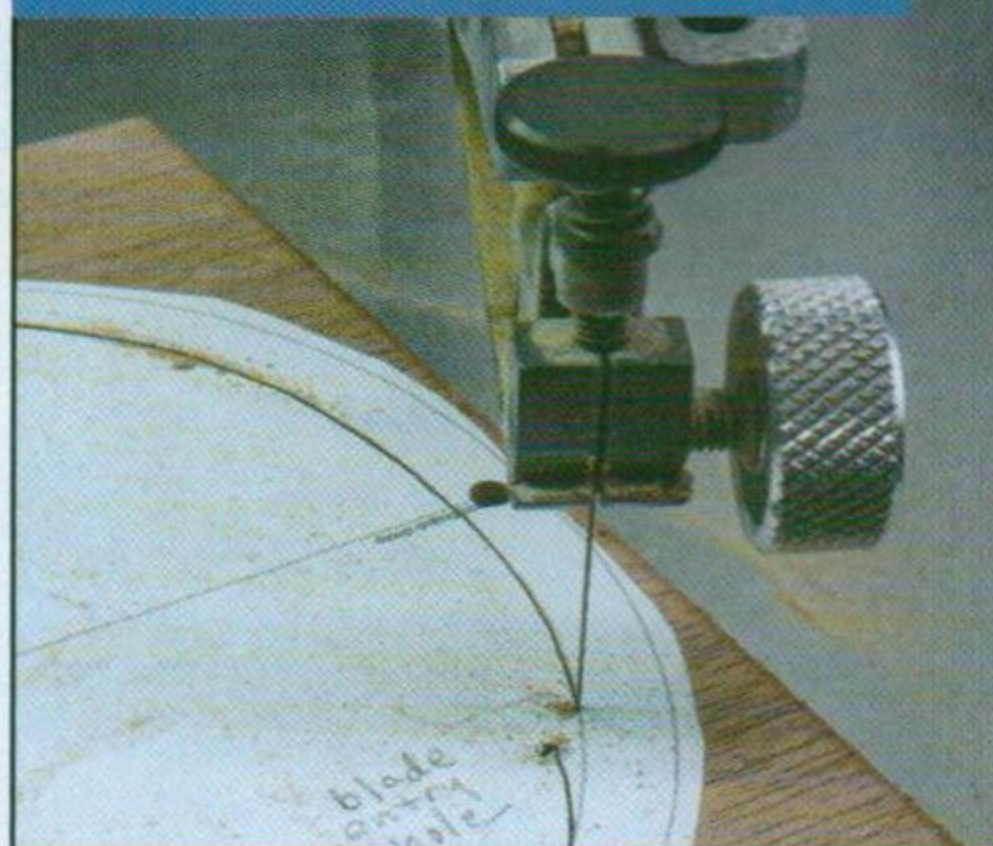
TIP

DRILLING DOWEL HOLES

For the lid to fit correctly, all dowel holes must be drilled precisely. To ensure accuracy, clamp the workpiece to the drill press table and use a sharp brad point bit. Before drilling into the wood, touch the surface of the pattern lightly with the spinning drill bit. This removes a small paper circle, giving you a preview of the positioning. Make any needed adjustments, and then drill to the designated depth.

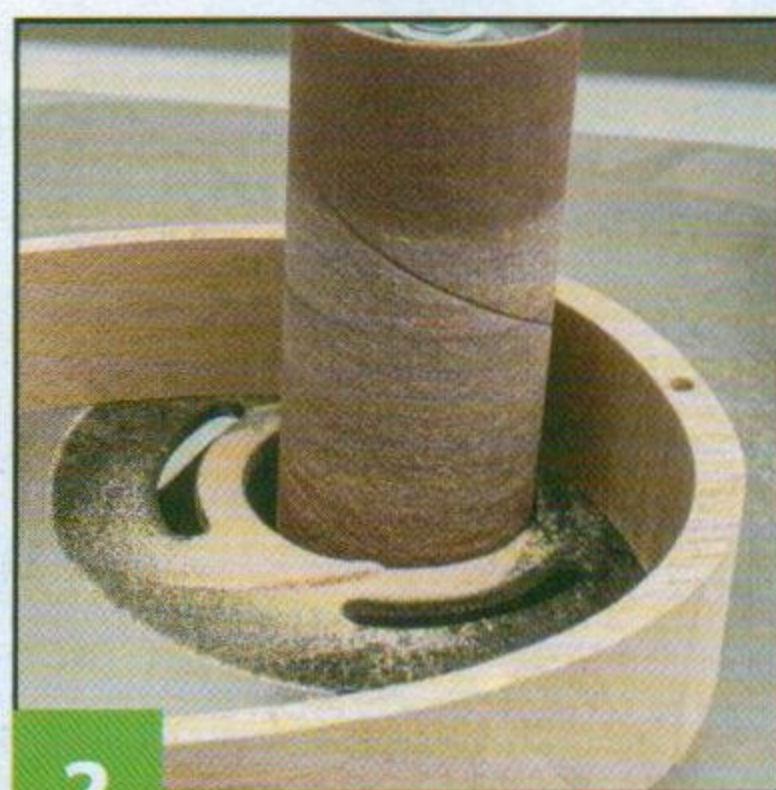


CREATING THE BOX & LID



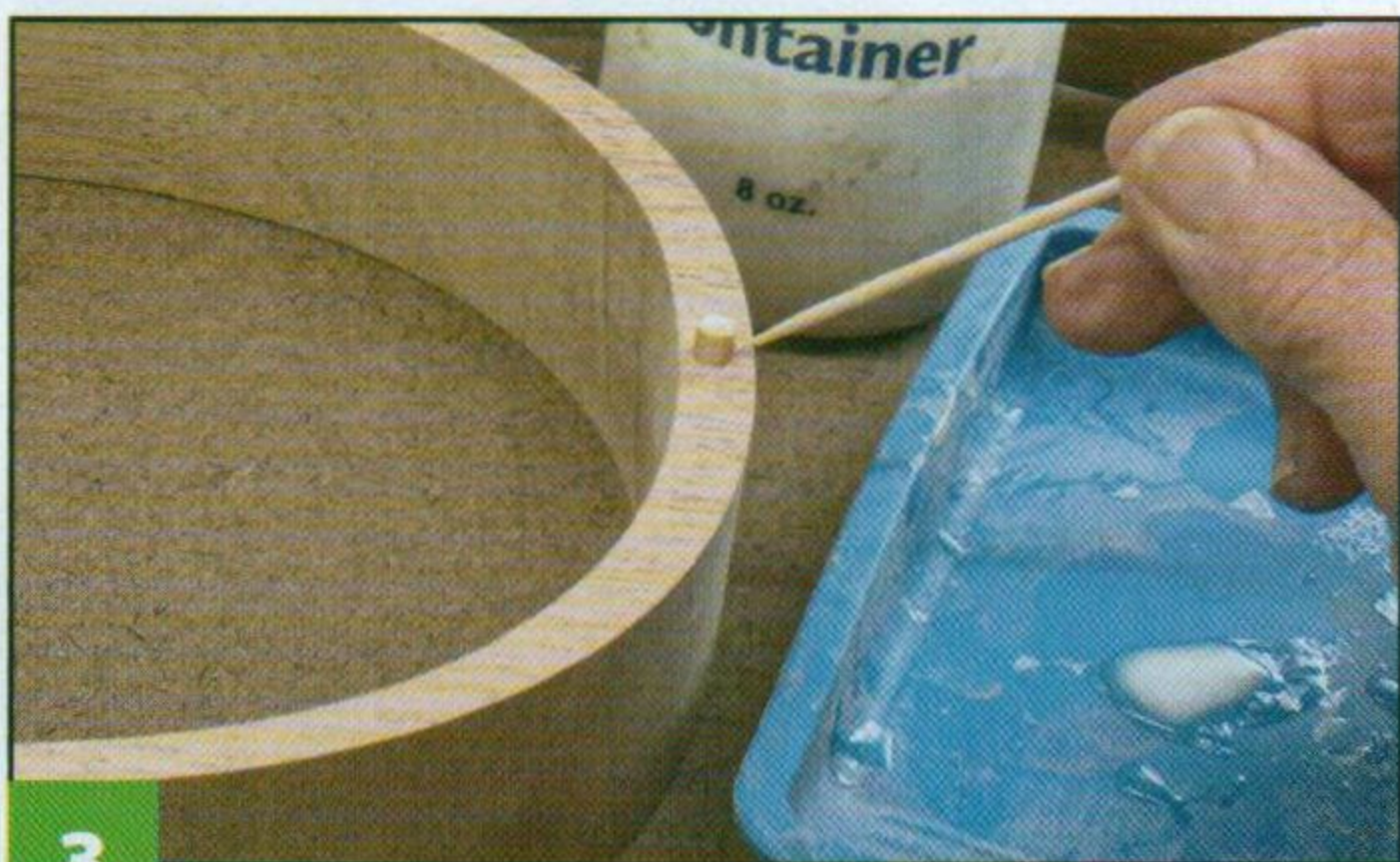
1

Cut the body and lid pieces. Drill a blade-entry hole on the box blank where indicated on the pattern. Insert a #9 blade and cut along the inner line. Remove the center, and then cut along the outer line to complete the body. To make the lid, cut along the outer pattern line using a #5 blade. Transfer the "front" marks from the patterns to the box body and lid. Make sure the registration line segment at the front of the box body is easy to see; darken it if necessary.



2

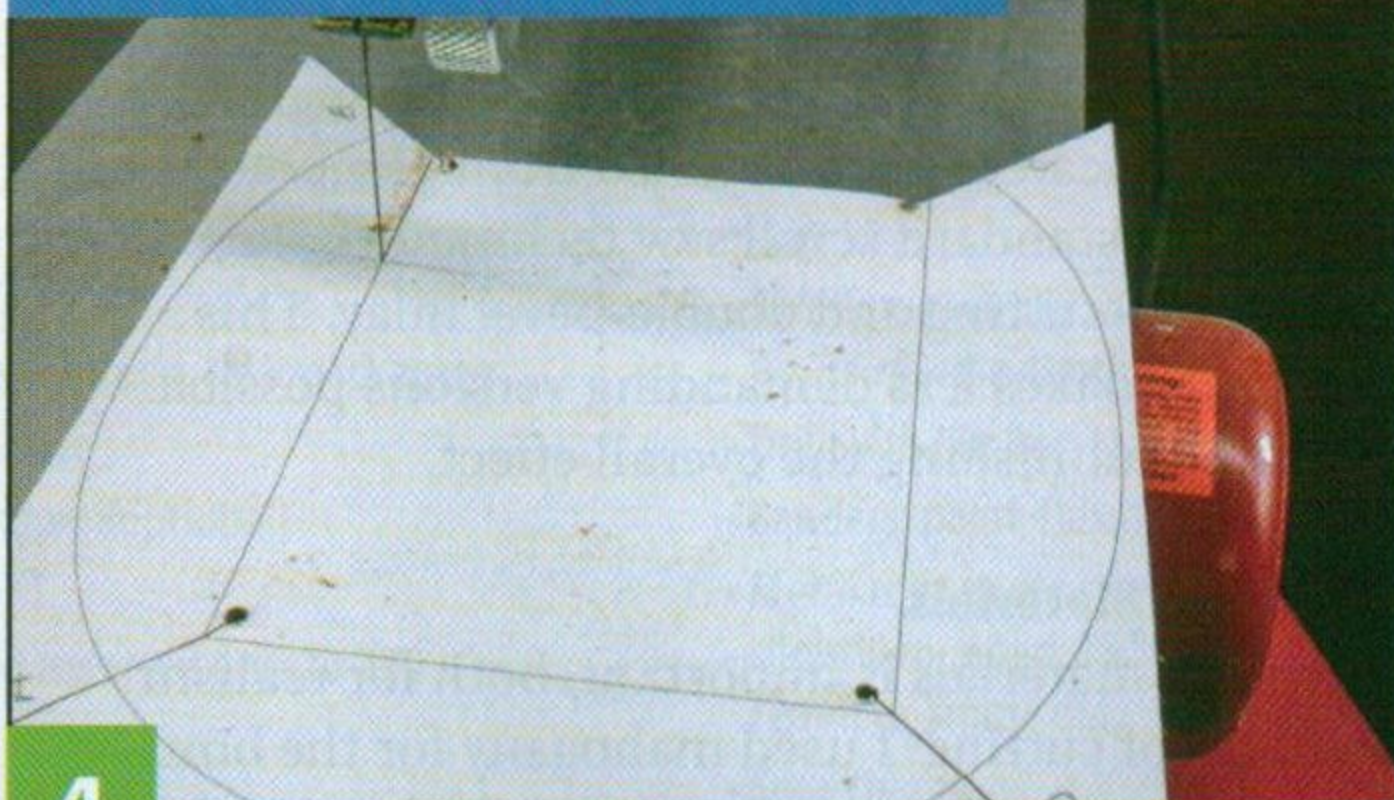
Refine the body. Sand the inner and outer surfaces of the box body just until smooth. Use a spindle sander with a medium-grit sleeve for the inside and a belt sander for the outside. Place the box body on the plywood blank and trace its interior to create the cut line for the box bottom. Mark the front of the plywood bottom to correspond to the front of the box, and then cut along the traced line with a #3 blade. Set the bottom aside until Step 15. Extend the registration mark segment at the front of the box partly down the outer face to create a center mark. Use a $\frac{1}{2}$ " (1.3cm) spindle sander tilted to 30° to sand a small indentation at the center mark. Soften its edges by hand-sanding.



3

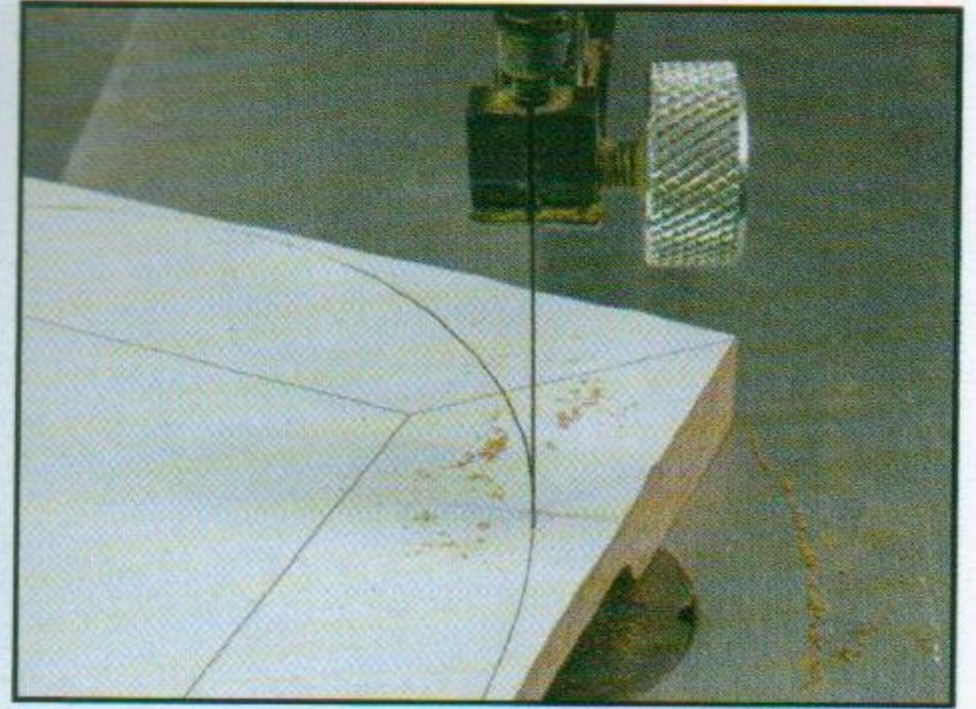
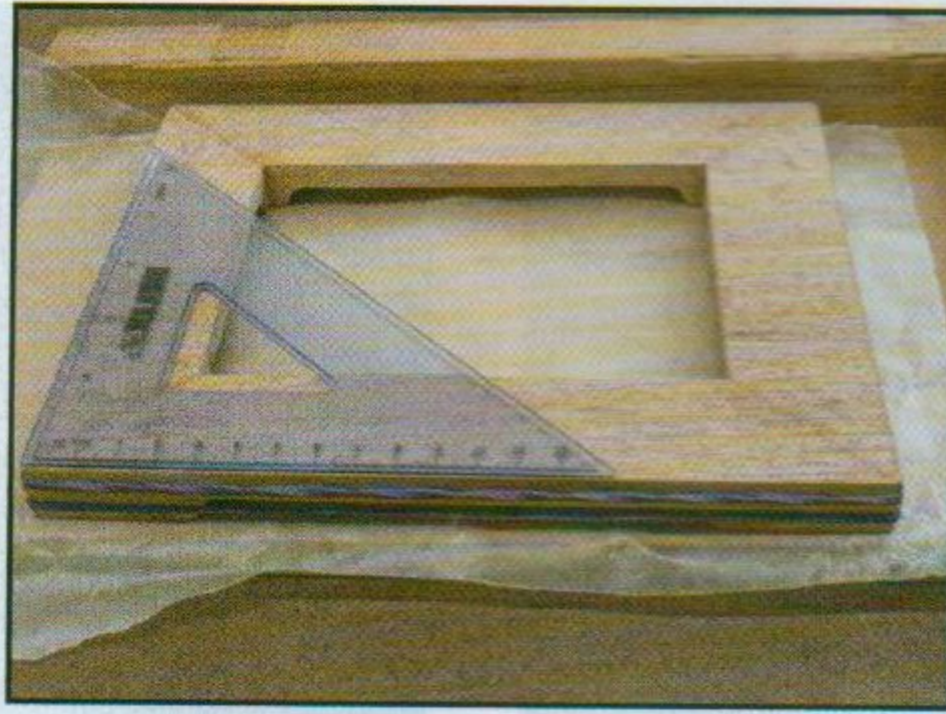
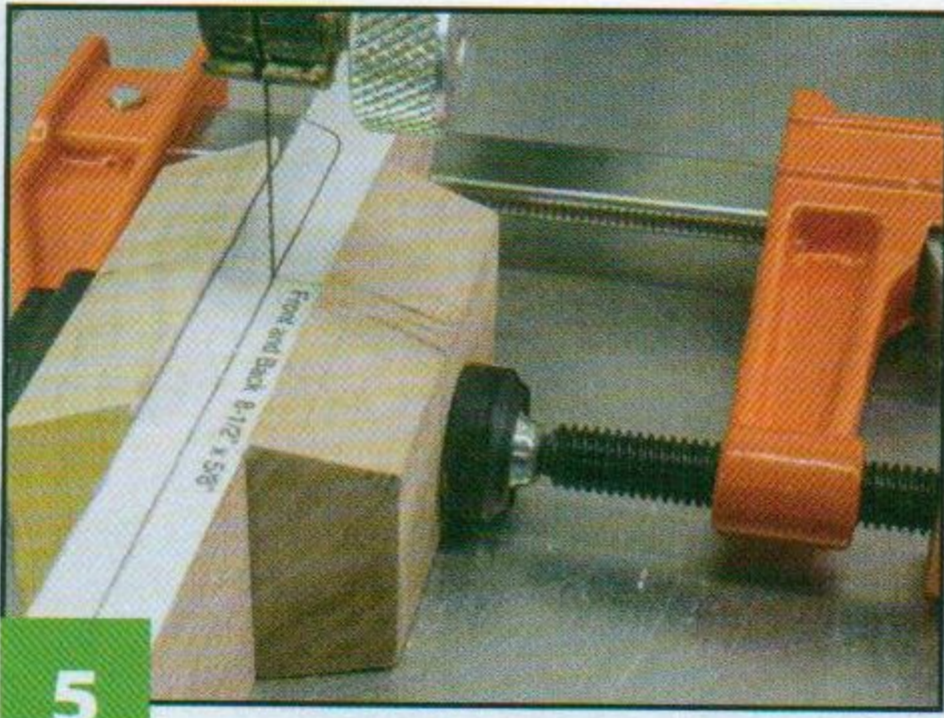
Dry-fit the dowels. They should slide into the holes in the base without excessive force. Once you are happy with the fit, place a drop of wood glue into each hole and insert the dowels. Tap with a block and hammer to ensure they are seated fully, and let the glue dry. Sand the dowel down to $\frac{5}{32}$ " (4mm) with a small sanding block, and then soften its edges by hand. Invert the lid so that the holes are on the underside and the front mark sits at the rear. Place it on top of the body; it should seat fully. Sand the sides of the unit flush with a belt sander. Mark the front of the lid to correspond to the front of the box body; remove the old front mark from the lid underside.

MAKING THE BASE



4

Prepare the base for cutting. Attach the base pattern to its blank with repositionable spray adhesive. Drill an access hole at each internal corner, insert the saw blade, and cut the diagonal. Cut the inner rectangle to separate the four base pieces. Remove the patterns; transfer the letters from the patterns to the wood.



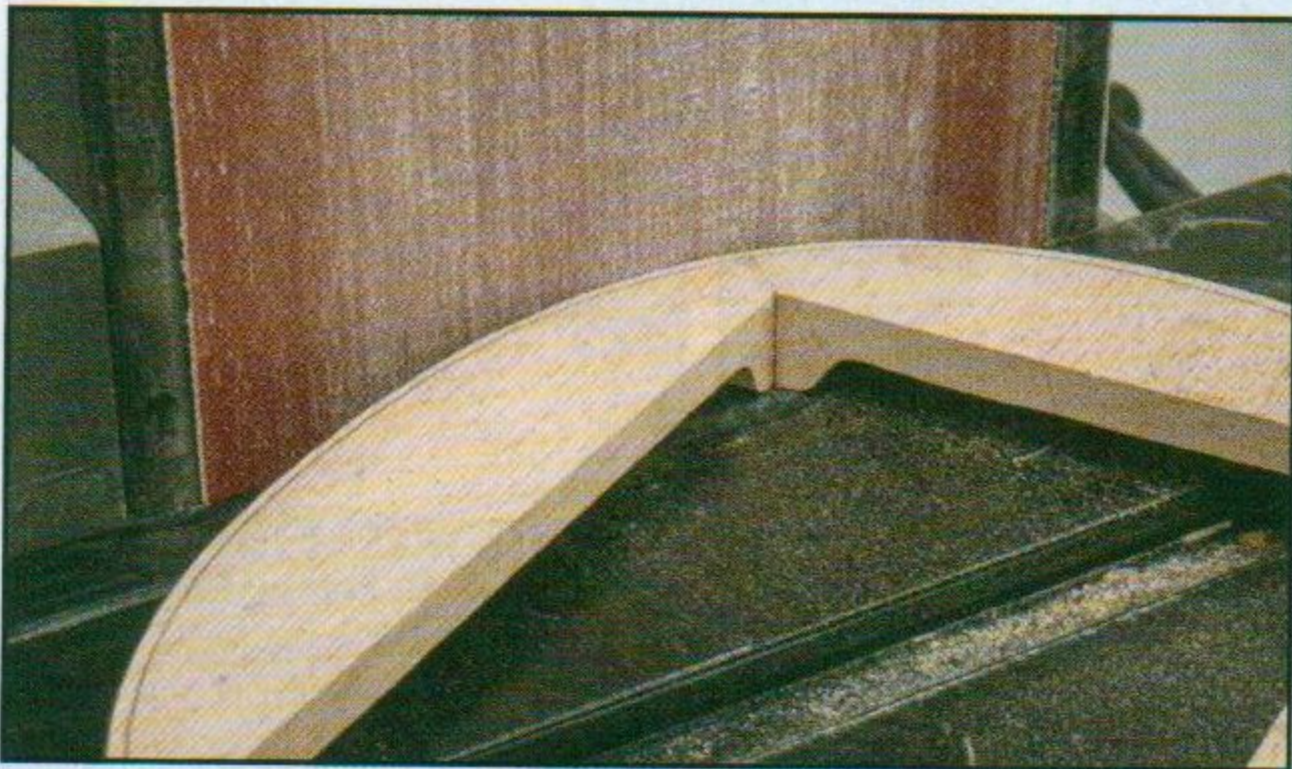
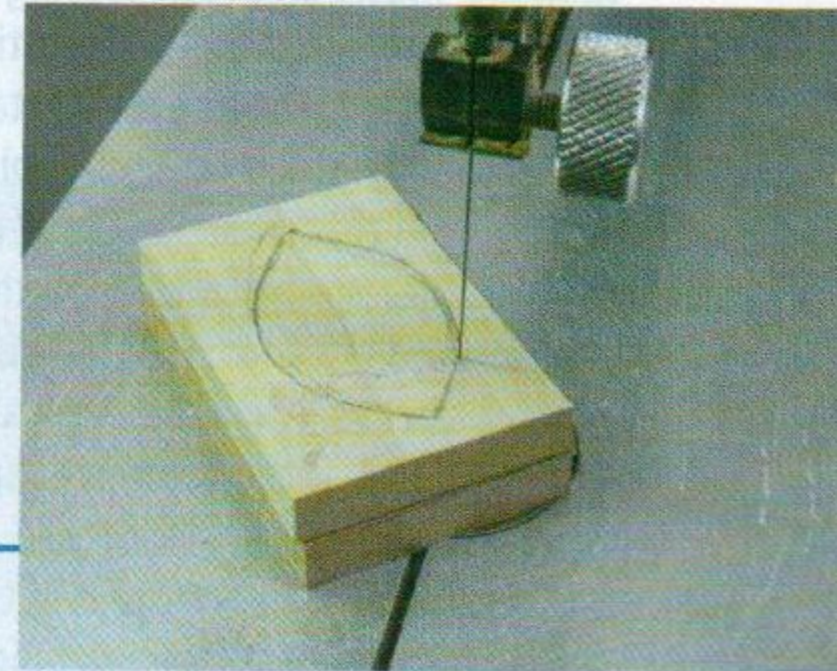
5

Prepare the feet for cutting. Attach a side pattern to the outer face of each piece. A glue stick is neater than spray adhesive. Be careful to align the top of the pattern with the top of the wood. Place each piece on its inner face and cut along the curve, using side supports to keep the piece square to the table. Sand the cutout areas to remove irregularities and fuzzies; do not sand the diagonals. Apply glue to each diagonal, and then assemble the base, using the letters as a guide. Clamp the base with strong rubber bands or clamps. Remove any excess glue. Let dry fully on a flat surface, making sure that all feet sit flat. Attach a second copy of the base pattern and cut the oval profile. All feet may not be on the saw table as you rotate the workpiece; place pressure on those in contact with the table to keep the piece level. Use a sanding tile to remove glue residue and to smooth the top and bottom surfaces; they should both sit flat.

TIP

DETERMINING THE INLAY CUTTING ANGLE

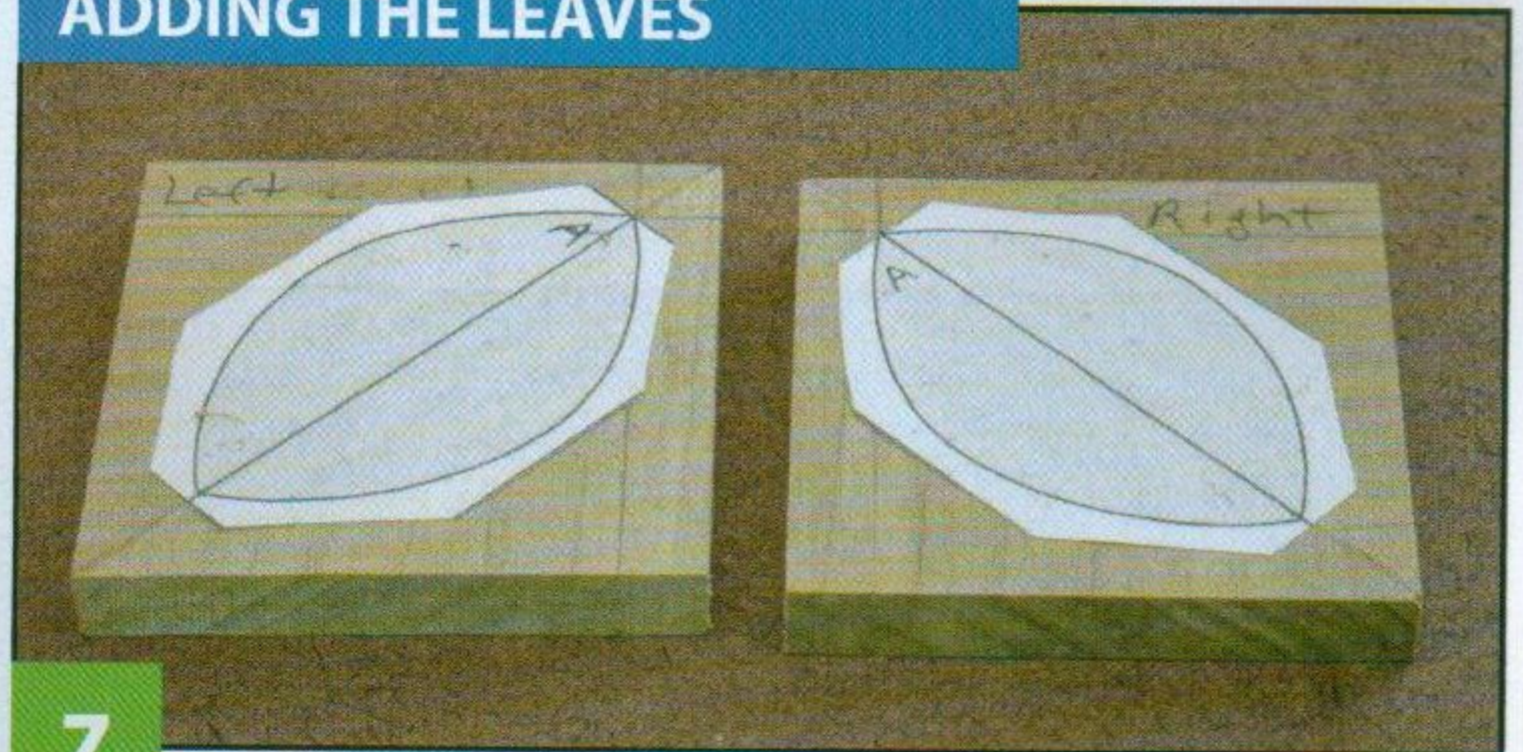
Attach scraps of $\frac{3}{8}$ " (1cm) poplar and mahogany together with double-sided tape. Clamp firmly to secure the bond. Draw a leaf pattern on the poplar. Drill a straight blade-entry hole at one end with the #56 bit. Tilt the left side of the saw table down to 2° . Insert a #5 blade and cut clockwise around the leaf. Push the leaf down to seat it into the mahogany, and separate the pieces. If the leaf sits too high, decrease the angle slightly; if too low, increase the angle slightly. Repeat the test until pieces are flush; this will be your cutting angle.



6

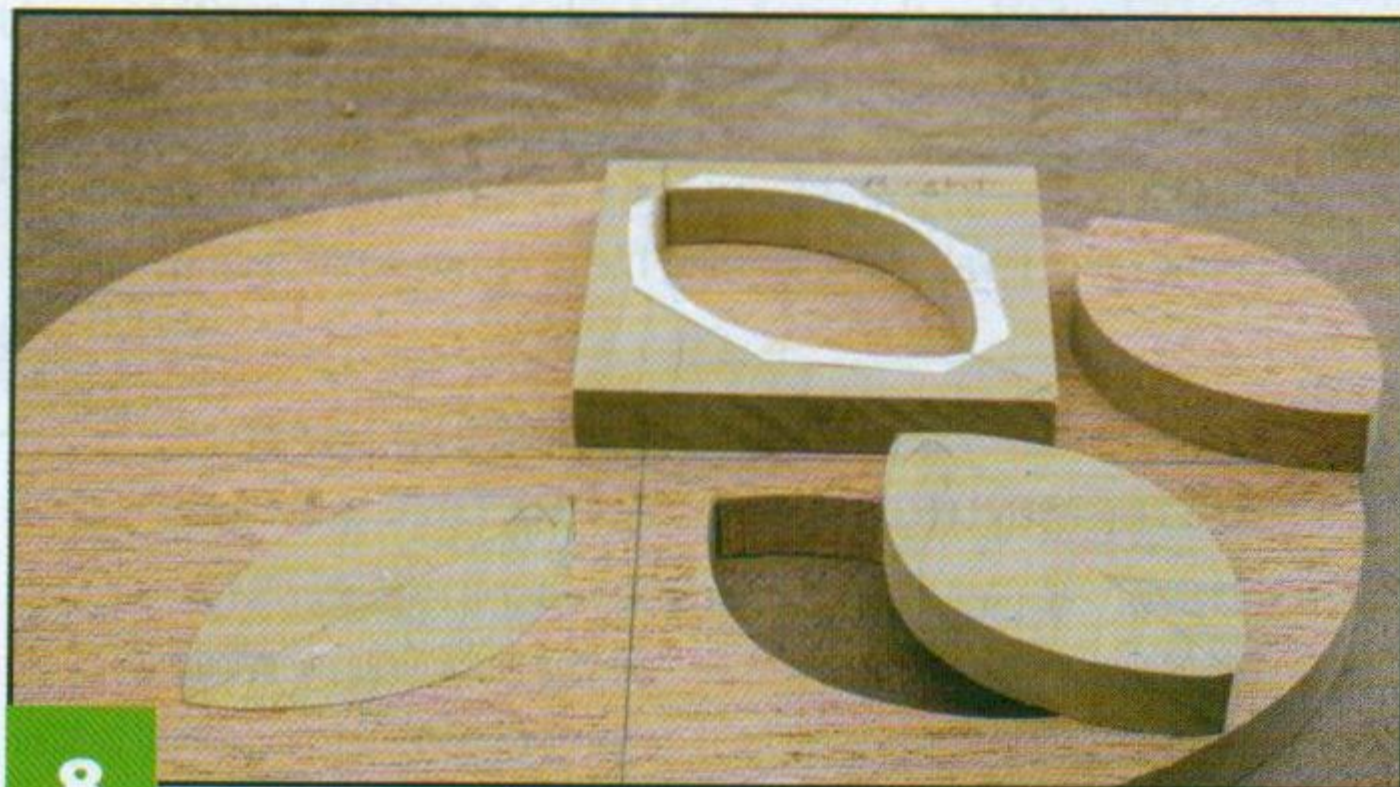
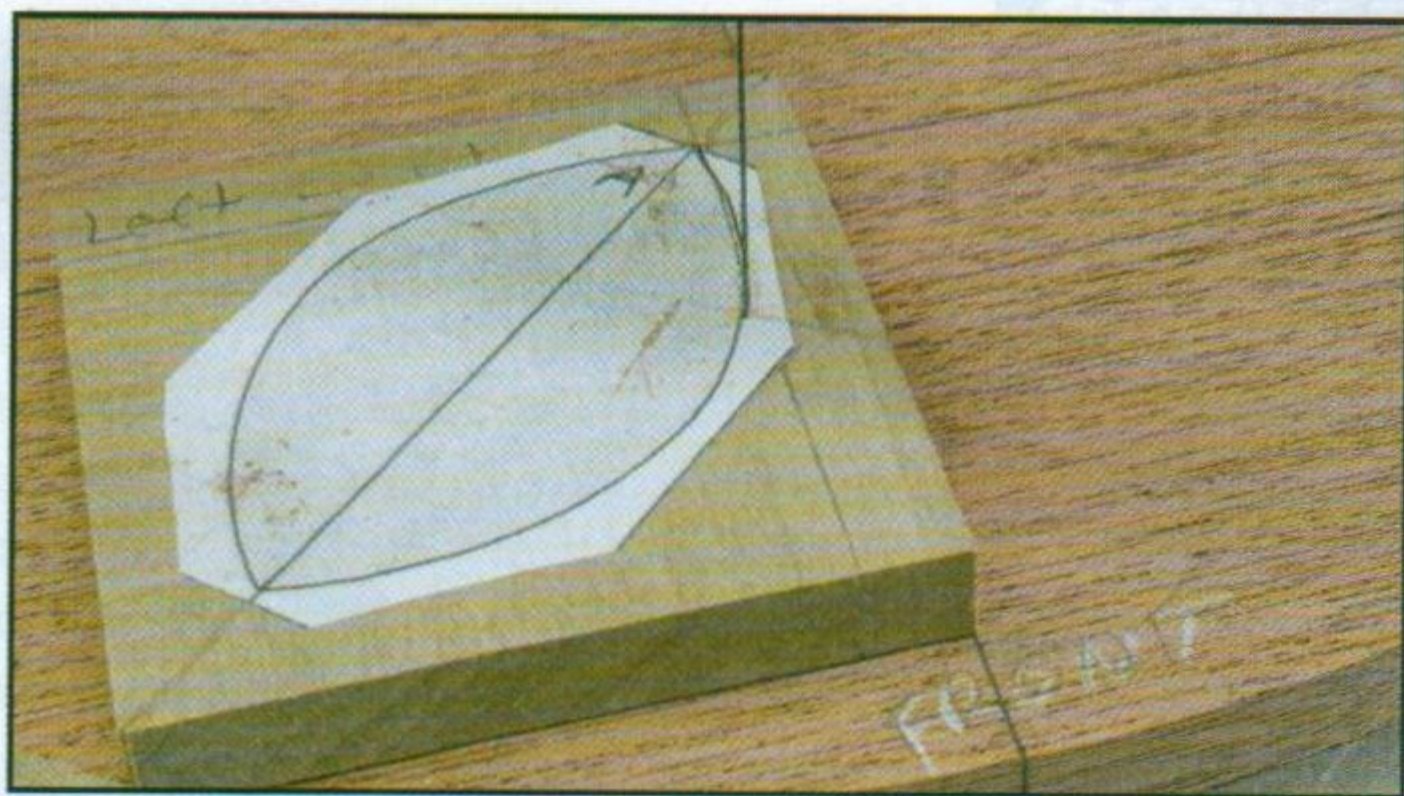
Add the box. Transfer the registration lines from the lid underside to its upper face. Place the lid on the box and extend the registration lines down the box sides. Position the box on the base, using the registration lines to center the box on the curved areas of the base, and then trace its profile. Use a belt sander to correct irregularities; the reveal should be an even $\frac{1}{16}$ " (2mm) all around. Sand the base and the inner and outer faces of the box by hand, moving progressively through the grits to 320. Place the box on the base, making sure that the front indentation is centered and the reveal is even all around. Carefully trace the inside profile of the box on the base to use as a positioning guide, and glue the base and box together. With the lid in place, use a bowl press or clamps to exert downward pressure to set the bond. Remove the clamps to check for and correct any slippage. Wipe off all exterior squeeze-out, re-clamp, and let the glue dry.

ADDING THE LEAVES



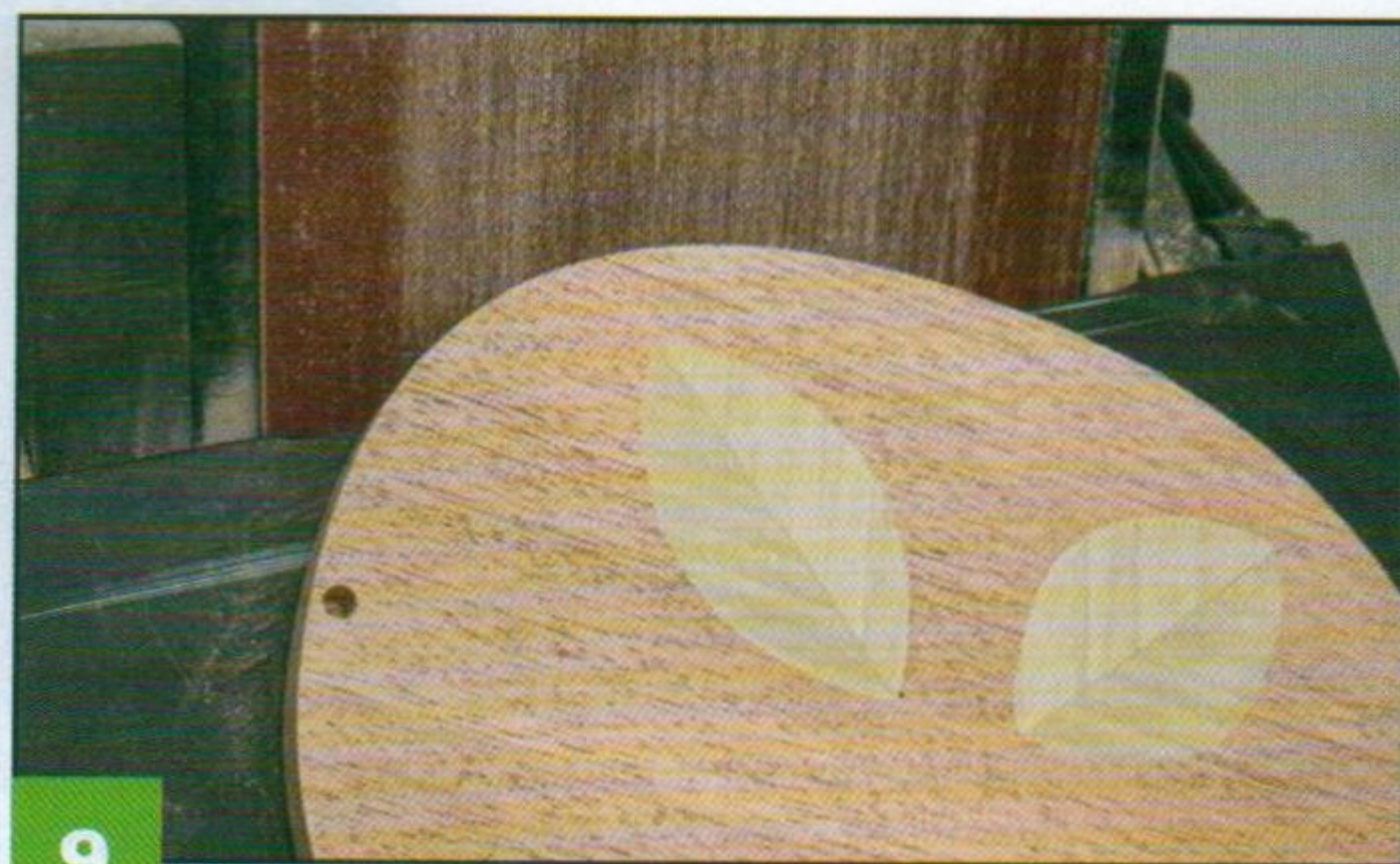
7

Prepare the leaf blanks. Draw a diagonal line on each poplar blank. Cut the line to make two triangles. Invert one triangle to create a vein-like pattern; sand or joint the diagonals to enable a tight glue joint. Apply a light coat of glue to each diagonal. Place the pieces on a flat surface, rub them together until they drag, then position them precisely. Clamp, let dry, and then sand off the glue residue. Align the pieces so the veins are oriented correctly. Next, draw lines $\frac{3}{8}$ " (1cm) from the top and right-hand sides for the left leaf, and the top and left-hand sides for the right leaf. Attach each leaf pattern with the "A" end at the intersection and with the centerlines of the pattern and blank aligned.



8

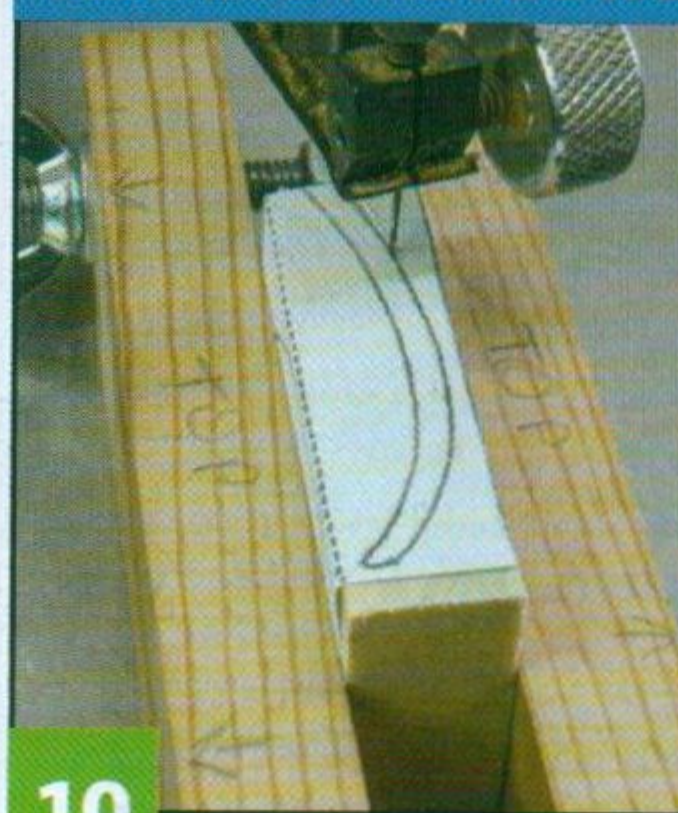
Make the leaves. Align the top edge of the left leaf blank with the horizontal registration line. Align the right edge with the vertical registration line. Attach the blank to the lid with small pieces of double-sided tape, clamping firmly to secure the bond. Drill a straight blade-entry hole at the "A" end of the pattern with a #56 drill bit. Tilt the left side of the saw table down to the previously determined cutting angle. Insert a #5 blade in the entry hole and cut clockwise around the leaf. Push the leaf down into place until flush with the lid; remove tape and waste pieces. Repeat with the right leaf, cutting clockwise. Remove the leaves, apply glue to the edges, and replace them in their openings. Seat them fully, using downward pressure or a block and hammer, then clean away excess glue. Use an awl to make a deep indentation at the intersection of the registration lines; this will be used to position the petals in Step 13. Using an orbital sander, sand the inlays flush with the lid, and then sand the surfaces progressively to 320-grit.



9

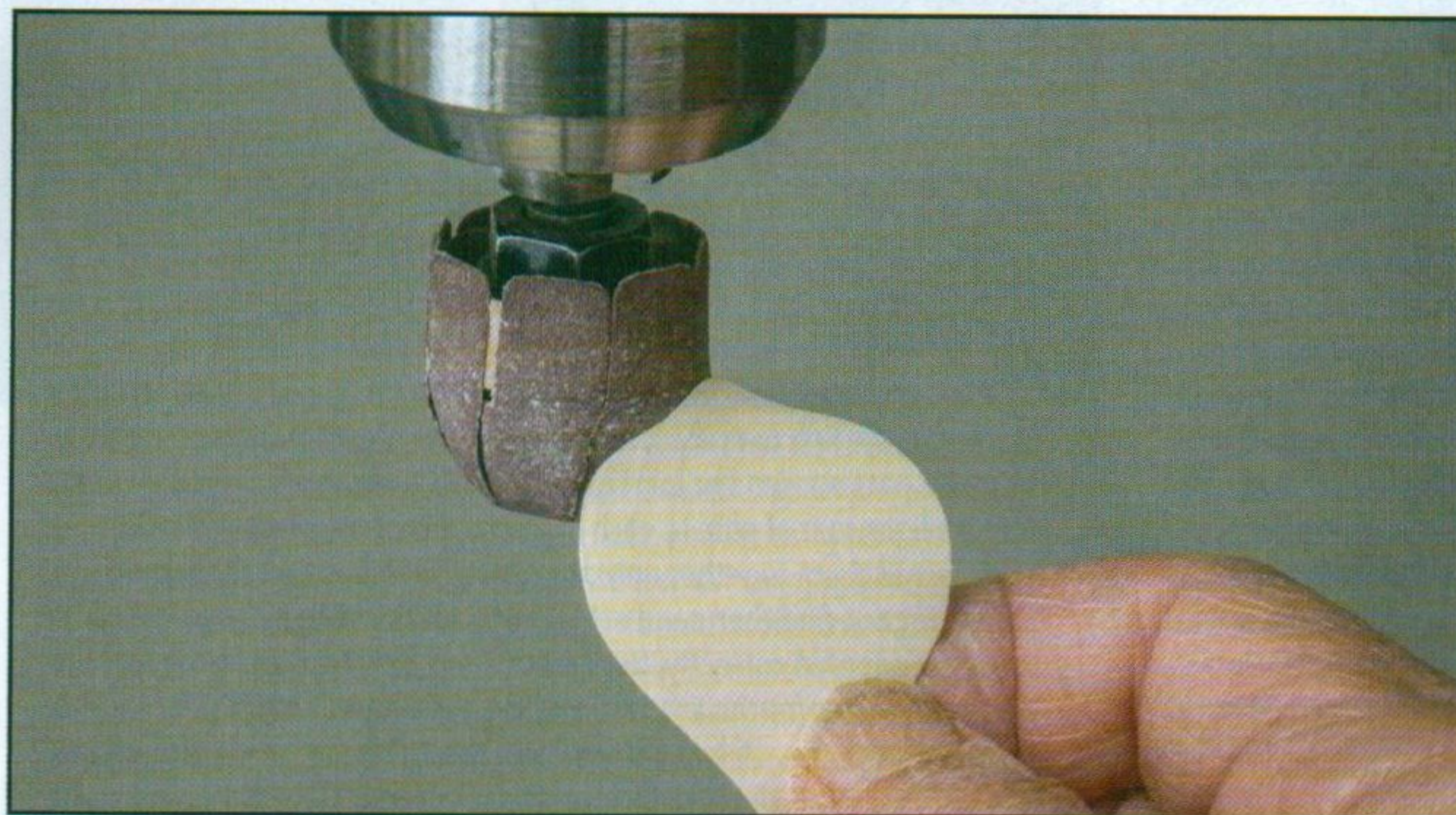
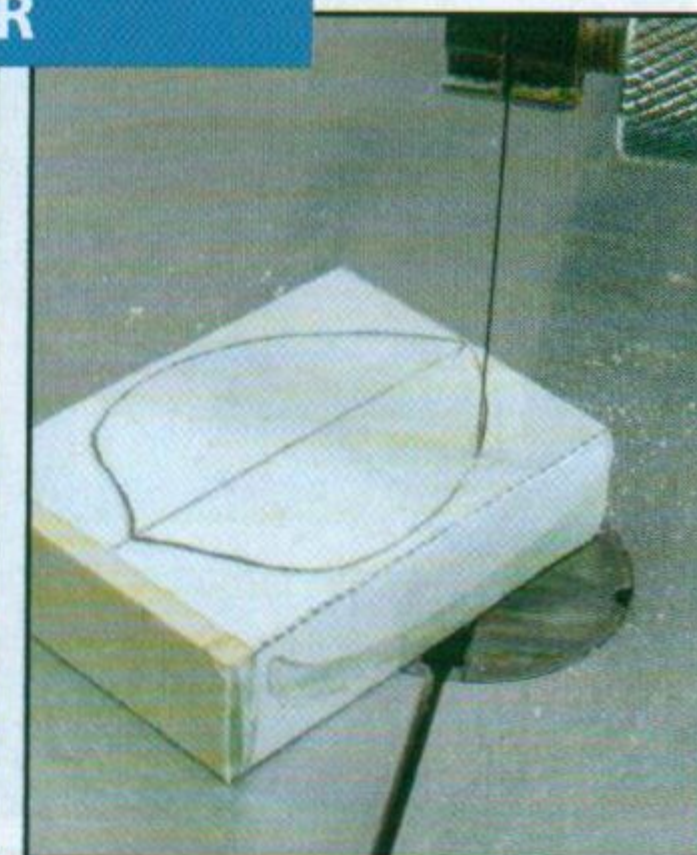
Contour the edge of the lid. Set the belt sander table to 45° and sand a small bevel into the upper edge of the lid. Smooth the bevel into a smooth curve with a pneumatic drum; finish by hand-sanding as needed. Check that all surfaces of the box and lid are smooth and that all edges have been softened.

ADDING THE FLOWER



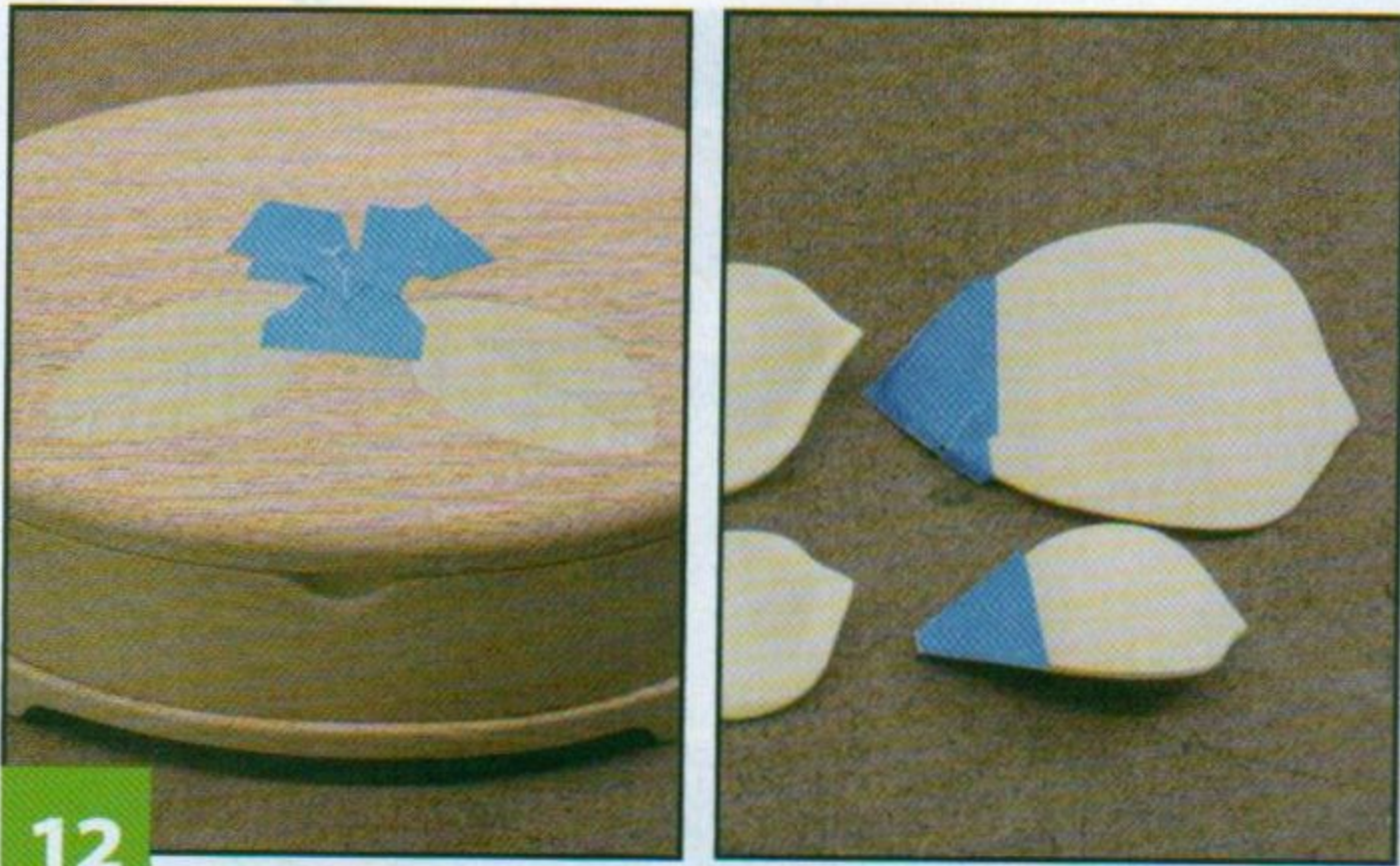
10

Make the petals. Attach the petal patterns to their matching blanks; each small blank will yield two petals. Place the blank with its narrow face up, using blocks and clamps or a shop-made jig for support. Using a #7 blade, cut carefully along the line. Tape the pieces together with clear packing tape, and then turn the blank 90° and cut the second face. You will have six large and six small petals; one small petal is a spare.



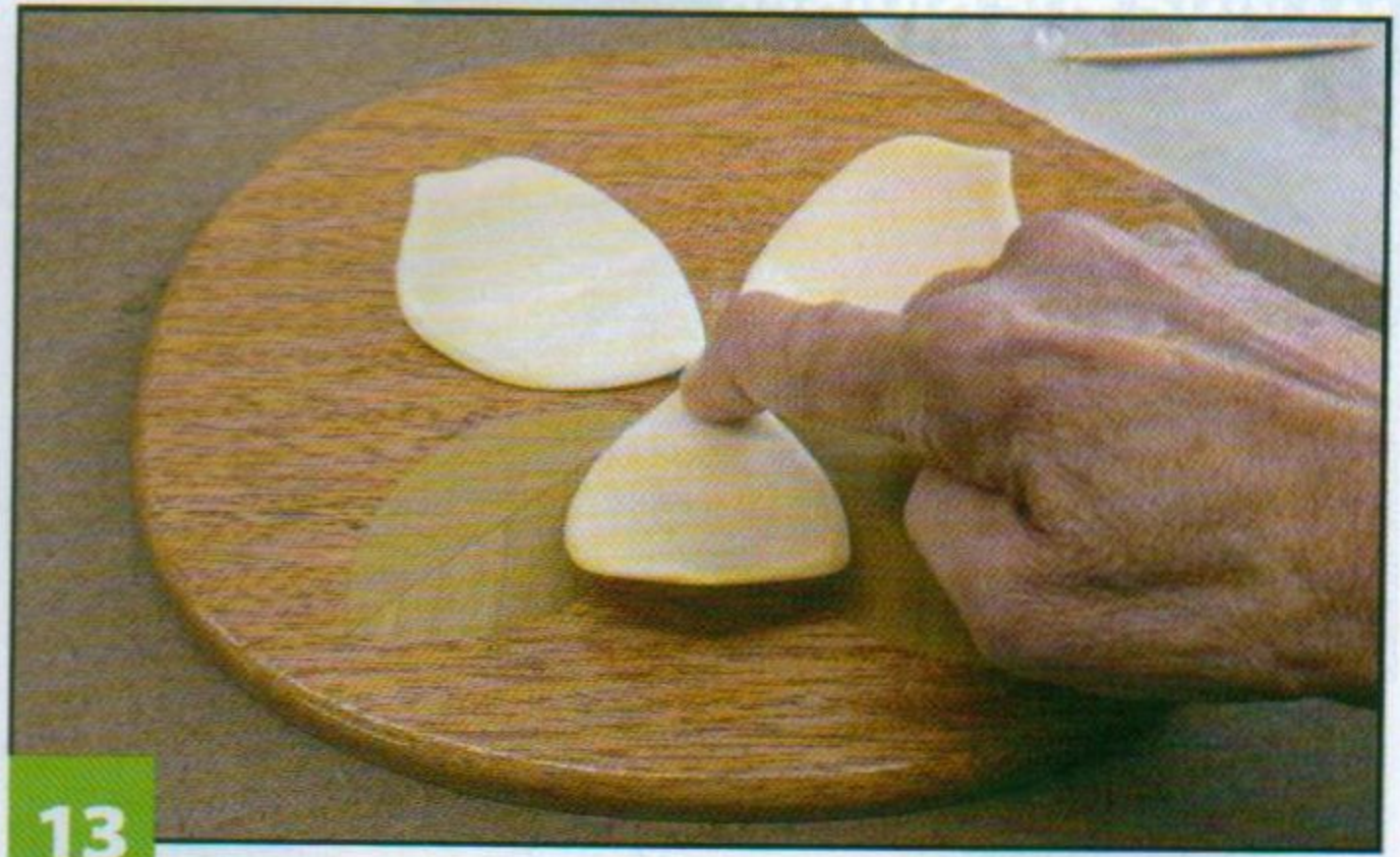
11

Refine the petals. Working carefully, use a belt sander to smooth out-curving edges and convex faces, and to remove 1/16" (2mm) from the tips of the small petals. Use the spindle sander to smooth curved edges and concave faces. Switch to a small pneumatic drum to reduce overall thickness to about 1/16" (2mm), to curve the outer edges for greater realism, and to round over the sanded tips of the small petals. A small round inflatable works well for the smaller petals. Finish by hand-sanding through the grits to 320.



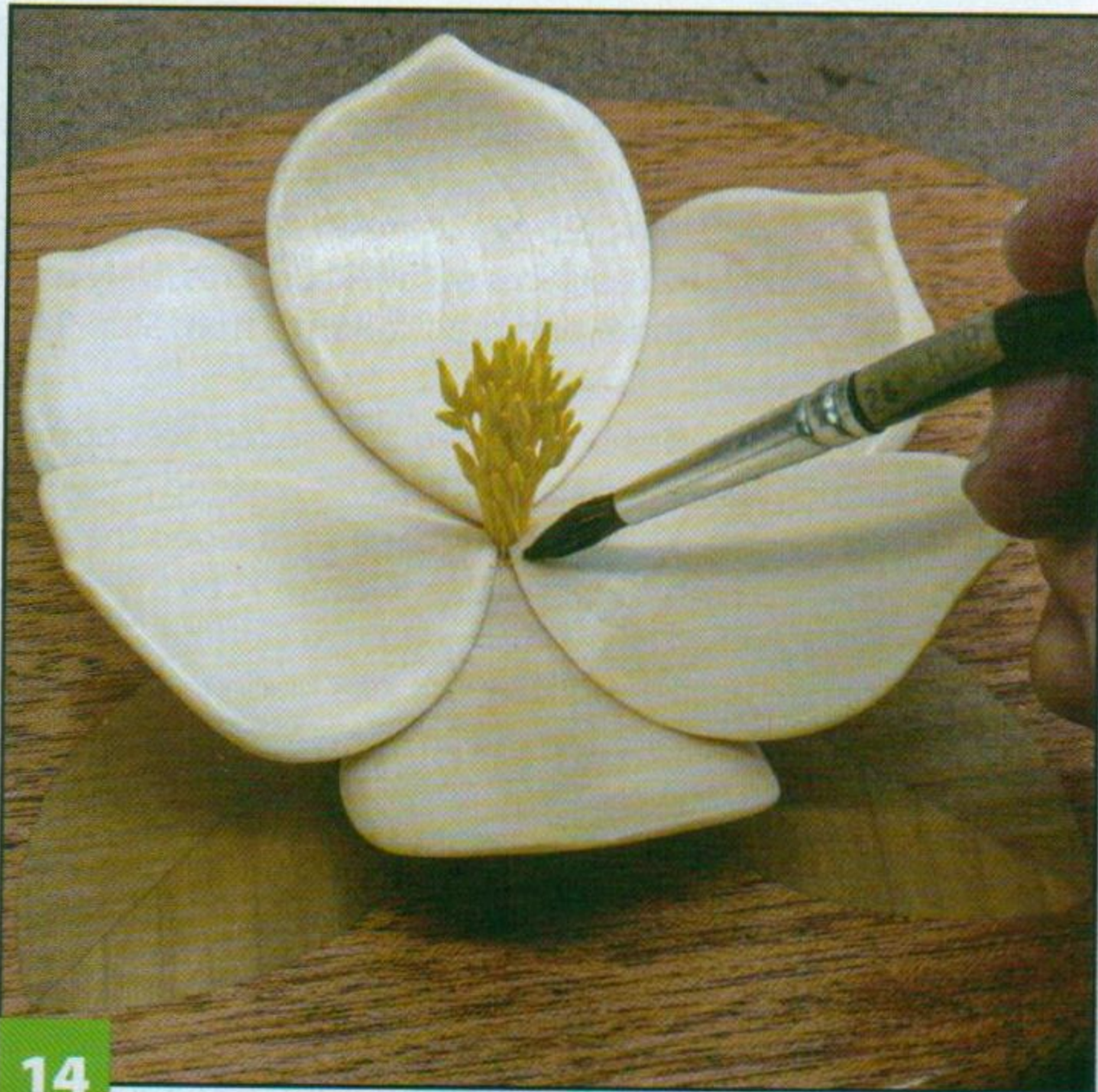
12

Prepare the box for finishing. Mask the lid where the petals will be attached, using blue painter's tape. Apply a sealer coat of shellac to all sides of the lid, box body, and base, but do not shellac the area where the plywood bottom will be glued. Smooth all surfaces with 320-grit sandpaper. Apply a second coat of shellac and smooth if needed with 0000 steel wool. Finish with several coats of clear gloss lacquer, applied to the exterior surfaces only. Remove irregularities with the steel wool as needed. Then mask the gluing areas of the petals and apply shellac and lacquer as above to the fronts and backs. Use a 4" (10.2cm) 320-grit sanding mop to buff the surfaces, if desired. Remove the blue tape from the box lid and petals and sand away ridges left by the finish with 320-grit sandpaper.



13

Add the petals. Attach loops of blue tape to the back of the six large petals. Place one petal between the two inlaid leaves, with its tip just below the awl mark. Place two others around the awl mark, keeping the spacing even. Press down firmly to hold the petals in place. Squeeze out a small amount of the cyanoacrylate (CA) glue on a piece of wax paper. Starting with the petal between the leaves, remove the tape loop. Use a toothpick to apply glue to the underside of the petal. Place it into position and press down firmly near the tip until set; be careful to maintain the correct spacing with the other petals. Repeat with the remaining two petals. When fully set, position the remaining three petals evenly between those of the first layer. Working one at a time, apply cyanoacrylate (CA) glue and secure the petals in the same way as you did the first three.

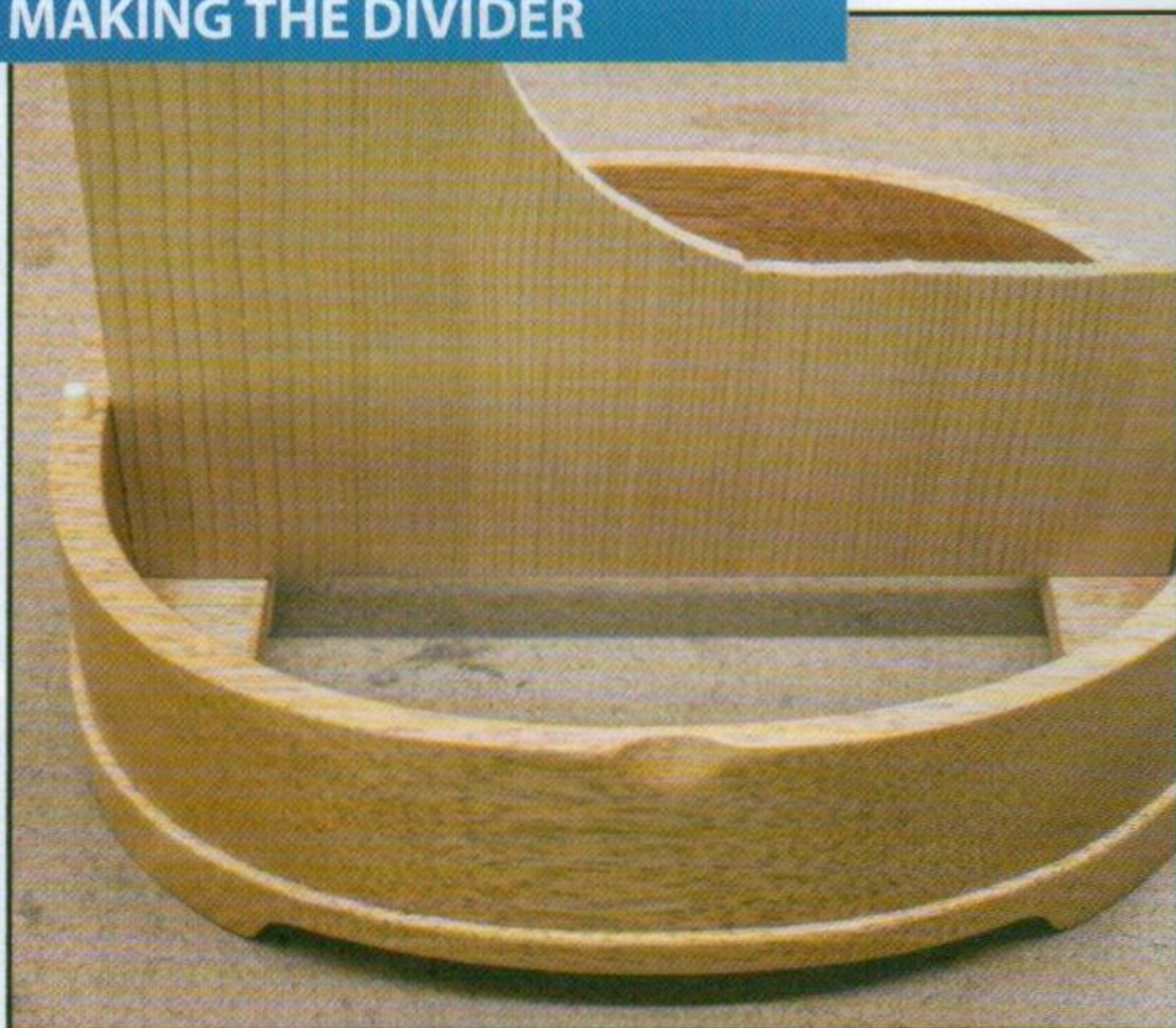


14

Add the stamens. Position and clamp the lid on the drill press table. Using a sharp $\frac{3}{16}$ " (5mm) brad point bit, drill a hole at the awl mark at the center of the petals. It should be $\frac{1}{4}$ " (6mm) deep, measuring from the upper surface of the second tier of petals. Use a shop made dipstick to check its depth. Cut 24 stamens to $1\frac{1}{8}$ " (2.9cm) and 24 to $\frac{7}{8}$ " (2.2cm). Stamens that are 2" (5.1cm) long with heads at both ends will yield one of each size. Pinch the long stamens together, making sure the bottoms are even. Surround them evenly with the short ones, holding the group firmly. Secure with a thin piece of masking tape wrapped just under the heads of the small stamens. Place a drop or two of cyanoacrylate (CA) glue into the drilled hole and insert the group. Push down gently but firmly. Carefully cut away the masking tape and arrange the stamens with a toothpick. Then place the five small petals around the stamens; if there are unfinished areas visible between petals, apply shellac with a small brush to even out the color. Attach small loops of tape to the five small petals. Position them around the stamens and between the large petals. Be sure each petal has sufficient contact for a secure glue-up. Glue them into place as in Step 13.

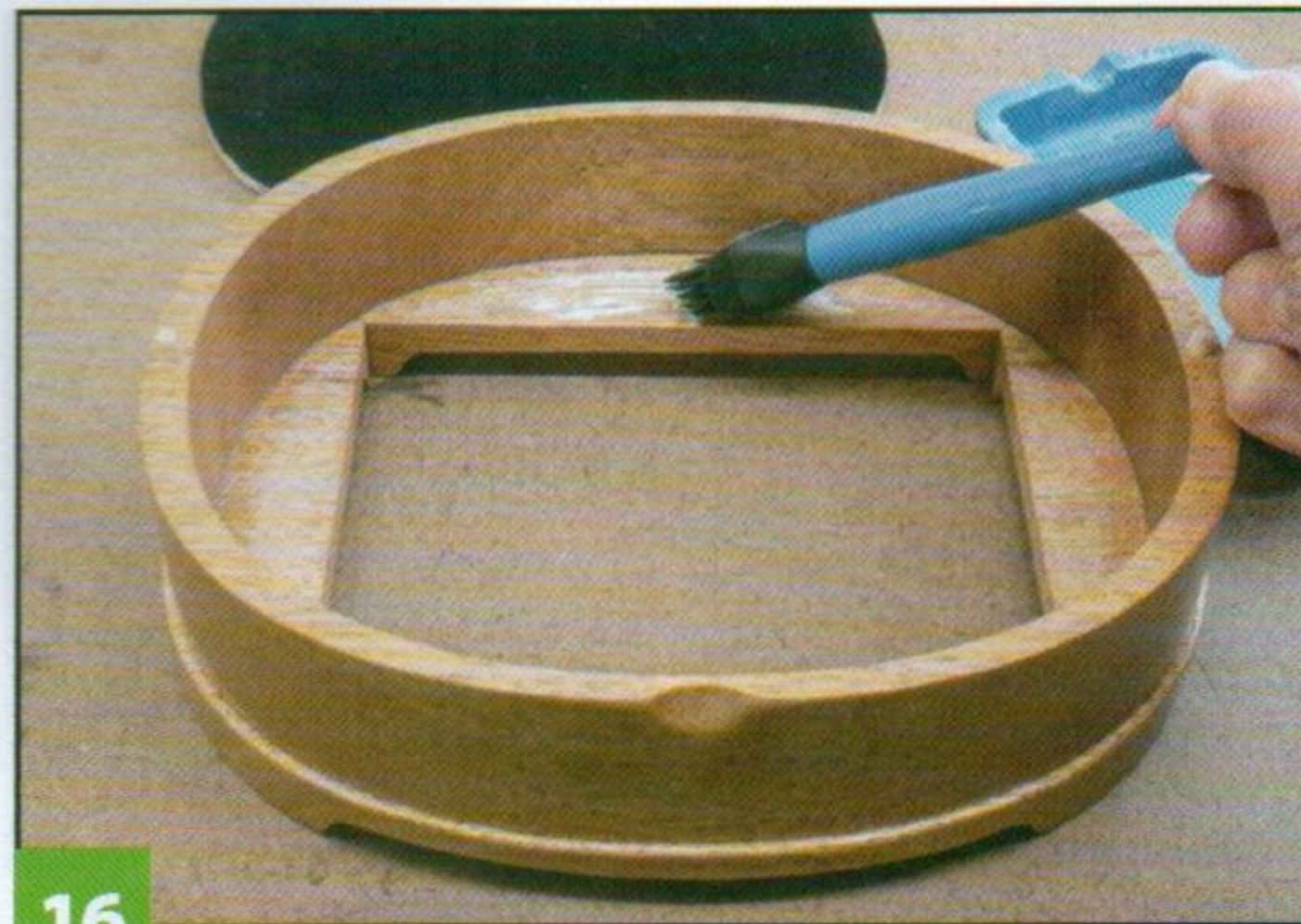


MAKING THE DIVIDER



15

Make the dividers. Attach the divider patterns to the blanks. Use a piece of $\frac{1}{8}$ " (3mm)-thick scrap to verify the internal length of the box at the dowel points. Adjust the long divider pattern evenly at both ends, attach it to its matching blank, and cut the piece. Insert a narrow piece of $\frac{1}{8}$ " (3mm) scrap into one slot; place the two pieces inside the box to verify the internal width. Adjust the short patterns evenly at both ends as needed, attach them to their blanks, and cut the pieces. Place the plywood bottom from Step 2 into the box, fronts aligned; it should slide in easily. If it binds, loosen the tight places with the belt sander. Assemble the divider and slide it into place to check the fit. You may need to round the ends of the short pieces to accommodate the box curvature. Remove and disassemble the divider; leave the plywood bottom in place. Sand the pieces to 320-grit; be careful not to break the fragile up-curving ends. Apply several coats of shellac to both sides of each piece, smoothing the surface between coats with 320-grit sandpaper. Place a piece of wax paper on the plywood bottom to protect it from glue drips. Apply glue sparingly to the inside of the cutout areas of the long and short pieces. Assemble the divider and place it on the plywood bottom; the long piece should be aligned with the dowels and the shorter pieces should sit perpendicular to the longer one. Clean up all squeeze-out with a toothpick. Let dry, and then remove the divider and plywood bottom.



16

Add the final details. Transfer the front mark on the plywood bottom to its underside. Remove the backing from the velvet and place it sticky-side-up on a self-healing mat. Place the plywood bottom, top-face-down, on the sticky side of the velvet and press firmly. Use a razor knife or cutting wheel to cut the circumference. Apply glue to the inner area of the base and press the velvet-covered plywood firmly into place. Insert the dividers.

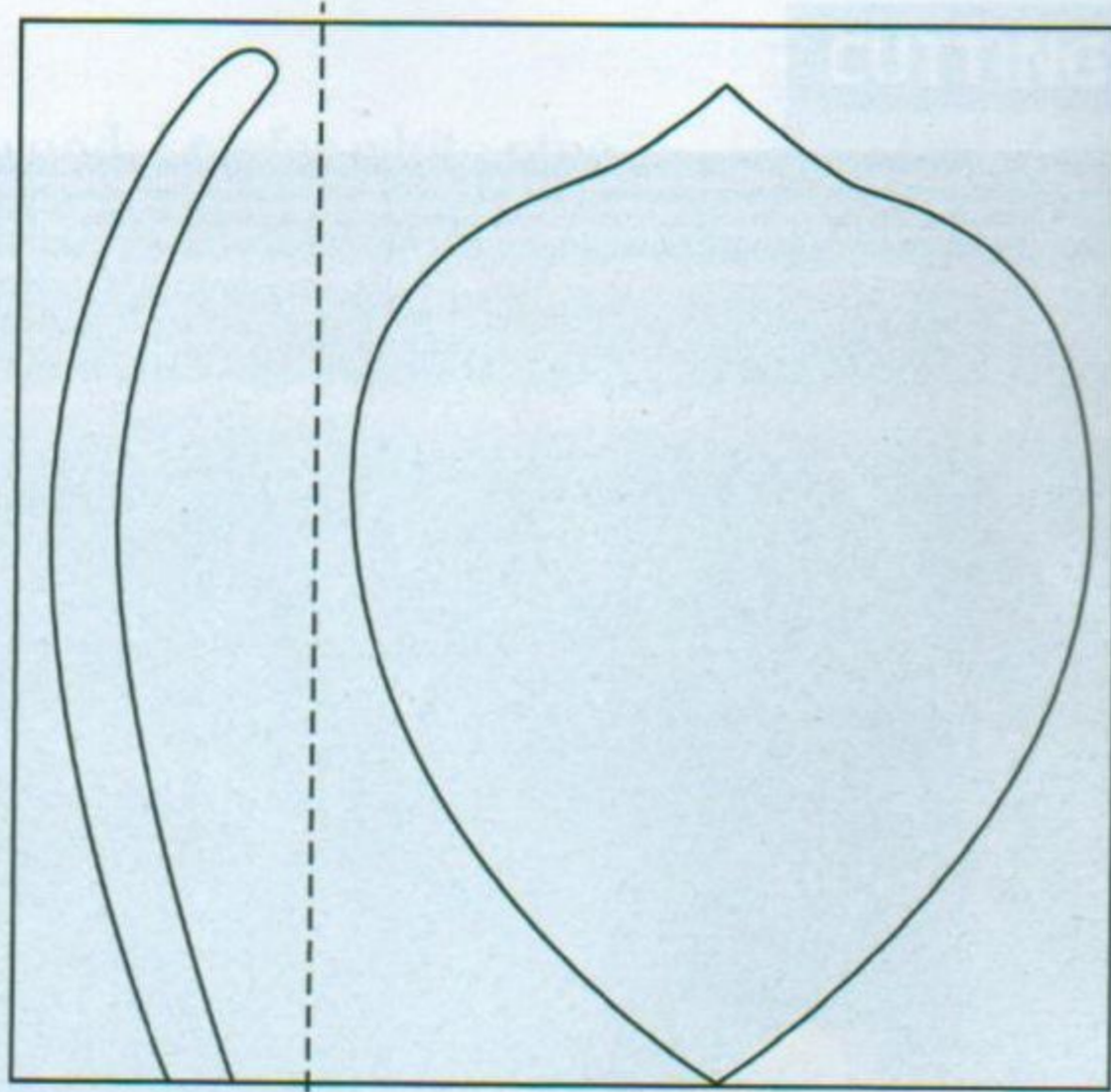
Modifications

For a less demanding project, you could alter the design in the following ways:

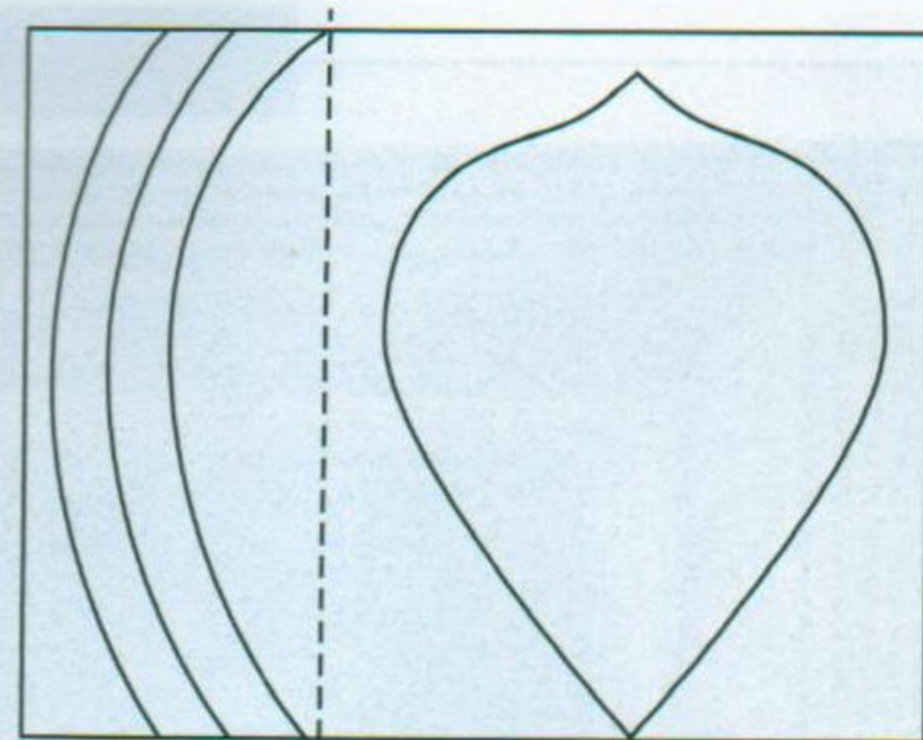
1. Omit the inlaid leaves. To do this, follow the instructions through Step 6, and then use an awl to make a deep indentation on the upper face of the lid, at the point where the registration lines intersect. (You'll need this mark to position the petals in Step 13.) Using an orbital sander, sand the upper and lower surfaces of the lid progressively to 320-grit. Skip Steps 7 and 8, and then continue from Step 9 to complete the box.

2. Use a simpler base. This integral base replaces both the compound-cut base and the velvet-covered plywood bottom. Prepare a $\frac{1}{4}$ " (6mm)-thick piece of wood that matches the box body. It should measure 7" by 8 $\frac{1}{2}$ " (17.8cm by 21.6cm). Follow all the instructions in Getting Started. Then, on the blank for the lid, use a #5 blade to cut along the outer pattern line; remove the pattern and transfer the "front" mark to the wood. On the blank for the box body, drill an entry hole where indicated on the pattern. Insert a #9 blade and cut along the inner line; do not remove the pattern. Discard the center cutout. Sand the inside of the body with a spindle sander until smooth. Glue the body to the prepared piece for the base, and clamp the two together. Remove any squeeze-out from the interior. When the glue has dried, cut the outer pattern line, then sand the exterior smooth with a belt sander. Extend the front registration mark and sand the indentation as instructed in Step 2. Follow all the instructions in Step 3, then transfer the registration lines from the underside of the lid to its upper face. Skip Steps 4, 5 and 6. Continue from Step 7 to complete the project.

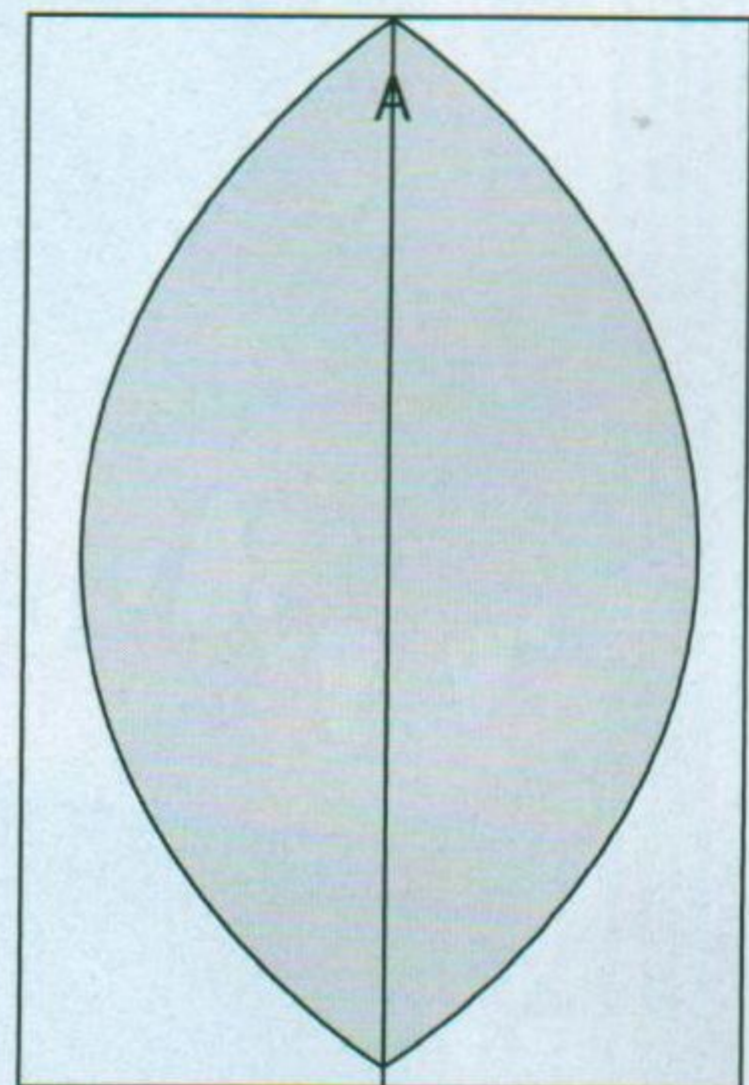
Magnolia Jewelry Box Patterns



Large Petal Pattern
(Cut 6)



Small Petal Pattern
(Cut 3)



Inlay Leaf Pattern
(Cut 2)

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Materials & Tools

Materials

- Mahogany, 1½" (3.8cm) thick: box body, 7" x 8½" (17.8cm x 21.6cm)
- Mahogany, ¾" (1cm) thick: box lid, 7" x 8½" (17.8cm x 21.6cm)
- Mahogany, ⅝" (1.6cm) thick: compound-cut base, 7" x 8½" (17.8cm x 21.6cm)
- Mahogany, ⅛" (3mm) thick: long divider piece, 1½" x 7½" (3.8cm x 19.1cm)
- Mahogany, ⅛" (3mm) thick: short divider pieces, 2 each 1½" x 6" (3.8cm x 15.2cm)
- Plywood, ⅛" (3mm) thick: box bottom, 6½" x 8" (16.5cm x 20.3cm)
- Poplar, ¾" (1cm) thick: leaf inlays, 2 each 2¾" (7cm) square
- Aspen, ¾" (1.9cm) thick: large petals, 6 each 2" x 2¾" (5.1cm x 7cm)
- Aspen, ¾" (1.9cm) thick: small petals, 3 each 1½" x 1¾" (1.9cm x 3.8cm)
- Wood dowels, ⅜" (5mm)-dia.: 2 each 1½" (1.7cm)
- Spray adhesive: repositionable

- Glue stick: repositionable (optional)
- Wood glue, such as Weldbond
- Cyanoacrylate (CA) glue for wood, such as Titebond Instant Bond
- Tape: blue painter's; clear packing, double-sided
- Shellac: spray or brush
- Spray lacquer
- Wax paper
- Sandpaper for hand-sanding: assorted grits
- Steel wool: 0000
- Flower stamens: 24 doubled-headed, yellow pointed-tip
- Velvet: adhesive-backed, 6½" x 8" (16.5cm x 20.3cm)
- Toothpicks

Tools

- Scroll saw with blades: #9 skip-tooth (for box body), #7 skip-tooth (for compound-cuts), #5 reverse-tooth (for lid and leaf inlay), #3 skip-tooth (for plywood bottom)
- Drill with bits: ⅜" (5mm) brad point and #56 wire size

- Ruler
- Awl
- Sanders: spindle; belt; random orbit; small pneumatic drum with assorted grit sleeves; small round inflatable with assorted grit sleeves (optional)
- Sanding mop: 4" (10.2cm) 320-grit (optional)
- Bowl press or clamps
- Small spring clamps
- Hammer and block
- Sanding block
- Sanding tile
- Paintbrushes: assorted
- Rubber bands (optional)
- Self-healing mat
- Razor knife or cutting wheel

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

Additional patterns for the **MAGNOLIA JEWELRY BOX** are in the pullout section.



Carole Rothman of Pawling, N.Y., is a retired psychologist and college professor. She is also an award-winning cake decorator. Visit Carole online at scrollsawbowls.blogspot.com. You'll find her books, *Creative Wooden*

Boxes from the *Scroll Saw and Scroll Saw Wooden Bowls: Revised & Expanded Edition*, at foxchapelublishing.com.



Photo © 2013 The McGraw-Hill Companies

Segmented Reptile

Shape, char, and color a scaly creature that looks like it's climbing out of the frame

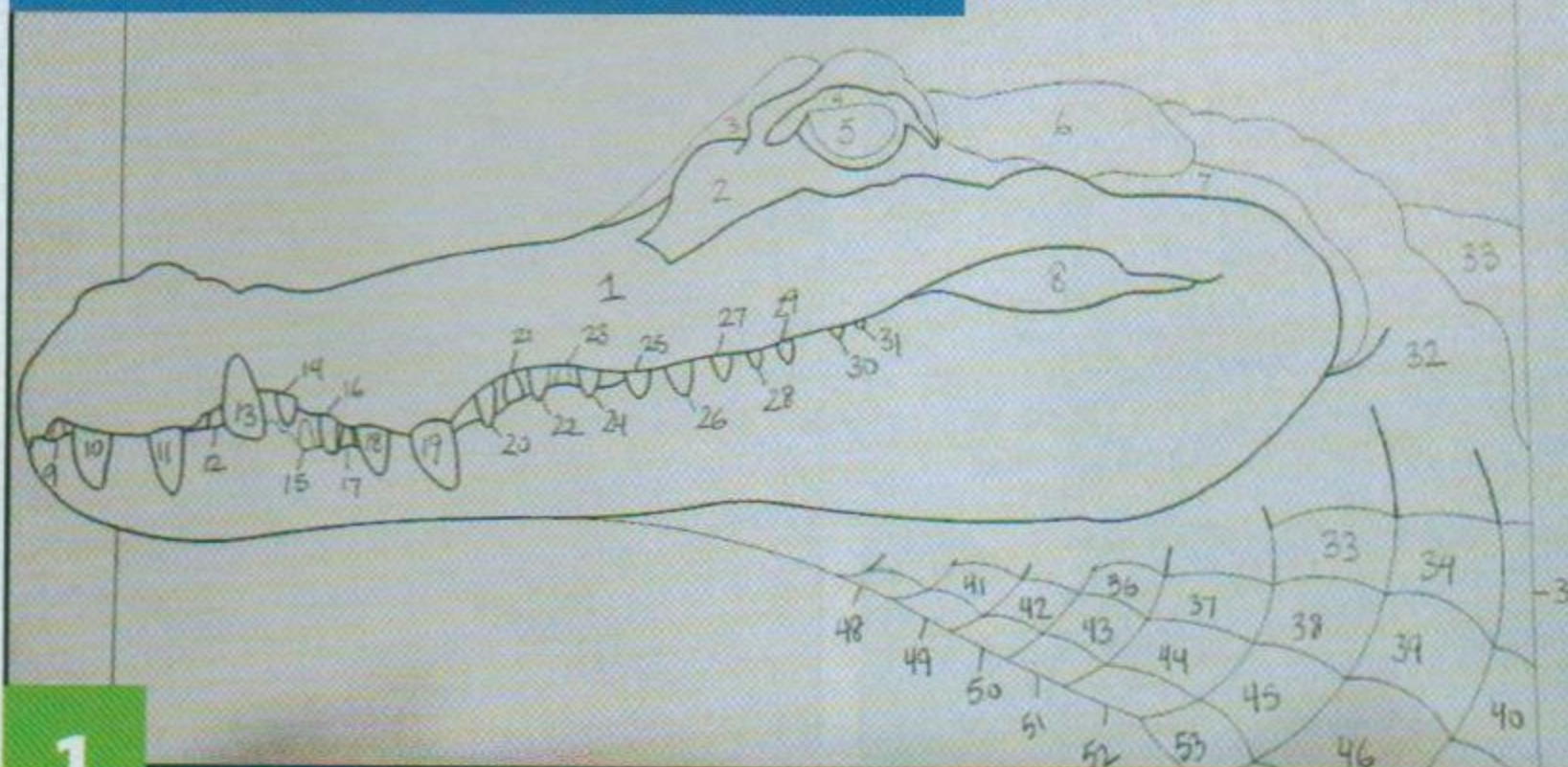
By AJ Favorito

I have always been fascinated by the wonders found in nature, especially reptiles. I even share my home with three snakes and two lizards. But my favorite reptile of all is the caiman. Caimans are distinguished from alligators and crocodiles, their closest relatives, by a few defining features. Turn to page 57 to learn more. This project is great for beginner and advanced scrollers alike; you'll learn several techniques to accentuate the wood's natural beauty and bring a project to life.

Getting Started

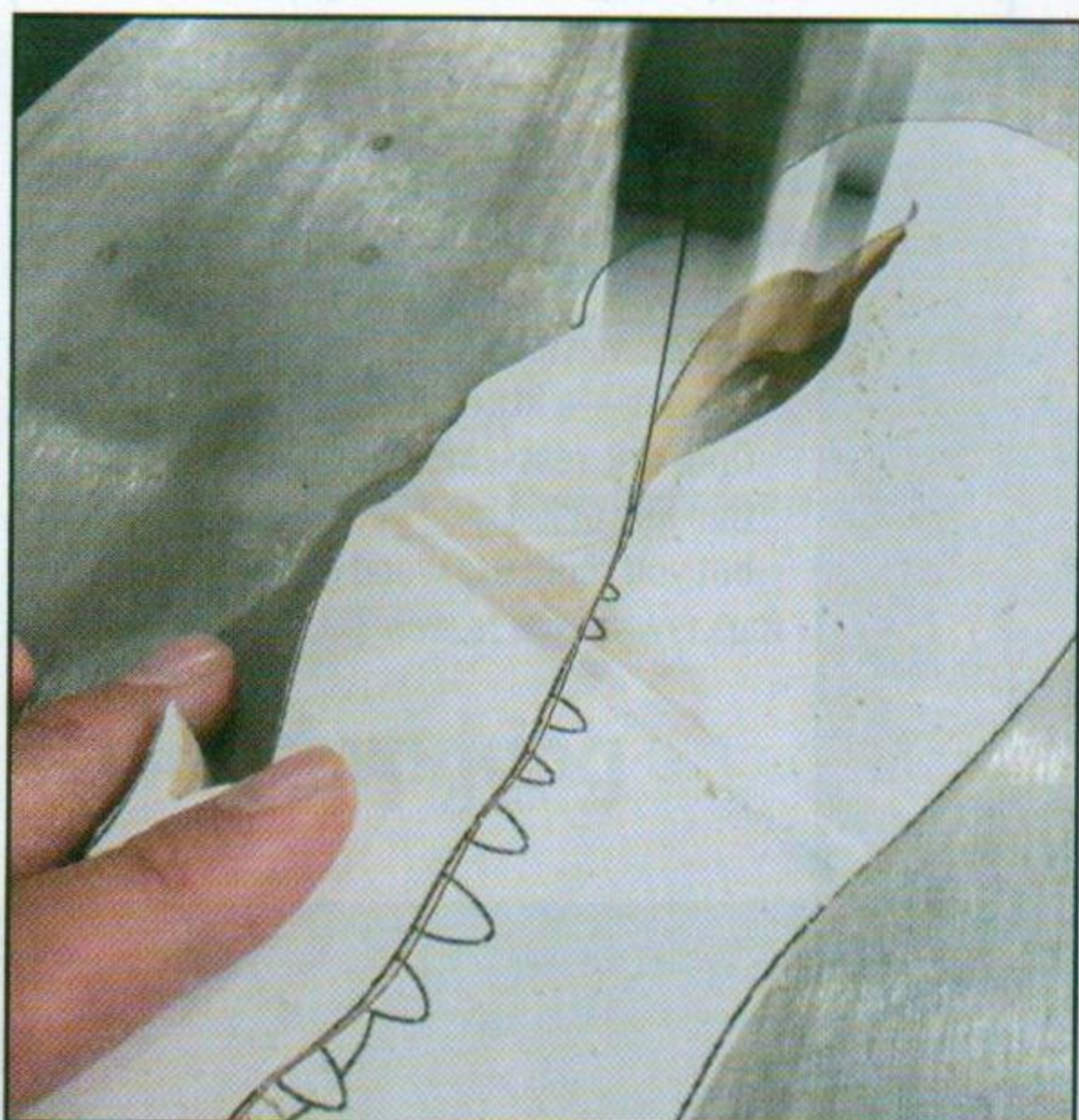
Choose a kind of wood; I prefer white pine for my projects. Pine is a soft, malleable wood and has a fantastic scent when cut. Prepare the blank by sanding it smooth with 220-grit sandpaper, working progressively through the grits to 400. Then cover the blank with blue painter's tape and apply the pattern with spray adhesive. Every line on the pattern connects so you will not need a drill for blade-entry holes.

CUTTING & SHAPING



1

Print an additional pattern and number all of the pieces. Set this pattern aside; you will reference it once you start cutting. Numbering each corresponding piece will help you put the project back together.



2

Cut the pieces.

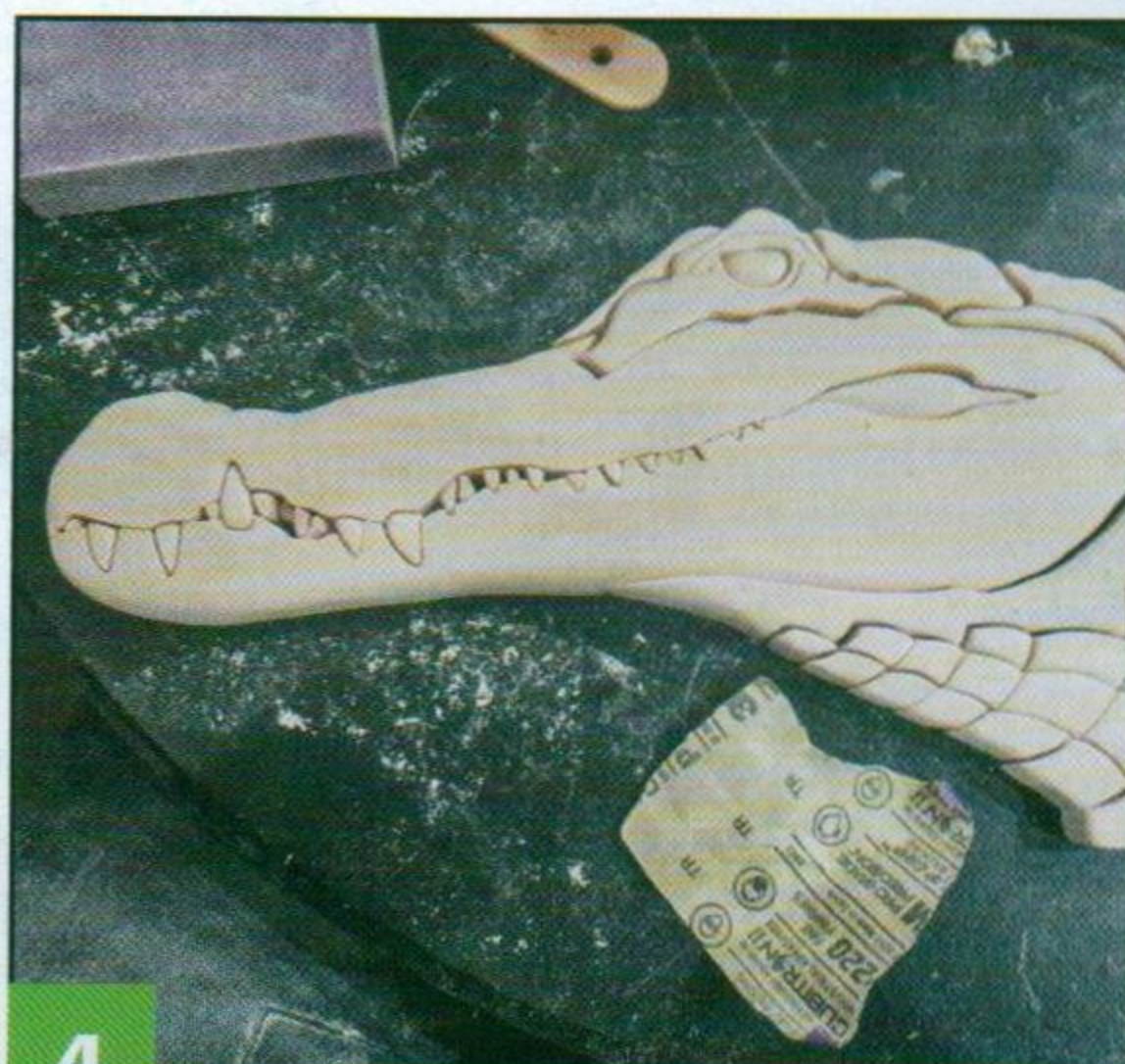
I used a #5 reverse-tooth blade. Simply follow the pattern lines and number the backside of each piece as you go. Once you've finished cutting, peel the pattern off each piece.



3

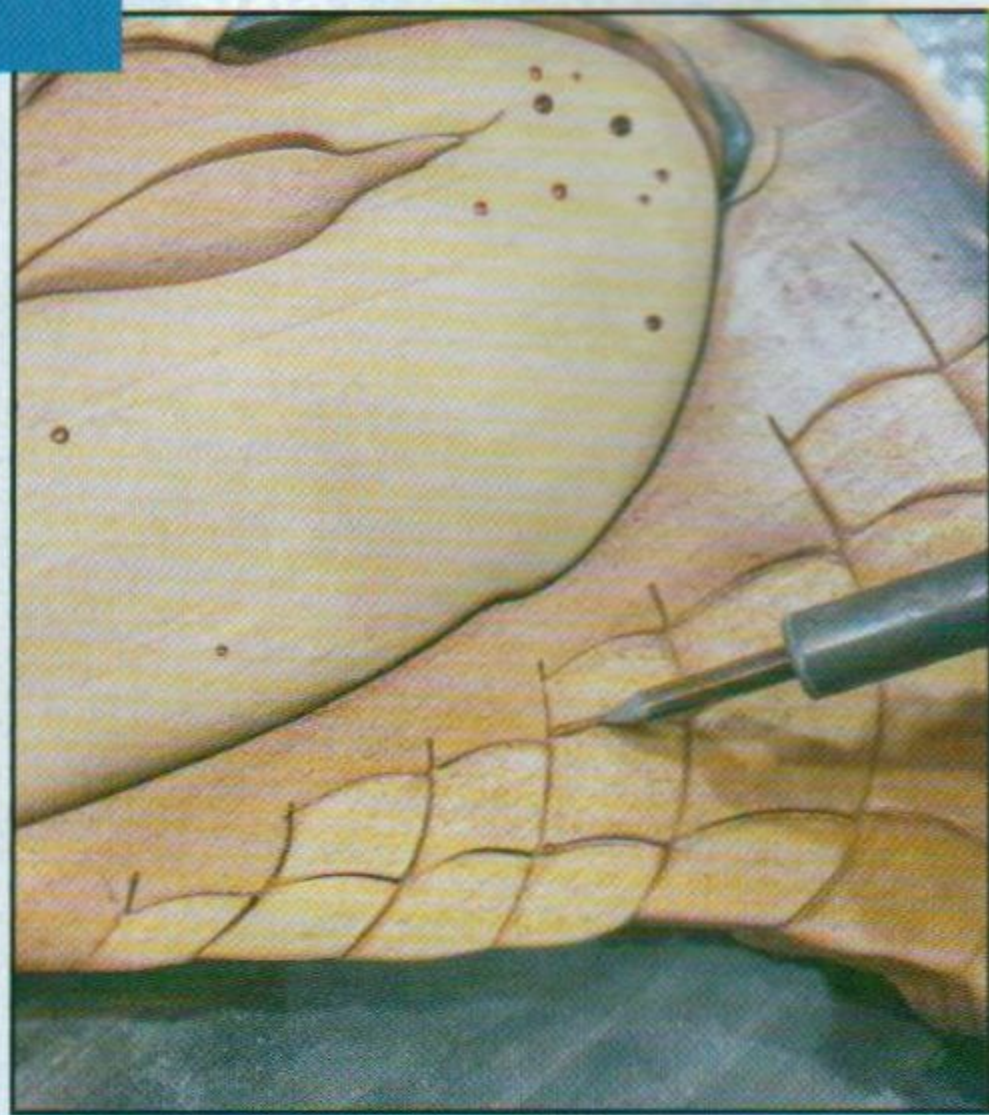
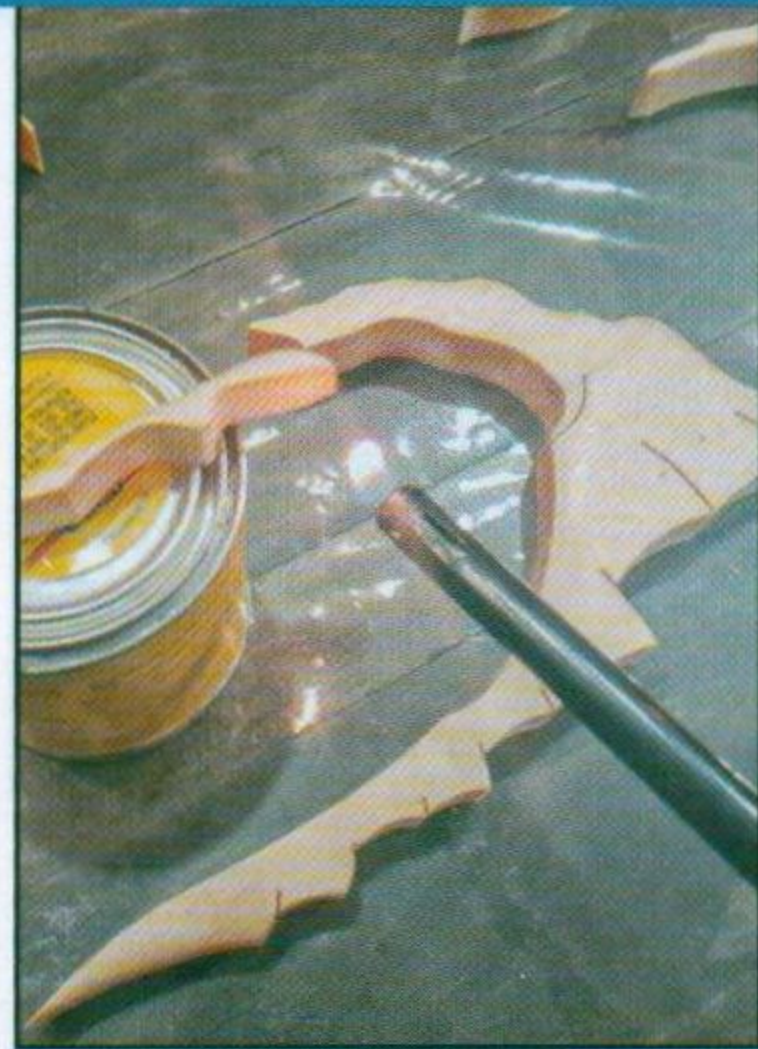
Shape the pieces.

For edges that need a more severe angle or curve, such as the mouth and chin, use a rotary tool with a fine-grit cylinder-shaped carbide-point bit. Shape the rest of the head, neck, and scutes (scales) using an electric palm sander with 400-grit sandpaper. For the smaller, more delicate pieces, such as the teeth and eye socket, hand-sand with 400-grit sandpaper. Refer to real-life photos of the subject to ensure accurate shaping. *Note: If you don't have a rotary tool on hand, the palm sander and hand-sanding will suit just fine.*



4

Dry-assemble the project. Ensure that all of the pieces fit snugly. Make adjustments if needed.



5

Char the wood. Use a lighter or small blowtorch to lightly burn the edges of some of the pieces. This technique is a great way to achieve natural-looking coloration. *Note: Be sure to wear fire-retardant clothing and practice proper safety protocols while operating an open flame.* Accentuate the scutes with a woodburner using a skew nib. Use a high heat setting. Then, using a ball nib, burn small dots in clusters along the jaw to mimic the caiman's dermal pressure receptors. Remove the teeth from the work area. Then, using a foam brush, coat the entire project in a light stain, such as Minwax golden pecan. Let dry. Apply Minwax oil-based honey stain to the top of the mouth, the head, and the underside of the jaw to darken these areas. Let dry.



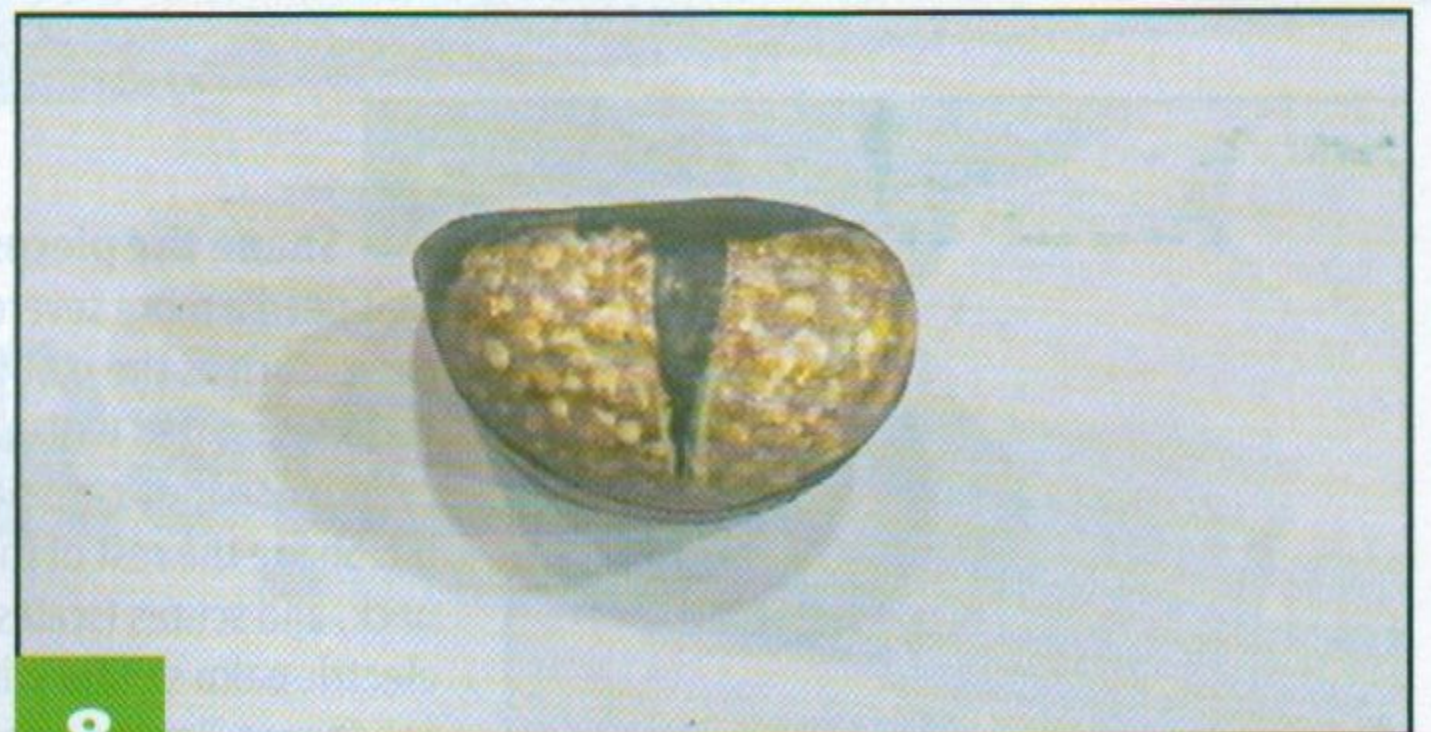
6

Add color. Highlight the jaw, eye area, and the underside of the neck and mouth with a spray paint or dye, such as Design Master's fresh green. Go light on the tint—a little color goes a long way. Once dry, reassemble the pieces. I used a thin line of hot glue between each piece, but you could use wood glue if desired.



7

Insert the teeth. They are delicate, so you may need to use tweezers or needle-nose pliers when hot-gluing them into place.



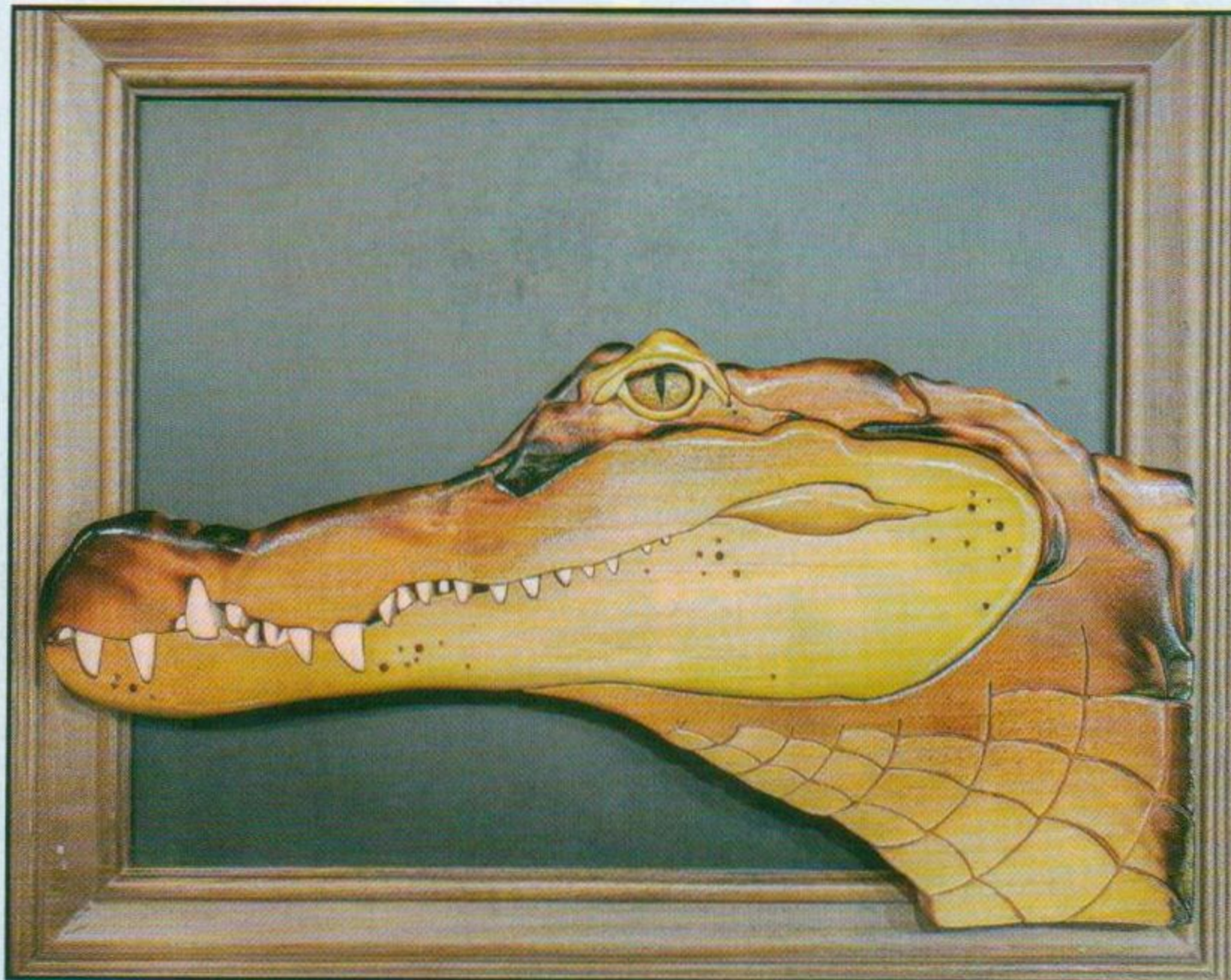
8

Paint the eye. Using a flat brush, coat the eye with brushed bronze. Let dry here and between all subsequent coats. Using a liner brush, stipple the eye with antique gold. Then stipple the eye with bright gold. Stipple banana yellow closer to the center of the eye, asymmetrically and randomly. Use the liner brush to paint the pupil black. Once dry, use the hot glue gun to attach the eye. Then give the entire project 1-2 light coats of clear glaze finish. Once the clear coat has dried, apply a small amount of 2-part clear epoxy over the eye only.

Fun Facts About Caimans

Caimans are closely related to alligators and crocodiles, with a few key differences:

- They have longer, slenderer teeth.
- Their bodies are covered in ossified armor-plated scutes (scales), making their hide extremely stiff.
- They've been known to burrow underground and sleep through particularly long and dry summers, in a form of hibernation called estivation.
- They also have a knack for camouflage. Unlike alligators and crocodiles, caimans have a limited ability to change color through "metachrosis," depending on their surroundings.



9

Add the backing board. Frame your caiman as desired; I used a reclaimed picture frame, removed the glass, and replaced the backing with a thin piece of MDF board painted black. Attach the project to the backing board with hot glue. I chose a frame slightly smaller than the caiman to make it seem like he is coming right out of the picture.

Pattern for the **SEGMENTED REPTILE** is in the pullout section.

Materials

- Wood, such as, white pine, 1½" (3.8cm) thick: 16" x 9" (40.6cm x 22.9cm)
- Wood, such as MDF, ½" (1.3cm) thick: 17" x 14" (43.2cm x 35.6cm) (for backer)
- Tape: blue painter's
- Spray adhesive
- Pencil
- Sandpaper: assorted grits to 400
- Oil-based stain, such as Minwax: golden pecan, honey
- Spray dye, such as Design Master: fresh green
- Finish, such as Design Master: clear glaze
- Acrylic paint, such as Folk Art: antique gold, banana yellow, black, brilliant gold, brushed bronze
- 2-part epoxy, such as Gorilla

Tools

- Scroll saw with blades: #5 reverse-tooth
- Rotary tool with bit: fine-grit cylinder-shaped carbide-point
- Palm sander
- Sanding block: 400-grit
- Lighter or small blowtorch (optional)
- Variable-temperature woodburner with nibs: skew, ball
- Paintbrushes: flat brush, liner
- Foam brush (for applying stain)
- Hot glue gun with glue sticks
- Tweezers or needle-nose pliers (optional)

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

Materials & Tools



AJ Favorito is a multimedia artist from New York City. He has spent his life dabbling in an array of artistic endeavors, including painting, interior design, and woodworking. AJ is currently the owner and head designer of Wicked Florist NYC, a gothic floral shop based in Staten Island. His work is most influenced by nature—animals in particular. To see more of AJ's work, visit @wickedflorist on Instagram.

Three Shells Fretwork

This elegant piece is a perfect gift for the avid beachcomber in your life

By Fiona Kingdon

Nature's geometry brings us a treasure trove of beautifully engineered forms, seashells being a prime example. This trio of nautilus spirals was fun to cut and made me reminisce about scouring the beach for washed-up riches. Take extra care while making turns in this piece; you want every cut to look fluid and clean, just like the contours of a seashell.

Getting Started

Smooth the blank to your desired finish, moving up progressively through the grits to at least 320 (I typically go up to 1200 for an extra smooth surface, but this is not essential). Cover the stock with blue painter's tape and apply the pattern to the surface with spray adhesive or a glue stick. If desired, add a small chamfer around the outside edge of your blank to give it more of a finished effect. I typically use a router with a $\frac{1}{8}$ " to $\frac{1}{4}$ " (3mm to 6mm) chamfer bit, but you could use a hand plane or a pneumatic drum sander if preferred. Drill the blade-entry holes.

Cutting and Finishing

Cut the shells. Start with the central parts of the three spirals and then work your way out to the edge. For the smallest segments of each shell—the first dozen or so—you could slice through one edge of the bridge between chambers. They get quite small, and this will minimize time spent rethreading the blade. The inner edge of each of these smaller bridges will remain, and should lend sufficient stability to those areas. *Note: If you experience difficulty with the smallest parts of the spiral, just do what you feel comfortable with, even if that means leaving out a few of the central cuts. The viewer's eye will fill in the rest.* Once all of the cuts are made, remove the pattern and smooth any fuzzies with a careful sanding using high-grit sandpaper (I used 1200). Cut the backing board.

Apply a finish. I use a small paintbrush to cover all areas with a thin coat of Danish oil. Take time to apply the oil into all of the little details. Once dry, apply a second coat; add more as your wood dictates. Let dry for a few days, and then apply a fine coat of spray beeswax polish.

Add the finishing touches. Drill countersunk holes in the four corners of your backing board, apply the adhesive-backed baize or velour to the front of the backer, and screw the backer in place. Hang with a D-ring hanger, if desired.

Pattern for the **THREE SHELLS FRETWORK** is in the pullout section.

Materials & Tools

Materials

- Wood, such as English oak, at least $\frac{1}{2}$ " (1.3cm) thick: $7\frac{1}{2}$ " x 9" (19.1cm x 22.9cm)
- Plywood, $\frac{1}{8}$ " (3mm) thick: backing board, sized for pattern
- Dark baize or velour: adhesive-backed, sized for pattern
- Tape: painter's
- Spray adhesive or glue stick
- Sandpaper: assorted grits to 1200
- Natural finish, such as Danish oil
- Spray beeswax polish
- Hanger: D-ring (optional)
- Screws: 4 each $\frac{1}{4}$ " (6mm)

Tools

- Scroll saw with blades: super-skip #2
- Drill with bits: $\frac{1}{16}$ " (2mm), $\frac{1}{8}$ " (3mm)-dia., countersink
- Hand-plane or router with $\frac{1}{8}$ " to $\frac{1}{4}$ " (3mm to 6mm) chamfer bit
- Pneumatic drum sander (optional)
- Paintbrush: small

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



Fiona Kingdon studied furniture restoration and craftsmanship, and then worked with children with behavioral difficulties. Eight years ago, with a need to return to working with wood creatively, she began using a scroll saw to express her artistic side. Fiona shows her work at galleries and events across the U.K. You can find more of her work at fionakingdon.com.





Daniel scrolls a range of subjects, but one of his favorites is wildlife.

To the Lab!

For scientist and woodworker Daniel Brown, the experiments don't stop with the workday

By Kaylee Schofield

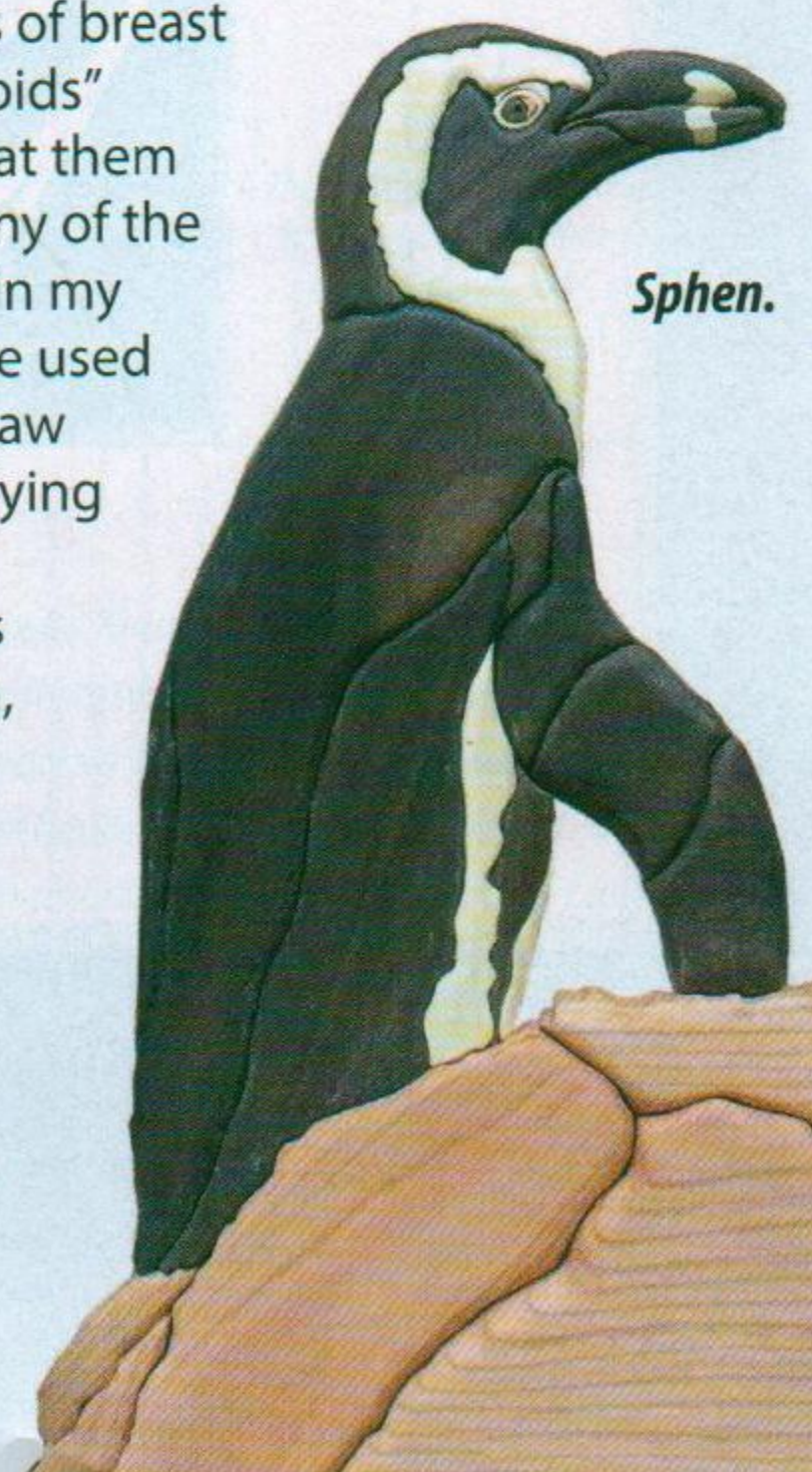
You can take the scientist out of the lab, but you can't take the lab out of the scientist—which is why, on some evenings, you might find Daniel Brown's woodshop buzzing with the energy and focus of an in-progress experiment. Here, instead of monitoring cell division, he divides the torsos of intarsia honeybees on his scroll saw. Instead of a microscope for precision work, he uses a magnifying glass. But, whether at home or in the lab, Daniel's focus is largely the same: celebrating Earth's complex life-forms by bearing witness to them, up close and personal.

SSW: What's your story? How did you get into woodworking?

DB: Since childhood, I'd planned to become an artist. However, several amazing teachers altered my path, which led me to earn a Ph.D. in biology. But in the 25 years since, I never stopped making things. At the height of my pastel-drawn hyper-realist wildlife phase, I woke up one day with a severely injured wrist of unknown origin. After multiple doctor visits, I had to wear a brace for many months, which prevented me from holding pencils at the angle I needed. However, I discovered I could still hold a jigsaw (my only tool at the time). I made a few simple projects, bought myself a cheap scroll saw, discovered intarsia, and the rest is history! Woodworking became my new obsession.

SSW: You study full-time at the Institute for Precision Medicine. Do your woodworking projects require any of the same skills as your medical work?

DB: Absolutely! I spend a lot of time manipulating tiny spheres of breast cancer cells called "organoids" and spend hours looking at them through microscopes. Many of the fine motor skills involved in my day job are similar to those used sitting in front of a scroll saw looking through a magnifying glass. Of course, much of my art and woodwork has involved experimentation, which I always approach scientifically. More than anything, practiced patience is a trait deeply shared between my day job and hobby. One can go weeks, months, or



even years before realizing the fruits of scientific experiments. Likewise, I often argue that the art I make requires very little actual talent—just a lot of patience and a little practice. Anyone can do what I do if they keep at it long enough!

SSW: Where do you source your materials?

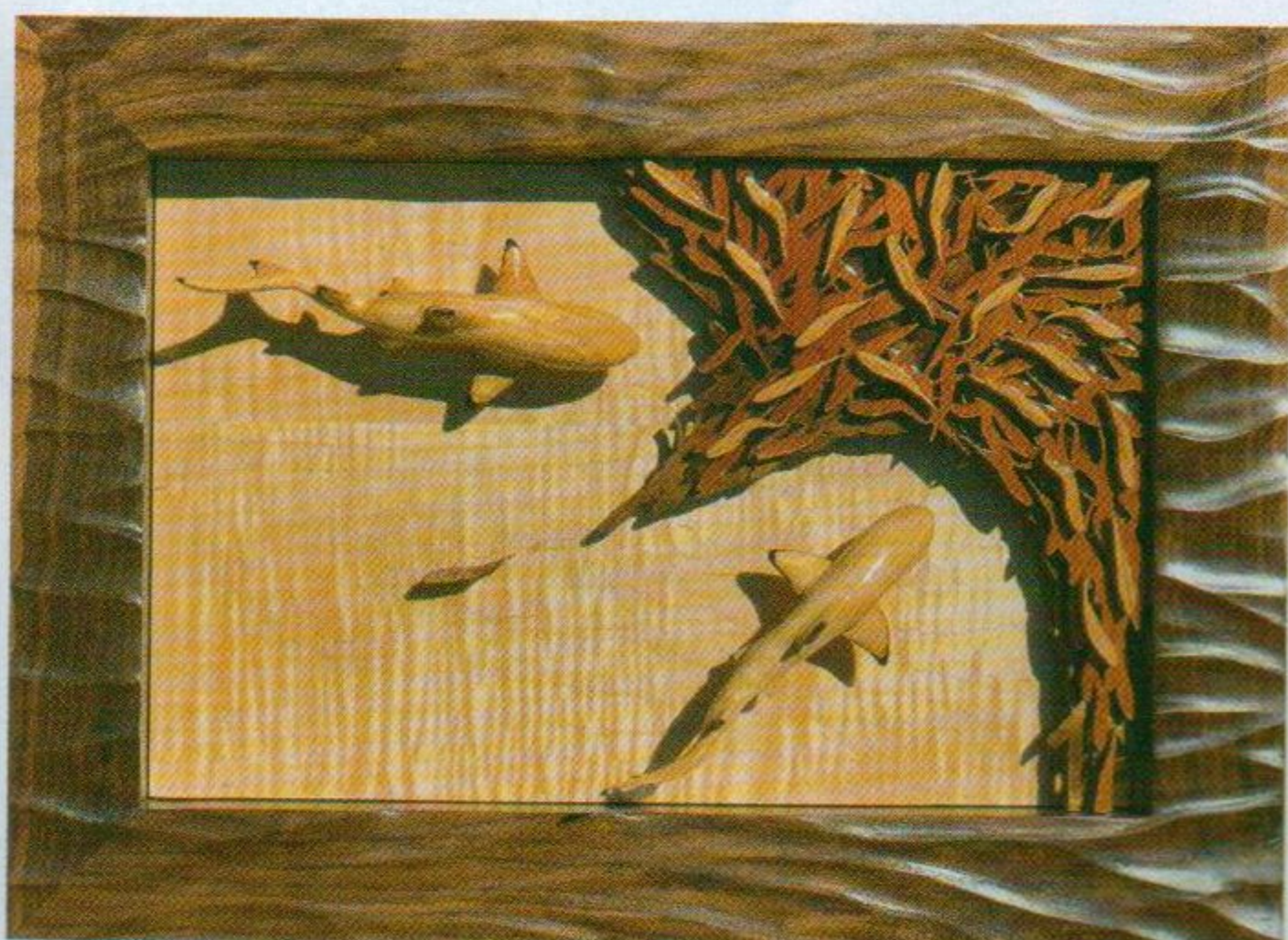
DB: I enjoy using locally sourced, reclaimed woods. Urban storm-felled sycamore in our neighborhood, walnut firewood from landscaping, black cherry in a ditch beneath a power line, whatever I can find. Milling your own wood is incredibly satisfying. Some of my exotics come from scrap donated or sold by local furniture makers who would have otherwise burned it. I've also purchased exotics online through Ocooch Hardwoods, or in person at my local Rockler and Woodcraft.

SSW: What inspires your creations?

DB: Nature photography is my primary source of visual inspiration. I constantly read interesting science or nature-related news, which often leads to me jotting down random ideas in my notebook. I've learned about the animal kingdom in-depth since I could read; radio-tracked timber rattlesnakes in the Ozarks for ecological studies; and lived among all manner of critters in Texas, Arkansas, North Carolina, and Pennsylvania. For me, witnessing the daily lives, trials, and tribulations of our cousins in the animal kingdom, while recognizing that these shared experiences connect all life, is truly sacred.

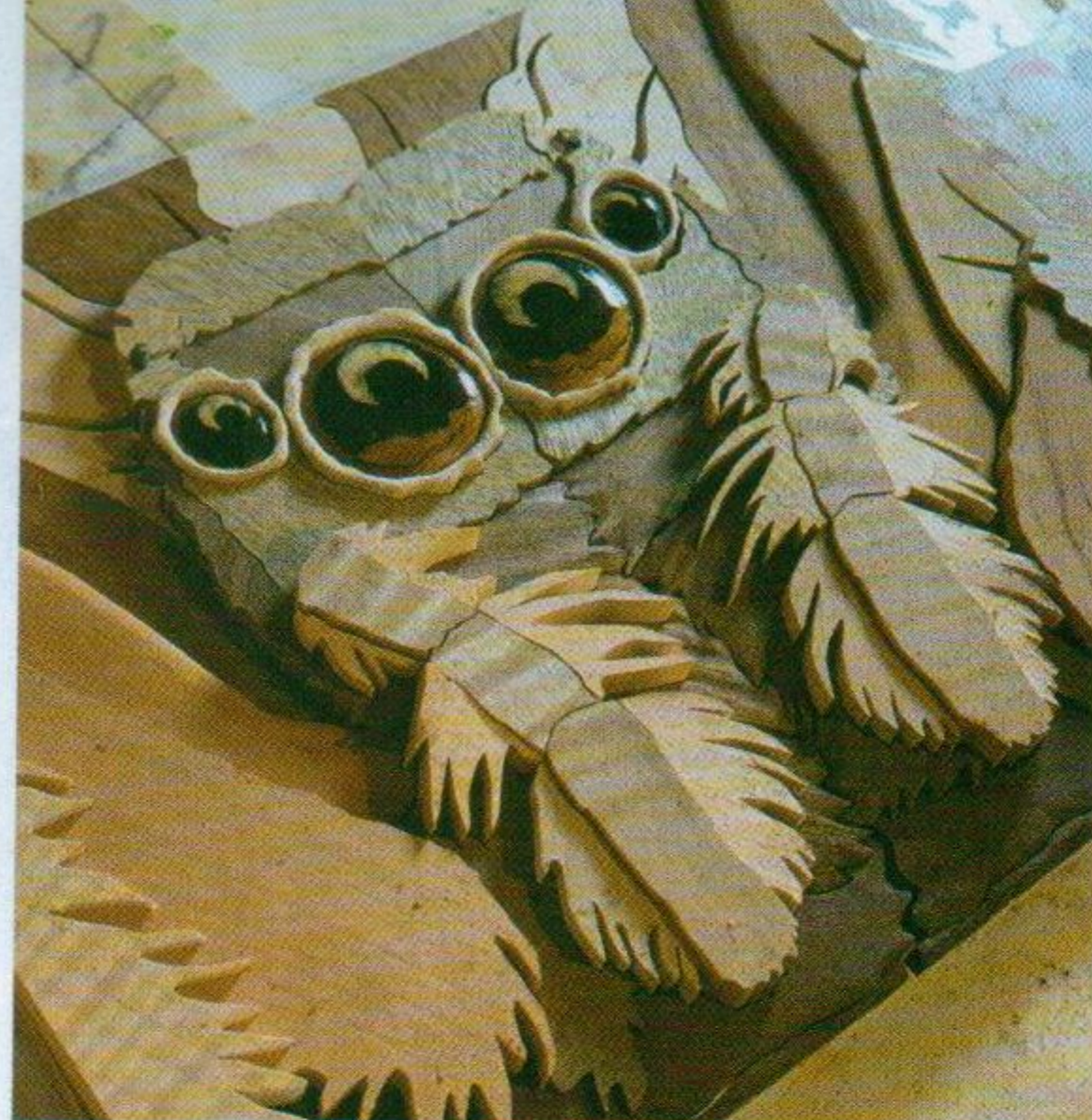
SSW: Why did you name your brand "Laughing Mantis?"

DB: When I first decided to "brand" my studio many years ago, I was working on a series of 3D digital artworks involving ocean creatures in absurd land habitats (think "octopus in a tree eating a dinosaur"). I decided that I needed an equally absurdist name, and this just came to me. I've always found it funny trying to imagine what a laughing mantis would even look like.



**No Risk, No Reward or
Safety in Numbers.**

**Salty the
Jumping
Spider
(work in
progress).**



Caretta.

**SSW: Which of your
creations are you most proud of?**

DB: Hands down, the piece I put the most into is my *Star Wars*-inspired piece, "Punch It!" This piece is primarily intarsia, but also contains an intricate epoxy/walnut background, animated LED lights resembling "hyperspace," and a soundboard containing scores and dialogue clips from the movies, all controlled by wooden switches on the *Millennium Falcon* dashboard. (Learn more about this piece on scrollsawer.com.) It took many weeks to build and involved me also having to learn LED wiring and Arduino computer programming from scratch. I can also turn it on just by telling my phone to "punch it." It's incredibly geeky and makes me smile every time I look at it. As with all of my derivative art, I built it for myself.

SSW: What are you working on at the moment?

DB: I am now in the process of shaping the pieces of an intarsia depicting the inarguably cutest member of the arachnid world: the jumping spider (see photo above)!

*For more of Daniel's work, visit laughingmantisstudio.com.
To learn how to make one of his designs, turn to page 62.*

Enhancing Scroll Sawn Work with Resin

Let this stunning beehive inspire you to incorporate a versatile medium into wood projects

By Daniel D. Brown

I normally spend my days performing medical research in a Pittsburgh lab; however, last spring, I suddenly found myself working from home in quarantine with a nebulous expanse of time in front of me. I decided to design a project specifically to challenge myself and assuage my boredom. It needed to be constructible with wood I had on hand. And most importantly, it needed to be repetitive, requiring mindfulness and focus. I keep a long list of random ideas for intarsia and scroll saw designs. So, I pulled out my trusty notebook and saw an entry that just said “bees.” I have no idea what my original intent had been, but this idea intrigued me and I went to work.

While this is a fun stand-alone project, the methods I used to incorporate epoxy resin into my scrolled work show just how versatile this medium can be for woodworkers. I used the material to create a honeycomb effect against the backer, and then mixed it with a colored powder for the wings to create a completely different look.

Getting Started

Choose appropriately colored woods for the honey, honeycomb, and bees. In this case, chakte viga was the perfect hue for honey and mulberry for the honeycomb, even though mulberry darkens with

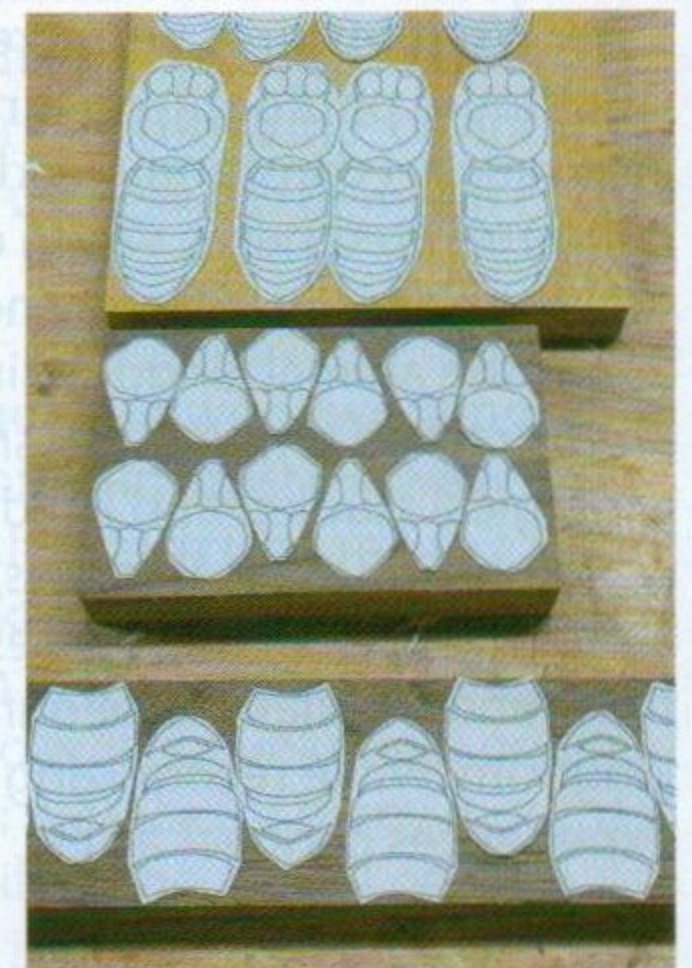
TIP

CHOOSING MATERIALS

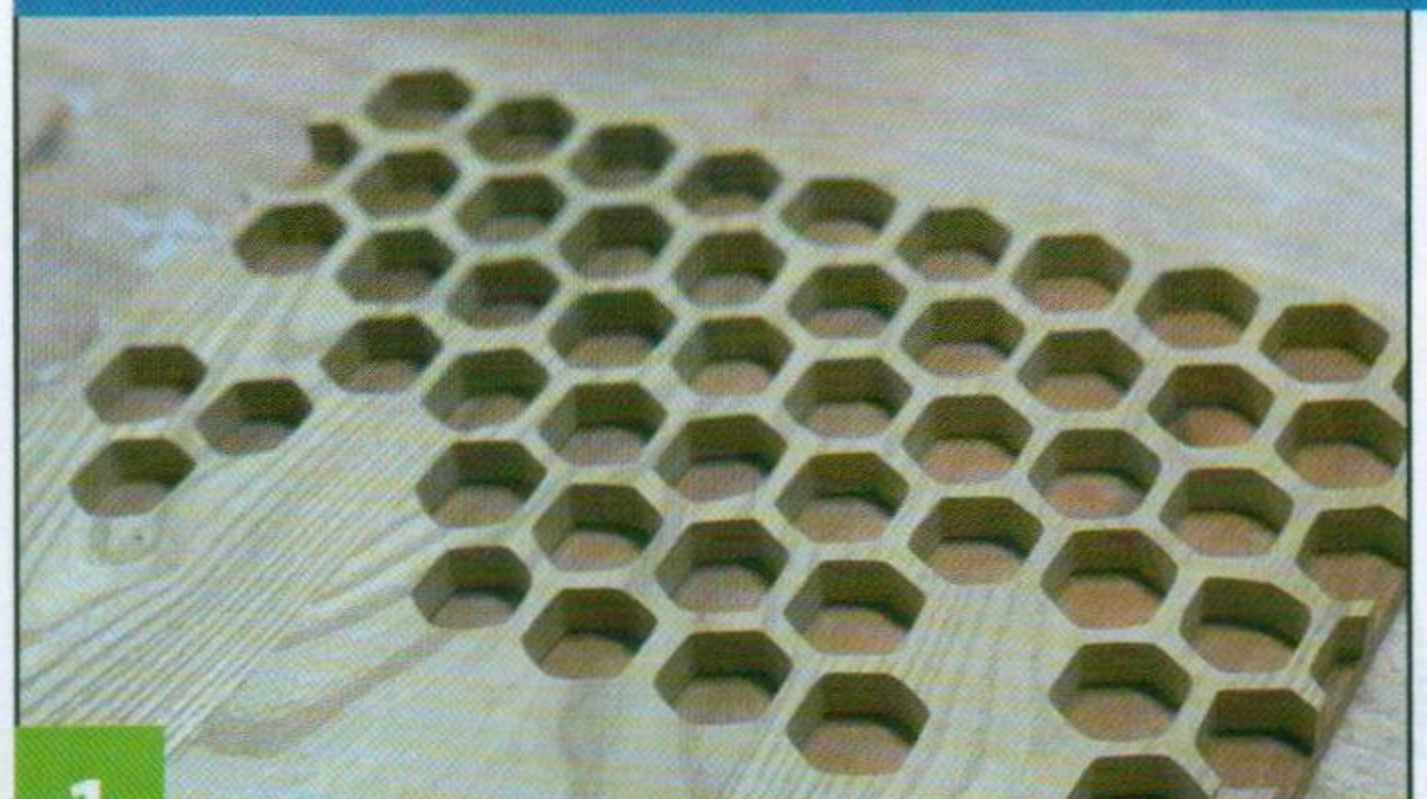
Consider how your chosen wood may change with time, oxidation, and UV light exposure. Every species (and individual tree) is different. Accept that in the long run, it may not look precisely as imagined, which for me is part of the excitement.

time. For the bee bodies, yellowheart can't be beat. Any darker wood will suffice for the legs and stripes; I used walnut. Pre-sand the stock to 220-grit and attach the patterns using your preferred method. For the bee components, I simply apply clear packaging tape on the wood and then attach the patterns with spray adhesive. For the

honeycombs, make a template of the hexagon shape in cardboard, and then trace around it on the stock as many times as you like. The goal is to create an organic looking “hive.” Drill the blade-entry holes in the open honeycomb cells. Then drill the holes in the eye, stripe, and mouth areas, as these parts will be removed.

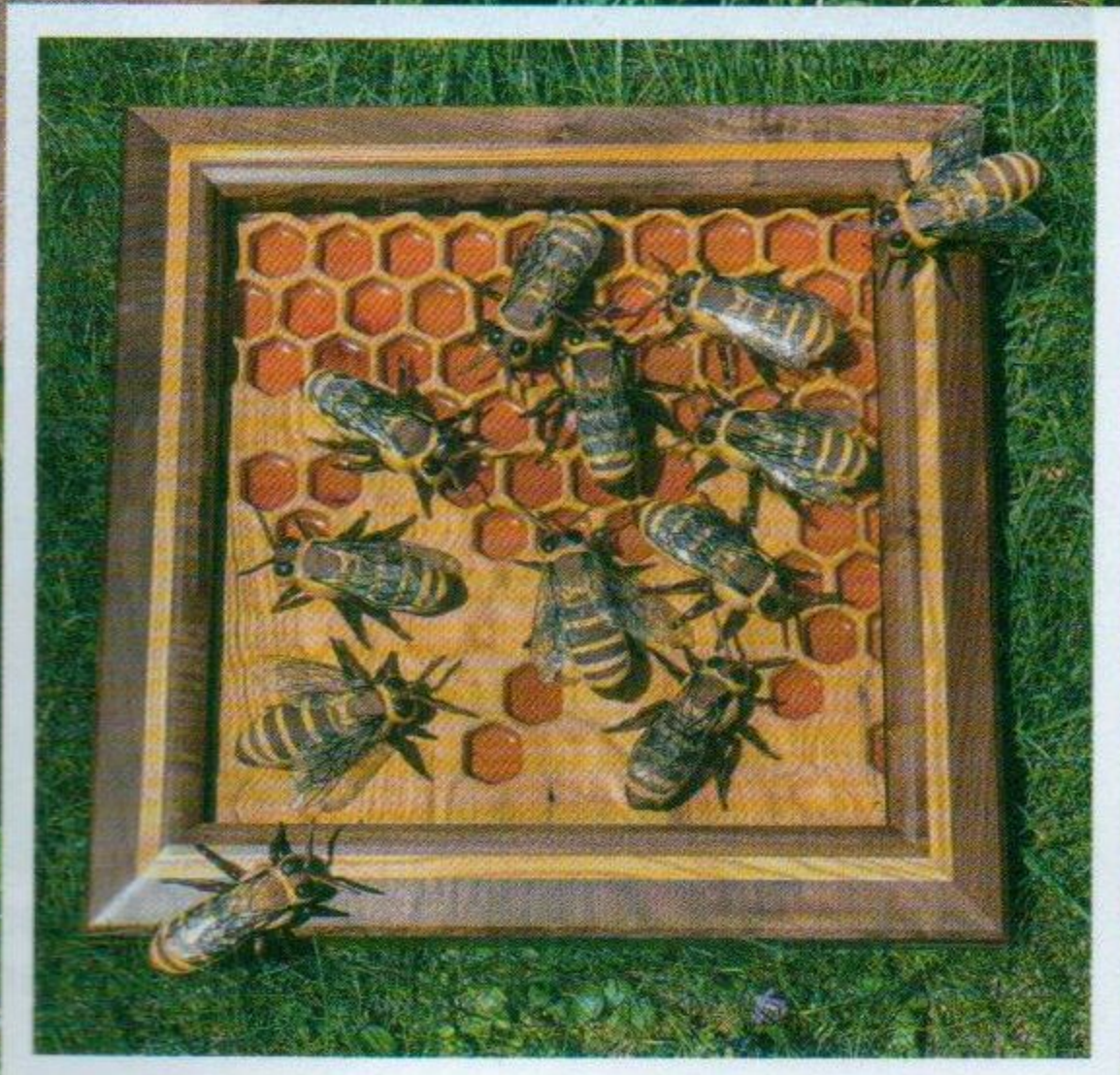


MAKING THE HONEYCOMBS

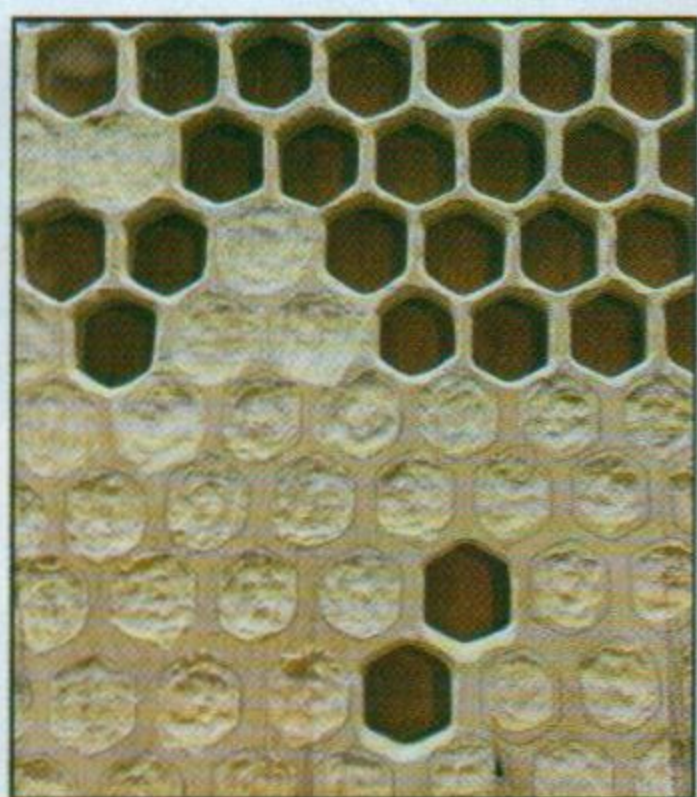


1 Cut the honey-filled cells in the honeycomb. I used #5 reverse-tooth blades.

I used resin to create the honey in the combs, as well as the delicate bee wings.

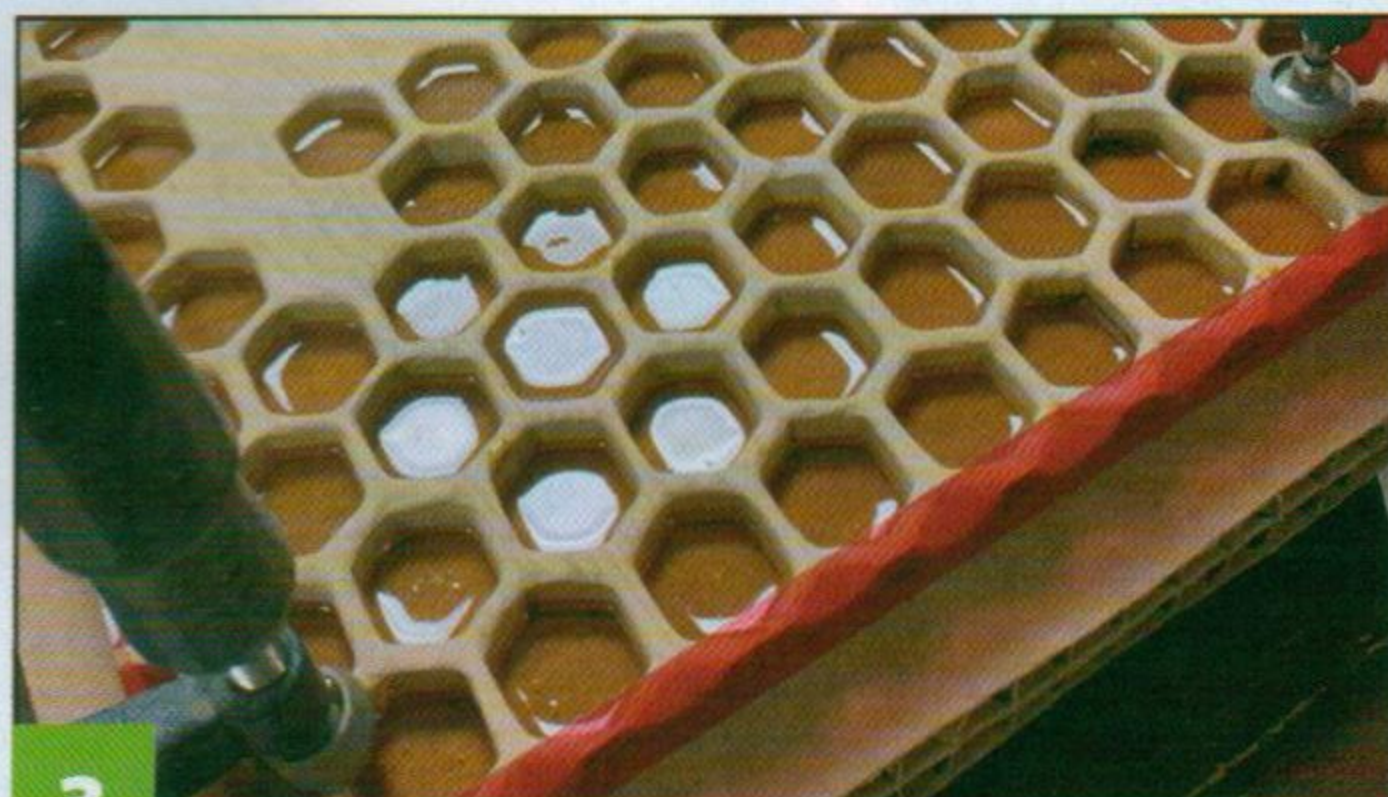


ON THE WEB Learn more about uses for epoxy resin online.
scrollsawer.com



2

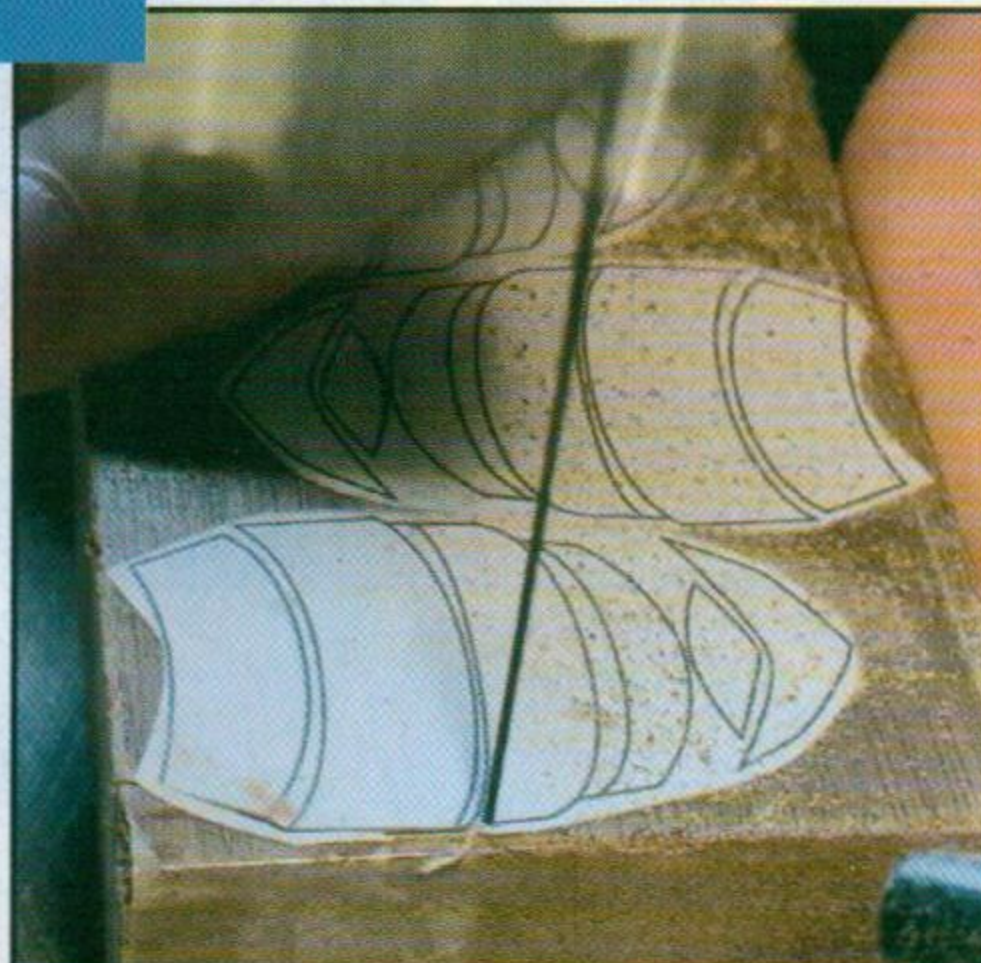
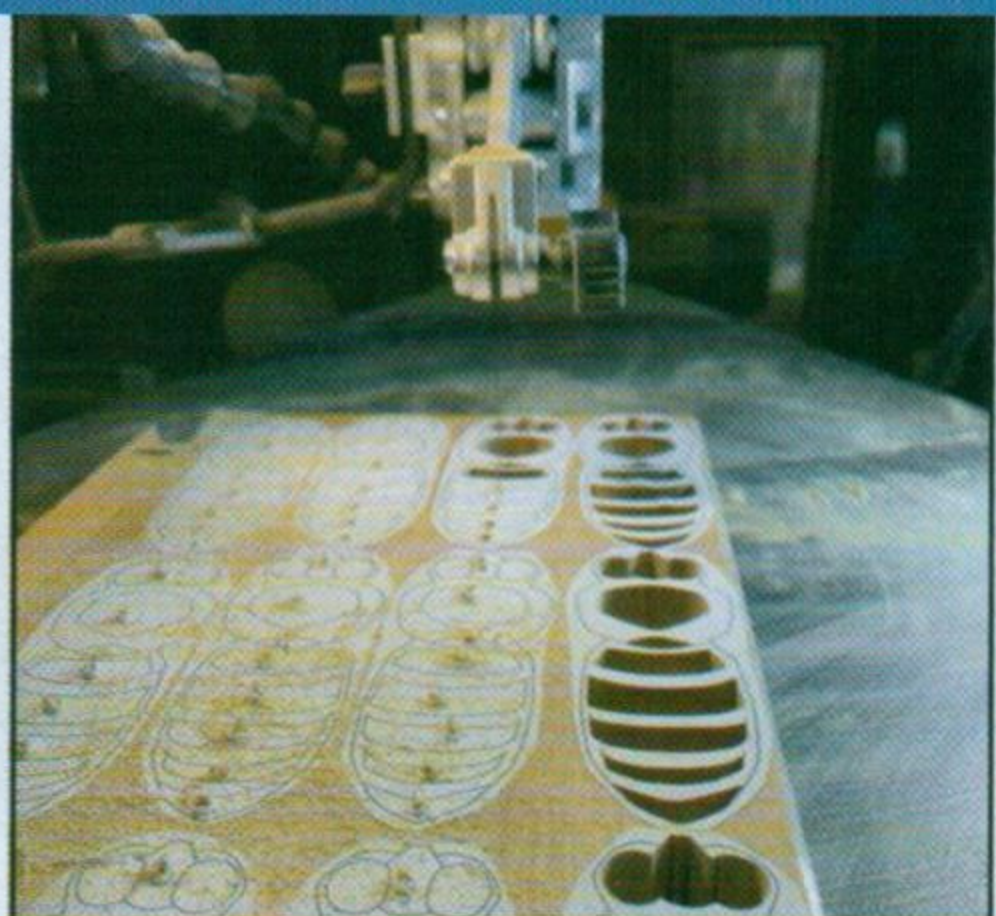
Add the sealed honeycomb cells. Sketch them on by tracing around the cell pattern with a pencil, spacing the cells out symmetrically across the surface of the mulberry. Shape the interiors of the open and “sealed” cells using a rotary tool with tapered-cylinder and ball-shaped carbide-point bits. Then follow up by softening the surface with sanding drums to smooth the transitions between the cell walls and centers. Wipe off excess dust with a tack cloth. (Fun fact: cells sealed with developing bee larvae inside look different from cells containing sealed honey.) Center the honeycomb on the backer. Glue and clamp and let dry.



3

Add the “honey.” Seal the edges and bottom of the clamped assembly with Tuck Tape® (or any tape made specifically for sealing). Take special care with this step; resin will find its way through even the tiniest gaps and can result in accidentally giving your bench a new epoxy finish! Follow the resin manufacturer’s instructions precisely; even slight deviations can result in improper or incomplete curing. *Note: I used the natural color of the chakte viga wood backer to impart a “honey” color to the poured resin. However, you can add pigment to the resin to give it a richer color. If you do this, your backer can be any species of light wood.*

CUTTING THE BEE ELEMENTS



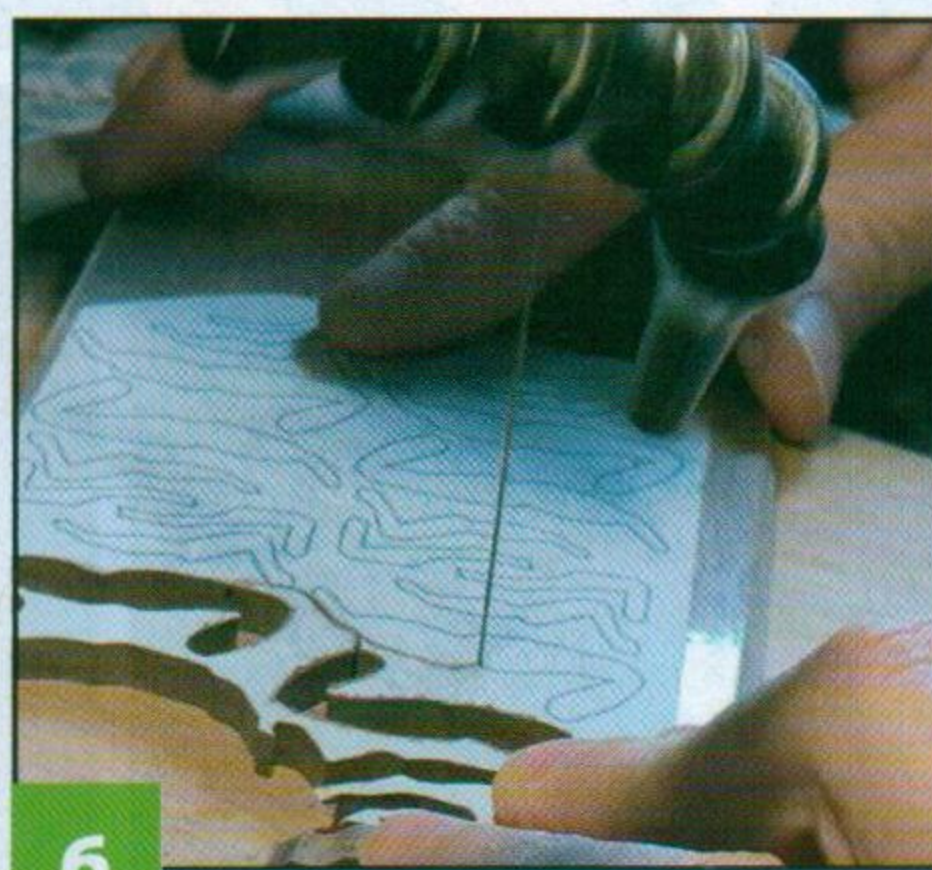
4

Cut the bee interior spaces and interior pieces—including the ebony eyes. Making the inner cuts first simplifies bee assembly and ensures the thin sides of the bees do not break. Be sure to leave the template attached to the yellowheart after cutting.



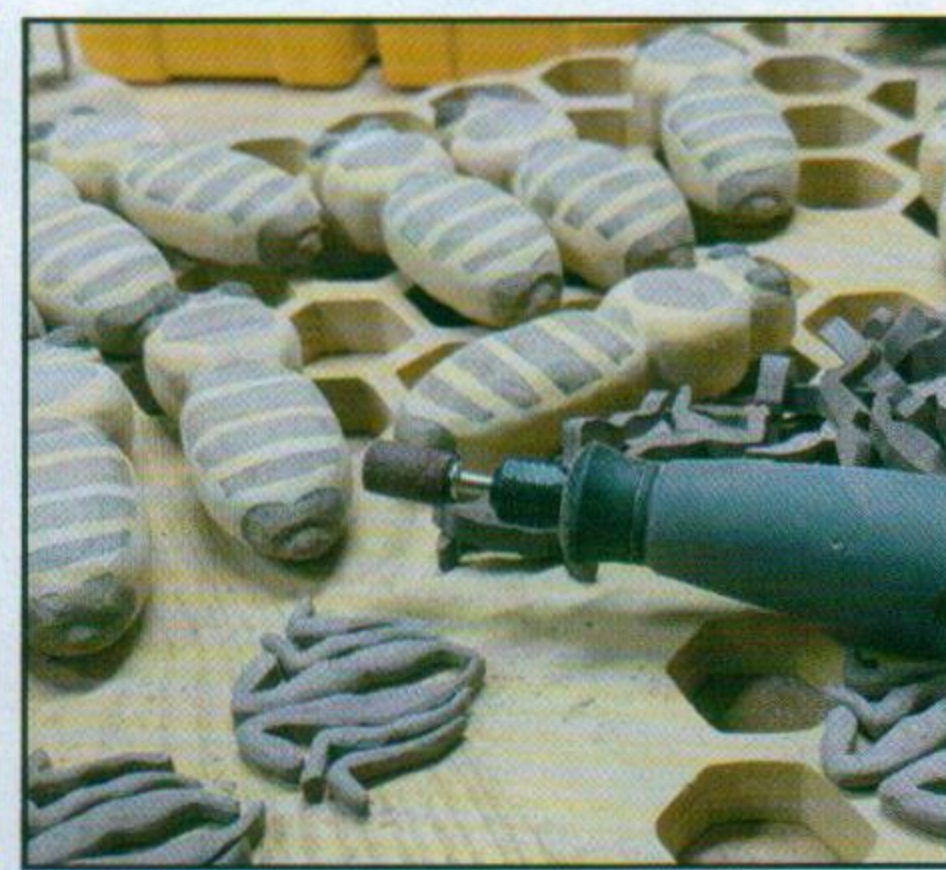
5

Glue in the eyes and interior stripes. Leave the template for the bee outlines still attached. Once the glue has cured, cut out each bee body.

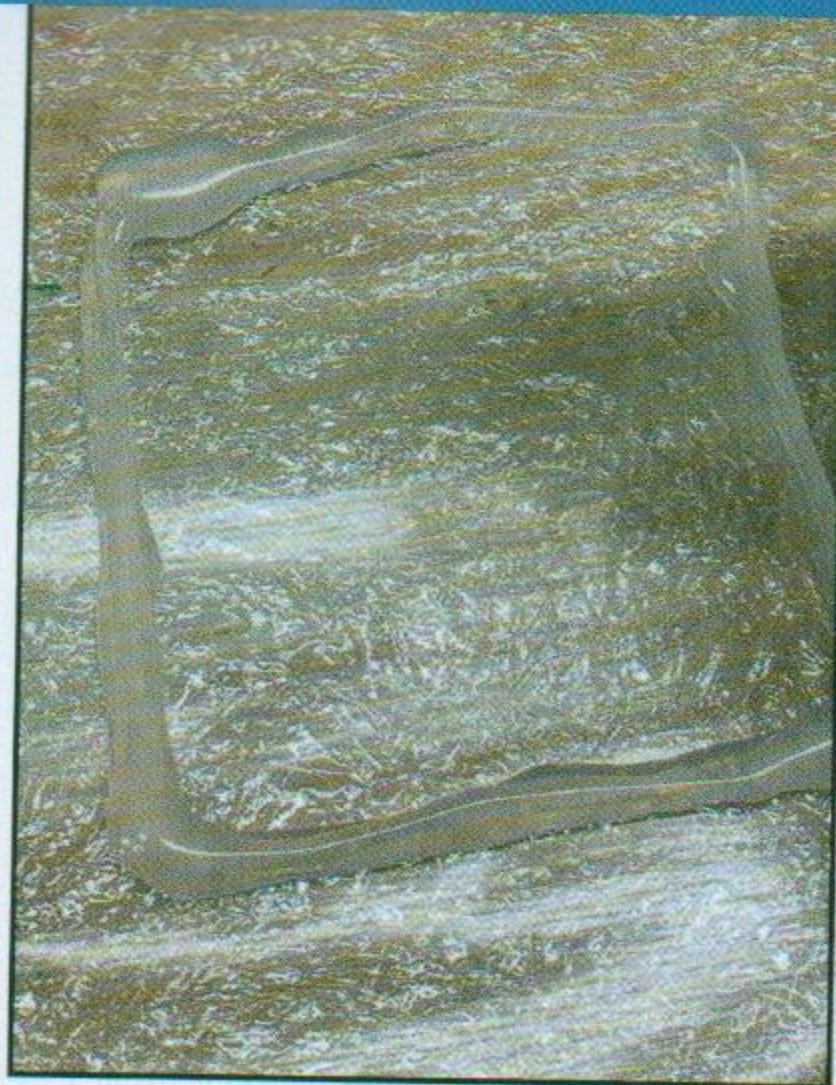


6

Cut the legs and antennae. Round the bodies with the rotary tool, carbide-point bits, and sanding drums, tapering the abdomens and making the eyes protrude. Shape the legs and antennae using the same tools.

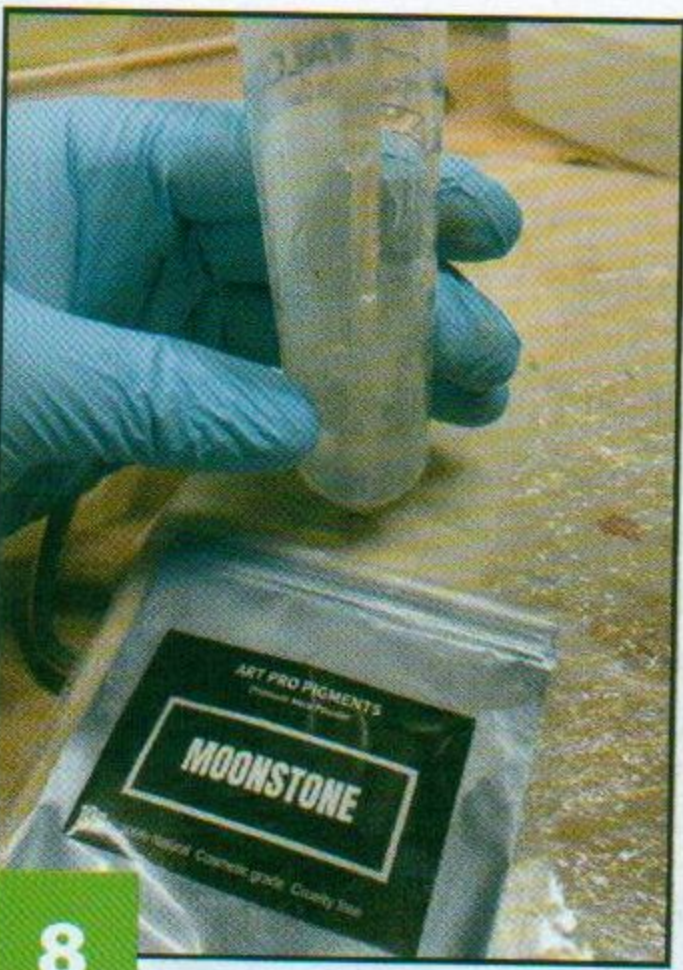


MAKING THE WINGS



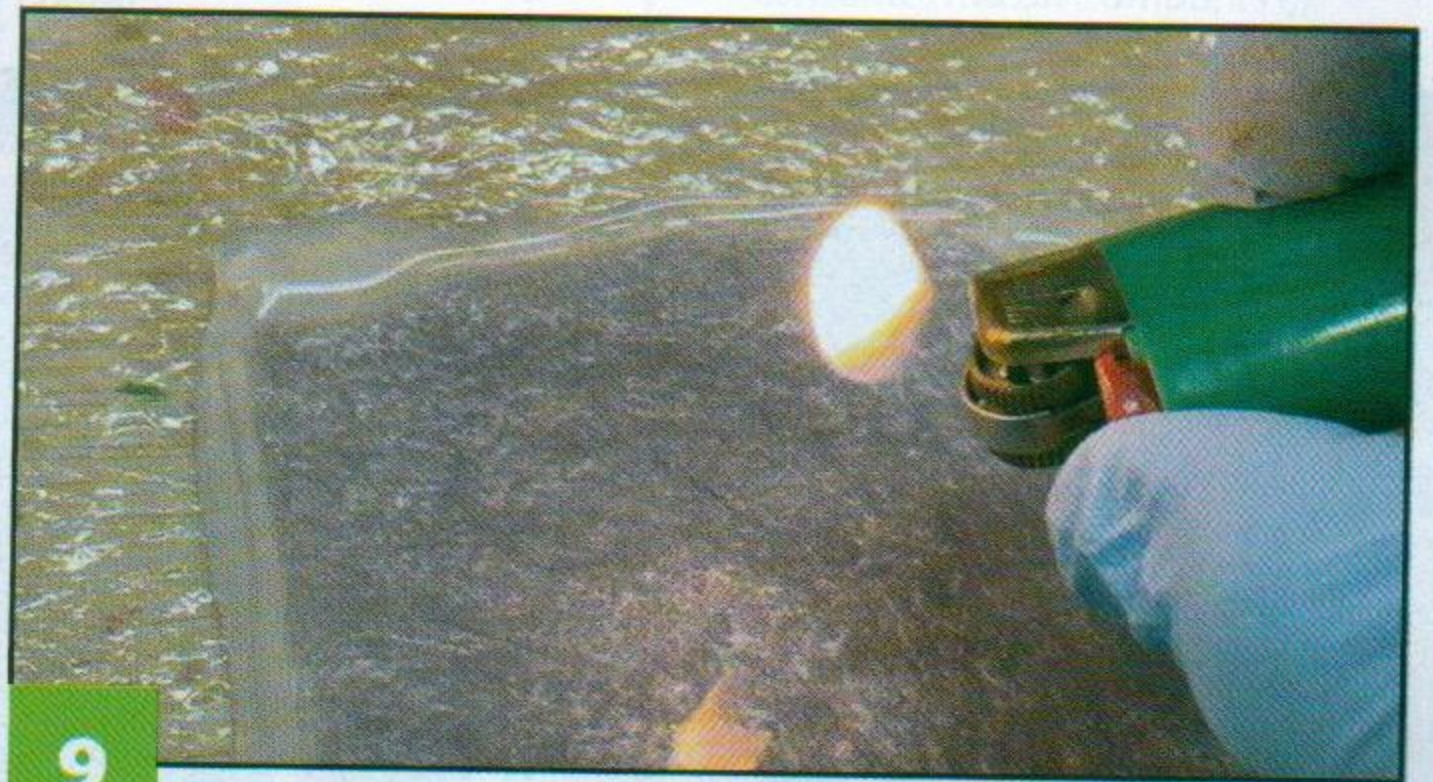
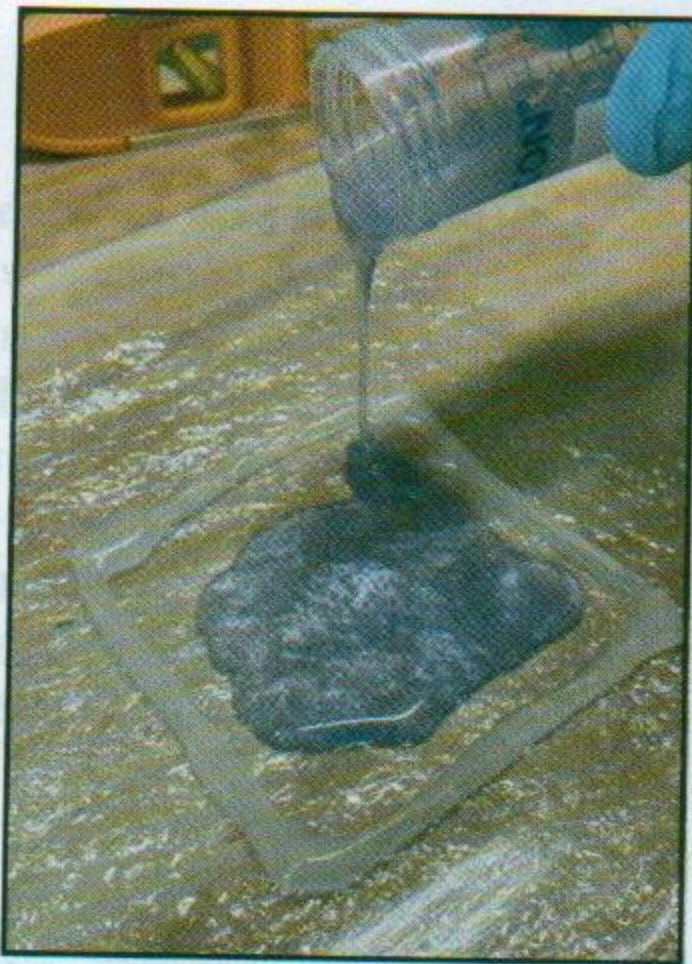
7

Crumple an acetate sheet for texture. (These sheets are cheap and widely available. I used clear acetate here.) Tape it down to your work area. Then create a “dam” for your resin with hot glue, making sure there are no gaps and the walls are level. Once solid, add more hot glue to make the walls high enough to accommodate your desired thickness. *Note: In these photos, I demonstrated with a small surface area, which you can adjust based on how many wings you need. For one set of wings, I used approximately 15 mL of epoxy resin in a 3" (7.6cm) square.*



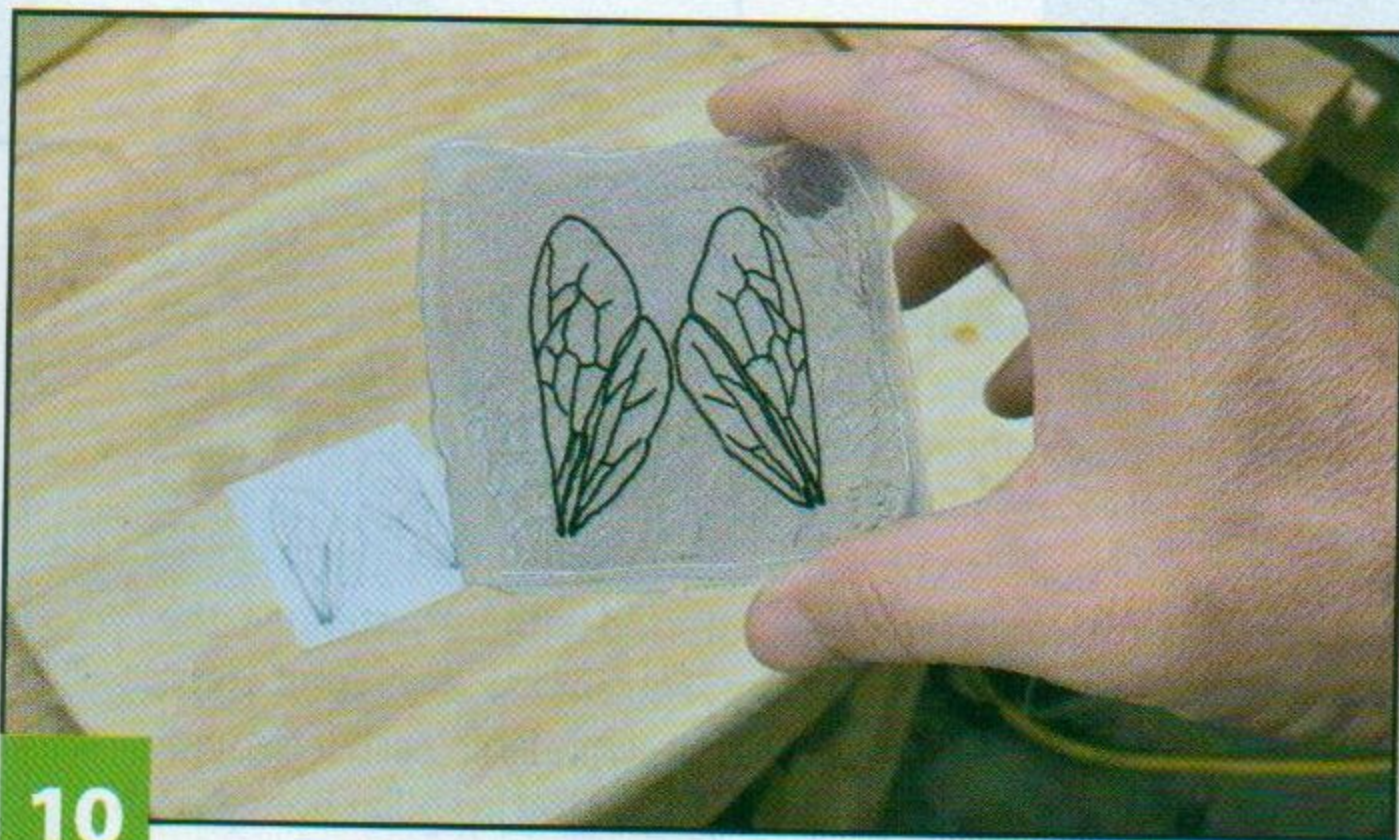
8

Mix your resin and add any desired pigments. I added mica powder for an iridescent effect. Pour it carefully into the dam you just created.



9

Remove the bubbles. You can use a heat gun or a direct flame; I use a lighter for smaller pours and a heat gun or blowtorch for larger pours. Quickly and lightly pass the heat source over the resin. You don't want to actually heat the resin, as this can cause burning or improper curing. Pop any rising air bubbles every five to 15 minutes, depending on the brand. Let cure, following the manufacturer's instructions.



10

Embellish the wing material. Draw the shapes for the two wing types with acrylic paint, paint pens, or markers. I provided patterns for both open and closed wings. Just be sure to use an ink that can stand up to the alcohol contained in the shellac finish you'll apply later. Cut the wing perimeters with the scroll saw or rotary tool. *Note: Thicker pours— $\frac{1}{16}$ " (2mm) or above—will cut well on a scroll saw, whereas thinner pours are best cut with a rotary tool.*



11

Refine the wings. Sand the edges by hand, or with the rotary tool and sanding drums, to remove all sharp edges. Add a thin coating of shellac for a smooth finish. *Note: For a more realistic look, sand away the marker on the outside edge of the wings. These parts of the wings do not have veins and aren't "outlined" in nature.*

TIP

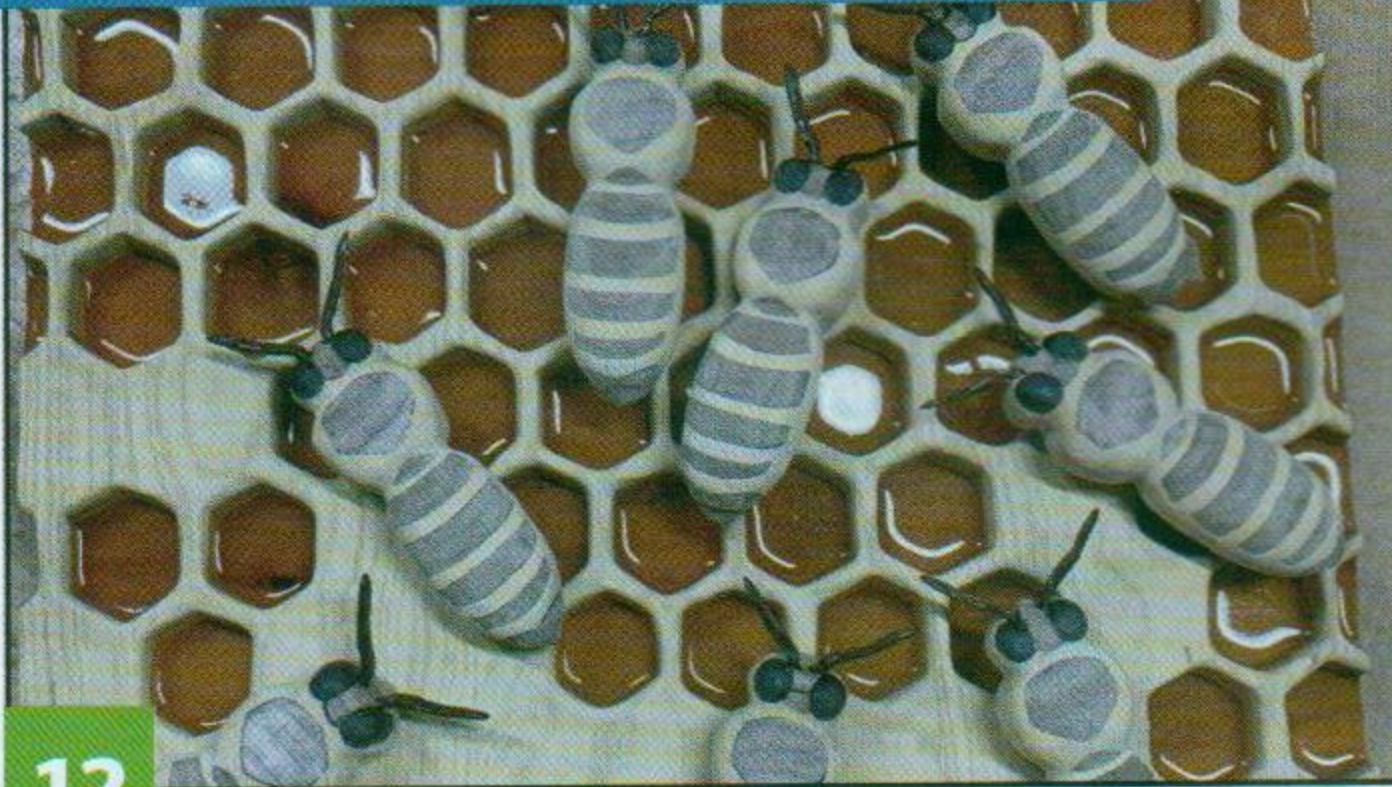
EXPERIMENTING

Making the wings involved multiple experiments, some of which failed. My first attempt was poured too thin. The resin looked great but shattered when cut. Don't hesitate to perform small-scale experiments of your own if you have ideas for obtaining different effects.

CUTTING RESIN WITH SCISSORS

I've subsequently learned from professional woodworker Victoria Angelini (check her out on Instagram at @toricangelini) that it is sometimes possible to cut your partially cured pour with a pair of sharp scissors. Simply heat the resin with a heat gun—this makes it temporarily more malleable.

FINISHING & ASSEMBLING



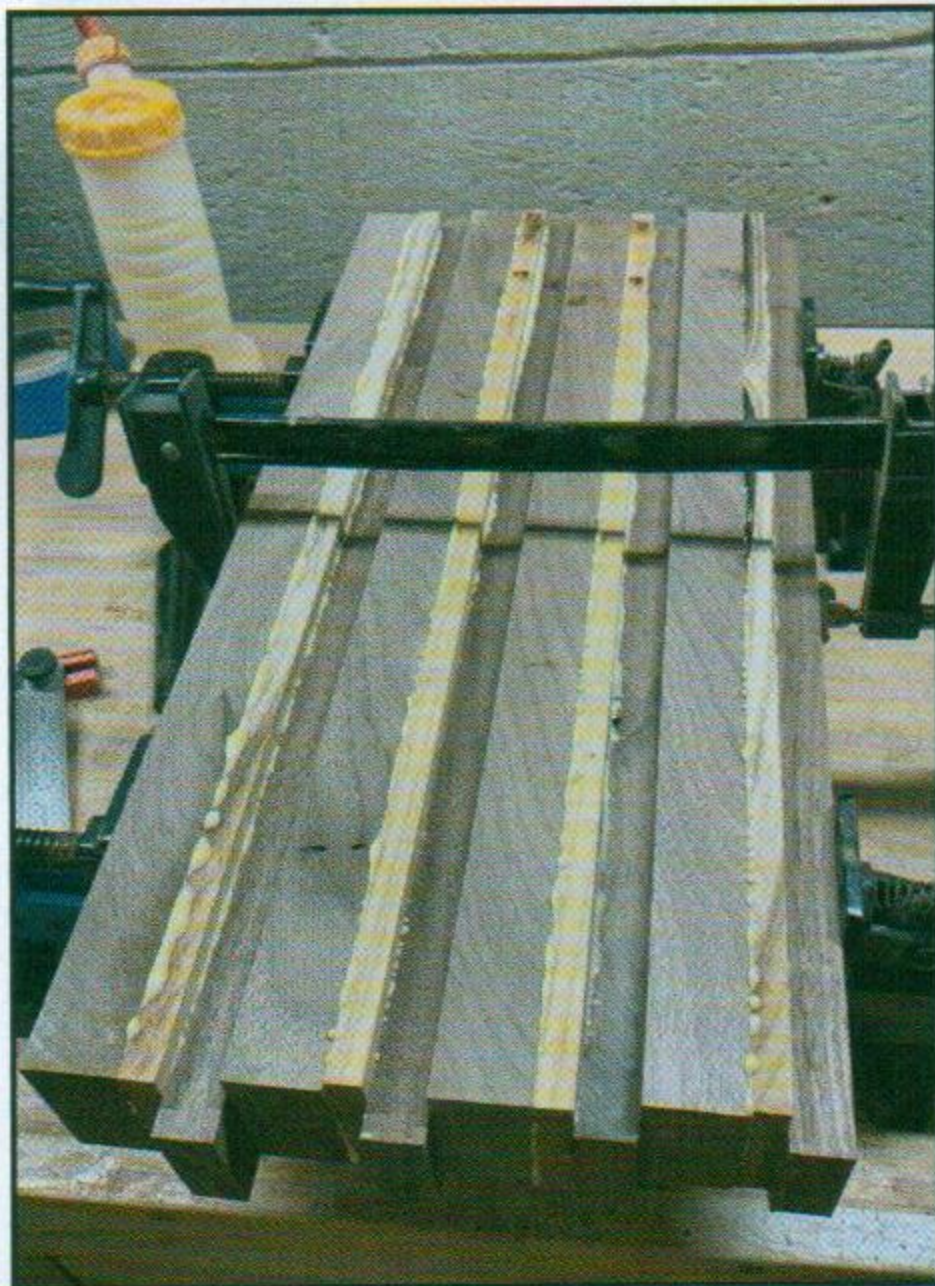
12

Arrange the unfinished bees as desired over the honeycomb. Be sure your bees are far enough apart to fit the legs. Once you're satisfied with the positioning, drill small holes and attach dowels to the underside of each bee torso. Drill matching holes in the honeycomb. Use wood glue to insert the dowels into the bees, but do not glue them to the honeycomb yet.



13

Finish all of the pieces. I finished the honeycomb, bee bodies, and appendages before assembly because I wanted to use multiple finishes—a soft, natural finish for the waxy honeycomb and bee bodies and a shiny, wet-looking finish for the honey, appendages, and eyes. I used Odie's oil for the former and shellac for the latter. Apply each finish carefully with a paintbrush.



14

Build the frame. Glue up pieces of walnut and mulberry. Bevel the inner and outer edges using a router with a chamfer bit. Cut mitered corners and then glue and clamp the pieces together to make the frame. Sand the frame, starting with 120-grit sandpaper and moving up progressively to 320. Apply a few coats of polyurethane, sanding lightly with 400-grit sandpaper between coats.

You can use epoxy resin to add a water-like effect to an intarsia scene, fill in frets to create a stained-glass aesthetic, and more—you're only limited by your imagination! Stay tuned for other great things you can do with resin in a future issue!



15

Glue the frame to the bee assembly. Then assemble the bees. Glue each bee body dowel into the drilled honeycomb holes and allow it to cure. Then very carefully attach the appendages to the body and honeycomb using cyanoacrylate (CA) glue—and accelerator, if desired. I started with the antennae, the wings, and then the legs. Forceps can be helpful at this stage. I did the glue-up sequentially so each leg could be positioned perfectly against the irregular honeycomb surface. This leg positioning would be near impossible to achieve if they were already glued to the bodies. *Note: Be very carefully when using CA glue with accelerator, as accelerators usually contain solvents that can mar your finish.* Attach a few bees to the frame using the method described in Step 12.

Materials & Tools

Materials

- Dark brown wood, such as walnut, 3/4" (1.9cm) thick: bee bodies, 4" x 9" (10.2cm x 22.9cm); 1/4" (6mm) thick: antennae and legs, 5" x 15" (12.7cm x 38.1cm)
- Yellow wood, such as yellowheart, 3/4" (1.9cm) thick: bee bodies, 6" x 11" (15.2cm x 27.9cm)
- Orange wood, such as chakte viga, 3/8" (1cm) thick: honeycomb backer, 13" (33cm) square
- Yellowish brown wood, such as mulberry, 1/2" (1.3cm) thick: honeycomb, 12" (30.5cm) square
- Black wood, such as ebony, 1/2" to 3/4" (1.3cm to 1.9cm) thick: bee eyes, 2" (5.1cm) square
- Wood, such as walnut, 1 5/8" (4.1cm) thick: frame inner body, 4 each 3/4" x 16 1/2" (1.9cm x 41.9cm)
- Wood, such as mulberry, 2" (5.1cm) thick: frame stripe, 4 each 1/2" x 16 1/2" (1.3cm x 41.9cm)
- Wood, such as walnut, 2" (5.1cm) thick: frame outer body, 4 each 1" x 16 1/2" (2.5cm x 41.9cm)
- Tape: clear packaging, Tuck®
- Spray adhesive
- Sandpaper: assorted grits
- Tack cloth
- Wooden dowels, 1/8" (3mm)-dia.
- Clear acetate sheets
- Glue: wood, cyanoacrylate (CA), glue stick (for hot glue gun)

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

- Glue accelerator (optional)
- Epoxy resin, such as MAS Epoxies Table Top Pro
- Black paint marker, such as Uni Posca
- Mica powder, such as Art Pro Pigments
- Shellac flakes, such as WellerMart dewaxed super blonde
- Natural oil finish, such as Odie's
- Oil-based polyurethane, such as General Finishes Satin Arm-R-Seal

Tools

- Scroll saw with blades: #3 and #5 reverse-tooth
- Drill press with bits: assorted small
- Saws: table, miter (optional)
- Heat gun or lighter
- Hot glue gun
- Rotary tool with drum sanders: 1/4" (6mm), 1/2" (13mm)
- Carbide-point bits: 1/8" (3mm)-shank tapered-cylinder, and ball
- Router with bit: chamfer
- Forceps (optional)
- Paintbrushes
- Clamps

Patterns for the **BEES AND HONEYCOMB** are in the pullout section.



Daniel D. Brown, is a breast cancer research scientist in Pittsburgh, Pa., where he lives with his wife Tamaryn, a mental health

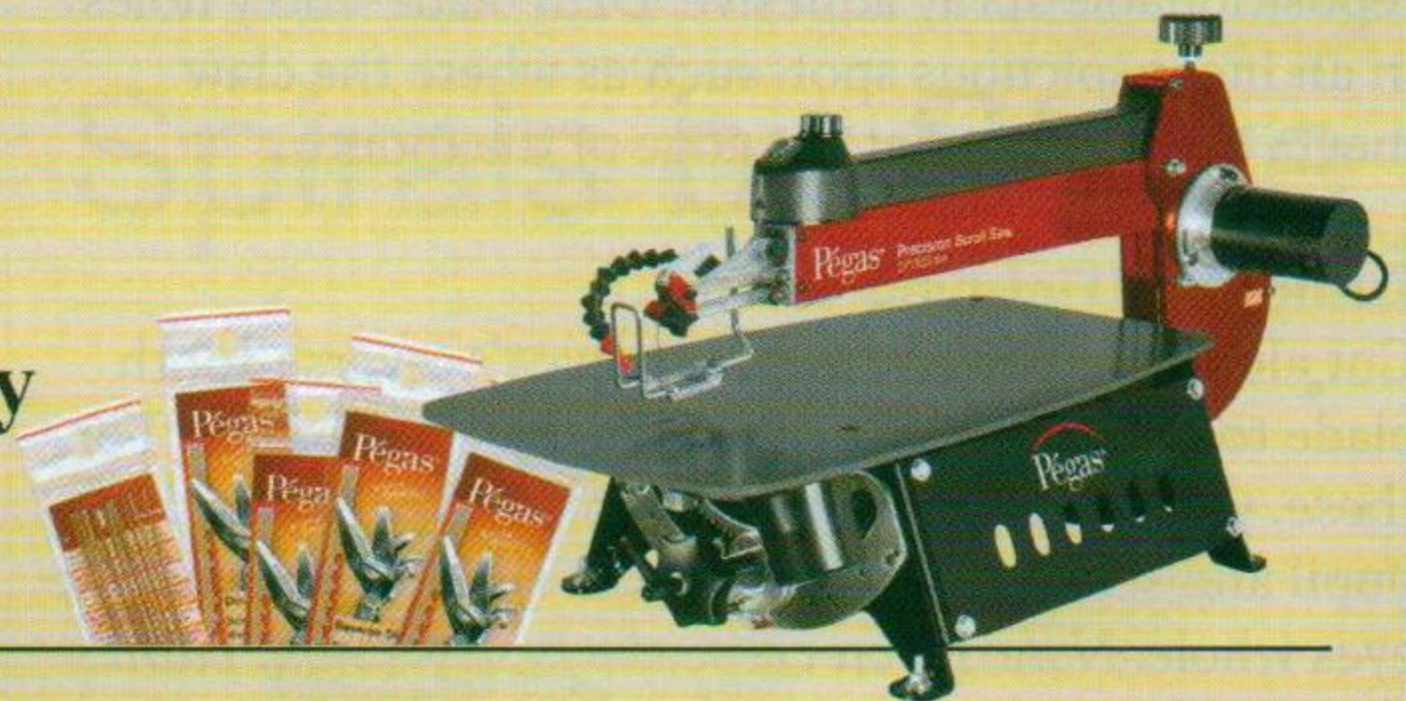
counselor and artist (@tamarynart on Instagram). He has created art through evolving media and styles for over 35 years. When not working or woodworking, he consumes massive amounts of sci-fi and fantasy audiobooks, and appreciates all manner of nature and wildlife. You can find his work, including frequent in-progress and how-to posts, on Instagram @laughingmantisstudio.



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Simple Crab Puzzle

ScrollSchool
Family Workshop Project

Longing for the beach? Let this cheery crustacean take you there

By Jessica Wood and David A. Wood

Everyone loves puzzles! Knowing this, we spend lots of time cutting and painting board puzzles to give to friends, family, and neighborhood groups in need. This adorable 12-piece version is easy to cut and affordable to make; all you need to start are two pieces of plywood cut to the size of printer paper. The clean lines and minimal cuts make for a project even beginners can complete in around 20 minutes.

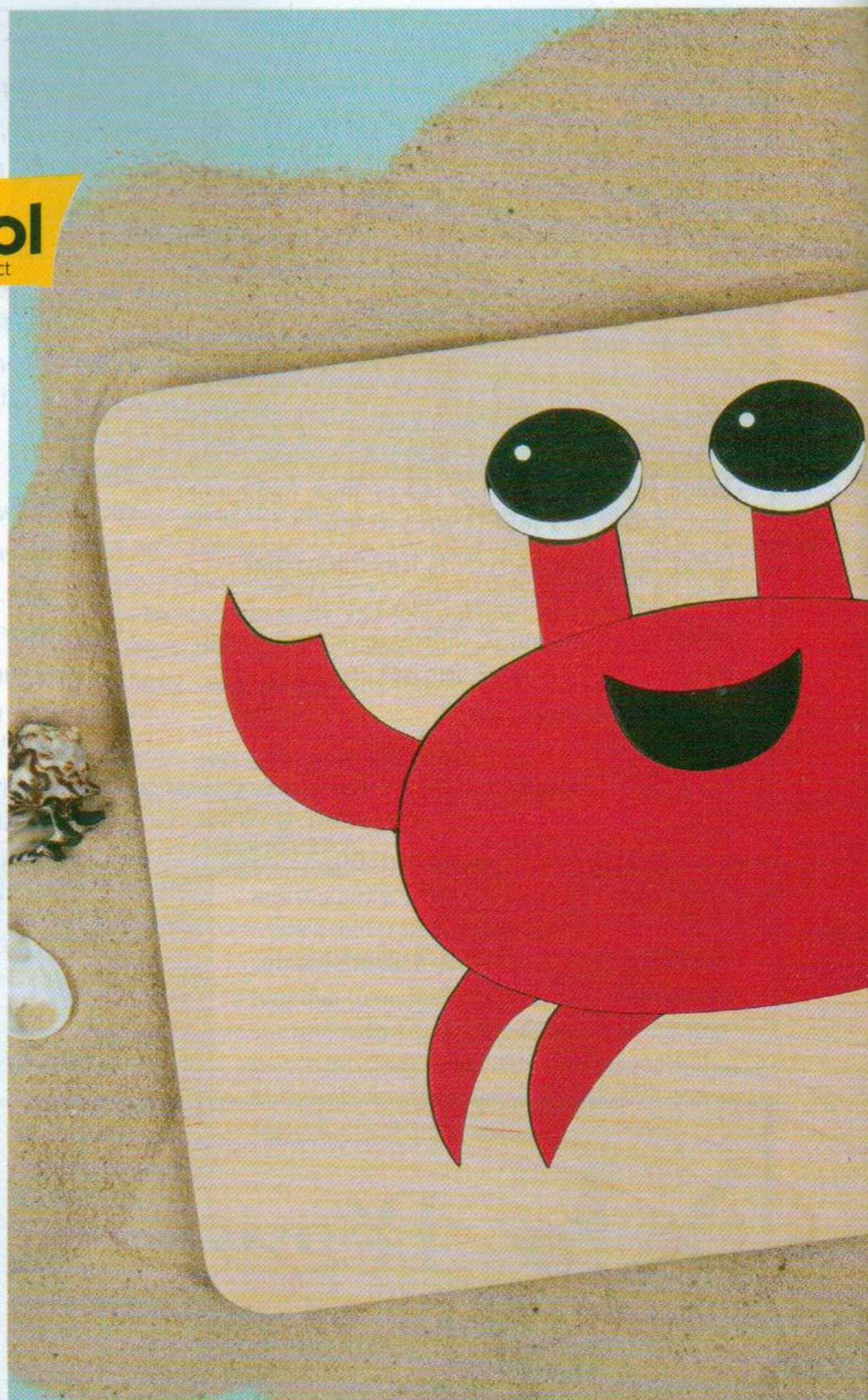
Getting Started

Cut the two pieces of wood to size. Attach a photocopy of the pattern to the ½" (1.3cm)-thick piece using repositionable spray adhesive. Drill blade-entry holes in an inconspicuous spot, such as where the claw meets the body and at the edge of the mouth.

Cutting and Finishing

Cut along the pattern lines using a #7 reverse-tooth blade to minimize tear-out. Save the eyes for last. For these, you can either cut along the line between the pupil and sclera (the white part of the eye) or leave the eyes whole. *Note: If you chose the first method, paint the pieces individually and let dry. Then glue them back together to avoid having too many small pieces. If you chose the second method, you can use paint to distinguish between the pupil and sclera.*

Remove the pattern with mineral spirits and sand each piece individually, first with 180-grit sandpaper and then with 220. Glue and clamp the backer board to the outline of the puzzle. Once dry, round the edges of the outline; we use a coin to trace a partial circle on each corner and then cut along the lines with the scroll saw. Wipe off excess dust with a clean cotton cloth. Add color with acrylic paints; you can either paint traditional crab colors, like those featured here, or use unconventional colors. You could spray on a clear acrylic finish at this point, but we leave ours as is. Let dry and enjoy!



Materials & Tools

Materials

- Plywood, ½" (1.3cm) thick: puzzle, 8½" x 11" (21.6cm x 27.9cm)
- Plywood, ¼" (6mm) thick: backer, 8½" x 11" (21.6cm x 27.9cm)
- Spray adhesive: repositionable
- Mineral spirits
- Sandpaper: 180-, 220-grit
- Wood glue
- Acrylic paints: black, red, white
- Clean cotton cloth
- Clear finish, such as satin spray lacquer (optional)

Tools

- Scroll saw with blades: #7 reverse-tooth
- Sander: palm sander or random orbital
- Drill with bit: small
- Clamps
- Coin
- Paintbrushes: assorted

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



This tray puzzle is an ideal project for a beginner.

Pattern for the **SIMPLE CRAB PUZZLE** is in the pullout section.



Jessica Wood and David A. Wood are a father-daughter scroll sawing team who live in Orem, Utah. David learned from his father and then taught Jessica three years ago. They recently published a book titled *Animal Scroll Saw Puzzle Patterns*, available online now.

PS WOOD MACHINES



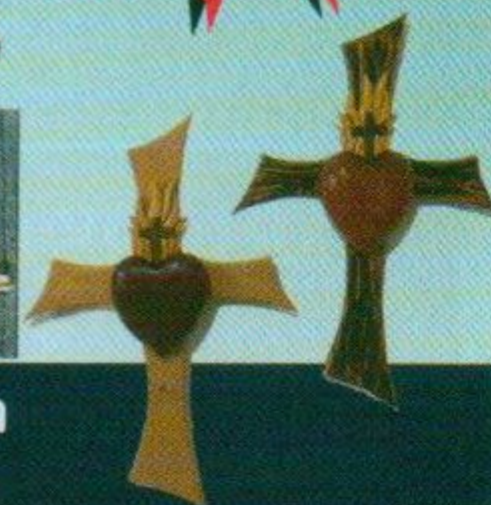
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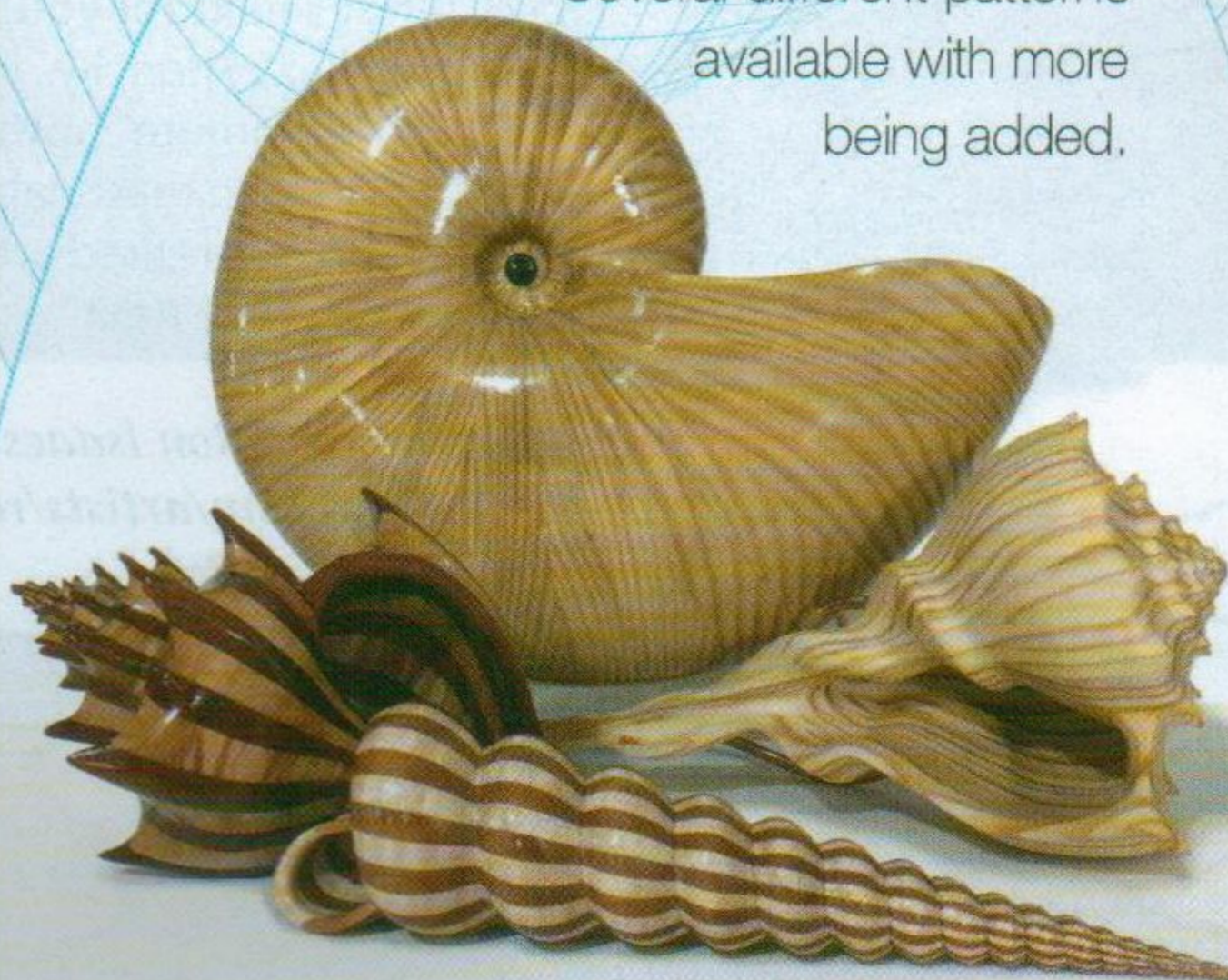
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(Continued from page 72)

Evening.



SSW: How did you develop your artistic style?

RI: There is no specific reason for the frequent combinations of garments and plant materials in my work. They came together fairly early in my career and have provided an enormous range of design and compositional possibilities to work with. They seem to provide different associations and possible meanings in every piece.

SSW: What does your creation process look like?

RI: I begin a piece by making a life-size contour line drawing, followed by pages of patterns analyzing and separating the form into pieces to be sawed for construction. The pattern-making phase may take as long as three days, and results in a few hundred pieces of birch plywood I'll use to make the relief sculpture.

SSW: What's your technique for making your sculptures look so real?

RI: The pieces are constructed rather than carved; no knives or chisels are involved. My toolkit mostly consists of a scroll saw, a belt and disc sander, and a Dremel. I do a great deal of sanding, which is a form of carving, but the process is much more additive than subtractive. My primary strategy is to build as much of the surface as my skills and patience allow, and then rely on paint to carry the rest of the illusion.

Wing.



SSW: Where do you draw inspiration from?

RI: Inspiration comes from all over. Since my ideas are primarily visual, I'm constantly fed by contact with nature, by images I find online, or by simply paying attention to the outside world. The best ideas come from the work itself, with one idea leading to another.

SSW: What's next for you?

RI: I live in Lexington, Ky., with my supportive wife, Judy, and "commute" upstairs daily to my workshop and studio. I'm in reasonably good health and have never heard of a retired artist; I can hardly wait to see what I'll make next.

To see more of Ron Isaacs' work, visit toryfolliard.com/artists/ron-isaacs.

Sycamore.



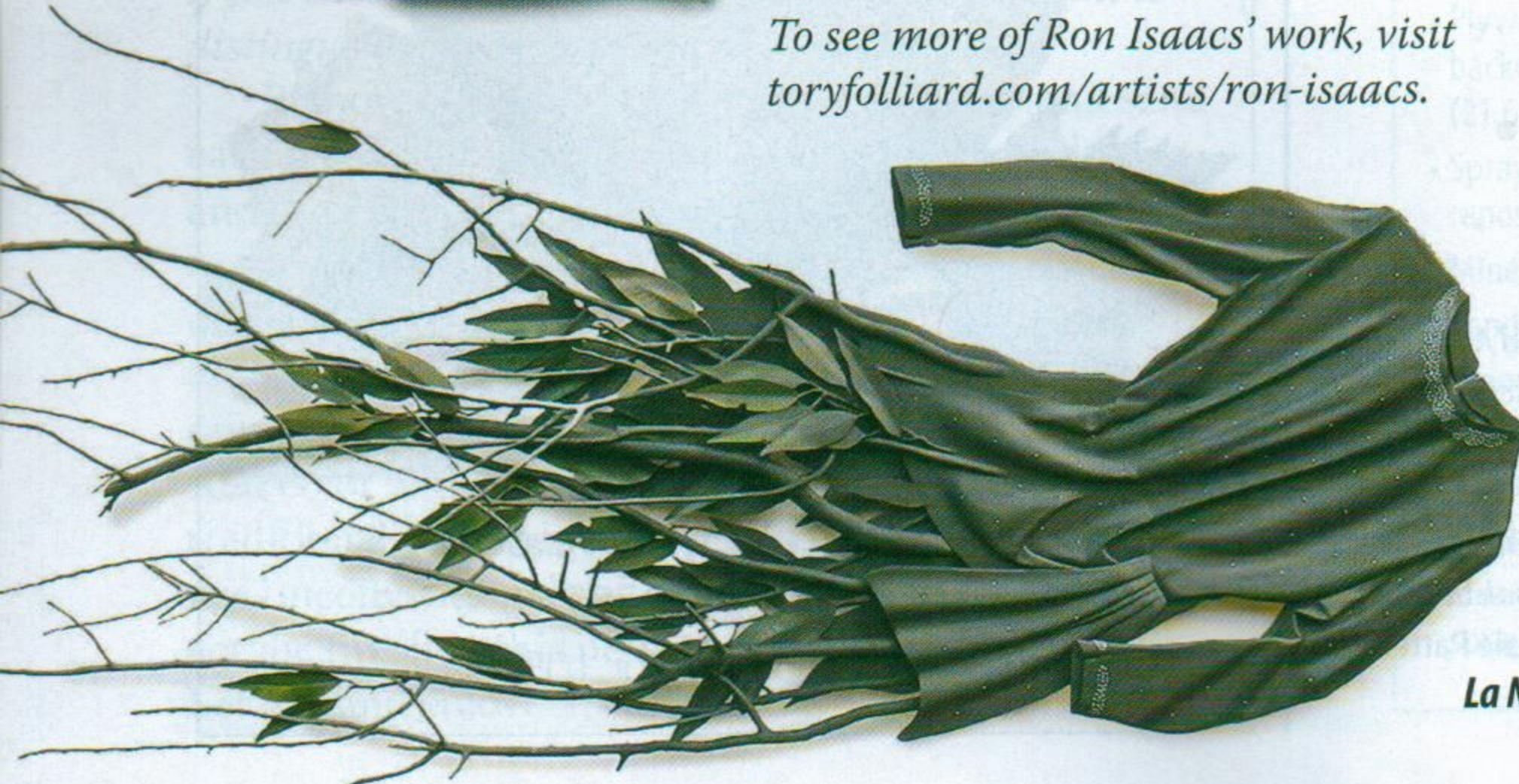
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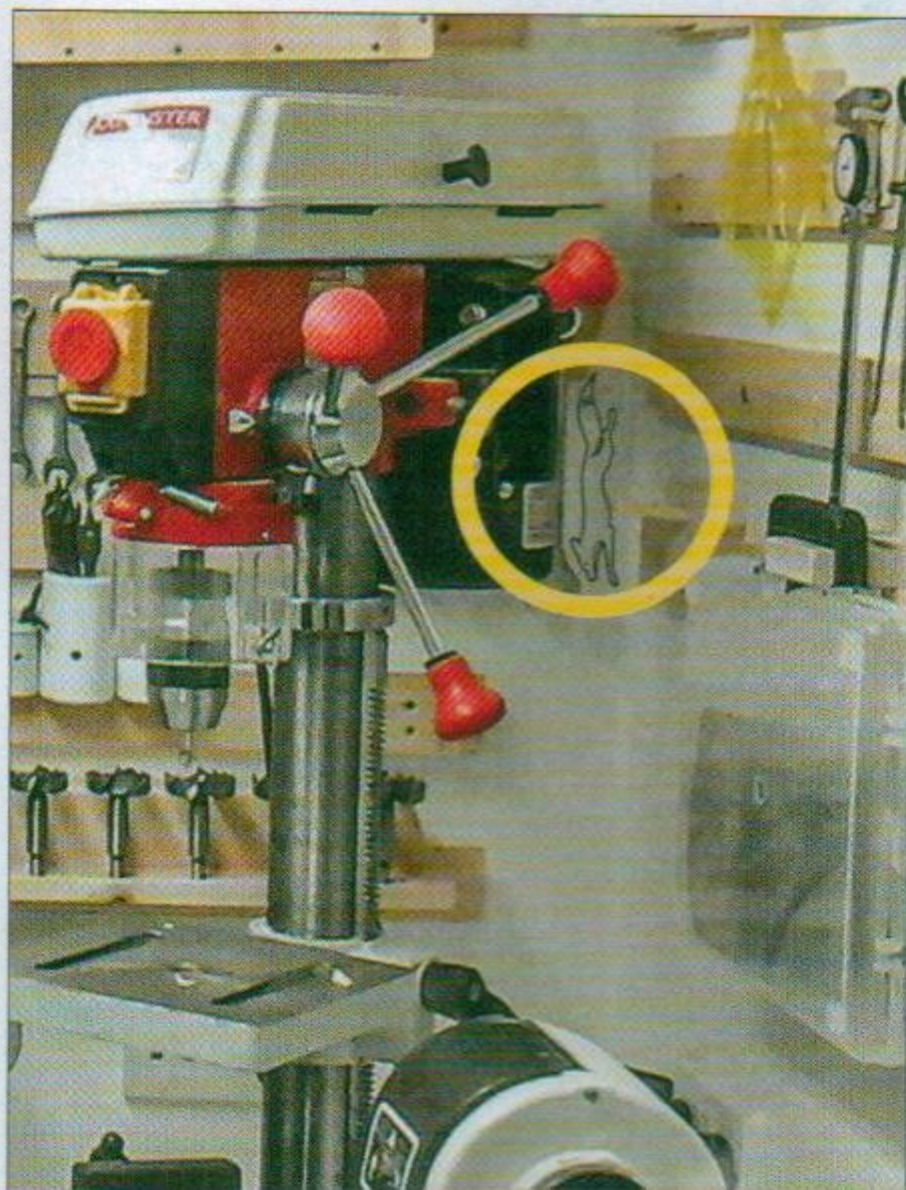


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Fox Hunt

Cindy Chambers of Sherwood, Ariz., and Fred Langton of University Place, Wash., were randomly drawn from the participants who located the fox in our last issue (Spring 2021, Issue #82). The fox was working on the drill press in Stephen Watson's Tiny Workshop on page 22.

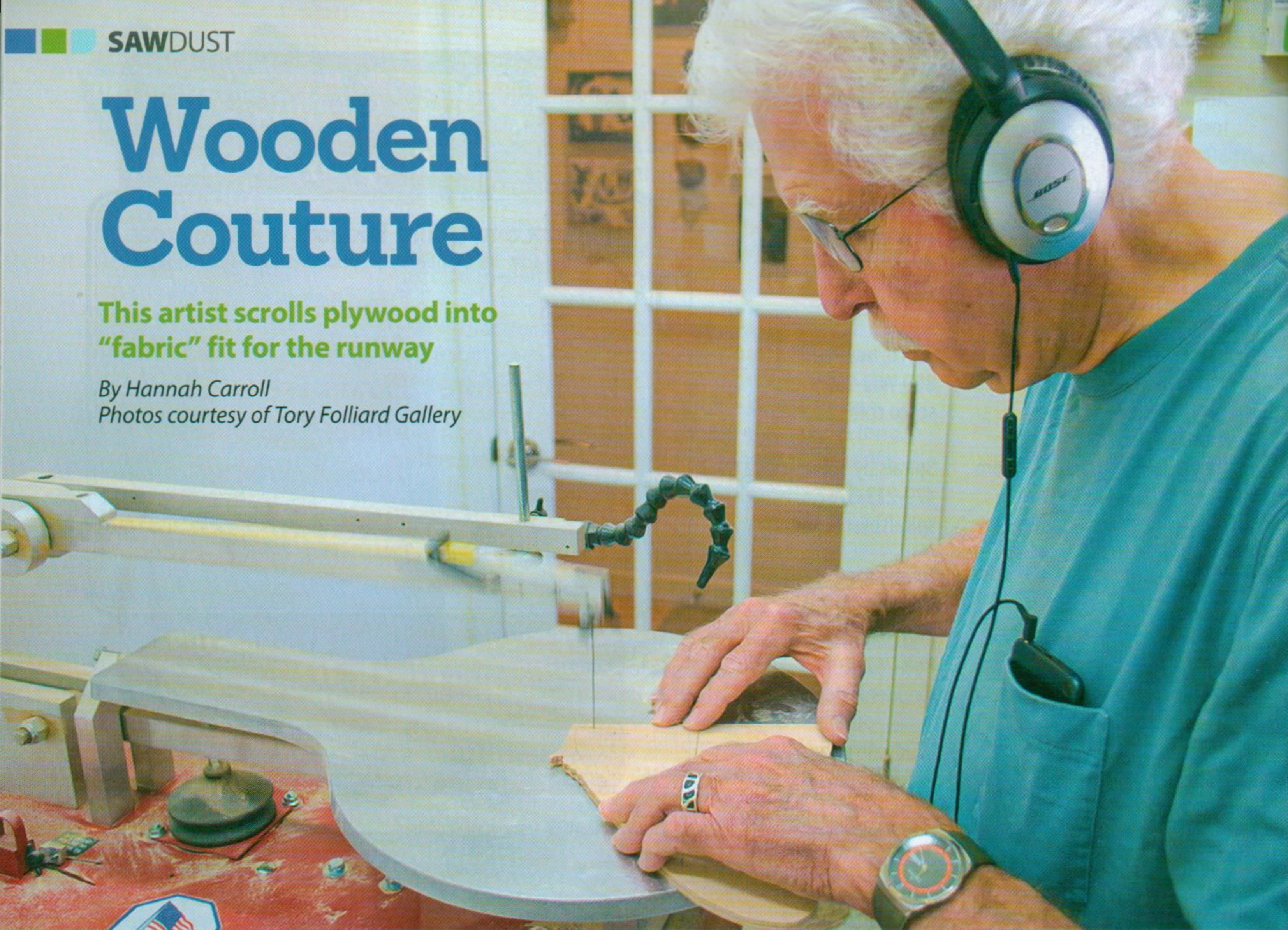
Find the fox in this issue, and tell us the page number and location. Two readers randomly selected from all correct replies will receive a \$25 Fox Chapel Publishing gift certificate. Entries must be received by May 14, 2021, to be eligible. *Note: The contest fox is an outline drawing that would face 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, 903 Square Street, Mount Joy, PA 17552 or enter online at scrollsawer.com.

Wooden Couture

This artist scrolls plywood into "fabric" fit for the runway

By Hannah Carroll
Photos courtesy of Tory Folliard Gallery



To truly appreciate Ron Isaacs' art, you may need to take a second look. It's not fabric you're seeing—each creation is composed of masterfully crafted plywood. The Kentucky-based artist uses sculptural techniques and incredible painting skills to bolster the illusion that his garments are as real as they seem. Like a clothing line, Ron's pieces—taken together—share a certain compatibility: each incorporates vintage clothing and natural elements, blending timelessness with anachronism. These alluring themes form the basic vocabulary of his work.

(Continued on page 70)

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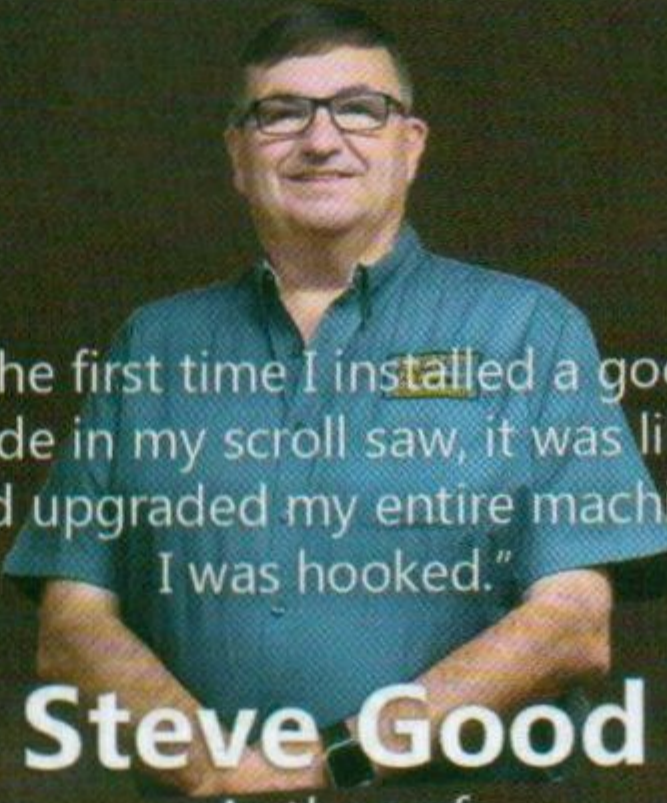
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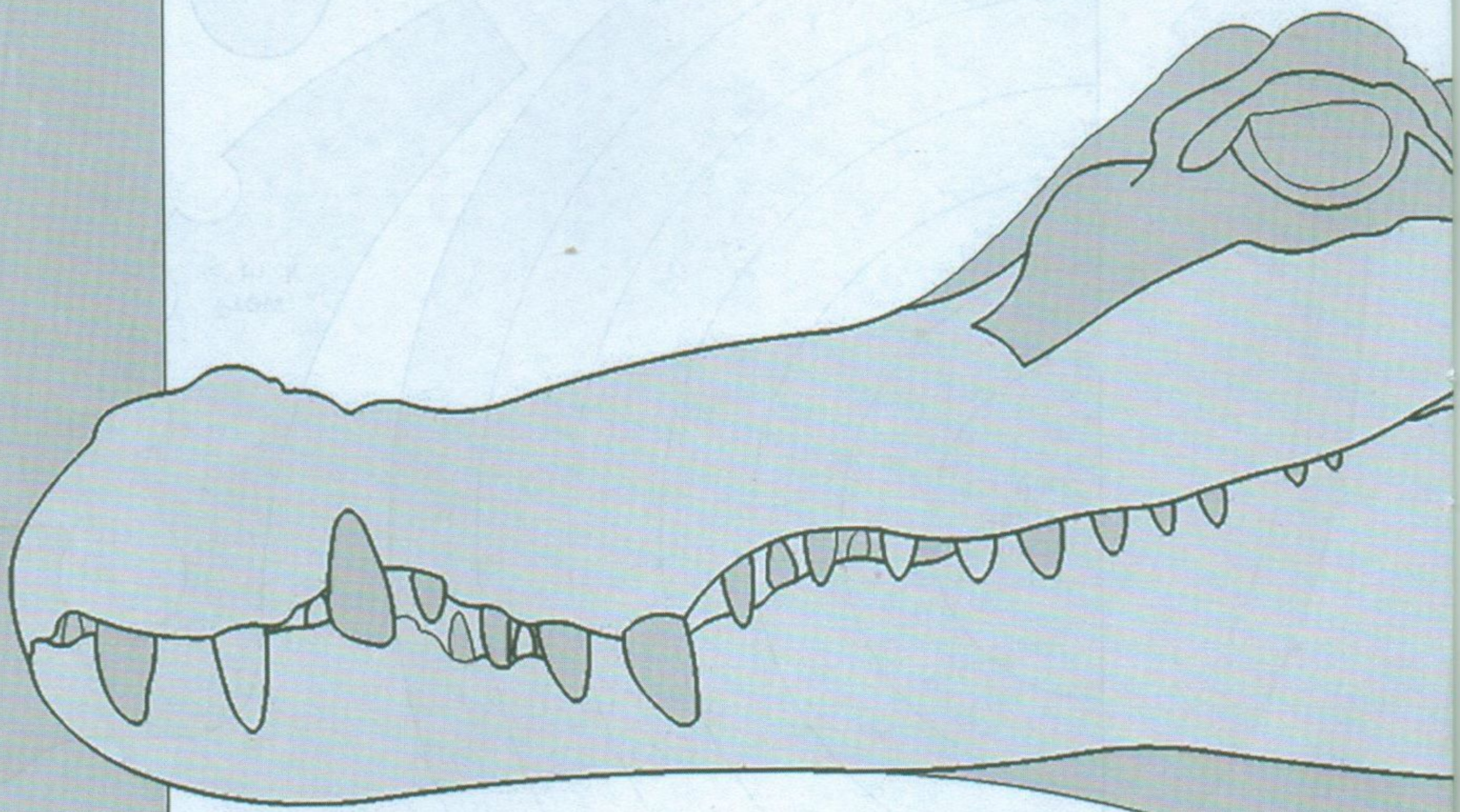
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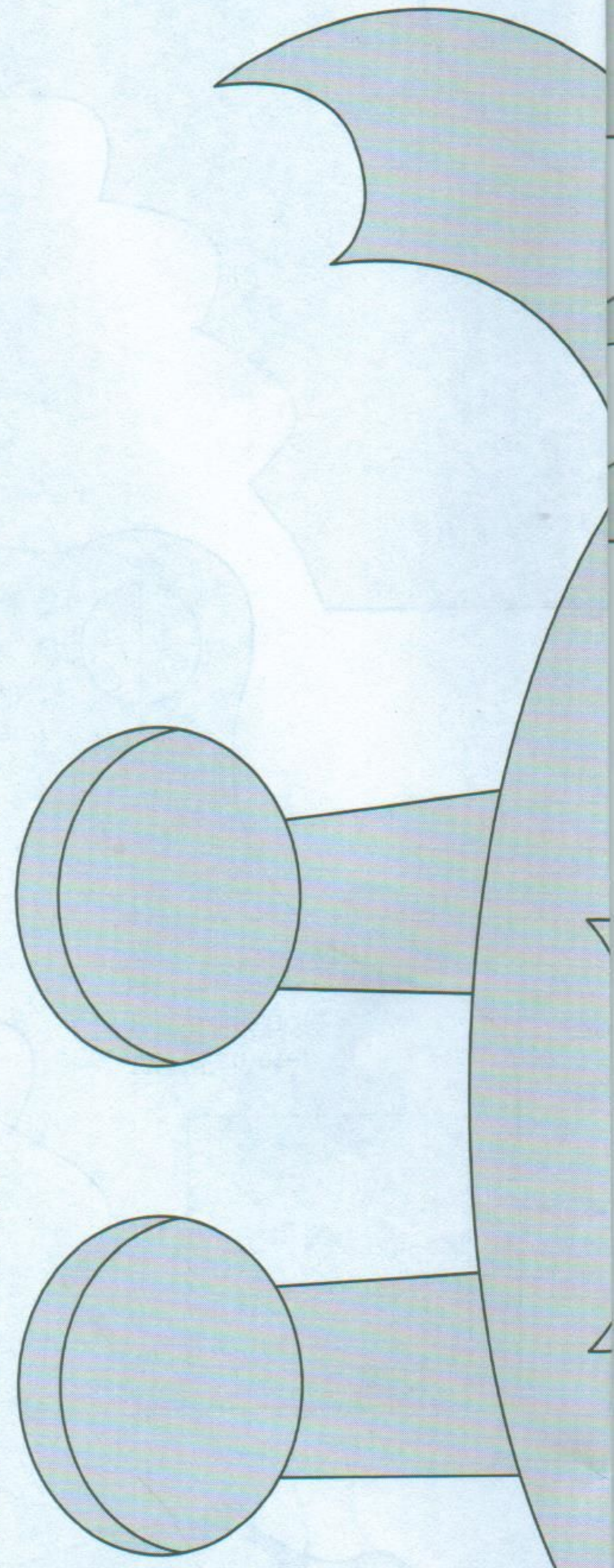
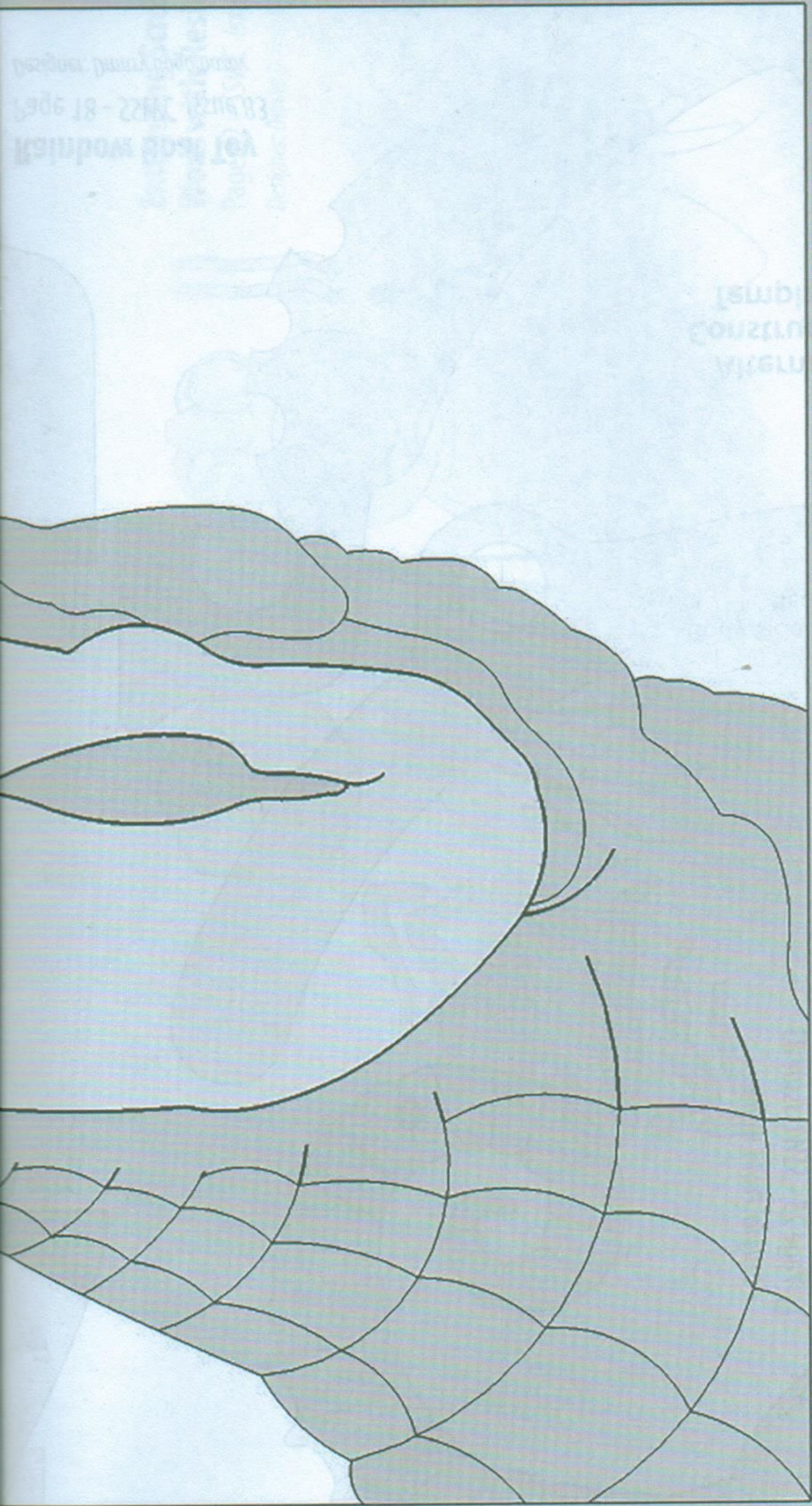
157



Segmented Reptile

Page 54 - SSWC Issue 83

Designer: AJ Favorito



Either cut both eye sections and glue them back together after painting, or leave whole and distinguish the two sections with paint.

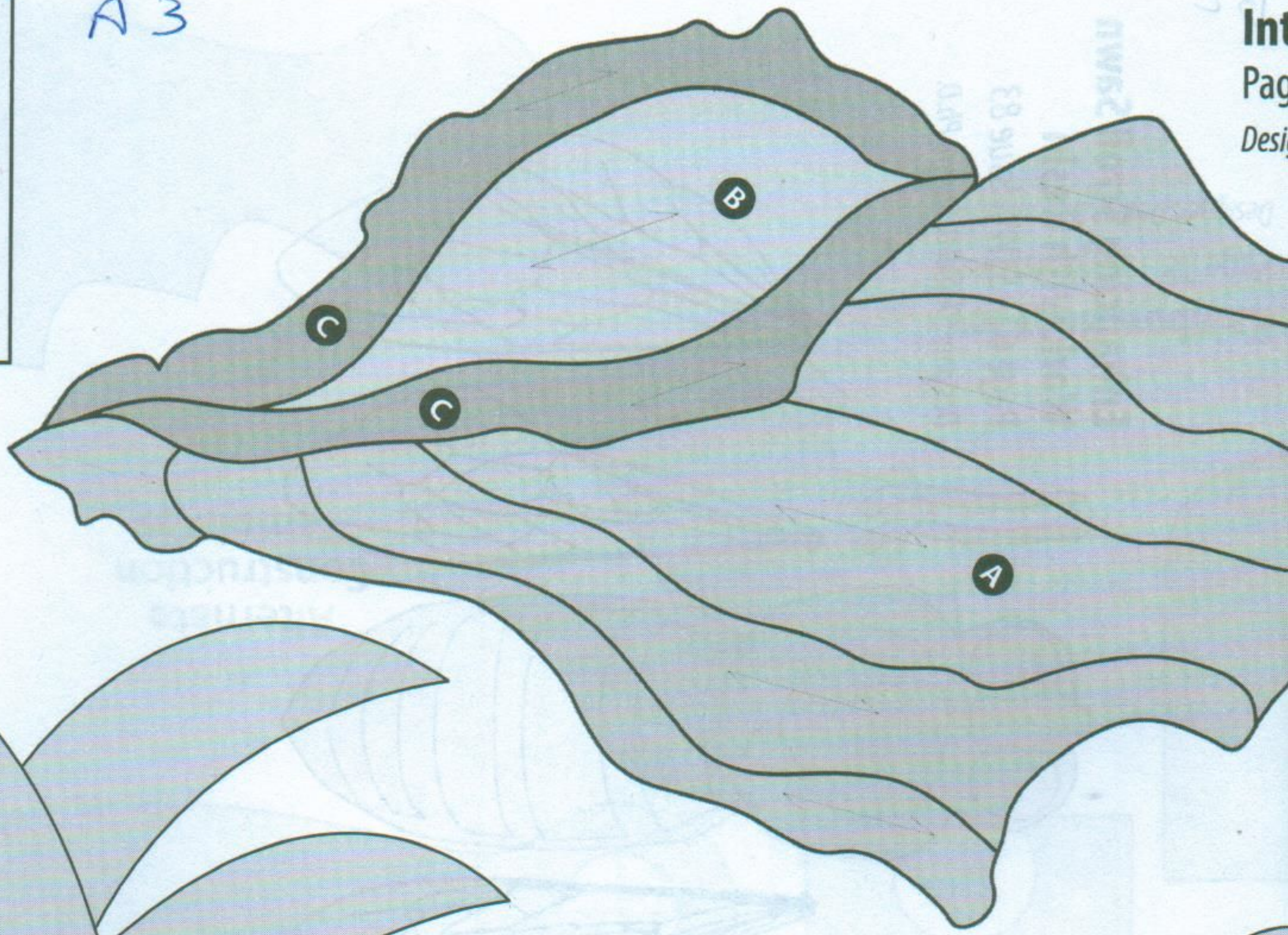
Notice about photocopying patterns

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



One inch

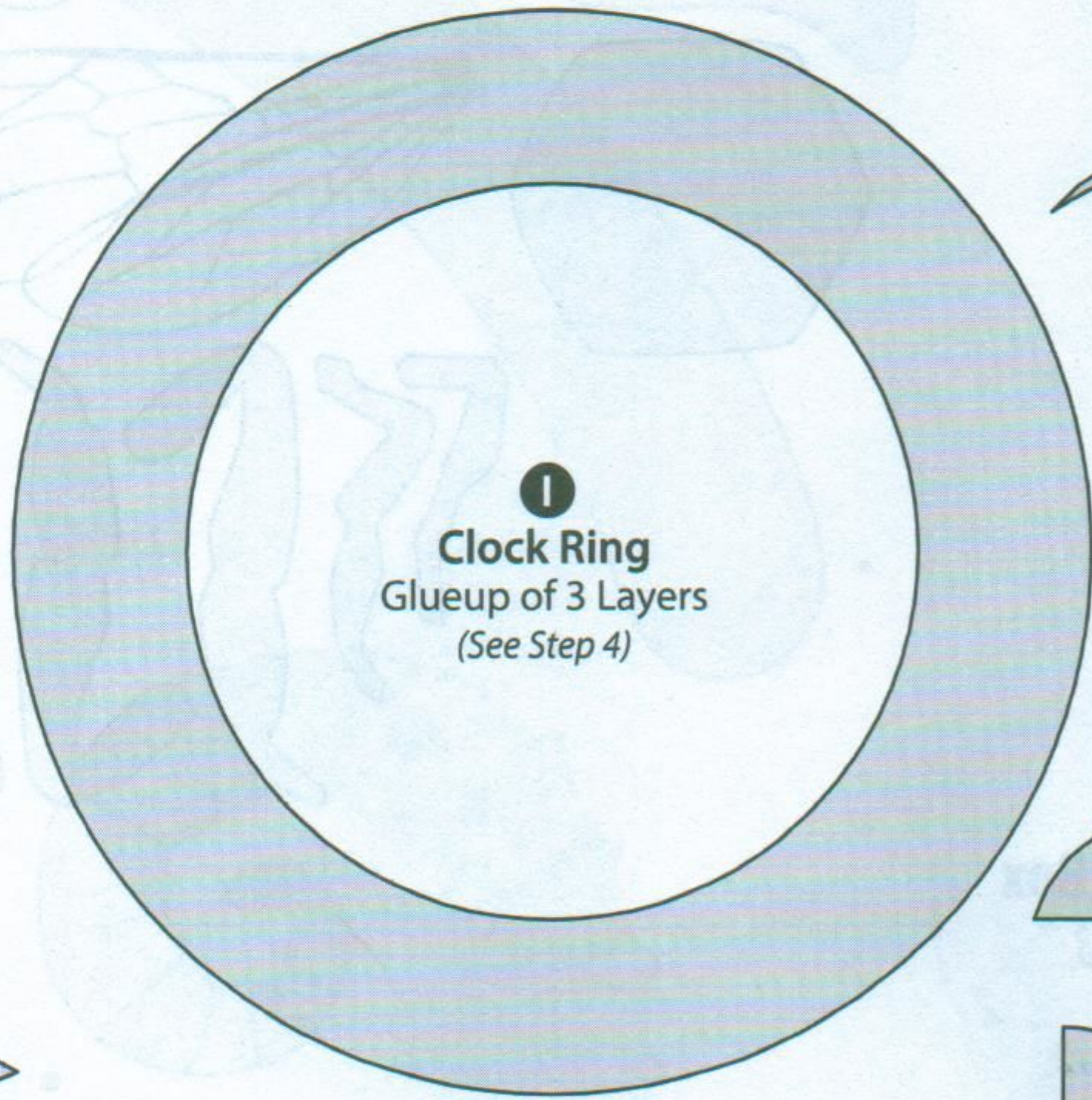
A 3



Simple Crab Puzzle

Page 68 - SSWC Issue 83

Designers: Jessica Wood and David A. Wood



1

Clock Ring

Glueup of 3 Layers
(See Step 4)

Wild Garden Clock

Page 29 - SSWC Issue 83

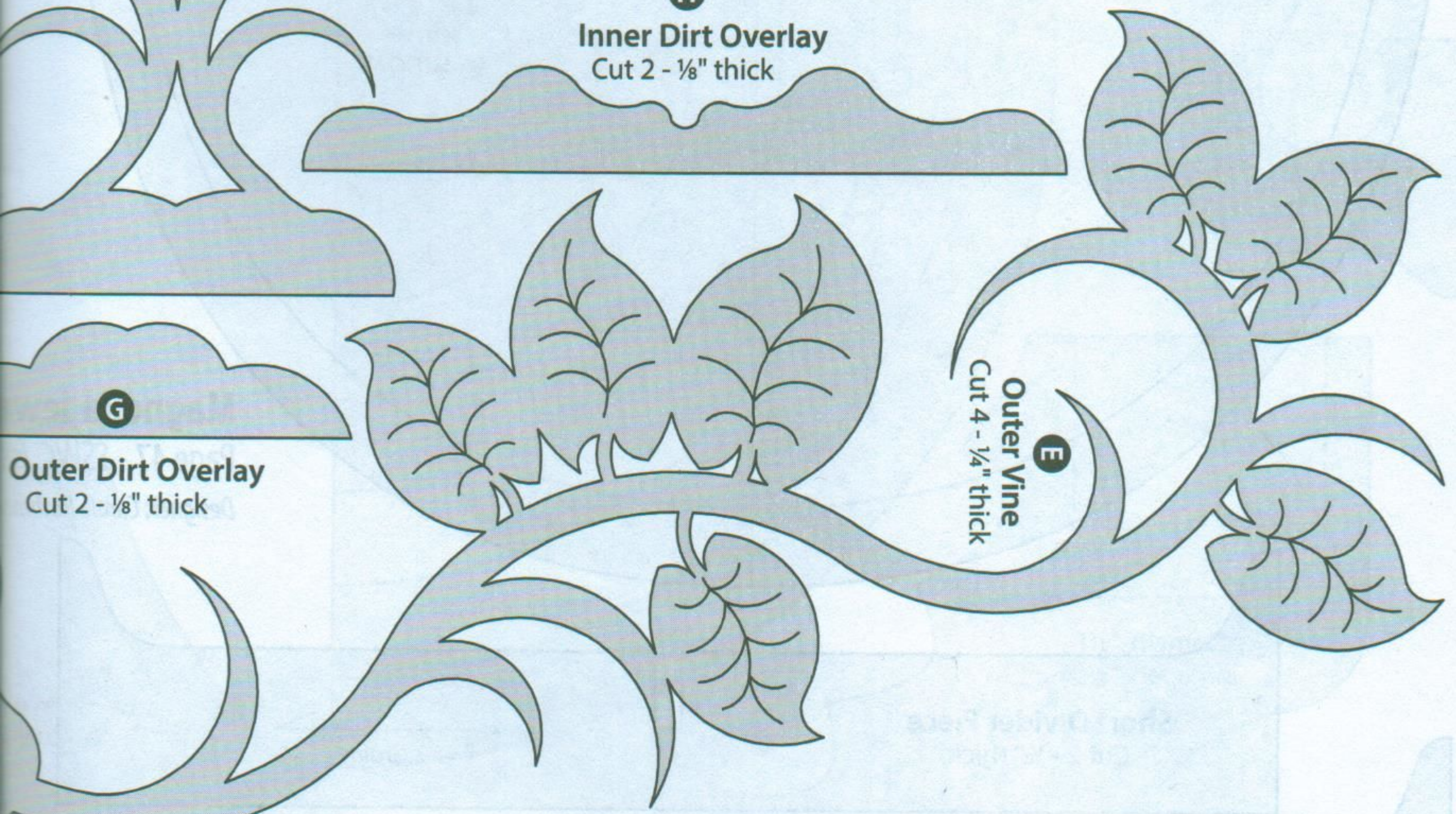
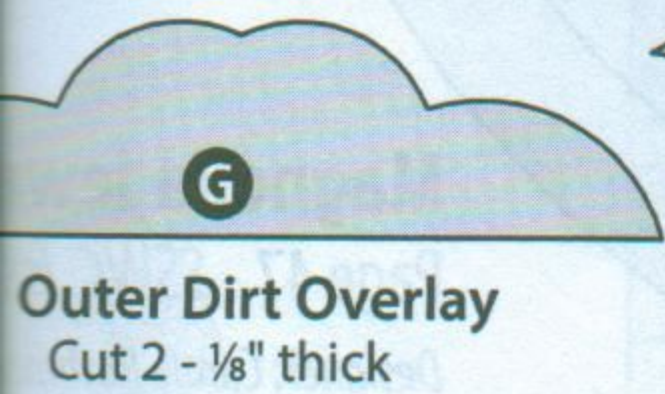
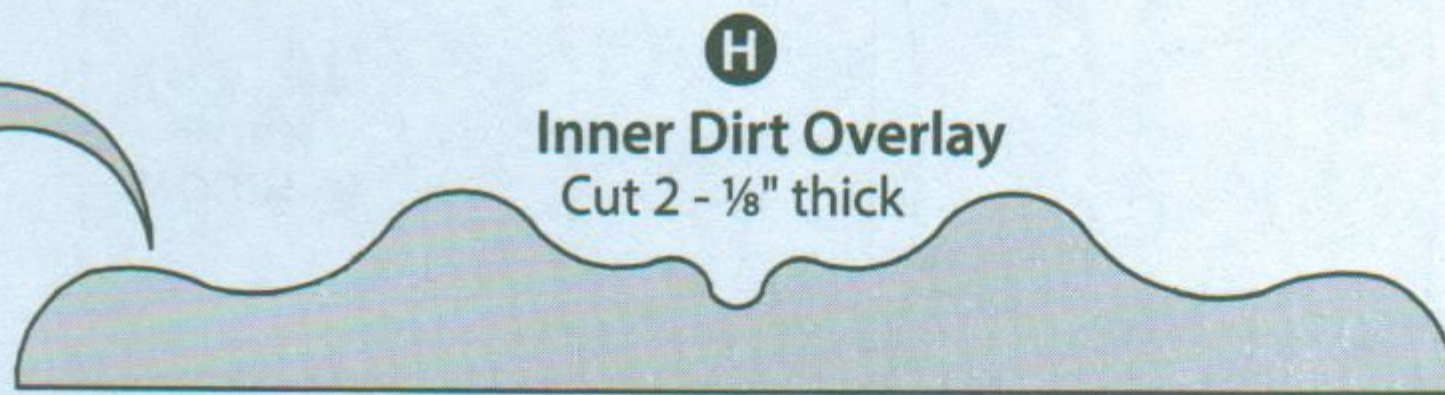
Designer: Dan Wilckens

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

All patterns on this pullout section: © 2021 Scroll Saw Woodworking & Crafts

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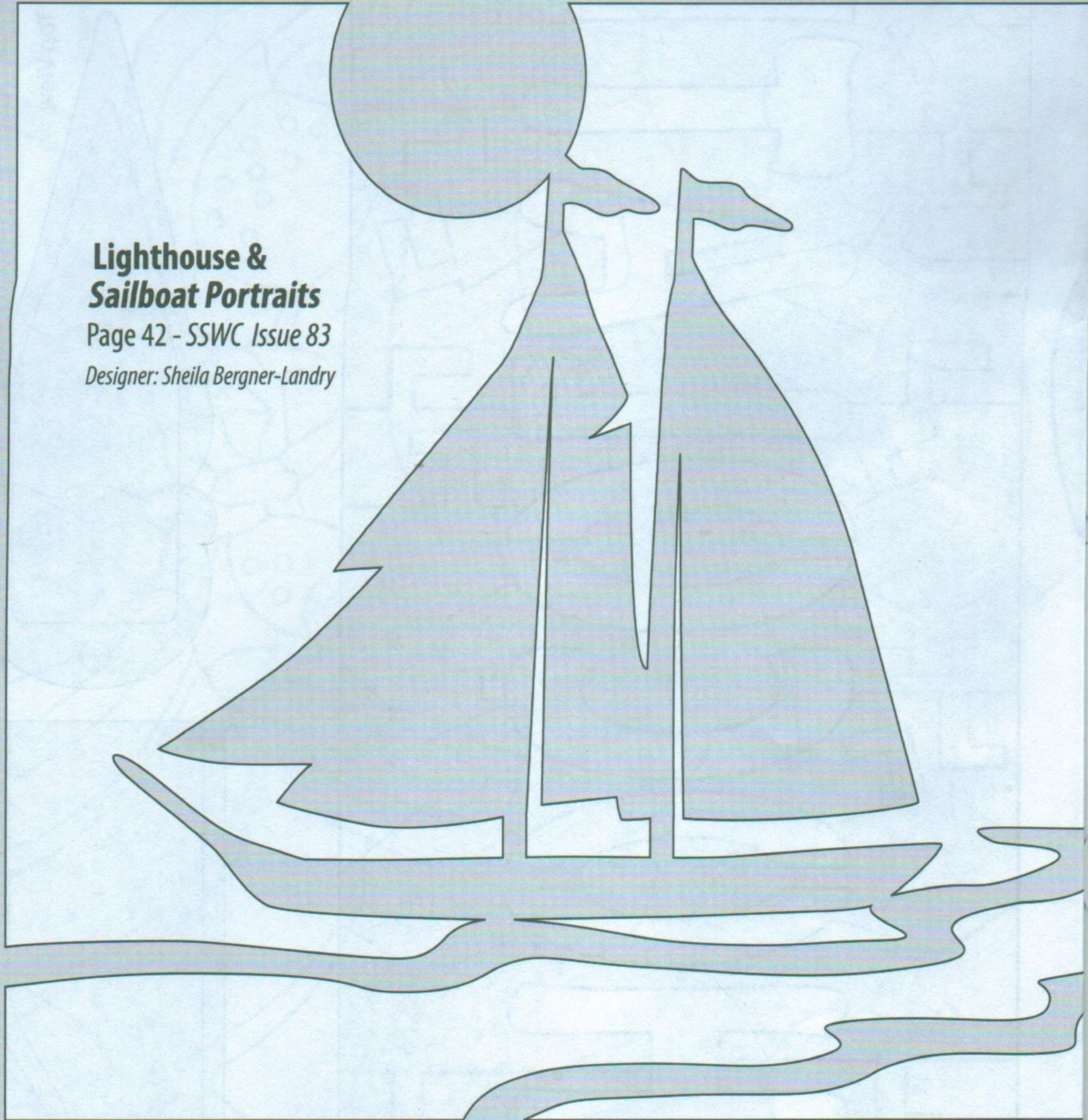


AS



A6

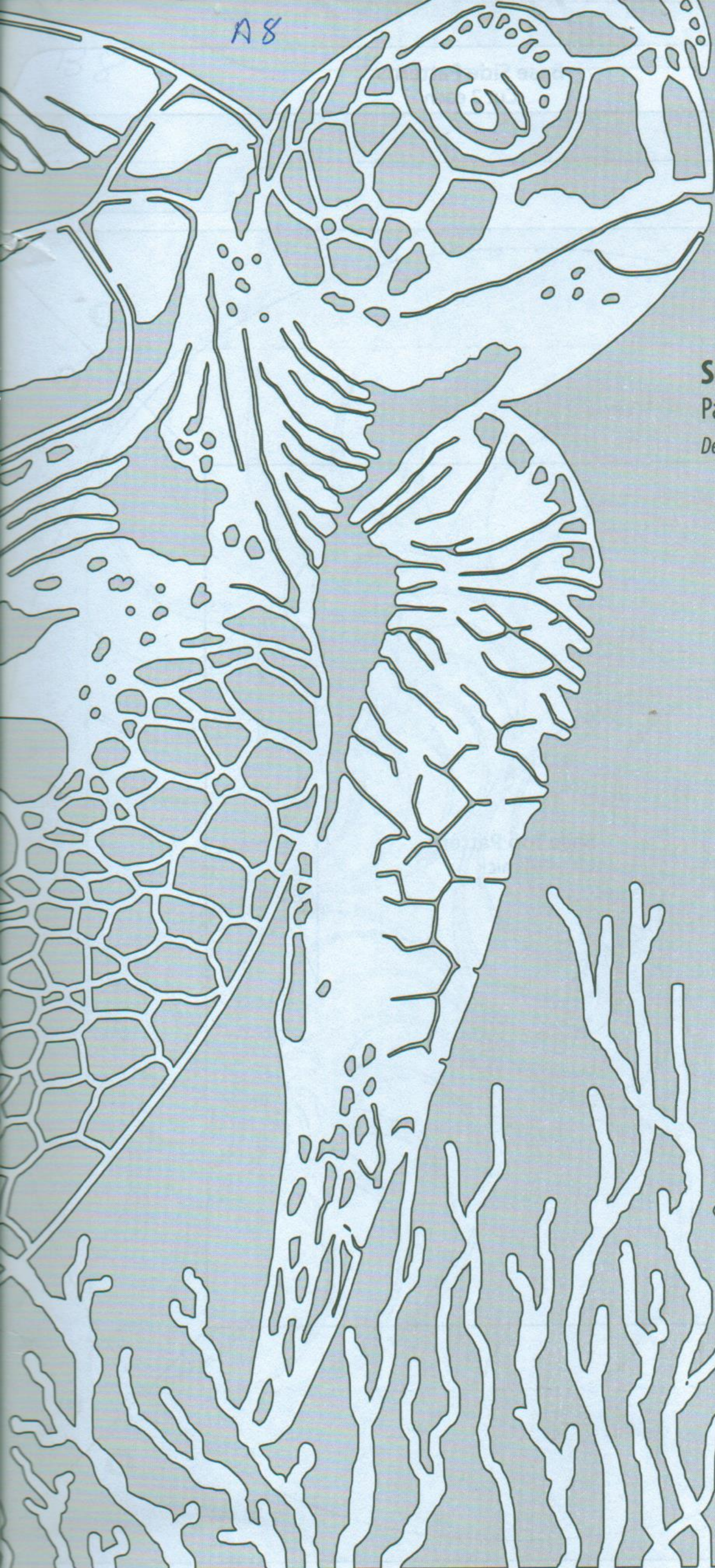
**Lighthouse &
Sailboat Portraits**
Page 42 - SSWC Issue 83
Designer: Sheila Bergner-Landry



A7



A8



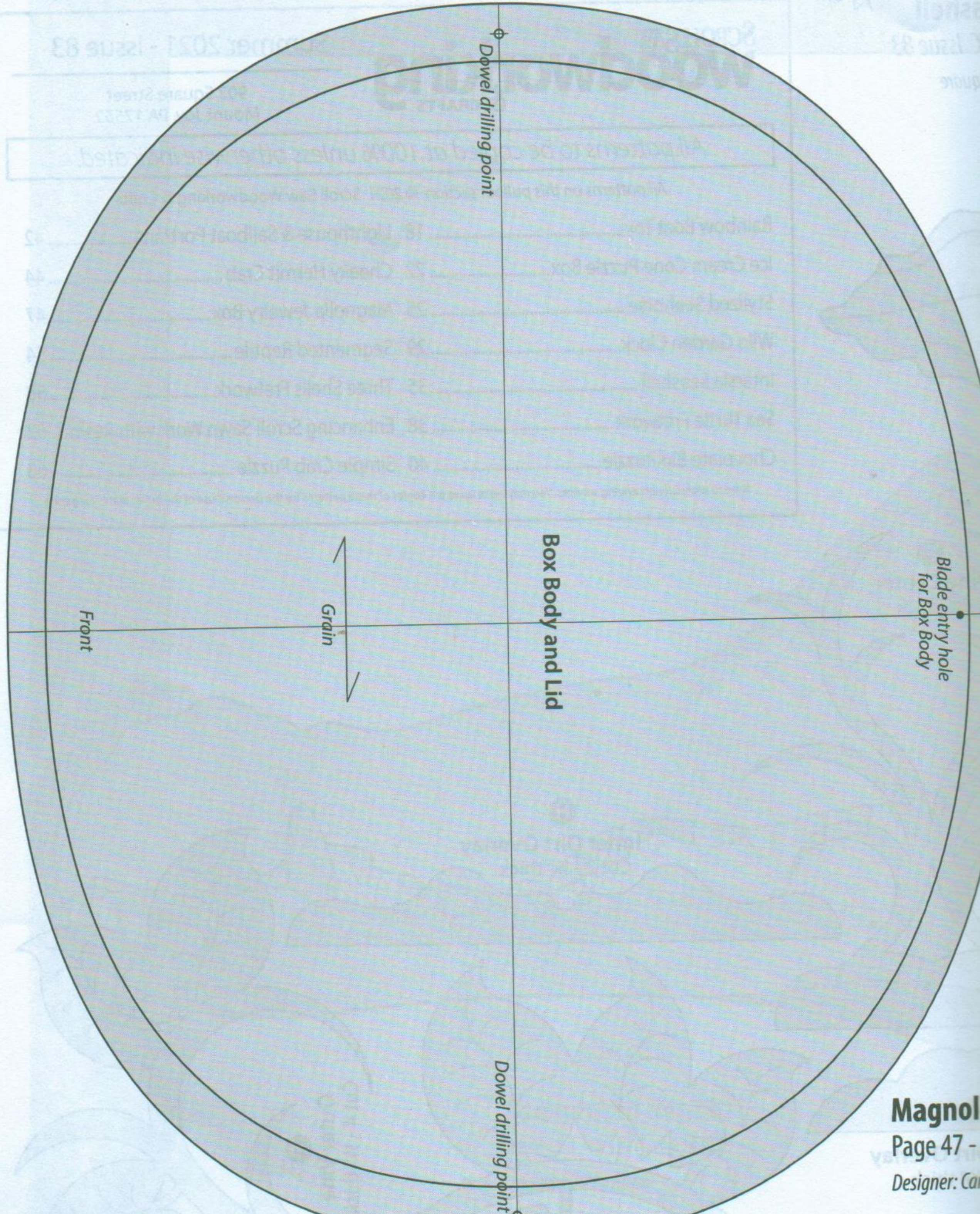
Sea Turtle Fretwork

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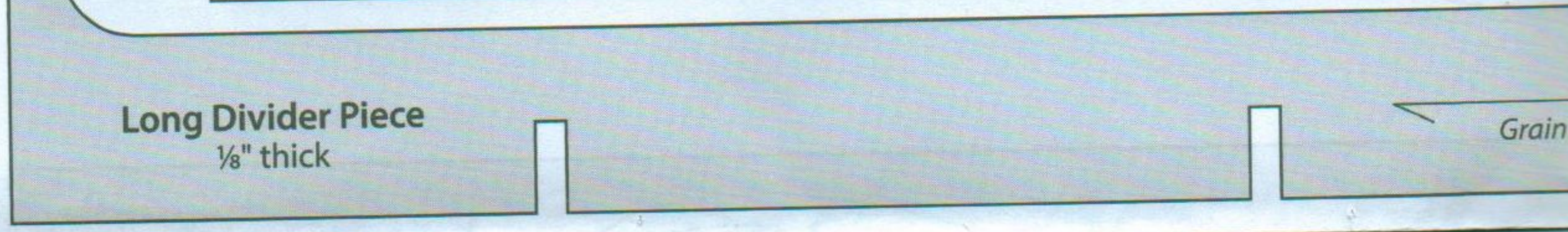
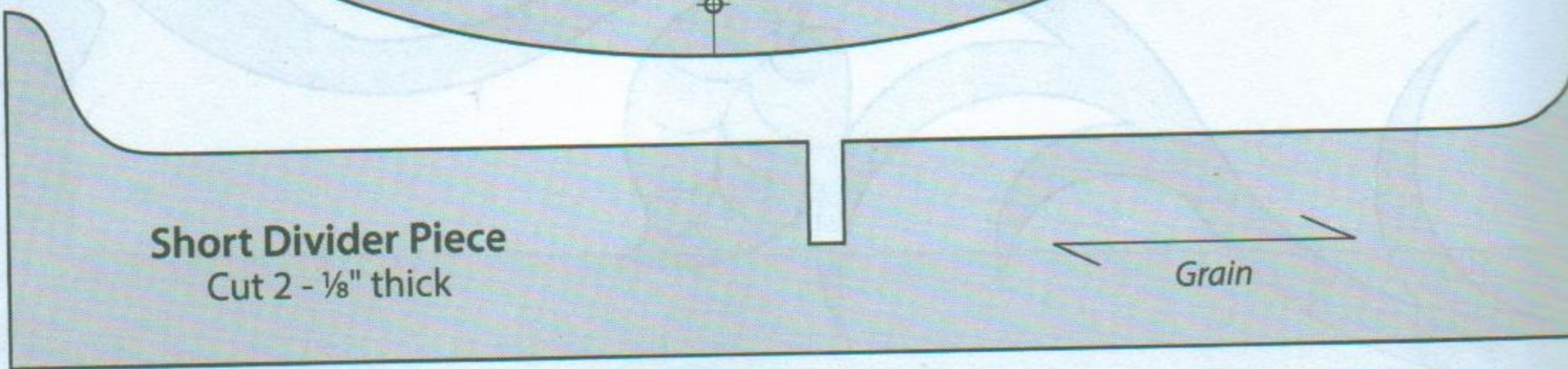
Designer: Charles Hand



131



Magnolia
Page 47 - SS
Designer: Carole

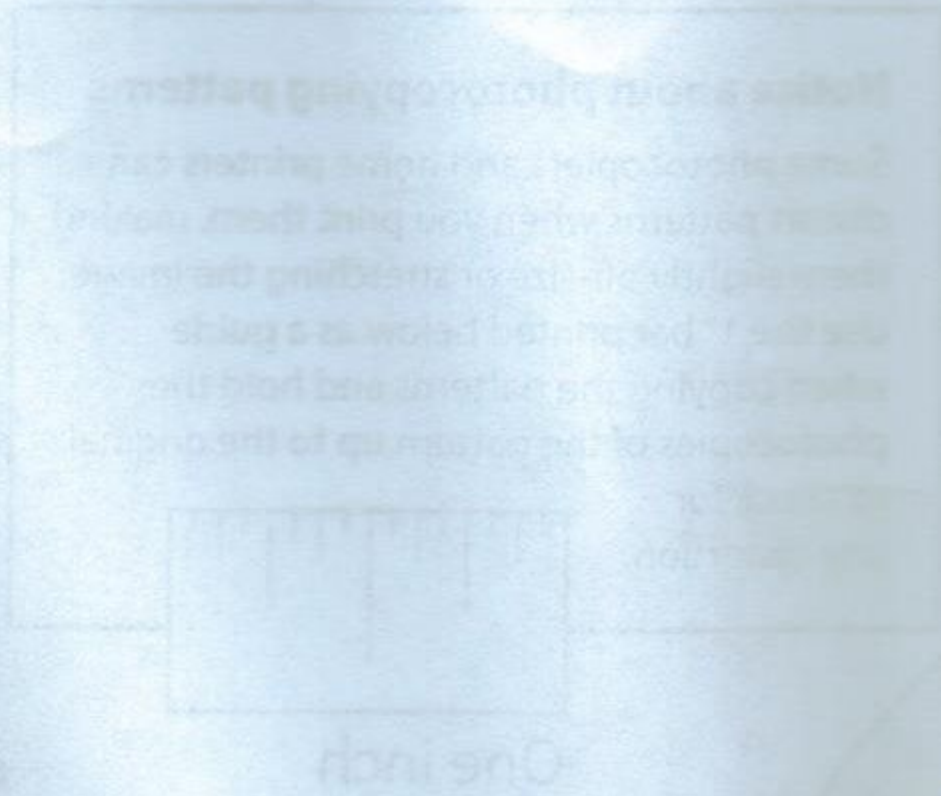
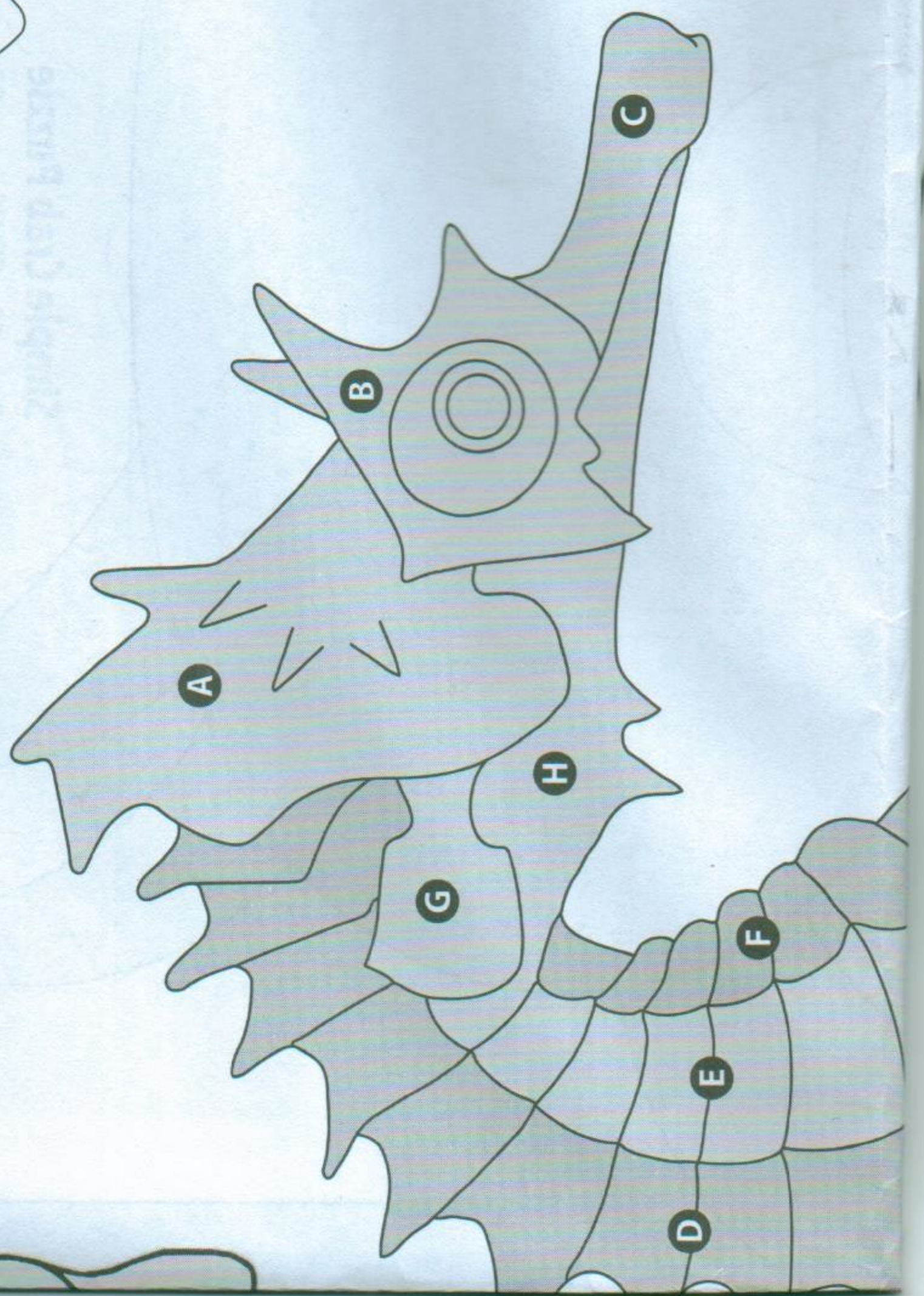
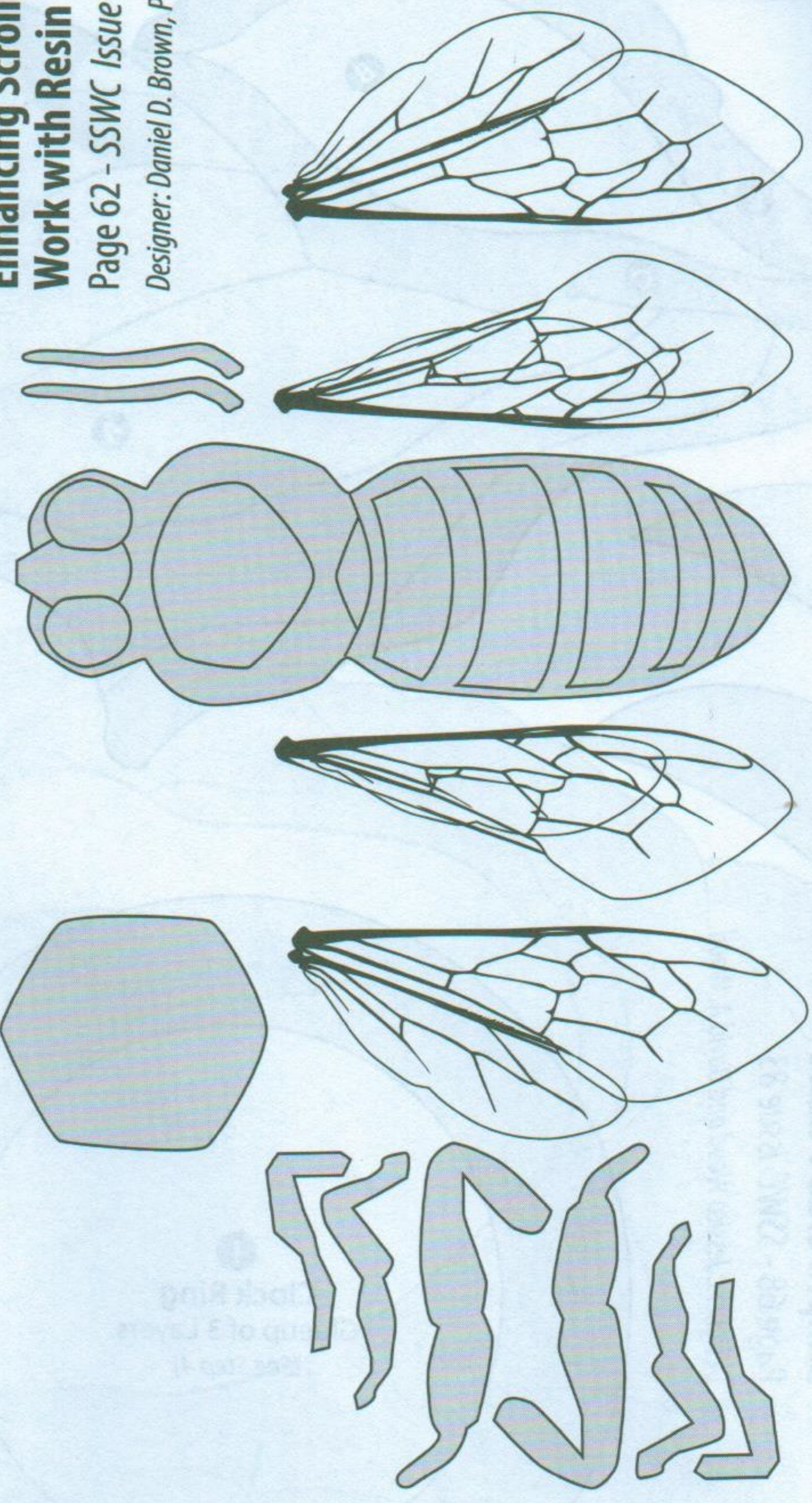


B2

Enhancing Scroll Saw Work with Resin

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Designer: Daniel D. Brown, Ph.D.



Box 3

Wild Garden Clock
Page 59 - SSWC Issue 83
Designer: Dan Wilkins

B3

SA

Rainbow Boat Toy
Page 18 - SSWC Issue 83
Designer: Dmitry Bogomazov

Alternate
Construction
Templates

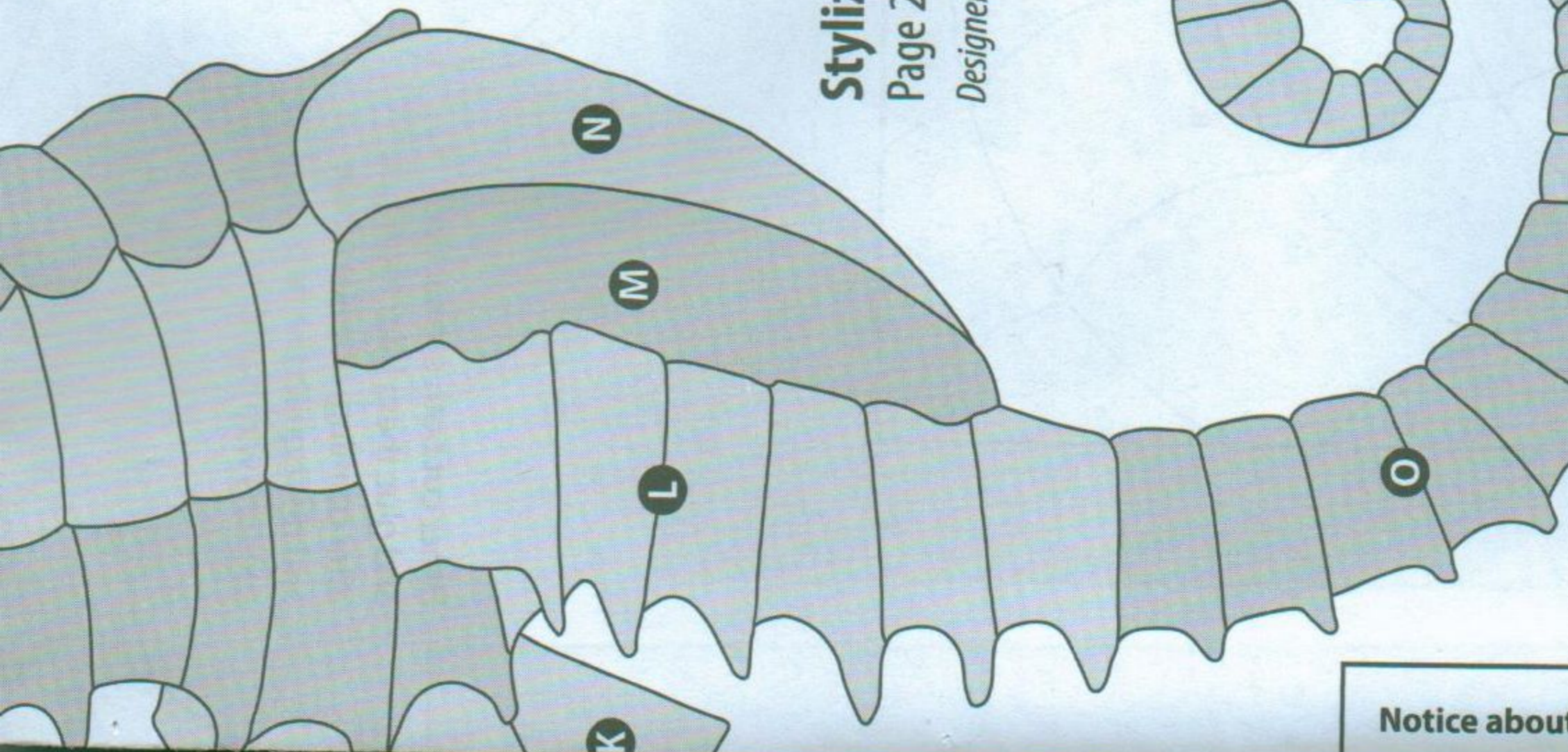
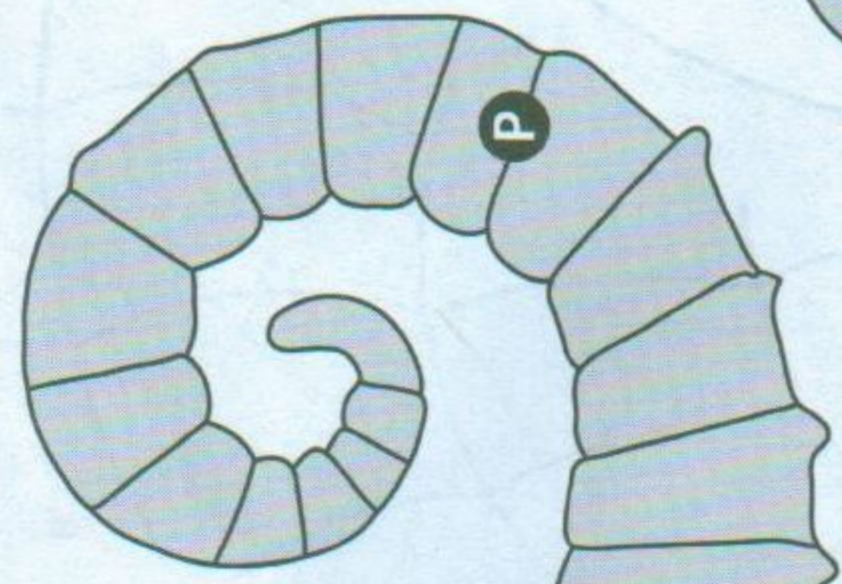
Body Center
1/2" thick

Body Side
Cut 2 - 1/2" thick

1/2"-diameter
holes (2)

1/8"-diameter,
1/4"-deep hole

Stylized Seahorse
Page 25 - SSWC Issue 83
Designer: Patrick Wayner



Notice about photocopying patterns

Body Template 2

Rainbow Rings
1 1/2" thick

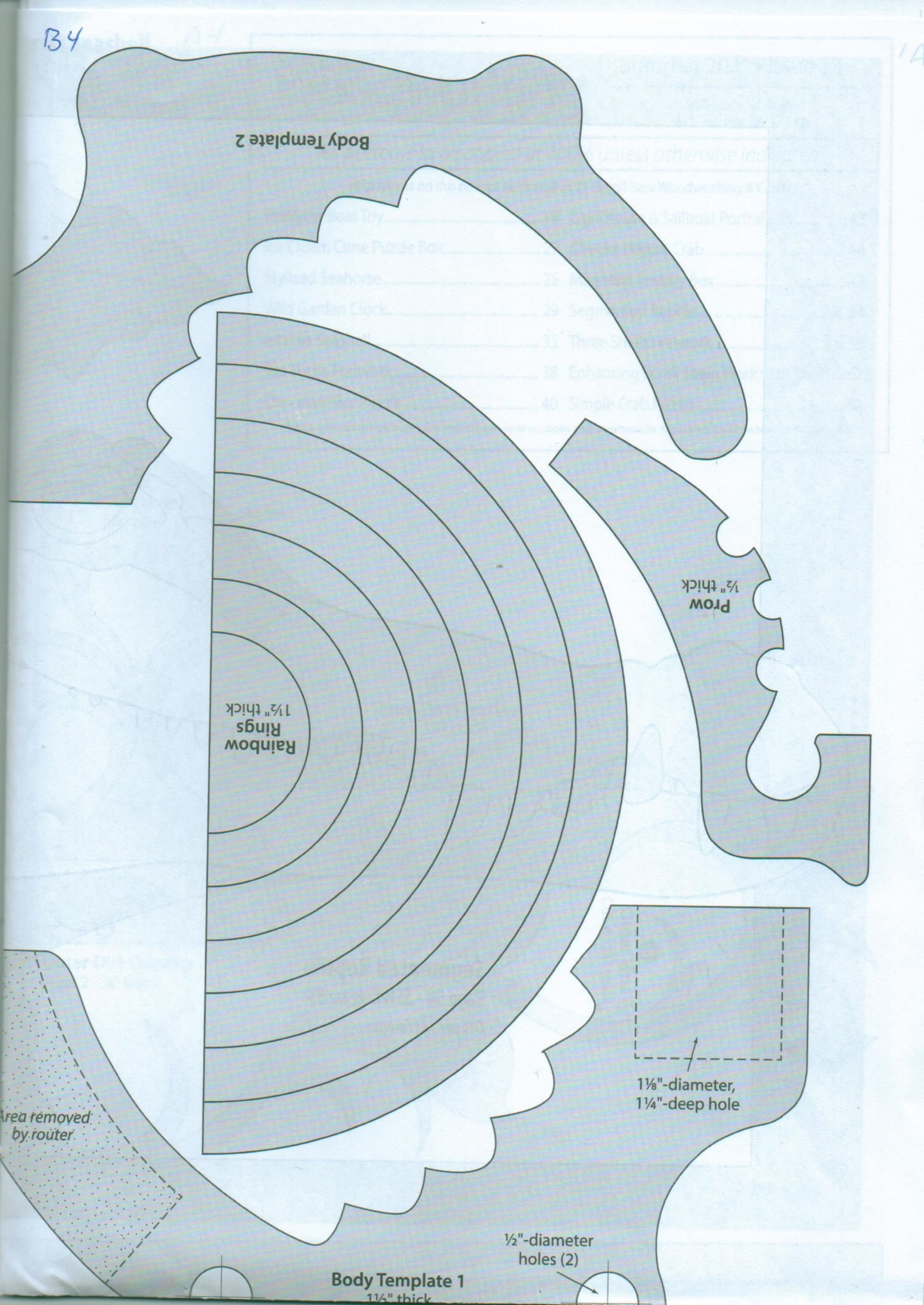
Prow
1/2" thick

1 1/8"-diameter,
1 1/4"-deep hole

1/2"-diameter
holes (2)

Body Template 1
1 1/6" thick

Area removed
by router



BS

Base Side Patterns
Cut 2 each

Grain

A
A

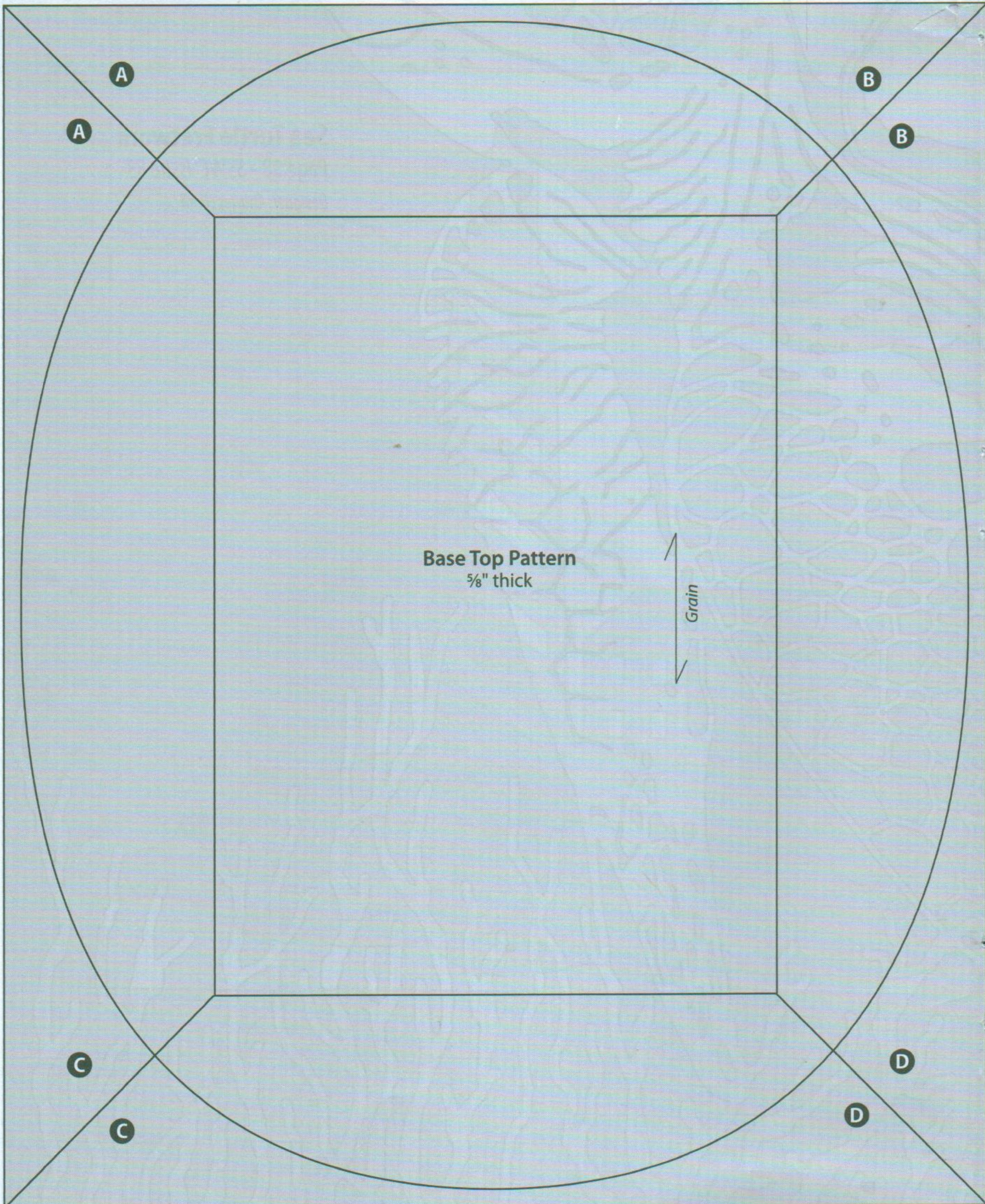
B
B

Base Top Pattern
 $\frac{5}{8}$ " thick

Grain

C
C

D
D



Grain

136

**Cheeky
Hermit Crab**

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Designer: Anatoly Obelets

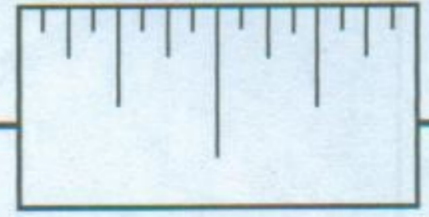


Chocolate Bar Puzzle

Page 40 - SSWC Issue 83

Designer: Al Baganetta

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



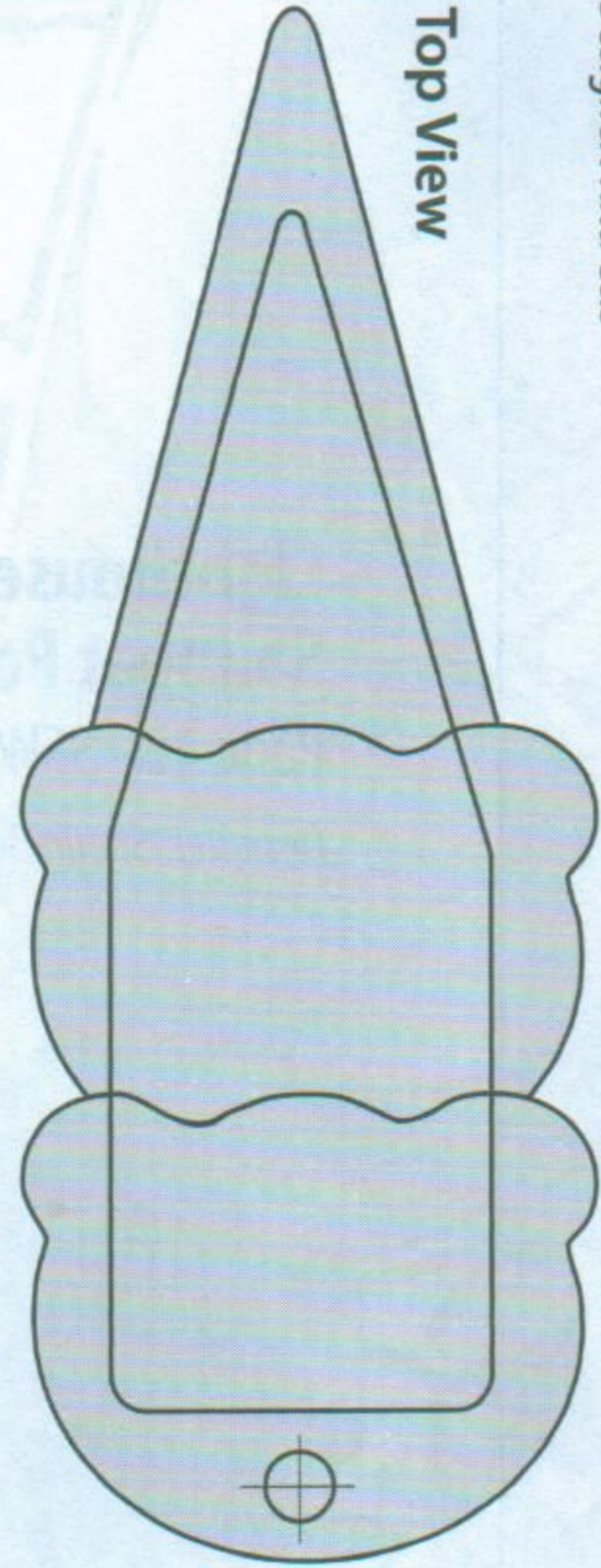
One inch

Ice Cream Cone Puzzle Box

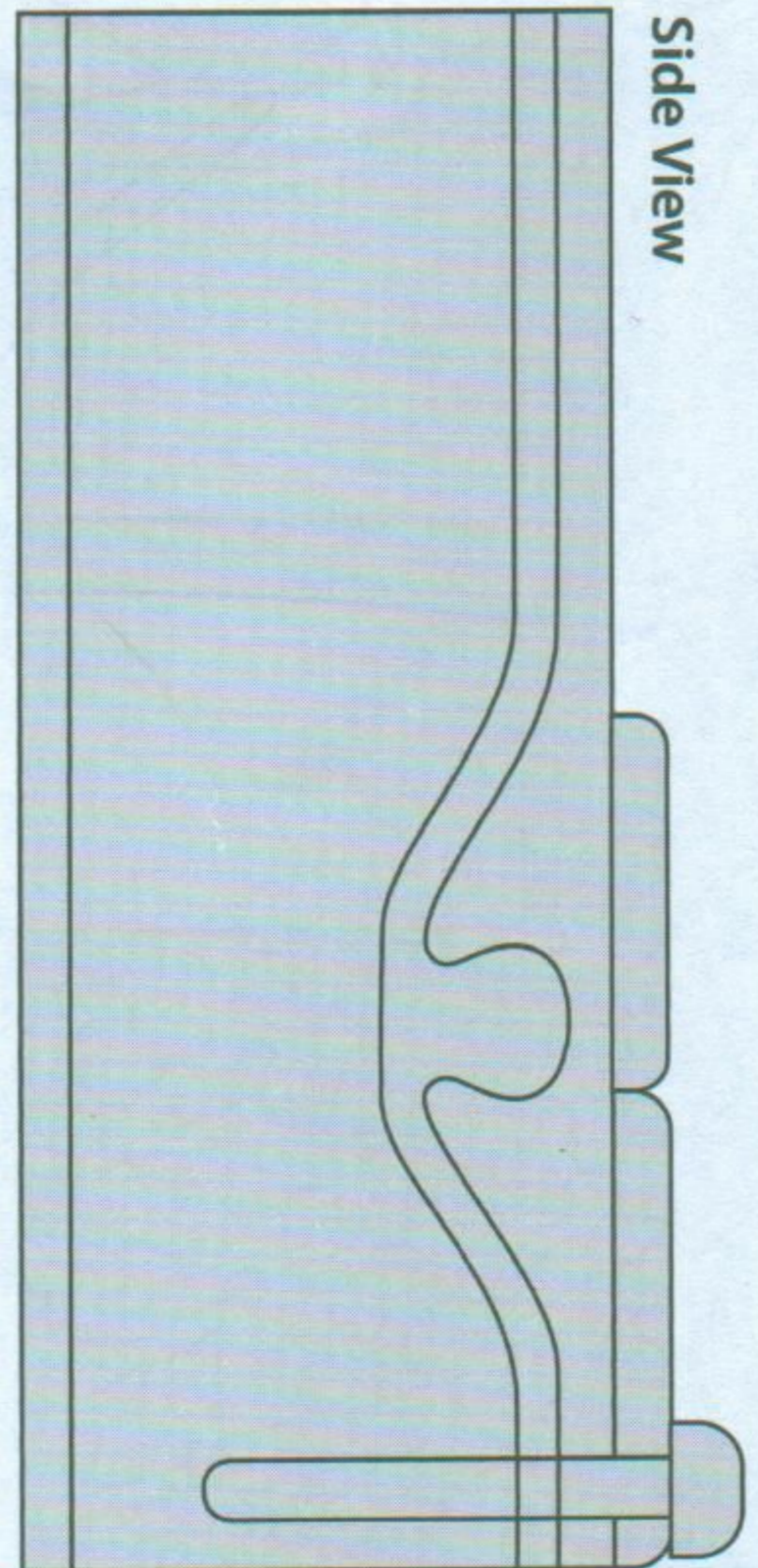
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Designer: Rita Cels

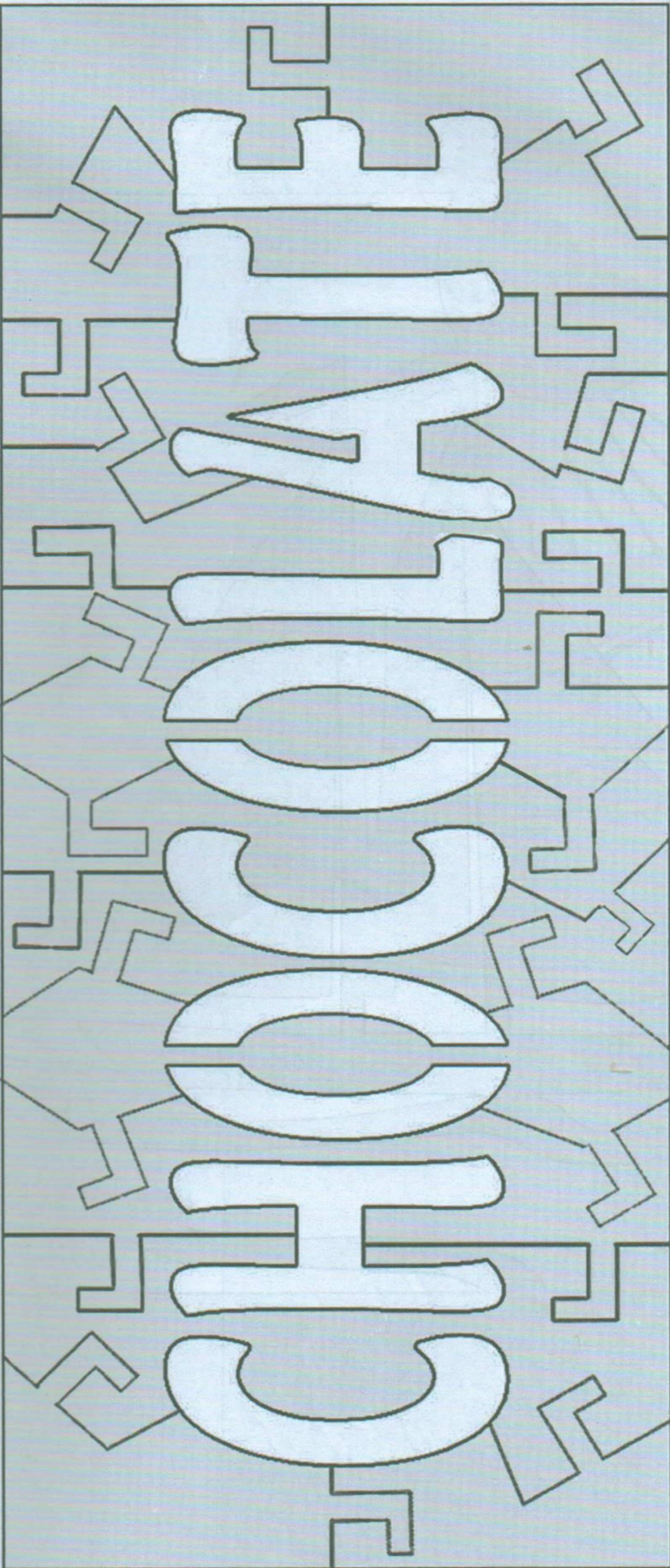
Top View

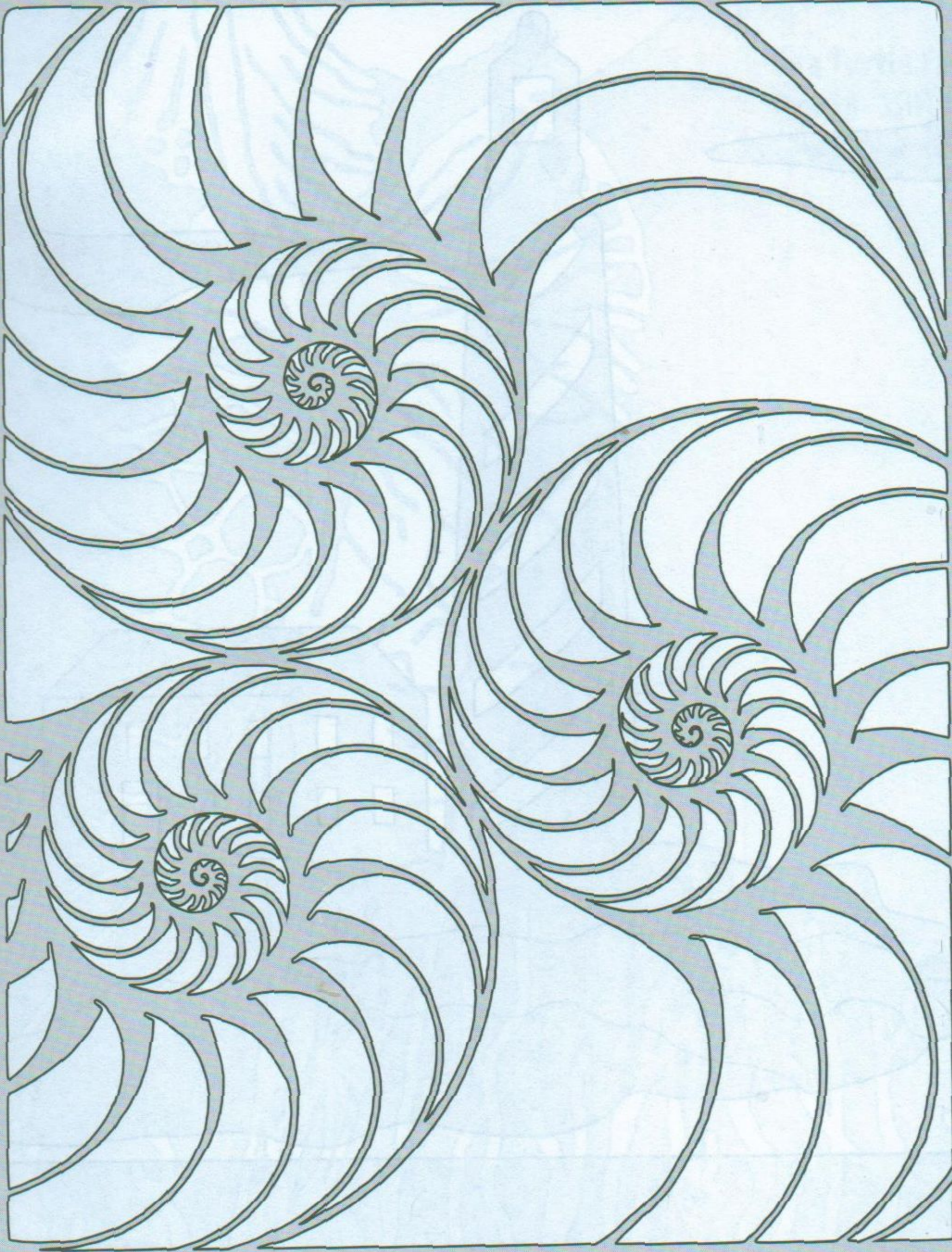


Side View



B7





Three Shells Fretwork
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Designer: Fiona Kingdon