

Choose the Best Bits and Burrs for the Job



Power Carving

A Special Interest Publication of
WOODCARVING
ILLUSTRATED

SCULPT A Realistic Wren

**Complete
Beginner's Guide:**

Tips and Techniques

All About Dust Collection

Budget-Friendly Airbrushing

Caring for Your Tools

17

Skill-Building
Projects

PLUS

**Power Carve
A Gnome
From a Log**



FOX CHAPEL
PUBLICATION



\$9.99US \$9.99CAN



DISPLAY UNTIL SEPTEMBER 11, 2023



Chipping Away

Proud supporter of Wood Carving Illustrated!
Everything from Beginner to Professional



Pfeil Swiss Made Tools



Quality Power Tools & Accessories

Merlin '2' Mini-Carver
 Kits from \$300



Awesome Products!

NEW
 6 speed option
 and more



Hey Bark Carvers!

We've got the best selection of cottonwood bark! Sold by the piece. Available in 0.8 - 4.0 lbs pieces.



Trident Carving Tools!

Exclusive Dealer

Ukraine ranks among the top steel producers in the world.



Carver's Optical Magnifier Visor

Can be worn over glasses

Comes with its own detachable LED light source. Includes 5 lenses! These 5 lenses offer 11 different magnification options.

Optical Magnifier
 \$29.95



www.chippingaway.com

Chipping Away Order Desk 1-888-682-9801

Serving the woodcarving community for 25 years.
We Know Carving!



Chipping Away

*Our quality tools will help build your skills!
Everything Today's Power Carver Needs*



Kits Include foot pedal & handpiece

Foredom Flexshaft Various Kits from \$313

Nobody Beats our Prices or Service!

We sell ALL Foredom MicroMotors

Foredom 1040 BRUSHLESS Micro Motor
Speeds up to 50,000rpm
High/Low Torque

Always In Stock and Ready to Ship

Foredom 1070 Micro Motor
Speeds to 38,000rpm
\$406

Woodcarvers Choice Micro Motor
speeds to 35,000rpm
only \$180.00

Good Value Micro Motors

Master Carver Micro Pro
speeds to 46,000rpm
Handpiece has 1/8" and 3/32" collets
\$259

Colwood & Razertip Woodburners

MINI Smoke Extractor by Razaire

Touch Screen offers precise heat control

From \$134.00

Made in Canada

\$272.00

Colwood Detailer \$90.00
very popular
Kits available!

Made in USA

Colwood Cub \$77.00

NEW ONLY \$71.95

Keep your pyrography workspace fresh and clear of smoke with the **MINI Smoke Extractor**.

- *multi-stage carbon filtration
- *soft hood allows use right on top of your project
- *2-speed operation
- *replaceable filters

Powerful Bench-top Dust Collector

Razaire Dust Collector
Portable 11" x 11" weighs 8 lbs

Razaire \$396.00 (worth every penny)

Made in Canada



www.chippingaway.com

Chipping Away Order Desk 1-888-682-9801

*Do you need advice?
We would be happy to help
you make your decisions.*



in this issue

A Special Interest Publication of
WOODCARVING
ILLUSTRATED

Power Carving



113

GETTING STARTED

11 Power Carving Basics

Getting started power carving? Here are a few main things to consider

By Staff of Woodcarving Illustrated

12 Selecting the Right Power Carving Equipment

Follow these wisdoms to build your dream kit

By Dave Hamilton, Jack Kochan, Frank Russell, and Chuck Solomon

18 Choosing Power Carving Bits

Make smart purchases with a basic understanding of the cutters available

By Dave Hamilton and Chuck Solomon

23 Tools for Removing Wood Quickly

We test-drive the hardest "toys" on the market

By Staff of Woodcarving Illustrated

25 Introduction to Reciprocating Carvers

Blend an edged-tool texture with the speed of a power carver

By Staff of Woodcarving Illustrated

27 Power Carving Safety

Anticipate potential dangers for a safer shop experience

By Dave Hamilton, Jack Kochan, Frank Russell, and Chuck Solomon

29 Dust Collection Roundup

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

By Jon Deck

33 Cleaning and Maintaining Bits

Prolong the life of burrs with these quick hacks

By Frank Russell

35 Woodburning Tips

Learn why pyrography is a key skill to add to your arsenal

By Staff of Woodcarving Illustrated

37 Airbrushing on the Cheap

You could have two-thirds of an airbrush setup hiding in your workshop!

By Jon Deck

39 Micromotors: A Master Class

Get your hands on some tips and techniques for micromotor power carving

By Kristin LeVier

PROJECTS

45 **Carolina Wren**

Carve a bird so lifelike it'll make you do a double take
By B. David Duncan

52 **Smoking Garden Gnome**

This spunky character comes with a pipe and a whole lot of personality
By Edgar Shrum

58 **Crescent Moon Wand**

Make a little magic for the fantasy fan in your life
By Tamara Seevers

64 **Three-Point Ribbon**

Create a classic wooden whimsy with just a rotary tool and a knife
By Garth Burgon

67 **Hardwood Mouse**

Transform colorful scraps into a cute little rodent on a bed of leaves
By Paul Purnell

73 **Ice Skate Ornament**

Add an unexpected embellishment to an easy holiday ornament
By Keoma McCaffrey

75 **Tiny T. Rex**

This king of lizards will be a hit with dino lovers of all ages
By Brian Altison

79 **Realistic Bear Head**

Make this handsome beast without endless hours of fur texturing
By Lori Andrews

85 **Carving the Female Face**

Master the technique of sculpting a human portrait
By Chris Howard

92 **Power-Carved Pirate Ship**

Indulge your inner pirate by making a miniature Jolly Roger
By Benjamin Tyler

95 **Realistic Tropical Fish**

Hone your fish-carving skills on a vibrant reef dweller
By James Spencer

100 **Golden Eagle Walking Stick**

Dress up a functional cane with this glorious raptor
By Paul Purnell

105 **Autumn Jewelry**

Sculpt a lovely array of wearable acorns and leaves
By Keoma McCaffrey

107 **Making a Rustic Measuring Cup**

Power carve a kitchen staple from salvaged wood
By David Drake

111 **Rolling Pin Santa**

Use a reciprocating carver to give old utensils a new face
By Randy George

113 **Great Horned Owl**

Let the chips fly where they may with this striking chainsaw sculpture
By Michael Robinson



18

DEPTS.

4 **Editor's Note**

6 **Artists to Watch**

117 **Ad Directory**

120 **Woodchips**

COVER

Choose the Best Bits ...19

Realistic Wren ...45

Tips & Techniques ...11

Dust Collection ...29

Airbrushing ...37

Caring for Tools...33

Gnome from a Log ...52

Find these free extras at

WOODCARVINGILLUSTRATED.COM

Free Project Create an adorable baby chickadee from Butch Clark.

Bonus Reviews Discover more power carving tools with our online product reviews for Foredom® and MakerX™ tools.



Search for Woodcarving Illustrated
on Facebook, Pinterest, TikTok, and Instagram

92





Burying the Hatchet.... and Picking Up a Chainsaw

No matter which carving shows we attend, there always seems to be a friendly feud going on between the hand carvers and the power carvers: *Yeah, sure, that realistic blue jay is impressive, but I bet you couldn't carve a Santa!* While these jabs are all in good fun, we hope to settle the score in this issue. Whether you're a dedicated mallet-and-gouge user or a rotary tool diehard, you'll find friendly faces here. Fans of classic caricature can rejoice in a grinning Santa, carved into an old rolling pin with a reciprocating carver that mimics the look of edged tools (page 111). Then jump to a simple ribbon whimsey you can make with just a Dremel and a knife (page 64). Complete the trifecta with a rustic measuring cup sculpted by a chisel and a handful of rotary burrs (page 107). While hand tools are a valuable resource, you'll see that power tools can help to speed the roughing process and add fine details with little manual effort.

Want to use power from start to finish? Turn a ponderosa pine log into a pensive garden gnome (page 52); with minimal features and an approachable painting technique, it's a great first project. Next, check out our easy-to-follow guides for creating a vibrant tropical fish (page 95), a sassy Carolina wren (page 45), and a watchful owl carved with a chainsaw (page 113). Finally, face a foe more imposing than the bear bust on page 79—most carvers find it challenging to carve the female face, but Chris Howard breaks the method down so that anyone can master it (page 85). You'll even get a bonus lesson on human proportions besides.

No matter what kind of woodworker you are, it's good to have a few basic power carving tricks in your back pocket. That's why we included a whole beginner section on everything from choosing and maintaining burrs (pages 18 and 33) to protecting your lungs from sawdust (page 29). If you want to test your knowledge, Kristin Levier's micromotor master class is a perfect starting point (page 39); she even walks you through making a practice board, so you can get comfortable using the tool in different ways before jumping into the projects.

So whether your jam is Santas or blue jays, fish or jewelry, pirate ships or garden gnomes, we can agree (at very least) that turning wood into chips and dust is a noble and worthwhile pursuit.

Happy carving!



Kaylee Schofield, Editor
schofield@foxchapelpublishing.com

**This issue is full of
useful tips, techniques,
and projects for all
kinds of carvers.**



Power Carving

Printed in USA

Volume 5

How-To Magazine for Carvers™
Internet: WoodcarvingIllustrated.com

Woodcarving Illustrated Magazine
903 Square Street, Mount Joy, PA 17552
Phone: 717-560-4703
editors@woodcarvingillustrated.com

**Our Mission: To promote woodcarving as an
art form and an enjoyable pastime.**

Publisher/CEO Alan Giagnocavo
Editor Kaylee Schofield
Associate Editor Dorissa Bolinski
Editorial Administrator Kelly Umenhofer
Art Director Jon Deck
Social Media Manager Shane Speal
Founding Editor Roger Schroeder
Contributing Photographer Mike Mihalo
Technical Illustrators John Allard
Jon Deck

President/COO David Miller
Vice President, Sales Michele Sensenig
Vice President, IT Operations Paul Metzger

Customer Service for Subscribers

Visit WoodcarvingIllustrated.com, call 888-506-6630,
e-mail customerservice@foxchapelpublishing.com,
or write to *Woodcarving Illustrated*,
903 Square Street, Mount Joy, PA 17552.

Newsstand Distribution: Comag Marketing Group
Circulation Consultant: National Publisher Services
Printed by Fry Communications

©2023 by Fox Chapel Publishing Co. Inc.
All Rights Reserved. Printed in Canada.

Subscription rates in US dollars

One year \$29.99
Two years \$59.98

Canada

One year \$34.99
Two years \$69.98

International

One year \$39.99
Two years \$79.98

Display Advertising/Classifieds

For rates and/or a media kit, please call Shane Speal at
800-457-9112 x156,
or email advertising@foxchapelpublishing.com

Wholesale/Distribution

Woodcarving Illustrated is available to retailers for
resale on advantageous terms.
Contact Fox Chapel Publishing Sales at
sales@foxchapelpublishing.com or 800-457-9112 opt. #2

Identification Statement: *Power Carving* Vol. 5, (ISSN#978-1-4971-0448-8)
is published by Fox Chapel Publishing Co. Inc.,
903 Square Street, Mount Joy, PA 17552.
Periodicals Postage at Lancaster, PA
and additional mailing offices, including Plattsburg, NY.
POSTMASTER: Send address changes to *Woodcarving Illustrated*,
903 Square Street, Mount Joy, PA 17552.

Woodcarving and the use of associated equipment can potentially result in health hazards and injuries. While we cannot impose safety standards in every article, we do ask that you make safety your number one priority. Protect your respiratory system, hearing, vision, and the rest of your body with the proper safety equipment and prudent precautions. Read manuals supplied with your tools. Be aware that most accidents occur when you are tired or distracted. And when in doubt, seek advice from professionals on how to keep your tools sharp and maintained.

**Note to Professional Copy Services — The publisher grants you
permission to make up to ten copies for any purchaser of this
magazine who states the copies are for personal use.**

AUTO MACH® CELEBRATING OUR 54th YEAR

We developed the World's First Reciprocating Wood Carver.
Compare our cutting performance with competitors.

Tools for professional use. 38 varieties of high-grade carving blades.

Optional
Blades

HAND-CRAFT HCT-30A & S

1. The blade reciprocates at super high speed (12000 times per minute) and hard wood can be carved sharply.
2. There is no problem in continuous use.
3. Upgraded version (HCT-30S) with both reciprocating and rotational movements (12000 rpm) of standard version HCT-30A (reciprocating only).

Made in
JAPAN

HCT-30A \$330.00

HCT-30S \$470.00

Dealer List

WOODCRAFT SUPPLY, LLC.
OVER 80 STORES NATIONWIDE

Phone: 1-800-535-4482

www.woodcraft.com custserv@woodcraft.com

GREG DORRANCE CO.
MASSACHUSETTS *FULL LINE SALES & REPAIR SERVICE CENTER

Phone: 1-508-222-6255

www.gregdorrance.com greg@gregdorrance.com

JAPAN WOODWORKER CATALOG
WEST VIRGINIA

Phone: 1-800-537-7820

www.japanwoodworker.com
support@thejapanwoodworker.com

WOODCARVERS SUPPLY, INC.
FLORIDA

Phone: 1-800-284-6229

www.woodcarverssupply.com
help@woodcarverssupply.com

SMOKY MOUNTAIN WOODCARVERS
U.S.A. *FULL LINE SALES & REPAIR SERVICE CENTER

Phone: 800-541-5994

www.woodcarvers.com sales@woodcarvers.com

PRIME PRODUCTS LLC.
IOWA

Phone: 1-844-586-9153

www.primetools.com support@primetools.com

TIMBERLINE TOOLS.COM
UTAH

Phone: 1-800-630-2260

<http://timberlinetools.com> help@timberlinetools.com

CHIPPING AWAY, INC.
ONTARIO, CANADA

Phone: 1-888-682-9801

www.chippingaway.com cindy@chippingaway.com

BIG BEAR TOOLS, INC.
BRITISH COLUMBIA, CANADA

Phone: 1-877-454-8665

<https://bigbeartools.com>
davestreet@bigbeartools.com



Ultra high-speed reciprocation technology

TOKYO **AUTO MACH®** CO., LTD.

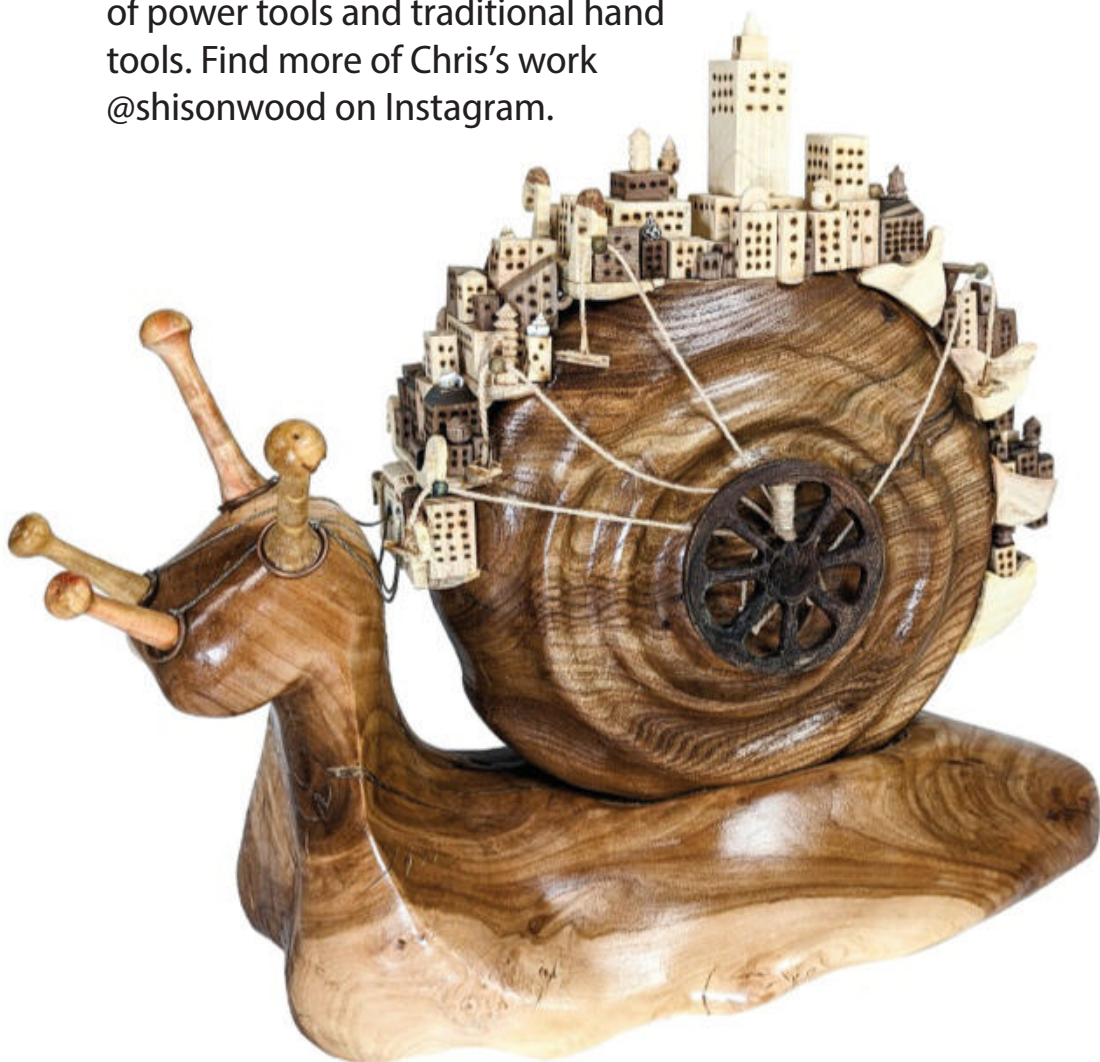
2-7-10 HATANODAI SHINAGAWA-KU
TOKYO 142-0064 JAPAN
FAX: +81-3-5702-0552

WEBSITE: www.automach.com/pages/frame10/index-e.html E-mail: a@automach.com



Chris Sisson *Hamilton, Ontario*

Since age five, when his father handed him his first pocketknife, Chris Sisson has always found a way to incorporate woodcarving into his life. After spending years carving human figures, Chris was inspired to create carvings based on his interest in fantasy and mythology. His latest carving series, which showcases animals and creatures with small cities on their backs, is made with a combination of power tools and traditional hand tools. Find more of Chris's work @shisonwood on Instagram.



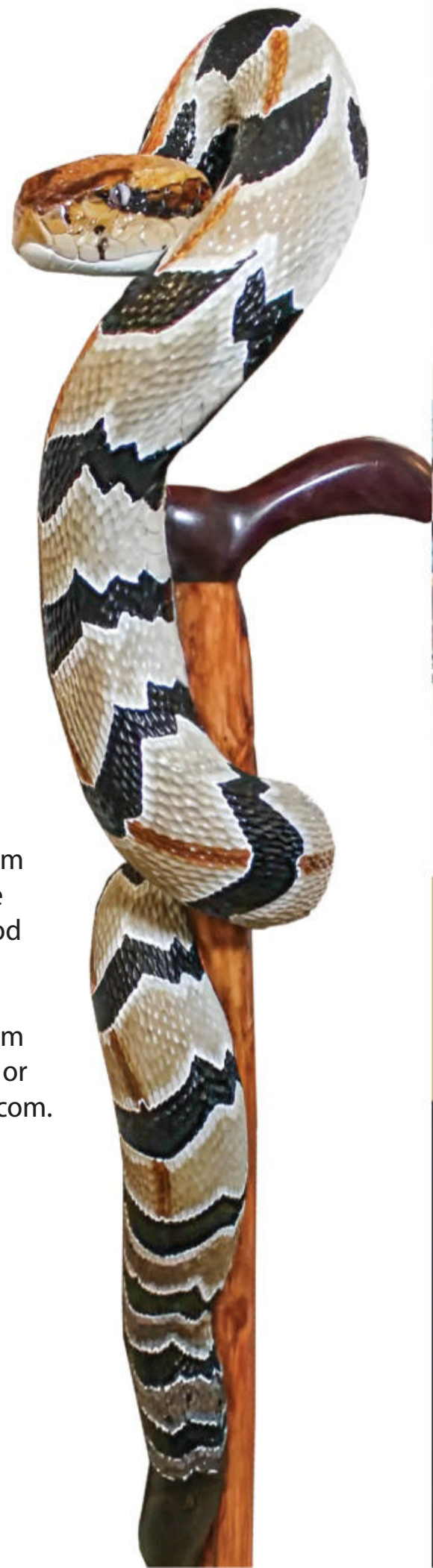
Stephen Downie *Vancouver, B.C.*

From members of the animal kingdom to monsters in horror films, Stephen Downie has no shortage of ideas for his wooden pipes. "For me, trying to find the time to carve is more difficult than finding inspiration," he said. In addition to carving pipes, Stephen has branched out into creating wood sculptures with his collection of burrs and sanders. To see more of Stephen's work, visit @downiepipes on Instagram.

Malcolm Sharp

Toccoa, Ga.

Whenever Malcolm Sharp comes across a tree branch with unique twists, he imagines how a snake might wrap itself around the wood. Once he can picture it, he gets to work on one of his walking sticks. "I have an eye for detail and enjoy trying to create with my hands what I see in my mind," he said. To make his snakes look realistic, Malcolm carves each individual scale and finishes them with wood stains to highlight their natural colors. See more of Malcolm's work on Instagram @currahee_twisted_sticks, or visit curraheetwistedsticks.com.



A New Name in Carving Supplies 35 Years Experience

Some of Our Brands:

- Argofile • Atelier Free Flow • Aves Apoxie • Bob Smith Glue • Foredom • Harder & Steenbeck • Iwata • Jo Sonja • K&S Metal • KingArt • King Arthur Tools
- Manpa • Olson Saw • OptiVisor • Quickwood • Razaire • Razertip • SaburrTooth • SIA Swiss • Silver Brush • Sparmax • TurboCarver • Typhoon



Some of Our Products:

- Air Brush Compressors • Air Brushes and Parts • Air Turbine Tools & Bits • Bandsaw Blades • Basswood • Blanks • Bird Photo Reference
- Books • Brass Rod and Tube • 1/4", 1/8" & 3/32" Burs • Butternut • Carving Wood • Cushion Sanders • Custom Blank cutting • Dust collectors
- Flex-shaft tools • Glass Eyes • Glues & Epoxies • Micro Motors • Paint and Medium • Paint Brushes • Patterns • Pewter Feet • Powercarving Cutters
- Sanding cones • Sanding Sticks • Sandpaper • Study Bills • Study Casts • Study Notes • Tupelo • Woodburners

**MAPLE
& BASS**
CREATE • CUT • CARVE

Owned and Operated by Cam Merkle

Maple and Bass Enterprises Inc.

PO Box 880, 301B-9th Street North
Martensville, SK Canada S0K 2T0
Phone 306-384-2277
Toll-free (Canada/U.S.A.) 1-833-520-2277
hello@mapleandbass.com
mapleandbass.com



Eskimo Curlew
by Cam Merkle
Oil on Tupelo and Brass

20% OFF* Your Entire Purchase!

*Offer may not be combined with any other sale, promotion, discount code, or coupon.

Use coupon code SPPC5 when ordering
Offer expires September 30, 2023

Must Have Books for Power Carvers and Woodworkers

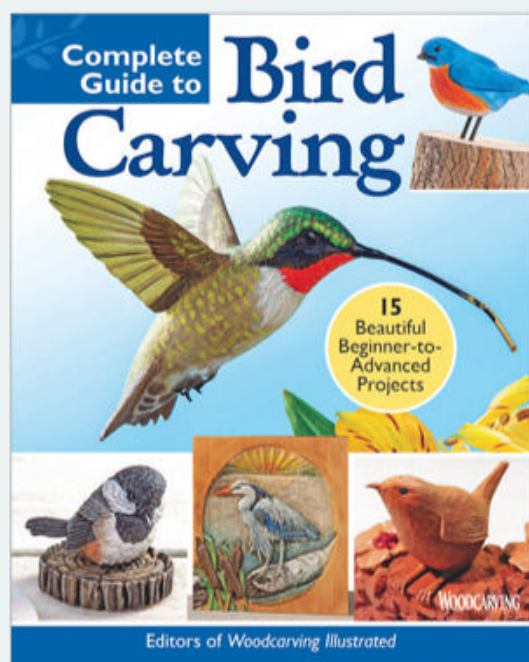


Power Carving Manual, Updated and Expanded Second Edition

By Editors of Woodcarving Illustrated

- Features a stunning gallery of work and complete buyers guide to exciting new tools
- Includes 22 all-time favorite step-by-step projects and patterns from *Woodcarving Illustrated*
- Offers expert information, insight and inspiration from today's top power carvers including, Frank Russell, Jack Kochan, David Sabol, Lori Corbett, Chuck Solomon, and Dave Hamilton

Paperback • 168 pages • 8.5" x 11"
Code: 9036 • \$19.99

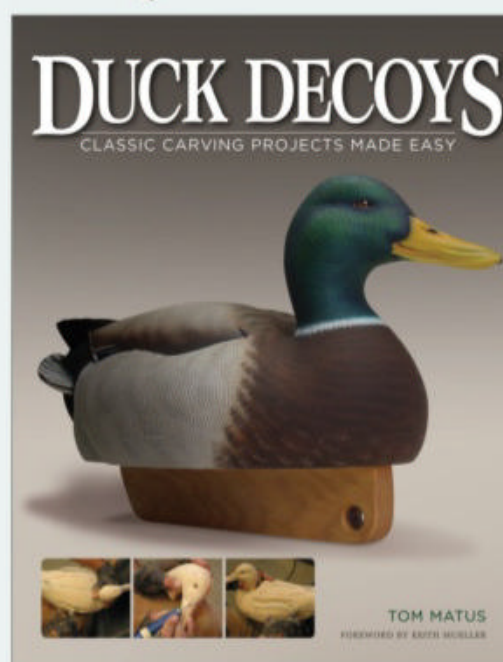


Complete Guide to Bird Carving

By Editors of Woodcarving Illustrated

- Includes 15 step-by-step projects, including patterns for woodpeckers, chickadees, owls, blue herons and more!
- Features various techniques for carving wooden birds, including power carving
- Projects and patterns provided by well-known and talented artists including Chris Lubkemann, Greg Young, Randy Conner, Sandy Czajka and others!

Paperback • 128 pages • 8" x 10"
Code: 02774 • \$19.99

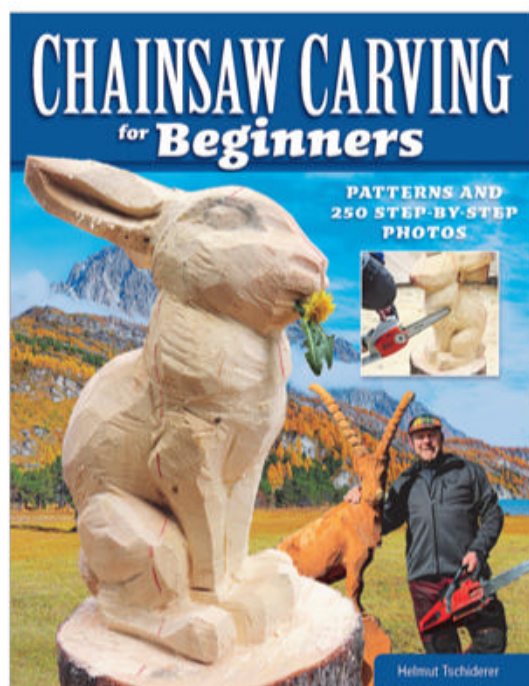


Duck Decoys: Classic Carving Projects Made Easy

By Tom Matus

- Includes a complete step-by-step project for carving an entire drake mallard decoy
- Features an in-depth lesson on painting your mallard in the traditional decoy style
- Pattern is supplied by author and award winning decoy carver, Tom Matus

Paperback • 80 pages • 8.5" x 11"
Code: 1929 • \$14.95

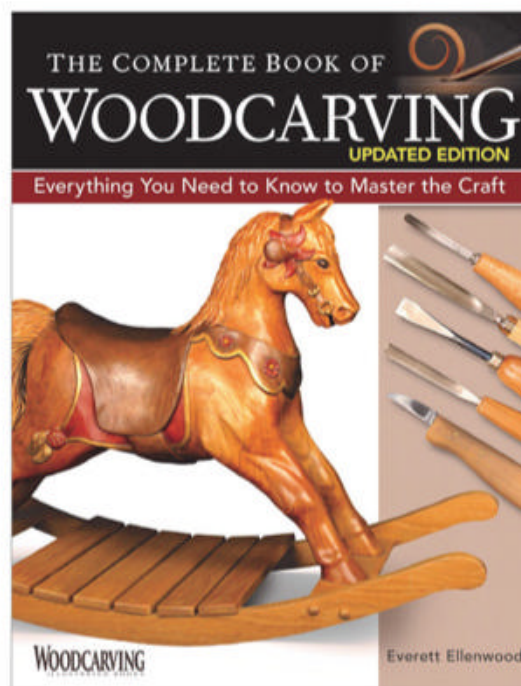


Chainsaw Carving for Beginners

By Helmut Tschiderer

- A complete guide to chainsaw carving that explains everything you need to know to carve amazing wood sculptures
- Provides four projects to teach the fundamental knowledge and techniques of wood carving with a chainsaw
- Includes reference pattern views for a 360-degree view

Paperback • 144 pages • 8.5" x 11"
Code: 02743 • \$19.99



The Complete Book of Woodcarving, Updated Edition

By Everett Ellenwood

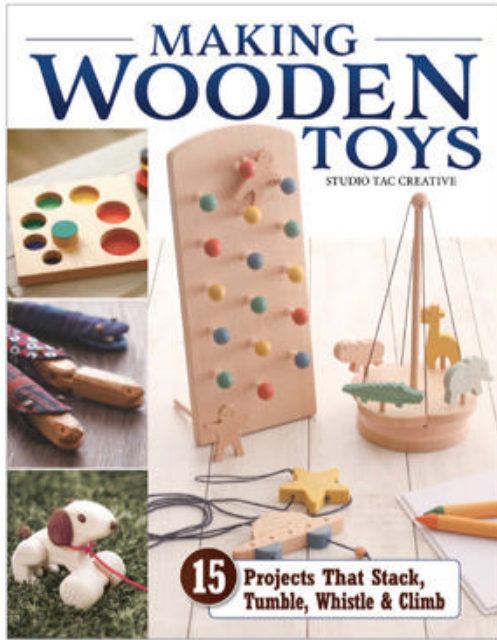
- A comprehensive resource that covers every aspect of woodcarving from beginner to advanced
- Features an updated power carving section, newly added projects and updated photography
- Includes a handy resource section and glossary

Paperback • 304 pages • 8.5" x 11"
Code: 02842 • \$29.99

ORDER TODAY! 800-457-9112 • FoxChapelPublishing.com

VISIT US ON 

Add These Easy-to-Make Toy, Games and Puzzle Books to Your Woodworking Library



Making Wooden Toys

By Editors of *Woodcarving Illustrated*
Available in July

- All projects are made from wood with minimal tools, and finishes are food- and child-safe
- Projects are contemporary and truly unique to engage children in new ways
- In-depth guide to using the materials and tools in the book

Paperback • 192 pages • 7" x 10"
Code: 03931 • \$22.99

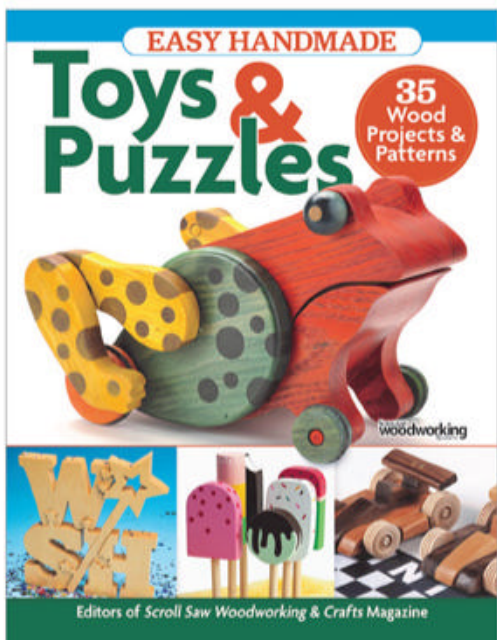


DIY Backyard Games

By Colleen Pastoor

- Approachable projects for both beginners and experts alike
- 12 easy step-by-step projects including giant Jenga, Yahtzee, Memory, and Twister and more!
- Author Colleen Pastoor is a popular DIY blogger who offers creative tutorials for a fun home life

Paperback • 96 pages • 8.5" x 11"
Code: 02750 • \$14.99

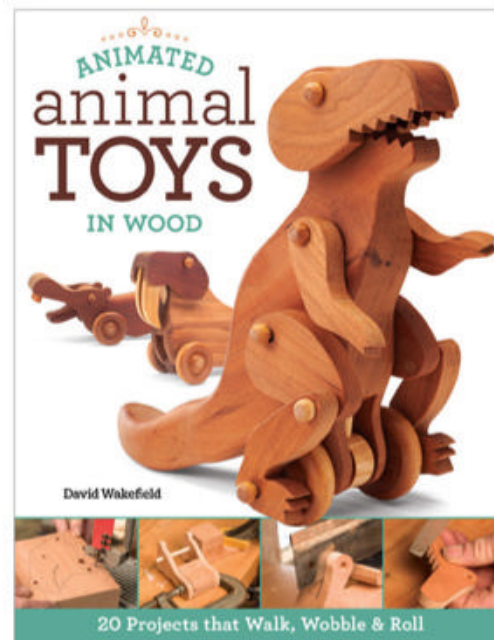


Easy Handmade Toys & Puzzles

By Editors of *Scroll Saw Woodworking & Crafts Magazine*

- A must-have guide for beginners to intermediate scroll sawers to make a range of timeless wooden toys
- Includes 35 patterns with detailed instructions, coordinating photography and expert tips
- Original scroll saw designs by master artists including, Judy Peterson, Sarah Chamberlain, Bob Gilsdorf, Brad Anderson, Paul Meisel, and Sue Mey

Paperback • 120 pages • 8.5" x 11"
Code: 02767 • \$16.99

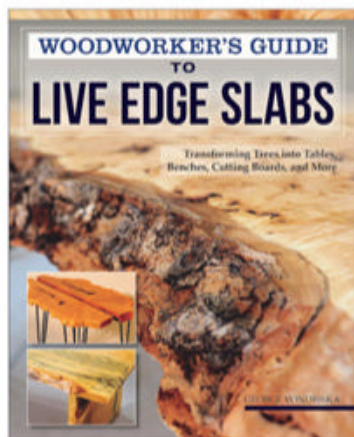


Animated Animal Toys in Wood

By David Wakefield

- 20 imaginative projects for making wild and wacky wooden animals that come alive with delightful lifelike motion
- Patterns are detailed and concise with step-by-step color photography for reference
- Author David Wakefield has been creating toys in southeastern Ohio for 35 years

Paperback • 196 pages • 8.5" x 11"
Code: 8442 • \$22.99



Woodworker's Guide to Live Edge Slabs

By George Vondriska

- A complete and accessible guide on making DIY furniture from live edge slabs
- Includes techniques for milling, drying, and preparing your slab, adding inlays, using resin, epoxy and more!
- Author George Vondriska is the owner of Vondriska Woodworks, one of the premier woodworking schools in the Midwest

Paperback
144 pages • 8" x 10"
Code: 01432 • \$21.99

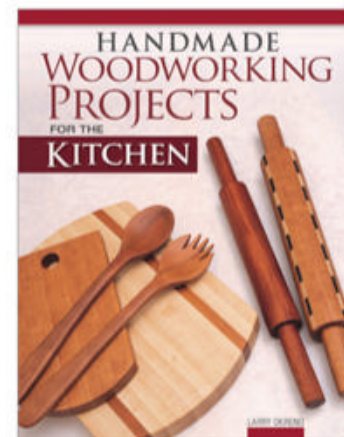


Building Wood and Resin River-Style Tables

By Bradlyn Zimmerman

- A beginner friendly guide that shows you everything you need to know to accomplish a stunning piece of functional art
- Features detailed overviews and tutorials for every step of the process
- Learn how to select wood, prepare the slab, pour the epoxy resin, trim and sand and so much more!

Paperback
128 pages • 8.5" x 11"
Code: 03023R • \$24.99



Handmade Woodworking Projects for the Kitchen

By Larry Okrend

- Includes 17 functional woodworking projects that you can use every day
- Features step-by-step instructions with coordinating photography and expert tips
- Projects include cutting boards, knife block, wine rack, lazy Susan and others that are perfect for your own use or to give as gifts!

Paperback
136 pages • 8.5" x 11"
Code: 01449 • \$21.99



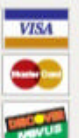
ORDER TODAY! 800-457-9112
FoxChapelPublishing.com

By Phone: 800-457-9112 • Direct: 717-560-4703
Email: customerservice@foxchapelpublishing.com
Online at: FoxChapelPublishing.com
By Mail: Send Check or Money Order to
Fox Chapel Publishing
903 Square Street
Mount Joy, PA 17552



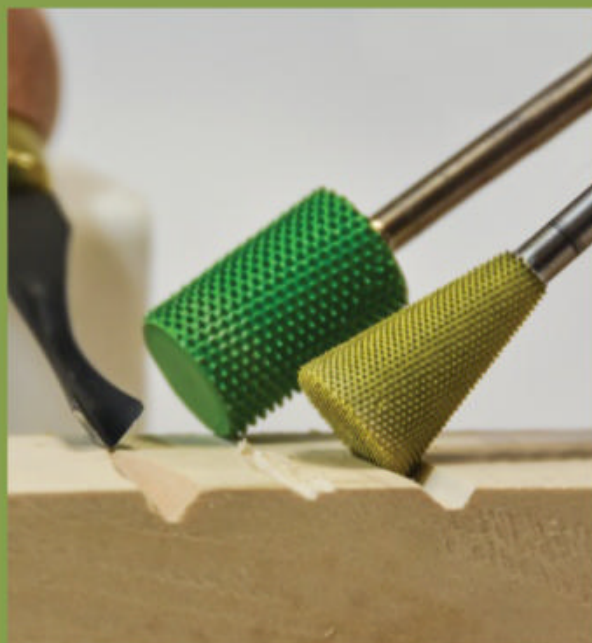
US

# Item	Shipping Rate
1 Item	\$3.99
Each Additional	.99



Canadian & International Orders - please email info@foxchapelpublishing.com or visit our website for actual shipping costs.

Getting Started



Power Carving Basics



Rotary power carving tools offer versatility in size, shape, and grit—and are available from home improvement stores and online retailers.

Getting started power carving? Here are a few main things to consider

By Staff of Woodcarving Illustrated

Nowadays, you can get started power carving without making a huge time or money investment. Before you do anything else, though, you'll need to decide on a main tool. Power carving tools come in different types depending on your needs: flexible shaft machines have the high torque necessary to do hard rough out work on bigger projects, while micromotors and super-fast air turbine machines are better suited to fine details. You can even test-drive a reciprocating carver to remove wood quickly and give larger sculptures a handcarved look. The really intrepid can achieve various details with a chainsaw, too.

Once you have your tool of choice, you'll need some bits. Many of the tools mentioned above come with a variety of bits, some suitable for woodcarving and some not. But even if your tool doesn't come with these, you can source different grits and shapes at most dedicated carving supply stores.

A wide variety of available bits can make for a daunting selection process. Where do you start? Generally speaking, you use large, coarse bits to remove the excess wood and rough out the piece. Then, you move on to smaller bits and finer grits

to refine the carving and add the details. For us, that means using large, coarse carbide-point bits in a flexible shaft tool (see *Selecting the Right Power Carving Equipment* on page 12) or coarse sandpaper in sanding drums. Then, as we refine the basic forms (called “blocking in”), we move on to fine-grit carbide point bits and finer sandpaper (to remove the scratches from the coarse-grit bits and sandpaper). From there, fluted cutters, coarse diamond bits, and ruby bits give way to fine-grit diamonds and ceramic stones for the finest details.

But it doesn't stop there. Once you're done carving, you can add even finer details, such as feather barbs on a bird, with a woodburner (see more on woodburners, page 35). After that, if desired, you can layer on intricate painted details by hand or with an airbrush setup (see more on airbrushing, page 37). Don't worry—painting a carving can be as simple or as detailed a process as you like, and you don't need to be a pro to turn out impressive work.

No matter which tools you use, go in with a plan—and remember, there is no perfect tool, just the perfect tool for you.

Selecting the Right Power Carving Equipment

Follow these wisdoms to build your dream kit

By Dave Hamilton,
Jack Kochan, Frank Russell,
and Chuck Solomon
Photography courtesy
of Foredom®



CHECKLIST FOR POWER CARVING EQUIPMENT

- ☒ Comfortable handpiece
- ☒ Generates little vibration and heat
- ☒ Acceptable noise level
- ☒ Adequate technical support
- ☒ Availability of parts and service

Choosing Your Power Carving Equipment

Whenever possible, test-drive several different brands and models before making a purchase. Many stores and woodcarving shows provide consumers with the opportunity to try before buying. Pay attention to the comfort and weight of the handpiece. Try carving both hard and soft wood to determine the tool's ability to quickly remove wood. The equipment should not lose power, even at low speed. Neither the handpiece nor the motor should vibrate or generate uncomfortable amounts of heat. Make sure the noise level is acceptable, and determine how easy it is to remove and replace the handpiece and bits.

In addition to the overall quality of a tool, research the availability of technical support, as well as parts and service. Does the manufacturer offer a toll-free number to call if your tool stops working? Is there a website you can visit to find tips and techniques for using and maintaining the tool? Be sure to think about what happens after the initial purchase.

Consider how much time you will be carving. Ask other carvers in your woodcarving club for their personal opinions or visit websites, such as the *WCI* forum (forum.woodcarvingillustrated.com), where you can gather testimonials from a large group of power carvers. Keep in mind, reviews from carvers are personal opinions and can vary in reliability.

In most cases, buy the best equipment you can afford. Generally, inexpensive tools wear out sooner and have to be replaced, therefore upping your cost. Once you have decided on the unit you want to purchase, check with retailers for discounts or special package-deal pricing. The purchase of a power carving unit is an investment. With proper research, you can find a unit that will provide years of dependable performance, allowing you to concentrate on honing your carving skills.

You need a basic understanding of the tools available before you can begin carving with power. The majority of power carvers use flexible shaft machines and micromotors. Both of these tools use a rotating bit or burr to remove wood. Flexible shaft machines have greater torque, but less speed, than micromotors. Specialized tools, such as angle grinders and air turbine machines, are also available for artists seeking specific results.

Flexible shaft machines have the power necessary for roughing out carvings as well as doing detail work. A flexible shaft machine is usually the first piece of equipment purchased by new carvers. The micromotor is primarily used as a detailer, although with a little patience, you can use it to do rough shaping on small carvings. Many carvers invest in a micromotor as they gain experience. The higher speed of the micromotor produces cleaner cuts when carving fine detail.

It's impossible to say one model is better than another because it depends on what you want from your equipment. Think of it like buying a new car. Many people have brand preferences, and each individual weighs features differently. Some people value gas mileage and efficiency, while others are looking for performance and durability.

Some tools make it easy to get started in power carving because of low initial cost. Other tools allow you more flexibility with a variety of available accessories. In this article, we provide an overview of the equipment available.

The Power Carver's Choice

- Superior Material Removal
- Very Easy to Control
- Outstanding Wear-Life
- Incredibly Versatile





A variety of handpieces give flexible shaft machines the widest range, with respect to selection of bit size and shape, application, and hand comfort.

Control rotation speed using a foot pedal (top) or a bench-top rheostat (bottom).



MACHINES AND ACCESSORIES

The flexible shaft machine is the mainstay for power carving. Many power carvers use a flexible shaft machine for all stages of power carving. Unless you are planning to specialize in miniature carvings, a flex shaft machine will probably cover most of your power carving needs. For small carvings less than 3" (7.6cm) in height, a micromotor (see page 39) may fulfill your equipment needs.

The flexible shaft machine consists of an enclosed drive motor attached to a 36" (91.4cm) or longer flexible shaft. A handpiece is attached to the shaft, which is covered by a polyethylene or neoprene sheath. Bench-top units are available, but the motor unit is about the size of a softball. Most carvers opt for the hanging units to free up space on their workbench. The rotational speed of the burr is controlled by a foot pedal or a dial.

The speed at which the shaft turns the burr is measured in revolutions per minute (rpm). The higher the rpm, the faster the burr will remove wood. Flexible shaft machines range in power from $\frac{1}{15}$ hp (horsepower) to $\frac{1}{3}$ hp. Higher hp units will keep the machine from losing rpm while you are carving. If you plan to carve primarily hard wood, such as maple, choose a $\frac{1}{3}$ hp machine so the burr does

not get bogged down in the dense wood. For larger projects, such as full size merry-go-round animals, use a $\frac{1}{3}$ hp unit.

Most machines have a forward and reverse setting. You want to keep the burr rotating toward you for maximum control. With the machine in reverse, a left-hander has the rotation toward them and enjoys the same advantage and control that a right-hander has with the rotation in forward. Reversing the direction allows you to carve with the grain when its direction changes, and it helps remove a stuck burr or drill bit. The reverse setting is also handy for directing dust away from you, toward the dust collector as you sand.

Handpieces come in a variety of sizes and shapes. Many manufacturers' handpieces are interchangeable. The flexible shaft machine is the mainstay for power carving. Many power carvers use a flexible shaft machine for all stages of power carving. Unless you are planning to specialize in miniature carvings, a flex shaft machine will probably cover most of your power carving needs.

The flexible shaft machine consists of an enclosed drive motor attached to a 36" or longer flexible shaft. A handpiece is attached to the shaft, which is covered by a polyethylene or neoprene sheath. Bench-top units

Your Source for:

PROXXON

MANPA
Carve Your Life

KUTZALL
ARBORTECH

KING ARTHUR'S TOOLS

KLINGSPOR

And polish off with
KLINGSPOR ABRASIVES
sanding products

KLINGSPOR'S WOODWORKING SHOP

"Quality Tools and Supplies for the Woodworker"

Four Locations in North Carolina:

• Winston-Salem

• Asheville

• Cary

• Hickory



800-228-0000 • www.woodworkingextravaganza.com



BIGFOOT CARVING TOOLS

Bigfoot Carving Tools is a small online store.
We might be small, but we offer quick shipping, top
quality products along with great customer service.

We even sharpen carving tools.

Some Items that we carry are:

Woodburners; Adhesives; Glass Bird Eyes & Fish Eyes;
Pewter Bird Feet; Micro-Motor Units; Various Hand Tools
from top quality knife and gouge makers; Manpa Tools for
your grinder, Various Abrasive Burrs, Bits and stones for
your Foreman/Ram/Dremel; Safety Items and much more.

We even have Band-Aids for those little mishaps.

bigfootcarvingtools.com

Contact: (479) 321-1650
sales@bigfootcarvingtools.com

WE OFFER A FULL LINE OF
CARVING TOOLS AND MATERIALS,
PYOGRAPHY SUPPLIES, AND
WALKING STICK AND CANE PARTS



CALL 1.800.598.2743
OR VISIT TREELINEUSA.COM
TO ORDER YOUR FREE CATALOG



Smaller handpieces allow the carver to rough out smaller projects or continue refining rough shapes left by the large carbide burrs.

are available, but the motor unit is about the size of a softball. Most carvers opt for the hanging units to free up space on their workbench. The rotational speed of the burr is controlled by a foot pedal or a dial.

The speed at which the shaft turns the burr is measured in revolutions per minute (rpm). The higher the rpm, the faster the burr will remove wood. Torque is the power behind the rpm. Flexible shaft machines range in power from $\frac{1}{15}$ hp to $\frac{1}{3}$ hp. Higher hp units will keep the machine from losing rpm while you are carving. If you plan to carve primarily hard wood, such as maple, choose a $\frac{1}{2}$ hp machine so the burr does not get bogged down in the dense wood. For larger projects, such as full size merry-go-round animals, use a $\frac{1}{3}$ hp unit.

Most machines have a forward and reverse setting. You want to keep the burr rotating toward you for maximum control. With the machine in reverse, the left-hander has the rotation toward him and enjoys the same advantage and control that the right-hander does with the rotation in forward. Reversing the direction allows you to carve with the grain when its direction changes, and it helps remove a stuck burr or drill bit. The reverse setting is also handy for directing dust away from you, toward the dust collector, while sanding.

Handpieces come in a variety of sizes and shapes. Many manufacturers' handpieces are interchangeable with different brands of flexible shaft machines. The

handpiece is the part of the tool you hold and it should be comfortable in your grip.

The handpiece connects to the flexible shaft on one end and secures the bit or burr in a collet on the other end. The bit or burr is the part that does the actual carving. We'll take a closer look at the different types of bits and burrs on page 18.

Many handpieces accept varying size bits if you simply change the collet. Burrs with large diameter shanks are primarily used for roughing out. Switch to a smaller collet or handpiece to accommodate burrs with smaller shanks for shaping and detailing.

Some handpieces have a quick-change lever to expedite changing burrs. However, most handpieces with this option will only accept a single shank size. Several manufacturers produce handpieces that utilize a geared three-jaw chuck. Similar to the three-jaw chuck on a drill press, these handpieces can hold a variety of shank accessories, including drill bits and other bits of non-standard size. As technology improves, handpieces are becoming more versatile. Some handpieces have an attachment that transforms them into mini belt sanders. Several manufacturers make a specialty handpiece that houses a reciprocating hammer-type mechanism. These handpieces accept a range of chisels used for power chisel or gouge carving. (For more on reciprocating carvers, see page 25).

The flexible shaft machine is usually suspended while in use, but can be bench mounted in a side-mounting cradle.



Replaceable collets allow your tool to accommodate different size bit shanks.



**Visit STADTLANDERCARVINGS.COM
for all your Wood Crafting Needs!**

Roughouts, John Dunkle Knives, Dockyard, Murphy, OCC,
Dockyard, Henry Taylor, Solingen, UJ Ramelson, Warren Cutlery,
Flexcut, Freedom, Colwood, Optima, and more!

**We have the best Wood Crafting
Supplies in the world!**



Knives & Gouges
Power Carving
Woodburning
Chip Carving



Books, Study Aids,
& Patterns

Eyes & Cast Feet

Basswood Blanks,
Roughouts,
& Plates



**Our new
Hardy Pocket
knife!**

STADTLANDER WOODCARVINGS
www.stadtlandercarvings.com

Phone 330-931-7847

or email bobstadtlander@roadrunner.com

2951 Frost Road, Mantua, OH 44255

SABURRTOOTH® ALL PARTS MADE
IN THE U.S.A.
SUPERIOR POWER CARVING TOOLS

**Our power carving rotary tools
feature long-lasting, razor-sharp
carbide cutting teeth arranged into
a unique open pattern to resist
loading while providing rapid stock
removal and smoother finishes.**



saburrtooth.com

Just
FLOCK IT!
with Spray-on Fibers

Line Box and Gourd Interiors in just minutes.

Create soft, fuzzy effects on your wood crafts such as:

Santas	Clouds
Dolls	Angels
Toy Furniture	Flower Petals
Jewelry	Model Car Seats
Decoys	Tree Ornaments
Tool Handles	Fretwork Backgrounds

....the possibilities are endless!

Available in over 20 colors.

Call for brochure & color chart **815-986-1097**

Flock It!

1515 Elmwood Rd, Rockford, IL 61103

flockit.com

**Finest North
American
Basswood
Company**



Also, Cherry, Walnut,
and Mahogany Wood
in different sizes as
well as Birch Plywood
and Dowel Rods.

For custom sizes, send us
an email to check availability.

**Choose
from 6", 12",
18" & 24"
lengths**

(SEE Website for full details)

**Subscribe to Our Newsletter and
Receive Members Only Deals.**

Visit www.FNABCO.com
today or call 855-579-6767

Email: fnabco@gmail.com

Fnabco
Basswood & More



Choosing Power Carving Bits

Make smart purchases with a basic understanding of the cutters available

By Dave Hamilton and Chuck Solomon
Photos of bits in use courtesy of Foredom®

In power carving, the burr or bit is the part of the tool that does the actual wood removal. The power carving tool, such as a flexible shaft machine or micro motor, spins the bit at a high speed, and the cutting surface or abrasive on the bit removes the wood. Power carving bits go by names such as burrs, cutters, carvers, stones, and discs.

Bits are manufactured from a variety of materials and are available in many shapes, head sizes, and shank sizes. The sheer volume of bits available can be overwhelming. By breaking down the categories and taking a look at the performance of the different types of bits, you can choose the best bit for the job.

SHANK DIAMETER

The shank is the backbone of the bit. One end of the shank is inserted in the rotary power carver. The head of the bit is formed around the opposite end of the shank. The most common shank diameters are $\frac{1}{4}$ ", $\frac{1}{8}$ ", $\frac{3}{32}$ ", and $\frac{1}{16}$ ". Flexible shaft machines accept any of

these diameters when equipped with the appropriate collet. Micromotors typically accept $\frac{1}{8}$ "- and $\frac{3}{32}$ "-dia. shanks, although, optional collets can be purchased for alternate size shanks. Air turbine machines use only friction bits with a $\frac{1}{16}$ "-dia. shank. Generally, the larger the size of the bit's head, the larger the diameter of the shank. Use the largest bit you comfortably can for the area you are carving. When inserting the bit into your rotary power carver, make sure the machine is unplugged and the shank is as far into the tool as it will go.

HEAD SHAPE AND SIZE

Bits are grouped into a few general shapes. The shape of the bit's head determines the contour of the cut. The larger the head, the more wood it will remove. Larger bits are generally used for roughing out a piece and smaller bits are used to add details.

Many of the shapes have specific purposes, but we tend to use the ball, cylinder, flame, and pear-shaped bits the most.

Bit Shapes

Ball

- Use to create concave cuts and to hollow out areas
- Creates a cut similar to a U-gouge

Cylinder

- Use to cut flat areas, round edges, and make stop cuts and V-cuts
- Creates a cut similar to a knife or straight chisel
- Hold the tool at an angle and use the top corner to make V-cuts
- Smooth-end or safe-end bits are the most useful

Flame

- Use to make concave cuts and V-cuts, and to recess areas
- Creates a cut similar to a U-gouge when using its side and a V-tool when using the tip

Pear

- Use to round edges and create lumps and bumps when bird carving

Bull Nose/Ball Nose

- Combines a ball with a cylinder
- Use to make concave cuts and hollow out areas using the top
- Use the side to cut flat areas and round edges
- Creates a cut similar to a U-gouge with the top and a knife cut with the side

Large Taper

- Use to round edges, make concave cuts, and access hard-to-reach areas

Small Taper

- Use to access hard-to-reach and angled areas
- Create feather barbules and hair

Oval

- Use to round edges, create lumps and bumps, and make concave cuts

Inverted Cone

- Use to make V-cuts for feather barbules and hair

Disc

- Use to undercut feathers and make channel cuts
- Cut off thin pieces of unwanted wood

GRITS AND MATERIALS

Bits are made from a variety of materials. These materials vary greatly in cost, cutting speed, durability, and the smoothness of the surface they leave behind. The most coarse and long-lasting bits feature aggressive carbide points bonded to a metal shaft. These bits remove wood fast, but leave a rough surface. The finest cutting bits are man-made stones that produce a smooth surface. Coarse bits work best at slower rpm and finer bits work best at higher rpm, but check the manufacturer recommendations for your specific bit before setting the speed.

Carbide-Point Bits

Brand names: Typhoon®, SaburrTooth®, Kutzall®

Average price per bit: \$15 to \$30

Shank diameters: 1/4", 1/8", 3/32"

- Durability:** High. We have several bits we have used for more than ten years without a noticeable change in their ability to remove wood
- Most aggressive bits available
 - Used for rapid stock removal when roughing out both hard and soft wood
 - Produce a relatively rough surface
 - Cut wood, acrylic, plaster, and fiberglass

Carbide Cutters

Brand names: Various

Average price per bit: \$10 to \$20

Shank diameters: 1/4", 1/8", 3/32", 1/16"

- Durability:** High. Long-lasting bits are nearly as durable as carbide-point bits
- Produce a relatively smooth surface on woods
 - Available in fluted and cross-cut styles
 - Large bits with 1/4"-dia. shafts useful for roughing out carvings
 - Use smaller bits to add detail to carvings
 - Cut wood, acrylic, plaster, and fiberglass

Carbide-Grit Bits

Brand name:

Dura-Grit™, Dremel®

Average price per bit: \$15 to \$20

Shank diameters: various

- Durability:** High. Tough carbide grit stays sharp and won't tear loose, but wears out faster than carbide cutters and carbide-point bits
- Available in several grits
 - Available in most shapes including cutting wheels
 - Cut wood, laminates, fiberglass, gourds, and ceramics

Mini Saw & Carving Drills

Brand name: Various

Average price per bit: \$10 and up per set

Shank diameters: 1/8", 3/32"

- Durability:** High. Mini saw drills are made from high-speed steel coated with titanium nitride; carving drills are made from high-tempered steel. Both types of drills have great heat resistance and life
- Used to drill holes and carve out from the holes on pierced turnings and relief carvings
 - Difficult to control on an in-the-round carving
 - Can cut through thicker wood (approx. 3/4")
 - Come in a variety of sizes

High-Speed Steel Bits

Brand names: Various

Average price per bit:
\$11

Shank diameters: various

Durability: Medium. Long-lasting, but not as durable as carbide bits

- Available in more shapes than carbide bits
- Useful for cutting grooves and countersinking
- Less expensive, but less durable than carbide, diamond, or ruby bits
- Cut wood, bone, antler, plastic, and soft metals



- Sintered diamond bits can be sharpened and reshaped slightly with a diamond dressing stone
- Plated diamond bits cannot be reshaped
- Used to texture and carve fine details
- Available in several grits
- Available in more shapes than any other bit
- Used for final shaping, texturing, and detailing
- Cut wood, hardened steel, glass, ceramic, bone, antler, stone, and precious metals

Stump Cutters

Brand names: Various

Average price per bit:
\$9 to \$11

Shank diameter: $\frac{3}{32}$ "

Durability: Medium. Vanadium steel cutters last longer than high-speed steel bits, but not as long as diamond or ruby bits

- Serrated edges remove wood quickly, but leave a smooth surface
- Cut most woods, bits wear out faster when carving hard dense woods



Diamond Bits

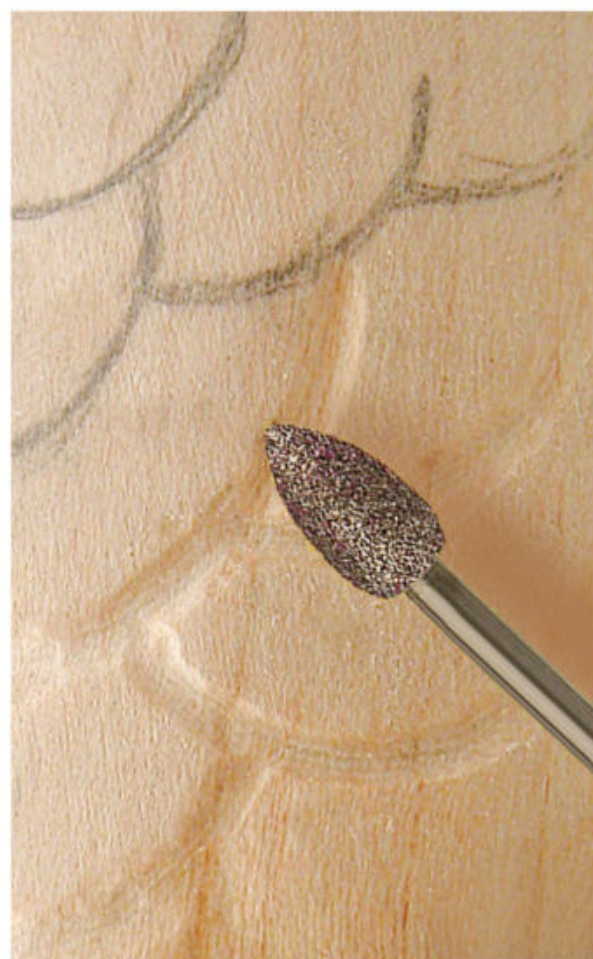
Brand names: Various

Average price per bit:
Plated: \$1 to \$17,
Sintered: \$10 to \$25

Shank diameter:
 $\frac{1}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{1}{4}$ "

Durability: High. Sintered diamond bits are almost as durable as carbide bits; plated diamond bits are less durable than sintered diamond bits

- Plated diamond bits feature a single layer of diamond particles embedded in the shaped metal head
- Sintered diamond bits feature diamond particles bonded with powdered bronze matrix, which are then bonded to the metal head



Ruby Bits

Brand names: Various

Average price per bit:
\$10 to \$20

Shank diameter: $\frac{1}{8}$ ", $\frac{3}{32}$ "

Durability: Medium. Last longer than stones, but are less durable than diamond bits

- Particles of ruby bonded to a metal frame
- Remove wood quickly, but leave a smooth finish
- Available in fine, medium, and coarse grits
- Cut steel, ceramic, wood, soft and precious metals, bone, and antler



CeramCut Blue Stones

Brand name: Foredom®

Average price per bit:
\$5 to \$16

Shank diameter: $\frac{1}{8}$ ", $\frac{3}{32}$ "

Durability: Medium. Last longer than other stones, but less than ruby bits

- Made from ceramic and aluminum oxide for strength and cutting speed
- Run cooler than other stones, which makes them less likely to burn wood
- Leave a smooth finish
- Cut wood, mild steel, steel alloys, and ferrous metals



Aluminum-Oxide Stones

Brand name: Various

Average price per bit:
\$2 to \$3

Shank diameter: $\frac{1}{8}$ ", $\frac{3}{32}$ "

Durability: Low. Least durable bit

- Available in various grits
- Red (coarse, 80- to 150-grit) and white (fine, 400-grit) are mostly used for wood
- Red used for fast wood removal
- White used for fine texturing, such as bird feathers or mammal fur
- Stones can be reshaped and sharpened easily to extend their life
- Cut wood, mild steel, and soft metals





Silicon-Carbide Stones

Brand names: Various

Average price per bit:
\$2 to \$6

Shank diameters: 1/8", 3/32"

Durability: Low. Last longer than aluminum-oxide stones, but are less durable than CeramCut Blue Stones

- Silicon-carbide mixture bonded to a stainless steel head and shank
- More aggressive than white stones but less aggressive than red stones
- Used to create lumps and bumps on bird carvings, with a limited ability to create feathers and hair
- Cut wood, aluminum, brass, glass, and gemstones



Ceramic Texturing Rods

Brand names: Various

Average price per bit: \$15 to \$20

Shank diameters: 1/8", 3/32"

Durability: Medium. Last longer than white stones, but are less durable than diamond bits

- Used to create feather barbules, fur, or hair
- Available in various grits
- Entire 2"-long rod can be dressed or shaped for texturing, giving the rods longer life
- Cut them in half and dress the four ends with different shapes and sizes
- Our top choice for creating fine detail for feathers and hair



Sanding Bands & Discs

Brand names: Dremel®, Foredom®

Average price per bit:
\$0.50 to \$1

Shank diameters:
1/4", 1/8", 3/32"

Durability: Medium to low. Ordinary aluminum-oxide sanding bands last as long as ordinary sandpaper, 3M Cubitron ceramic aluminum-oxide bands last at least twice as long

- Require a reusable mandrel or rubber drum
- Available in many grits
- Drums available in many sizes
- Cartridge and tapered rolls available for split mandrels in various sizes and grits



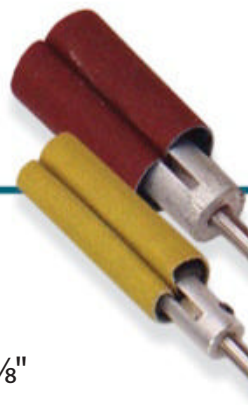
Cushioned Sanding Drums

Brand names: Various

Average price per bit:
\$14 to \$20

Shank diameters: 1/4", 1/8"

- Durability:** Low. The drums are very durable, the sandpaper cover lasts as long as ordinary sandpaper
- Mandrel with soft rubber backing and a slot for the sandpaper to be wrapped around the rubber backing
 - Work best with cloth-backed sandpaper
 - Includes a metal template which allows you to cut any grit of sandpaper to size
 - One of our most-used tools



Defuzzing Pads and Radial Bristle Brushes

Brand name:
3M, ScotchBrite®

Average price per bit: \$2 to \$3

Shank diameters: 1/8", 3/32"

Durability: Low. Synthetic steel wool pads and synthetic or horse-hair bristles wear out quickly

- Pads require a mandrel, clamp one or two squares on the mandrel
- Pads used to remove fuzz before texture is carved
- Brushes used to remove wood fuzz and clean area between barbules and hair before painting
- Create your own pads by cutting 1 1/2" to 2" squares of synthetic steel wool



Radial Bristle Discs

Brand name:
3M, ScotchBrite®

Average price per bit: \$2 to \$5 per individual disc

Shank diameters:
1/8", 3/32"

Durability: Medium. Last as long as 3M ceramic aluminum-oxide sandpaper

- Require a mandrel, usually stack in groups of three to six on the mandrel
- 3M Cubitron ceramic and aluminum-oxide particles are embedded in the bristles
- Disc diameters range from 1/4" to 3"
- Disc grits range from 80-grit to 1 micron (14,000-grit)
- Use slower speeds for control, faster speeds for aggressive wood removal
- Useful for defuzzing
- Cut wood, precious and soft metals, and ceramic



Going from Edged to Rotary Tools

As we get older, our stamina and hand-and-arm strength wane, making carving with edged tools a chore. One way to keep carving is to switch from edged tools to rotary tools. Not only can you continue carving exerting much less energy, but you'll also never need to sharpen again.

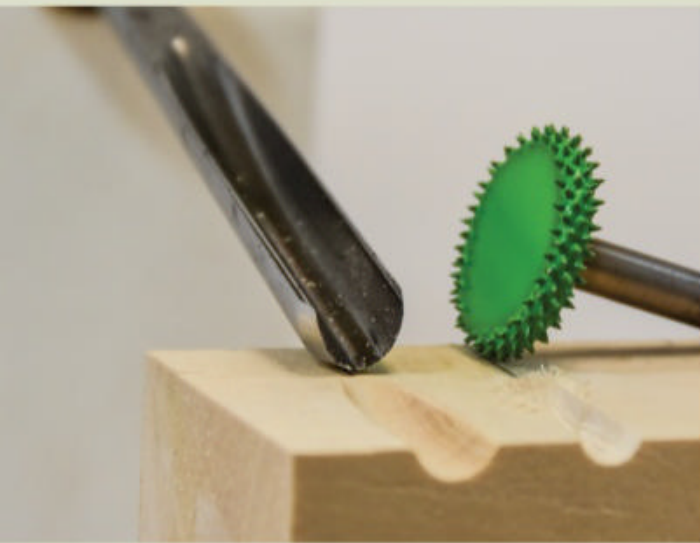
How do you translate your hard-earned skills with edged tools to rotary tools? Carver and instructor Desiree Hajny often switches back and forth between edged tools and rotary tools. She's discovered a few bits that allow you to make cuts similar to those you make with edged tools. For example, a ball-shaped bit can carve a groove like a gouge would.

Regardless of the bit you're using, hold the rotary tool handpiece like a pencil and approach the wood at a 30° to 60° angle (different angles expose different parts of the bits to the wood and carve grooves of different shapes).



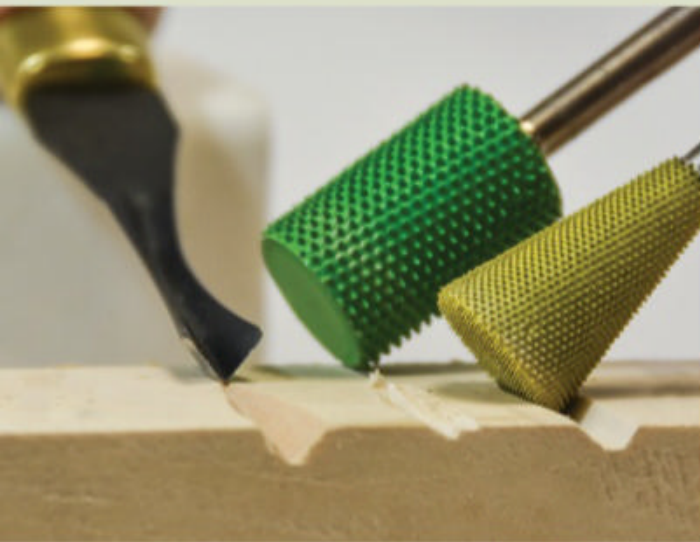
Gouges

Look for egg (oblong), round-nose cylinder, and ball-shaped bits. Depending on the size of the bit and how deep you carve, you can make grooves that resemble cuts made by gouge sweeps from #7 to #10.



Veiners

(#11 gouges)
Look for tapered, soft disc, and pear-shaped bits. These bits allow you to create deep, narrow grooves similar to a veiner.



V-Tools

Look for tapered (cone), bud, inverted cone, disc, or cylinder-shaped bits (hold the inverted cone and cylinder-shaped bits at an angle to carve with the corner of the bit). These bits make V-shaped grooves.

Recommended Starter Bits

Task	Bits	
Roughing out	Coarse-grit flame-shaped carbide-point bit	
Roughing out	Coarse cylinder-shaped carbide-point bit	
Blocking in	Fine-grit ball-shaped carbide-point bit	
Blocking in	Fine-grit carbide-point sleeve	
Blocking in	Sanding drum	
Details	Ball-shaped diamond bit	
Details	Flame-shaped diamond bit	
Details	Pointed diamond bit	
Fine details	Ceramic stone	



We learned to make sanding drums using screws and bolts from Bill Kinnear. That way, we can switch out the drums and not fight to change the sandpaper grits on one drum.

Tools for Removing Wood Quickly



Carbide-point discs are effective in removing wood.



Discs with holes let you see the workpiece while you carve.



We test-drive the hardest “toys” on the market

By Staff of Woodcarving Illustrated

While some carvers resort to a chainsaw to remove excess wood quickly, other options exist for carvers who are hesitant to handle one.

Angle Grinder Attachments

The high torque and power of a handheld angle grinder are perfect for a large rotary disc. While these discs can range from intimidating chainsaw-tooth studded discs to small contour sanders, there’s no denying that they are useful.

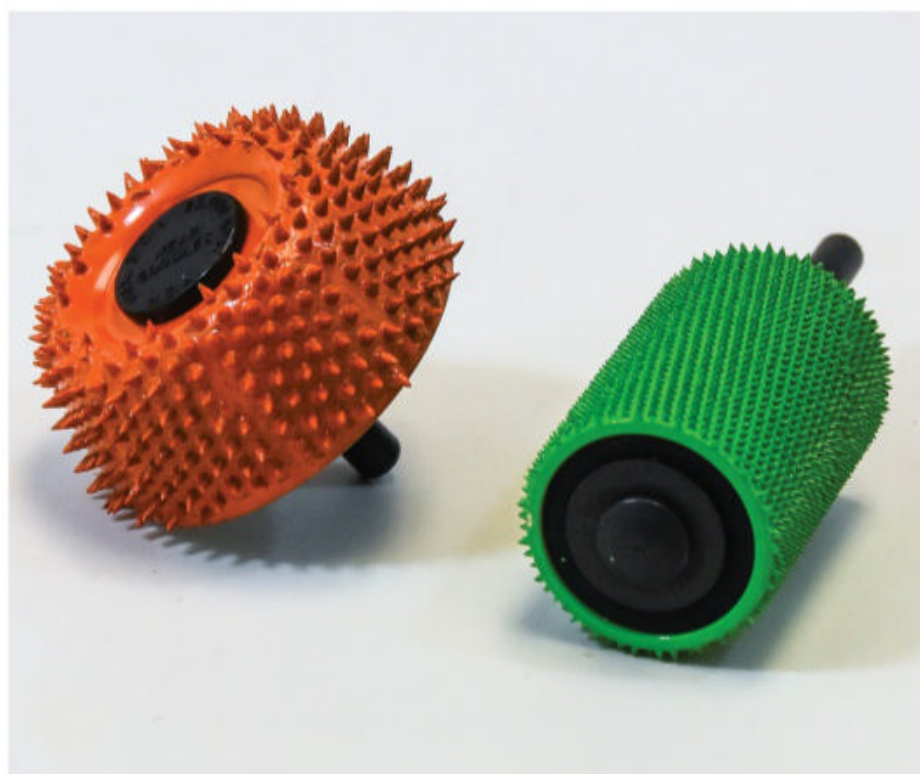
For beginners, we suggest carbide-point discs. They are easy to control and don’t require as much safety equipment as we’d suggest for their chainsaw-based siblings.

Like standard carbide-point bits, these tools come in different grits and point configurations. We’re partial to the “Holey Galahad” by King Arthur Tools® or the similar discs by SaburrTooth®. Strategic holes placed in these discs allow you to see through the spinning disc and remove wood quickly. If those discs don’t remove the wood fast enough, look for Kutzall® Extreme discs. These tools really move wood. Prices vary but are available from King Arthur Tools® (KAtools.com), SaburrTooth® (SaburrTooth.com), and Kutzall® (Kutzall.com).



Foredom® Mini-Angle Grinder Attachment

If a full-size angle grinder doesn't fit into the area you're carving, look for Foredom's mini-angle grinder attachment. This tool connects to a flexible-shaft handpiece and uses smaller diameter discs to carve, sand, and grind. We've used this with Foredom's Typhoon® discs, and those made by SaburrTooth®; they remove wood quickly for their size. Prices for the attachment start at \$45.67 from Foredom® (Foredom.net).



Carbide Sleeves and Cups with a Flexible Shaft

If you're limited to a flexible shaft tool, carbide-point sleeves and cups will remove wood much faster than standard carbide-point bits. The sleeves work well on relatively flat surfaces, but the cups work better for hollows and recesses. Typhoon® and SaburrTooth® sell the sleeves (which fit on a standard rubber sanding drum mandrel) in a variety of grits, but SaburrTooth® makes the only carbide cups on the market (which also come in a variety of grits). Prices vary, but the tools are available from Foredom® (Foredom.net) and SaburrTooth® (SaburrTooth.net).



Plano OrbiCut®

All you need to use Plano's OrbiCut® is an electric drill or a drill press. These clever ball-shaped cutters are designed for use on a slower-speed drill, but they still remove wood quickly. We suggest these tools more for carvers who use edged tools but occasionally need to hollow something out. They can be hard to control if used for regular carving. For a complete review of the OrbiCut®, see our website, woodcarvingillustrated.com. The OrbiCut® is available for \$69.95 for the ¾" (19mm)-dia. size and \$99.95 for the 1 ¼" (40mm)-dia. size from Advanced Machinery (Advanced-Machinery.myshopify.com).



INTRODUCTION TO Reciprocating Carvers

Blend an edged-tool texture with the speed of a power carver

By Staff of Woodcarving Illustrated

While you can carve almost any wood with a mallet and gouge, it becomes a chore when you work with hardwoods such as oak and hard maple. In these cases, we reach for a reciprocating carver.

For those unfamiliar with reciprocating carvers, imagine a miniature jackhammer that uses gouges, V-tools, and chisels instead of the standard stone implements. These machines turn a rotary motor action into a hammering one, driving the tool into the wood at high speed.

Reciprocating carvers literally take the work out of a job. Turn it on, press the cutting edge against the blank, and the tool takes over, hitting thousands of times per minute and driving the sharp edge through even the hardest woods. Aside from some vibration (which varies from product to product) and noise, wood almost melts away under the sharp edge. We've used reciprocating tools on wood as hard as hickory, and as long as you maintain your sharp edges, they cut effortlessly.

As with power carvers, there are a variety of models available, and they range in size and price. Here are a few of our favorites:



Automach® CH-80. This large reciprocating carver is not just for fans of edged tools. With the ability to use huge gouges that hit up to 12,000 times per minute, this tool tears through wood at an astonishing rate. While it comes with the enormous deep gouge (2 $\frac{5}{32}$ " or 55mm wide), you can also purchase a bent flat chisel (2" or 50mm wide), straight flat chisel (2" or 50mm wide), a V-tool (1 $\frac{9}{16}$ " or 40mm wide), or a shallow gouge (1 $\frac{3}{4}$ " or 45mm wide). A starter kit containing the CH-80 and the large deep gouge is available for \$499.95 from Greg Dorrance Co. (gregdorrance.com). The other edged add-ons are available for \$54.95 each.



Arbortech™ Power Chisel. This tool is also based on an angle grinder. It offers a variety of gouges, V-tools, and chisels, ranging from around $\frac{3}{4}$ " (19mm) down to about $\frac{9}{32}$ " (7mm). This tool also hits about 1,100 times per minute. Compared to the Automach®, this machine has a larger variety of tool profiles available, so you can carve a wider range of projects and change attachments with the simple push of a button. A kit containing the Power Chisel, a $\frac{3}{4}$ " (19mm) flat chisel, and a $\frac{3}{4}$ " (19mm) gouge is available for \$279 from Arbortech™ (arbortechtools.com). Additional tool profiles are available and a few kits—containing several tool profiles—range in price from \$139 to \$179.



Proxxon® Power Carver MSG.

The smallest dedicated reciprocating carver, the Proxxon® is also based on a handheld rotary tool. It uses the smallest tools, running around $\frac{1}{4}$ " (6mm) wide. It hits approximately 10,000 times per minute. The Proxxon® Power Carver MSG, with three attachments, is available for \$159.30 from Proxxon® (proxxon.com). A set of five additional blades is available for \$63.



Automach® HCT-30A. This smaller scale machine uses a high-power rotary tool to drive the reciprocating action. It uses gouges, V-tools, and chisels that range from $\frac{3}{4}$ " (19mm) down to $\frac{3}{16}$ " (5mm)—and hits around 10,000 times per minute. To change tools, you use a wrench to turn a nut, similar to ordinary rotary tools. The Automach® HCT30A comes with five blade profiles. Visit Tokyo Automach®, automach.com, for more details.



Reciprocating Handpieces

If you have a flexible shaft tool, such as a Foredom®, you can purchase a reciprocating handpiece that fits onto the flexible shaft instead of purchasing a separate tool.

These units are usually lighter duty than stand-alone reciprocating tools, but they have two advantages: they cost less and are more maneuverable. In most cases, you can use them one-handed, and the flexible shaft makes the tool easier to manipulate.

Different Tool Profiles

Most companies that make reciprocating carvers sell a few different gouge, chisel, or V-tool sizes and profiles, but none offer the full range. That's where Flexcut® comes in. This American toolmaker offers 16 different profiles and three different sets (flexcut.com). The tools are designed to fit a variety of reciprocating carvers. They also have an adapter that allows you to use any Flexcut® tool designed for an interchangeable handle in a reciprocating carver, essentially giving you access to every size you'll ever need.



Proceed With Caution!

Hypothetically, if you try to cut too deep with a deep gouge or V-tool, the wedging action of the wood could split the tool. You'd be hard pressed to do that by hand, and it's even challenging to do that with a mallet. However, I have split a V-tool with a reciprocating carver trying to carve too deeply. Just remember that at 10,000 hits per minute, it's easy to drive a metal tool deep enough into the wood that it splits. Instead of trying to carve a deep groove in one go, make multiple passes. You'll thank yourself later.

Power Carving Safety

Anticipate potential dangers for a safer shop experience

By Dave Hamilton, Jack Kochan, Frank Russell, and Chuck Solomon

Safety should be the first consideration for any shop or working area. All types of carving involve some risks. Being informed and taking the proper precautions will keep you safe and enhance your carving experience.

Most woodcarvers have at least a table saw or a radial arm saw to cut carving stock into manageable pieces, and a band saw for cutting blanks. Many also have a jointer and/or planer in addition to a drill press to smooth out and assist with different aspects of joinery. Every one of the machines mentioned has the capability of inflicting injuries, and each machine deserves care with respect to use, location, accessory use/storage, safety devices, electrical setup, blade guards/guides, and waste disposal.

The primary safety considerations for power carving are the quiet but deadly ones: dust inhalation and fire hazard resulting from improper dust collection and disposal. We'll also discuss what safety items you should wear while carving.

Dust

The inhalation of dust is the biggest risk to power carvers. Cutting, grinding, and sanding all generate dust. The small particles of wood that remain in the air can cause respiratory problems when inhaled.

Asthma, allergic reactions, and long-term risks, such as lung and throat cancer, are all associated with dust inhalation. While the more serious risks are normally associated with exotic hardwoods, you should always take dust control seriously.

To start, it is imperative that you use a good dust collection system. These systems operate like a

vacuum, pulling air and dust particles into the system and trapping the particles in a filter. Dust collection systems come in all sizes and price ranges. Some are portable and can be moved easily. Others are larger and are incorporated into a complete workstation. There are also some large dust control machines that can be installed in the ceiling and operated remotely. (For more on dust collection, see page 29.)

No dust control system will trap all the dust particles generated while carving, so power carvers should wear a dust mask, as well. Whatever mask you choose, be sure it creates a good seal between your face and the mask, has an exhaust valve, is made of face-friendly material, and has adjustable straps. Choose a comfortable mask and wear it when carving.

Fire Hazards

A fire hazard is a danger related to dust, because it occurs where dust is not collected and disposed of. Uncontrolled and uncollected airborne dust particles settle and build up on any exposed area or item. In a studio workshop, where all aspects of carving are dealt with, many situations can generate a spark, so dust or clean off surfaces in your shop periodically.

Anywhere dust has settled, a fire path exists from the spark or flame source to anything combustible within the shop, and finally to the building itself. The answer to this type of hazard is to treat dust immediately as it is generated, direct it to a location for disposal, and not allow it to settle anywhere but where you want it.



Safety equipment, such as a leather apron, dust mask, and safety glasses, should be used in addition to a dust collection system.



Common Fire Culprits

- Electrical motors and any heat- or spark-generating electrical appliances
- Switches, outlets, and lightbulbs
- Sparks generated from grinding metal when sharpening tools
- Heating elements
- Torches used for soldering and bit cleaning
- Improperly stored finishes
- Improperly discarded or uncared for finish rags, brushes, and wipes (these can cause spontaneous combustion)
- Smoking tobacco

Face and Eye Protection

When using any power equipment, always wear safety glasses to protect your eyes from flying debris. It is particularly important for power carving because the burr usually rotates toward your face and therefore will propel particles in that direction. Safety glasses or goggles, especially ones with side shields, will protect your eyes from dust and wood particles as well as particles of metal or material from the burrs. Very rarely, the burr fractures during carving and pieces of material are thrown into the surrounding environment. Some carvers prefer real glass to plastic lenses because they find glass doesn't have as much static electricity that holds wood dust to the lens the way plastic does. Some also prefer to wear a full face shield for some or all of their carving.

Hearing Protection

When using power tools, it is advisable to protect your hearing. High-speed motors and air turbine machines generate the loudest noises of the equipment presented. Users of these machines should wear ear/hearing protection such as ear plugs or earmuffs.

If you daily use flexible shaft machines or carving tools other than woodburners for long periods of time or carve in a small, closed shop, it is also appropriate to wear protective hearing equipment.



Body Protection

The greatest potential for injury occurs when large carbide or steel burrs are used to remove wood quickly. The tool can slip or jump, especially when cutting into end grain. Carving with the grain is the safest way to use power and to minimize the potential for accidents. Clamping your project down when using large, aggressive bits is also a good idea.

A leather apron protects power carvers and their clothes from cuts and tears. Avoid loose-fitting clothes and tie back long hair. The use of a carving glove is not recommended because it can be dangerous if the fibers get caught in the equipment. Most newer micromotor carving equipment contains breakers or fuses that will stop the machine from rotating in such cases.

Putting Your Foot Down

A simple on/off foot switch that controls a flexible shaft machine or many other power tools in your shop is readily available and low-cost. To operate, plug the power tool into the foot switch, which plugs into an electrical outlet. A foot switch is available for flexible shaft machines to control the rpm, making it a variable speed accessory as well. The same principle runs many sewing machines. How fast your machine operates depends on how much pressure you apply to the foot pedal.

Creating sculptures like this one can produce flying debris, which the power carver must always be protected against.





Dust Collection ROUNDUP

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

By Jon Deck

As woodworkers, we ardently pursue our craft 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 shop. Woodworking tools create airborne dust that can compromise breathing and, depending on the material being worked, cause serious health concerns. Carvers using edged tools produce more chips than dust. But cutting blanks, making roughouts, and finish sanding make enough dust to be troublesome. Power carvers, in particular, fashion their carvings with rotary tools which use a variety of bits and sanding drums that create very fine dust. It’s not hard to see that the hours spent in your 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. 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	\$29.99	Thermoplastic half mask	Dual pleated HEPA
B	RZ M2.5	\$29.95	Nylon, mesh, neoprene	Carbon
C	Parcil PT-60	\$59.97	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 is 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	\$246.95	5 micron pleated	Dual fans	400
B	Tornado 1000	\$449.00	MERV-8 pleated	Variable speed impeller	1000
C	Oneida® Benchtop DC	\$699.00	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 every penny if one serves as your primary collection device.

Shop-built budget-friendly dust collector.



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. (For more on vacuums, see Sidebar on page 32.)

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 benchtop 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 woodchips.



System Collectors

	Make/Model	Price	Filtration	Motor/Air Flow
A	Harbor Freight Central Machinery	\$299.99	5 micron	2-HP/1550CFM
B	Rockler Dust Right™	\$399.99	30 micron (optional upgrades available)	¾-HP/650CFM
C	JET® DC1100VX	\$949.99	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



	Make/Model	Price	Pairs With	Container
A	Powertec® Cyclone Kit	\$21.67	System collector	Not included
B	Dustopper® Separator	\$49.97	Shop vacuum	5-gallon bucket (not included)
C	Dust Deputy® Deluxe Kit	\$119.95	Shop vacuum	5-gallon bucket
D	JET® Cyclone Separator	\$369.99	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.

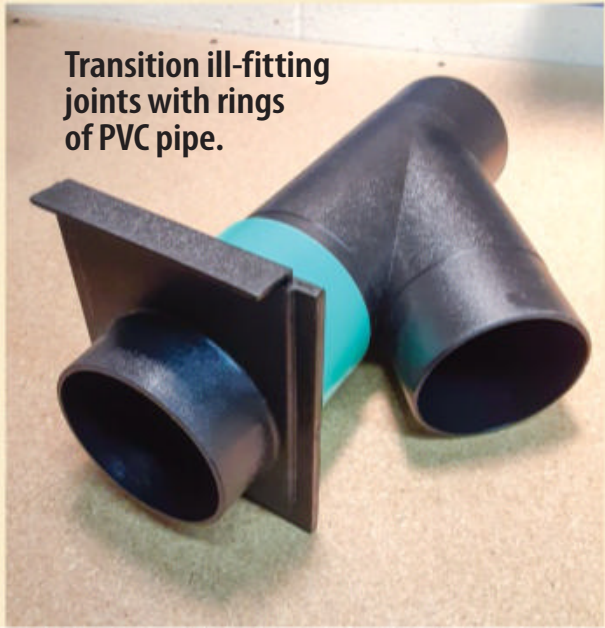


Make ducting joints airtight.

- 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 a 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 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 source collection.



Air Filters

	Make/Model	Price	CFM	Filter	400sq. ft. exchange
A	WEN® 3410	\$159.99	400	1 micron	7.5 times per hour
B	Jet® AFS-1000B	\$399.99	1000	1 micron	19.5 times per hour
C	Axiom Stratus®	\$599.00	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 mitigate 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.

Note: prices accurate at the time of publication.

Cleaning and Maintaining Bits

Prolong the life of burrs with these quick hacks

By Frank Russell

As bits are used, force, pressure, speed, and/or the type of material being carved will eventually fill and clog the voids between the grit, reducing the cutting effectiveness.

Bits represent a considerable investment and should be given as much care and consideration as the machines that power them. Inefficient cutting takes more time and effort. Familiarize yourself with the methods and materials necessary to keep your bits clean and in good order.



This carbide bit is clogged and needs to be cleaned.

Heat Cleaning

A propane torch is one method used to clear clogged carbide burrs. Sometimes I clog a ruby or diamond bit by inadvertently running the bit across a glue joint or epoxy putty application, which immediately fills the grit to a point of uselessness. I have been able to successfully clean these bits by holding the bit over a Bunson-type burner and allowing a low flame to burn the epoxy away, brushing the bit, and then cleaning it on a neoprene (crepe) block.



Burn the clogged bit head with a propane torch. Then brush the residual ash out with a stiff wire or bristle brush.



A propane torch is one method used to clear clogged carbide burrs.



Oven cleaner is another way to clean bits.

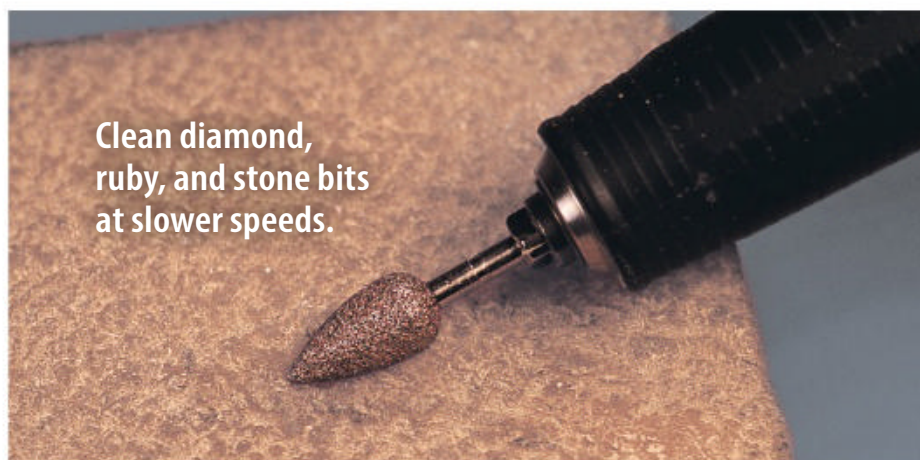
Cleaning Carbide Burrs

There are two methods for cleaning carbide bits. The first is to burn the clogged bit head with a propane torch. Then brush the residual ash out with a stiff wire or bristle brush. Beware of overheating; extreme heat with a torch causes the minuscule points to dull with use. I don't know if extreme torch heat draws or softens them, but they don't seem to cut as well as they do if just enough heat is applied to char the wood for easy removal with a brush. The second method of cleaning carbide burrs is to spray the bit head with oven cleaner, let it set for twenty to thirty minutes, and then brush with a stiff wire or bristle brush. I keep an eye on my bits as I use them and clean them periodically before they become greatly clogged. *Note: Make sure to wear safety glasses while cleaning burrs.*

Cleaning Ruby and Diamond Bits

I periodically clean these bits on a neoprene (crepe) rubber block at a slow speed while I am using them, which normally deters any great build-up of wood residue between the ruby or diamond particles.

If I force them to the point that heat builds and burns in the residue, I let them soak in a vial of oven cleaner for several hours, and then brush them out with a stiff bristle toothbrush. I hold the bit securely by the shaft with a pair of pliers while I brush, just to save wear and tear on the fingers.



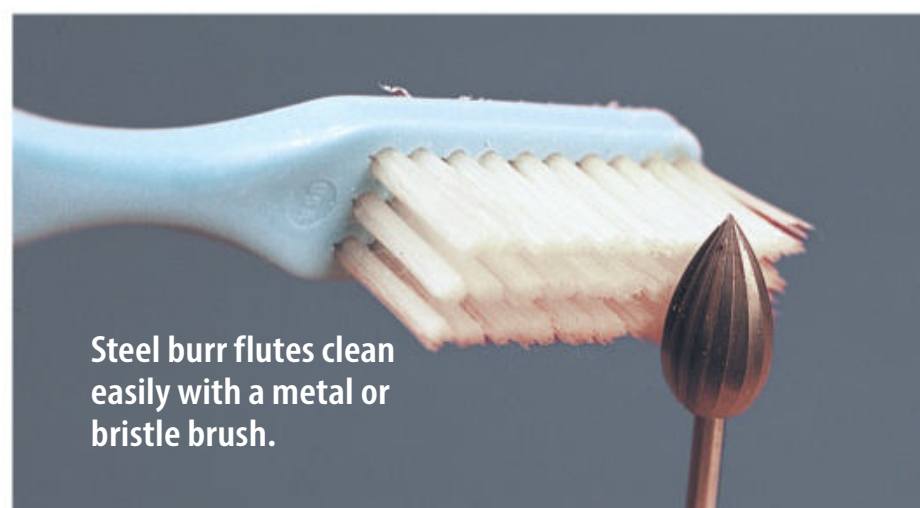
Clean diamond, ruby, and stone bits at slower speeds.

After a rinse and dry with a cloth, I run the bit over the crepe cleaning block at slow speed. Soaking these bits in equal parts of hot water and a commercial cleaner/degreaser concentrate also works very well if the bits haven't been extremely burned in.

Diamond bits are also cleaned on a mineral block (wet stone) that is soaked in water. The bit is rotated slowly on the wet material to clean it.



Soak bits in a hot water and cleaner/degreaser solution.

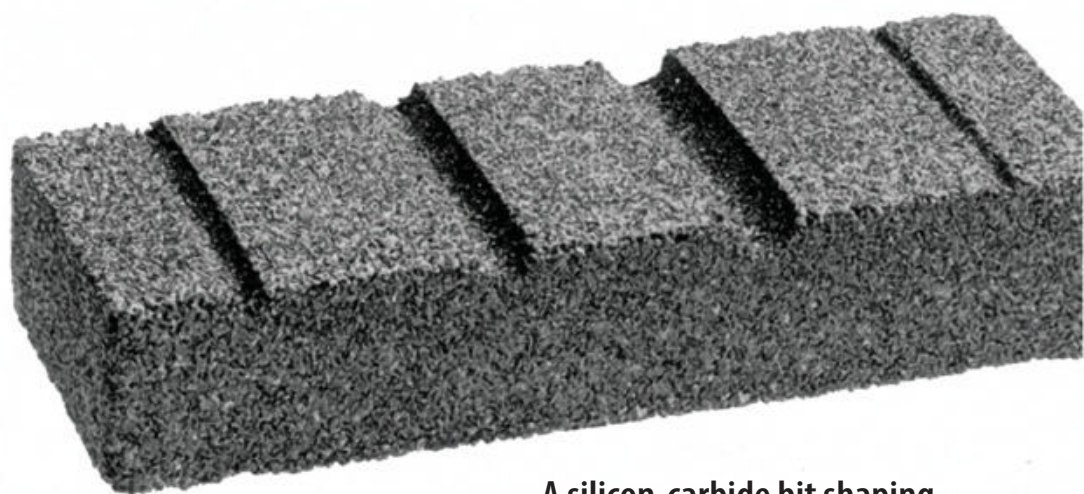


Steel burr flutes clean easily with a metal or bristle brush.

Cleaning Steel Burrs

The flutes on most of these bits are self-cleaning when optimum speed and pressure of cut are used. I can still load them if I'm not paying attention or forcing them, but generally, just a few swipes in the same direction as the flutes with a stiff-bristle brush or soft brass brush will clean them very nicely. If a brush is not sufficient on some of the double-fluted or cross-fluted bits, spray them with oven cleaner, and then rebrush after the solution has had a chance to work for 20 to 30 minutes.

Don't attempt to clean steel burrs on a neoprene (crepe) rubber cloth, because the burr will immediately wrap itself in the rubber and bind/stop the machine.



A silicon-carbide bit shaping block works well on stone bits.

Shaping Stone Bits

Stone bits may need to be shaped before use. Some may be out of round or chipped due to improper handling during shipping, and irregularities should be removed and edges reestablished for optimum use and cut.

1. Select a holding groove comparable in size to the finish diameter.
2. With the machine running at low to medium rpm, lay the bit head in the groove.
3. Move the bit head back and forth in the groove until the head surface begins to change.
4. Adjust the angle as necessary to bring the bit head to the desired shape.
5. Clean the shaped bit on the neoprene cleaning block. A reshaped bit must have the grinding residue removed before it will cut properly!



Always clean a stone bit on a neoprene block after reshaping.

Cleaning Stone Bits

These bits should also be cleaned periodically on a neoprene rubber block as they are being used. If I overuse or force it, causing the surface to "burn in," a stone bit becomes virtually useless, so it has to be either cleaned, reshaped, or replaced. Oven cleaner or the hot water/detergent-degreaser solution also works very well to clean these bits; however, allow them to dry thoroughly before using them again.

Woodburning Tips

Learn why pyrography is a key skill to add to your arsenal

Woodburners are a great way to add interest to power carvings, as they allow for finer details and texture than most bits can achieve by themselves. Whether you're adding feather barbules or rabbit fur, a woodburner can do the job with ease and efficiency.

Although most of today's woodburners function basically the same, there are many differences between units. Units can vary in price, depending on features and power output. It is important to choose a burner that fits the way you burn. If you're just getting started in woodburning, you may want to begin with a low cost variable-temperature burner until you discover your burning needs and style. If you burn hot or put a lot of pressure on the tip, you will need a heavy-duty burning pen that can handle this kind of use. Conversely, if you are creating a world-class miniature piece, you'll want to use finer, more delicate tips that allow a higher degree of detail. Use a piece of scrap wood (the same type of wood you plan to use for carving) to practice using the woodburner. Before you purchase a unit, try as many as you can so you get a better idea of what will best work for you.



A replaceable-tip pen and nibs.

Other considerations:

Fixed tip vs. replaceable tip. Fixed tips are permanently soldered into the pen; replaceable tips unplug from the pen. A replaceable-tip pen can be a less expensive initial investment if you want many different tip styles, but it can cause problems in the future because the connections get loose or corroded. If you choose a fixed-tip pen, you may want to check that the manufacturer offers a tip replacement service so you don't have to replace the whole pen when you do wear out a tip.



Skew tips work well for thin lines.

- **The type of cord that runs between the control box and the burning pen.** Some units have stiff, clunky wires that can impede a smooth workflow. Other units have very thin, flexible cords.
- **Response and continuity of heat to the tip.** The unit should bring the tip quickly to the level of heat that you desire. The unit you choose should produce a consistent and continual source of heat without high and low prolonged peaks of indiscriminate power, which make the texturing process uneven and untidy.
- **Recovery of heat to the tip.** It should be as instantaneous as possible. Texture burning is a chore when the user must either continually pause or restroke because the unit doesn't recover quickly enough to facilitate their stroke cadence. However, many of today's woodburners can usually be fitted to your stroke cadence by adjusting the heat setting—or, as a last resort, you can adjust your cadence with faster or slower stroke movements.
- **Power.** You'll need sufficient power to accomplish the extremes of cutting, detailing, or texturing depending on your style of carving and burning.
- **Comfort.** With prolonged use, the burning pen should remain cool in the grip area and afford comfort with respect to holding ability and size.
- **Features.** Any unit should have a separate on/off power switch, a well-defined and divided temperature adjustment knob (if it's variable temperature), and an indicator light that tells if the unit is on or off.



Use a woodburner to separate sections on a bird's tail.

Woodburner Use & Safety

- Don't use excessive pressure when texture burning—learn to adjust the heat setting to make it work for you instead of stressing the pen and tip.
- Check with the manufacturer or owner's manual to find out whether it is recommended that the unit be turned to full power to "condition" new tips or to burn off carbon.
- Always keep the unit out of the reach and away from children. Tips are sharp and very hot and will burn skin easier than wood.
- Whenever you burn, assume a comfortable and relaxed position.
- Always work with sufficient light.
- Turn the unit off whenever you leave it—you will not only avoid a fire hazard, but also prolong the life of the burning tip.
- If a unit begins to make noise or buzz, turn it off, allow the pen to cool, and change pens. Usually, this is indicative of a shorted pen. If the noise continues with a new pen, contact the manufacturer to ascertain the cause and/or make arrangements to return the unit.
- Keep wood scraps available to check heat settings and to practice strokes. To maintain uniformity, the test piece should be the same type of wood as the carving you are working on.

Tip Maintenance

To clean and restore tips, use factory-recommended methods and stay away from coarse emery cloth or sandpaper, unless you wish to buy new tips often! Simple methods include: 1) using a cleaner pad that has very fine abrasive (600/800-grit) bonded to both sides of a foam core pad and; 2) using a leather strop treated with an extremely fine honing compound.

With the leather strop, work the tip cold, and with the tip on its side, use gentle draw strokes with a finger lying over the upper side of the tip to support it. Use care; too little is better than too much when it comes to burning tips. These methods are fine enough to clean your tip without removing metal, while still redressing a dull edge.

Airbrushing On the Cheap



You could have two-thirds of an airbrush setup hiding in your workshop!

By Jon Deck

I used an airbrush decades ago as a graphic artist in an ad agency. Before Photoshop®, the airbrush was used primarily to retouch photographic prints. This was a daunting task that required great skill and accuracy. Luckily for the woodcarving hobbyist, airbrushing a carving can be far more forgiving (and less stressful) than applying paint to a well-carved piece with a brush.

An airbrush can produce both soft gradients and bold strokes, and allows a gradual buildup of paint in smooth tones rather than requiring you to apply wash over wash with a brush. Sure, there are details that are best not attempted with an airbrush; eyes, buttons and other clothing details, tufts of hair, and deliberate patterns like plaids and stripes should be painted with a regular paintbrush. But when you're painting a caricature face

with blushing cheeks or a five o'clock shadow, or the soft, downy feathers on a realistic bird, nothing rivals an airbrush.

Unsurprisingly, you can achieve some of the best effects with a hybrid of brush painting and airbrushing. Airbrush highlight and shadow strokes over a large brush-painted section to add depth to a carving. Or airbrush a base coat in subtle tones and add a drybrush texture on top—great for hair or fur. There are countless ways to elevate your painted carvings with airbrushing.

Why Isn't Airbrushing More Popular?

Airbrush kits can be expensive. A trip to a hobby or craft store will show you models ranging from \$175-\$250. You may find more affordable options online, but be careful what you buy.

Some kits are made specifically for cake decorating, temporary tattoos, and other crafts.

Making an Affordable Airbrush Setup

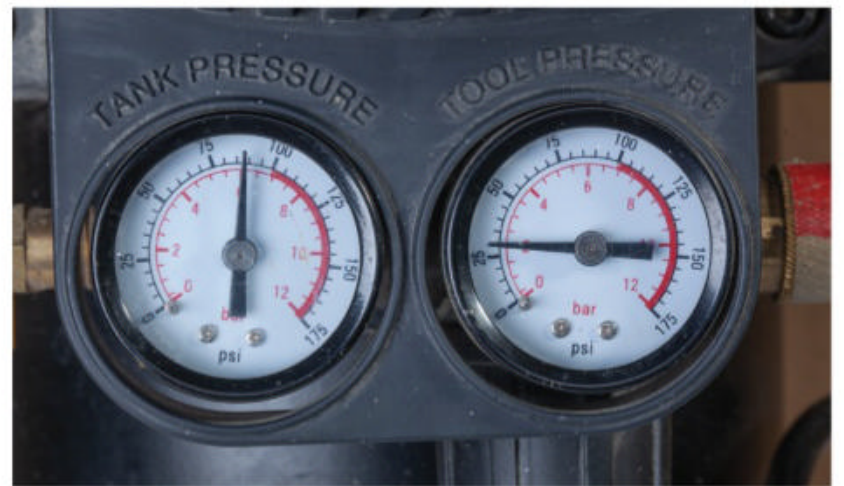
I never noticed how confusing the choices are until I went looking for an airbrush of my own. This caused me to take a closer look at a small compressor I had purchased when I tethered my six-gallon pancake compressor to my shop. I realized that the one-gallon compressor (available from various retailers for around \$110) that I use for inflating tires and driving brads, staples, and finishing nails would work for airbrushing. In fact, my larger Bostich® compressor could be dialed back to 30 psi, as well. If your woodworking shop has a medium-duty air compressor, you're about two thirds of the way to having an airbrush setup.



Rather than wasting time and hundreds of dollars on new airbrushing equipment, try modifying what you already have in your workshop.



Pigments made specifically for airbrushes come in a wide variety of colors and designer finishes.



Dial the pressure regulator back to 25-30 psi in order to use your air compressors with an airbrush.

There are many models of airbrushes available. I recommend an open cup design, as it allows you to mix or add paint on the fly and is a lot easier to clean. The models with bottle reservoirs can be cumbersome, but they may be the best option for you if you're mixing and shooting more than one ounce of paint at a time. I purchased a Master G22 model airbrush and a six-foot braided hose for \$30 with a 1/8" to 1/4" (3mm to 6mm) coupling to connect the airbrush to my compressor.

Once you have the proper equipment, make sure you pair it with the right paint; I purchased two sets of airbrush colors from Hobby Lobby® (6 bottles for about \$28). Airbrush paints have the perfect viscosity right from the bottle, and come in opaque and transparent pigments. They're also available in metallic and

pearlescent colors that are perfect for fish carvers.

If you don't want to go out and purchase more paint, take another look in your home workshop; if you already have a good stock of acrylic paints, just dilute them to the proper viscosity for airbrush use. I never use oils or solvents in my airbrush, using water-based pigments only. I've talked to carvers who use oils, but I don't like the idea of atomizing thinners or acetone to clean the airbrush. The vapors are toxic and very flammable.

Ease of Use

While I had previous airbrushing experience, the learning curve to apply paint to carving projects is comfortably low. Once you become familiar with the action of the airbrush and practice using the tool, you'll be ready to go.

TIPS

AIRBRUSH HINTS

Always keep a container of clean water for diluting paints and cleaning.

Clean your airbrush thoroughly between colors and before storing.

Keep a practice board of the same wood as your project to test color, density, and spray pattern.

Build up color with light coats to avoid runs.

Mask off areas with painter's tape to protect previously painted areas.



A lifelong designer and woodcrafter, Jon Deck has been the art director of Woodcarving Illustrated magazine for 20 years. Contact him at jon@foxchapelpublishing.com.

Micromotors: A Master Class

Get your hands on some tips and techniques for micromotor power carving

by Kristin LeVier

Micromotor power carving is the most enjoyable craft skill I've ever learned, and it gives me regular access to the much sought-after 'zone'—that realm of blissful, time-defying pure creative focus. Micromotor carving tools have revolutionized power carving and become quite affordable in the past few years, with several models costing around \$200 (my first machine cost \$800 in 2008).

In a micromotor tool, the small motor that rotates the carving burr is located in the handpiece of the machine rather than in the control box like it is in flex shaft rotary carvers. The location of the motor in the handpiece eliminates the issue of having to work around a somewhat rigid metal shaft that connects the box and handpiece in flex shaft rotary carvers. The motor location and smaller handpieces of micromotors result in less vibration and a much gentler experience for the hand and wrist of the carver. After learning a few safety and technique basics, you'll be ready to transform wood into carved showpieces.

A Look at Burrs

Regardless of whether you're using a flex shaft or a micromotor power carver, the burrs are what determine the type and quality of the cut or mark you make on the wood. A search of 'power carving bits' or 'burrs' results in an intimidating variety of choices for a new power carver, so we'll begin with a great starter burr, a 1/4" (6mm) sphere stump cutter, to go over the basics.



A typical micromotor power carver unit. The control box contains a speed control dial, on/off and forward/reverse switches, and a power cord. The lightweight handpiece contains a fan-cooled motor and a no-tools-required collet mechanism for changing burrs. The two are connected by a flexible cord that doesn't impede carving.

TIP

COLLETS & BURRS

The handpiece on a micromotor tool has a fixed-diameter collet (the cylindrical slot into which the shaft of a burr is inserted) that determines the diameter of the burrs that can be used. For the most flexibility, buy a machine with a 1/8" (3mm) collet size, and then purchase collet reducer sleeves that slide into the fixed collet to allow it to securely hold 3/32" (2.4mm)-dia. burrs. You can even buy 1/16" (2mm) collet reducers to allow your handpiece to use tiny dental drill bits for extreme detail carving. With collet reducer sleeves, one handpiece can use burrs with 1/8" (3mm), 3/32" (2.4mm), and even 1/16" (2mm)-dia. burrs.

For our exercises, we'll work with this 1/4" (6mm) sphere stump cutter burr, which cuts beautifully and leaves behind a nice smooth surface.



Stump cutter burrs cut wood like butter and are a great first burr to explore. They have a cross-cut pattern of serrated knife-edges that allows them to remove wood quickly and aggressively while leaving a smooth surface. All burrs have a recommended speed, listed in rpm (revolutions per minute), and you should make a note of the speed when you acquire a new burr. Go too fast and you'll destroy or shorten the life of your burr; go too slowly and you'll experience vibration and sub-optimal cut smoothness. Most stump cutters should be used at 30-35,000 rpm, which is near the maximum speed for most power carving machines.

The multiple types and shapes of burrs allow you to carve desired shapes or textures and access specific spaces. Until you've carved for a while and figured out what type of carving you'd like to do (sculpture, texture, relief-carving), it's hard to know what types and shapes of burrs you'll need. (This is why most power carvers have dozens of burrs, a few that they use all the time, and many that just collect sawdust.) Time spent reading and watching videos about power carving can help you to learn which burrs are best for your carving goals and save you from wasting money on those you don't need.



Scan the QR code for a video to make a power carving practice board.

Safety Considerations for Power Carving

Before you begin working, secure your hair, remove jewelry and anything else that could get caught in a spinning burr, and suit up in a shirt with short sleeves or tight-fitting long sleeves. You will need protection from the tiny, lung-damaging sawdust particles that power carving releases. Different types of breathing shields include half-face respirators, high-quality disposable or cloth dust masks, or air-purifying dust helmets designed to work in sawdusty environments. You should also have a dust collection system. These may be small, task-specific setups and/or full-shop dust collectors. In my studio I use a portable desktop dust collector and a ceiling-hung ambient dust collector, and I always wear a respirator.



Lung protection: half-face respirator, 10" (25.4cm)-square desktop dust collector and ambient dust collector in background to filter and recirculate workspace air.

TIP

CLEAN CARVING WOOD

Hardwoods are best for power carving, and closed-grain woods like cherry and maple result in beautifully crisp carvings. Many carvers consider tupelo to be the best carving wood, but it's expensive. The lack of strong grain is a plus for tupelo, but if you're doing texture carving or painting the wood, the look of the grain doesn't matter much. Note: Softwoods tend to leave a fur of fine wood fibers behind and should be saved for hand carving with knives and chisels.

Let's Begin!

We'll start carving with the ¼" (6mm) sphere stump cutter burr on a plank of wood at least 8" (20.3cm) long and 3" (7.6cm) wide to provide a nice stable surface with room to work. The woodgrain should be parallel to the longest dimension of your board. The wood surface should be planed flat but doesn't need to be sanded smooth. After securing the burr in your handpiece (see instructions for your particular machine), hold the handpiece as you'd hold a pencil and turn your speed to 30,000 rpm, being mindful that you are now holding something that can and will carve into anything it comes in contact with (your shirt, your worktable, etc.). Spherical burrs cut best near the 'equator' of the sphere, so hold your handpiece at (or around) 45° from the surface of your wood.



Most burrs cut best when held at an angle similar to that shown here.

Touch the burr to the wood and draw a straight line toward yourself if you're right-handed and away from yourself if you're left-handed. Power carving doesn't require a heavy hand. The spinning burr does most of

the cutting work and your hand should be as relaxed as if you were drawing with a pencil. Continue to make lines and squiggles, experimenting with the pressure of your cut, but steering clear of the edges of your board. If your fingers are clenched and straining with the pressure of the cuts or you hear the motor of your machine bogging down, you may be using too much pressure. The carving tool should make a uniform hum that doesn't change as you carve. If you're barely scoring the surface of the wood, try a bit more pressure. Play around until you get a shallow channel while maintaining a relaxed hand grip.

Now, touch the burr to the wood to create a scooped dot. Repeat and make a smattering of polka dots, experimenting with the pressure of your cut. If you cut too deeply, your burr will become trapped in the deep dot and will make a terrible screeching noise and behave unpredictably. With power carving, multiple light cuts are safer than one deep cut. Make a new dot, and begin to move your burr in a circular motion to slowly widen the circumference of your circle. If you're right-handed, draw your circle clockwise; you'll move counterclockwise if left-handed.



Carving with and across the woodgrain (grain runs top to bottom in photo) will help you understand how grain affects your cut. Note the "fur" raised by the carving on this piece of poplar. Different woods create more or less fur. The fur is easily removed with a few swipes with fine-grit sandpaper.

Experiment with carving lines and squiggles with and across the woodgrain. You may have less control of your burr as you carve across the grain, so practice changing the pressure or speed of your carving. You may need to do repeated light cuts to get the same look as when you were carving with the grain. Carving into end grain also feels different from carving with the grain. If you have scrap wood with a large flat expanse of end grain, practice carving it as well.

Burr Spin Direction

Some burrs, such as stump cutters, are designed to cut only when spinning and carving in one direction (this is called a directional burr). Some burrs (such as diamond) are non-directional and work when spinning either way. Many power carver units have a switch that allows the direction the burr spins to be changed from clockwise to counterclockwise. With your power carver unit set to the forward or clockwise setting, right-handed carvers will use directional burrs by drawing the burr toward themselves, and left-handers will carve away from themselves.

PROJECT: MAKING A CARVING SAMPLER

Getting the feel of the micromotor power carver in your hand as the burr does its work on the wood takes practice. When you're feeling confident with the above explorations and have filled both sides of your scrap wood piece, it's time for a project to test your new skills. This exercise will guide you in making a carving sampler.

Getting Started

On any flat 3 1/2" (8.9cm) by 9 1/2" (24.1cm) board, draw a 1/2" (1.3cm) border around the edge. Draw three 2 1/2" (6.4cm) by 2 1/2" (6.4cm) squares within the border, each separated from the other by 1/2" (1.3cm). Each of the resulting three boxes will be filled with a carved texture.



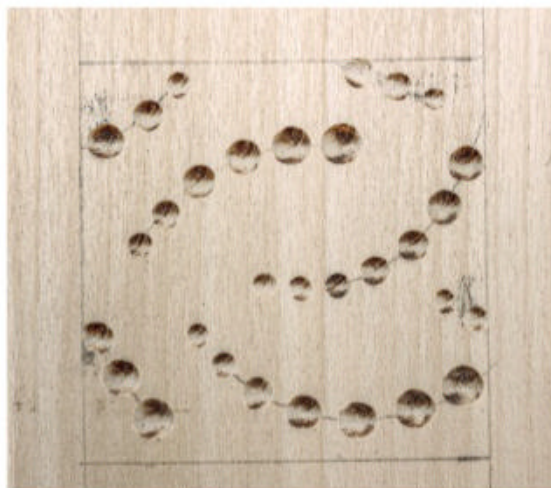
Carving

The first box features a Morse Code-type texture. Carve a straight line halfway down the left side of the box just inside your pencil line. Create a dot the same width of your line just below that line by touching the burr to the wood. Begin a new straight line below the dot that continues to the bottom of the box. Fill the rest of the box with more parallel straight lines of various lengths occasionally punctuated with dots. Aim for randomness in your pattern. Work to keep the distance between your lines and dots minimal so most of the wood surface is carved.

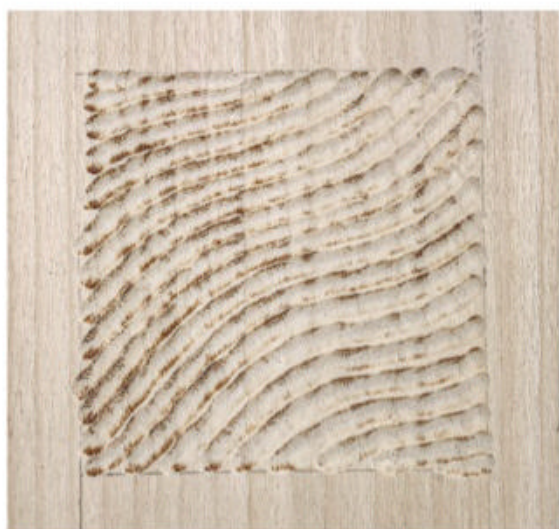


Some wood types burn like maple and the poplar that's shown here. Burning can happen on many wood types from using too much pressure or carving with a dull burr, but it can also happen even when you're carving with the proper pressure and speed.

In the second box, draw with pencil several loose arcs, arranging them in a visually pleasing way. At one end of one arc, touch the burr to the wood to make a dot. Move along the arc and make a second dot,



and then slightly increase the dot diameter by moving the burr in a circular motion. Move farther along the arc and repeat—this time increasing the dot diameter a bit more. Your arc should consist of six or seven equally spaced dots that increase in size from one end to the other. Repeat for all arcs.



Notice that it takes much more effort to carve across the grain!

In the third box, pencil a gently waving line from the top right corner to the lower left corner.

Carve over your line. Since you're carving across the wood grain here, you will probably feel less control with the movement of your burr than when you carved parallel to the grain in the first box. Instead of one long stroke, you may need to take a series of lined-up shorter strokes or take a second pass in some areas. Stripe the whole box with wavy lines lined up-right against each other.

Carving on the Edge

Take special care when carving near the edge of a board. Because micromotor tools carve so smoothly, it can be easy to forget that your burr may be spinning at 30,000+ rpm. When you bring a burr near the edge of a board, the momentum of the spinning burr may pull it off the edge in a split second, which is alarming and can lead to a minor injury or damage to your work tabletop. When I need to carve right up to the edge of a piece of wood, I always carve so that the burr is moving off an edge, not onto an edge. (Rotate your piece of wood to do this rather than tweaking your wrist into an uncomfortable position.) I also move the handpiece a bit more quickly near the edge than when carving on a flat surface. Instead of keeping the direction of my cut planar with the surface of the board face, I do a little flip-up of the handpiece just as the burr leaves the edge of the wood to counter its urge to be pulled down the side.

Painting and Finishing

Check to see if your carved areas fully extend to the edges of the boxes you drew. If not, go back and carefully refine as needed. Lightly sand the surface of your carved areas with fine-grit sandpaper held flat to the face of your board to remove any splintery fur that may have been raised by the burr. Blow or brush off the surface.

Load a small paintbrush with acrylic paint and dab paint into all carved areas on your board, without using so much paint that it pools. Don't worry about painting only in the carved areas—



Check Out More Burrs!

Now that you've experimented with my favorite stump cutter burr, try some other types. With all burrs, remember to check and heed the speed recommendations and be mindful when carving near an edge. Flame-shaped burrs are great for carving convex shapes. Balls and rotosaws work well for concave shapes. Flames or rods deal with edges. Spiky burrs excel at aggressive wood removal but can also make a very cool scratchy, fur-like texture. I mainly use diamond burrs for detail sanding, but they can also be used to create shallow, subtle organic surface textures. Experiment with different burr types and shapes and create your own textures. Mix and match burrs and stroke types to create more complex textures (mix parallel and perpendicular lines to make plaid, add polka dots on top of a grid of lines, etc.).



These are my favorite burr types. Top row, left to right: $\frac{3}{8}$ " (10mm) SaburrTooth® sphere (coarse grit), $\frac{5}{8}$ " (1.6mm) diameter SaburrTooth® rotosaw (coarse grit), $\frac{1}{4}$ " (6mm) diameter SaburrTooth® bud (coarse grit), $\frac{5}{16}$ " (8mm) high-speed steel inverted cone (I actually prefer the 6.3mm), $\frac{5}{8}$ " (1.6mm) German-made diamond flame, pointed cone mini stump cutter (comes in a set of six). Bottom row: $\frac{5}{16}$ " (8mm) stump cutter bud (I ground the top flat), $\frac{5}{16}$ " (8 mm) stump cutter sphere, $\frac{1}{4}$ " (6mm) stump cutter sphere, $\frac{3}{4}$ " (1.9cm) radial bristle disc (must buy screw mandrel separately), Japanese sanding cone, rubber flexible sanding mandrel for use with adhesive-backed sandpaper discs.

allow excess paint to overflow onto the flat uncarved surface. Look at your work from all angles to make sure paint thoroughly colors each carved line and dot. Let paint dry.



Wrap 120-grit sandpaper around a flat sanding block and sand the flat face of your board to remove all excess paint that extended beyond your carved areas. Brush the sanded paint/sawdust into the garbage or dust collector. Use a rag or clean paintbrush to clean your surface and carved areas of sawdust. You can leave your completed painted carved texture sampler

as-is or use a clear finish on the entire surface.

Add a hanger of your choice to the back of your board and proudly display your work on the wall.

I hope you enjoy the fun of experimenting and playing around to hone your skills and find your

unique carving style. Embrace the wonky imperfection of a hand-drawn line or curve. It gives our work an organic, rich human quality that can't be found in robot-made carvings.

materials & tools

MATERIALS

- Wood, such as cherry, maple, and poplar, $\frac{1}{2}$ " (1.3cm) thick: approx. $3\frac{1}{2}$ " x $9\frac{1}{2}$ " (8.9cm x 24.1cm)
The wood grain should be parallel to the longest dimension of your board.
- Acrylic paint
- Pencil
- Ruler
- Sandpaper: various grits to 400
- Hanger: D-ring, keyhole, sawtooth, etc.
- Clear finish (optional)

TOOLS

- Micromotor power carver
- Burr: $\frac{1}{4}$ " (6mm) sphere stump cutter
- Paintbrush
- Sanding block

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

TIP

FINISH LINE

Wipe-on polyurethane is a great finish if you don't like brush marks in your projects. Wipe-on applications allow you to over-apply the finish and then simply remove the excess with a rag.



Artist Kristin LeVier is a former molecular biologist who creates work at the intersection of art, science, and nature. She's been power carving for 15 years and works to give her carved and bent wood sculptures an organic sense of motion. Her award-winning work has been exhibited widely and featured in books and magazines. Kristin lives in Moscow, Idaho, and her work can be found at kristinlevier.com.



Projects



Carolina Wren

Carve a bird so lifelike it'll make you do a double take

By B. David Duncan

Every carver needs a break from carving their favorite subject sometimes. When I tire of carving duck decoys and raptors, I like to visit the world of songbird carving. One of my favorite subjects is the Carolina wren, as I have always loved its earthy colors. Blend burnt sienna and yellow ochre shades to create a beautiful representation of a beloved backyard visitor.



Getting Started

Choose a variety of wood. I use native southern basswood purchased from a local sawmill, each piece around 1 ¼" (3.2cm) thick. Transfer the side pattern onto two pieces of basswood, cutting them out with a scroll saw before gluing and clamping them together. Let dry completely—about 30 minutes—and then transfer the top view onto the block and cut it on the scroll saw. *Note: If you have access to 2 ½" (6.4cm)-thick wood, the glue-up is not necessary; simply transfer the side and top view patterns and cut the views.*



CARVING THE WREN



1

Begin rounding the edges. With a high-speed sander—I made mine from an old lathe motor with an 80-grit sanding disc attached—soften the sharp edges from the scroll saw or a band saw, rounding the body and head of the bird. Take extra care when sanding the tail.



2

Refine the shape. Using a handheld rotary tool and a coarse $\frac{1}{4}$ " by $\frac{1}{2}$ " (6mm by 13mm) ball nose burr, shape the face and wings, slimming the area behind the beak and separating the wings from the body. Switch to a coarse $\frac{1}{4}$ " by $1\frac{3}{4}$ " (6mm by 44mm) taper burr and go over those areas again.



3

Check progress. Referencing the original pattern, compare it to your carving. Make note of any adjustments needed.



4

Draw the feather details. Add reference lines for the location of the cape, tail feathers, and individual feathers on the wren's back.



5

Carve the feathers. Using a high torque micro-grinder with a round diamond engraving bit, give the feathers dimension by cutting around the end of each one.



6

Sand the feathers. Once all grinding is complete, lightly sand by hand. Remove any grooves and traces of the grinding process. Doing so will make the feathers smoother and let them fit together more naturally.



7

Woodburn the body feathers. Coat the carving with a clear, matte spray to hold the grain together before woodburning. Using a woodburning tool and a skew tip, begin by tracing the feather reference lines you just drew. Then, moving from the edge of each feather to the quill, add tiny strokes, giving them a lifelike appearance. Burn deeper at the edge of the feathers and shallower near the quill. Do not burn the feathers on the head at this point.



8

Set the eye. Mark the location of the eye on the head. Then hollow the eye socket with a taper burr and secure a glass eyeball inside with two-part epoxy putty, forming an eyelid.



9

Detail the beak. Burn the lines on the beak for the mouth and where it connects to the head. If your beak became misshapen during carving and sanding, use epoxy putty to remedy the errors.



10

Woodburn the head feathers.

Repeat the process from Step 7 for the body feathers on the head. Keep in mind that these feathers will be much smaller and daintier than the body feathers. The eyes help you shape the way the feathers flow around them, over the head, and under the surface of the beak.

TIP

EYE PROTECTION

After I set the glass eye in my bird and mold the lid around it with epoxy putty, I apply a light coat of acrylic paint on the eye. This protects the eye from scratches and sealants while you work on the bird. Once the bird is finished and the final sealant spray has been applied, I use a precision knife to remove the protective film. You'll be amazed at how quickly the bird comes to life.



11

Add legs. You can carve your own legs from scrap wood or use ready-made pieces, but I purchase cast legs. Use the rotary tool to drill holes in the base of the bird to secure the legs. Insert the legs and secure them to the base of the carving with epoxy putty. Before the epoxy putty dries, use the precision knife to imprint the texture of the feathers.

CARVING THE BASE



12

Create the base. Cut two irregular but identical ovals of basswood. As you did for the bird blank, glue the pieces together and clamp until dry.



13

Shape the rock. Using the same sander you used for the wren, begin to create flat, geometric edges around the entire block of wood.



14

Sand the edges. Once you are satisfied with the general shape, switch to your rotary tool and Kutzall® bits, then a 6" (15.2cm) metal hand file, and finally various grits of sandpaper, refining and rounding the edges.

PAINTING THE WREN



15

Paint the wren. Have a reference image of a Carolina wren on hand before you begin painting. Start by sealing the carving with a clear, matte spray. Once dry, coat the entire carving twice with a mixture of black and white gesso; the final shade should be a light gray.



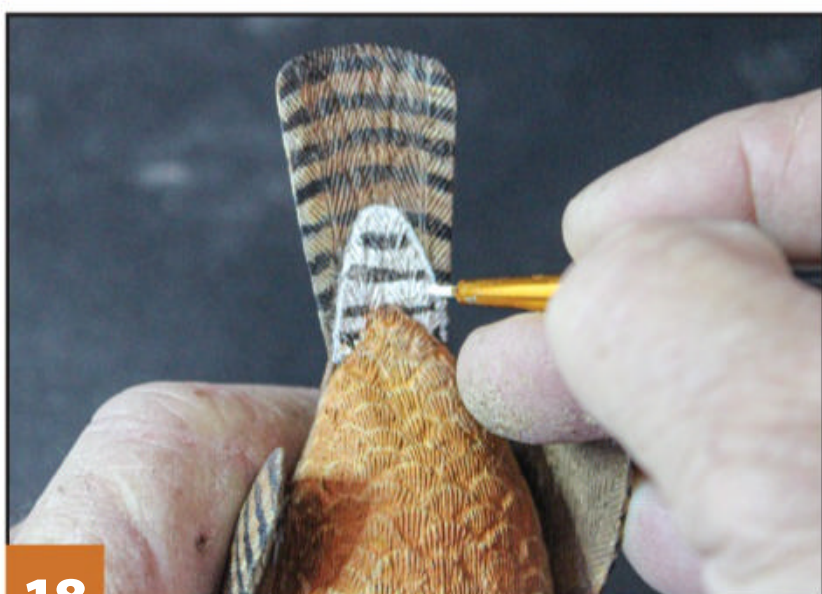
16

Paint the base colors. For the underside of the bird, use yellow ochre, and on the top, use a mixture of yellow ochre and real brown.



17

Build up color. Using thin washes of paint, build up your colors as you paint, continuously looking at your reference photos. I have found that applying light colors on top of the dark highlights the feathers' designs and edges, and then applying a wash over them lets the lighter colors show through.



18

Paint the underside. When painting the underside of the wren, continue using washes to build up the colors. Start adding the bar patterns on the tail. Because you are painting with washes, the crispness of the bars may need to be retouched frequently as you paint.



19

Paint the head. Add small, thin strokes of color to the top of the head to emphasize the finer feather patterns. Then add tiny spots of color around the eyes and beak. Both details will make the bird appear more alive.



PAINTING THE BASE



20

Paint the base. Seal the base with clear matte spray. Paint the base gray by mixing black and white gesso to your desired shade.



21

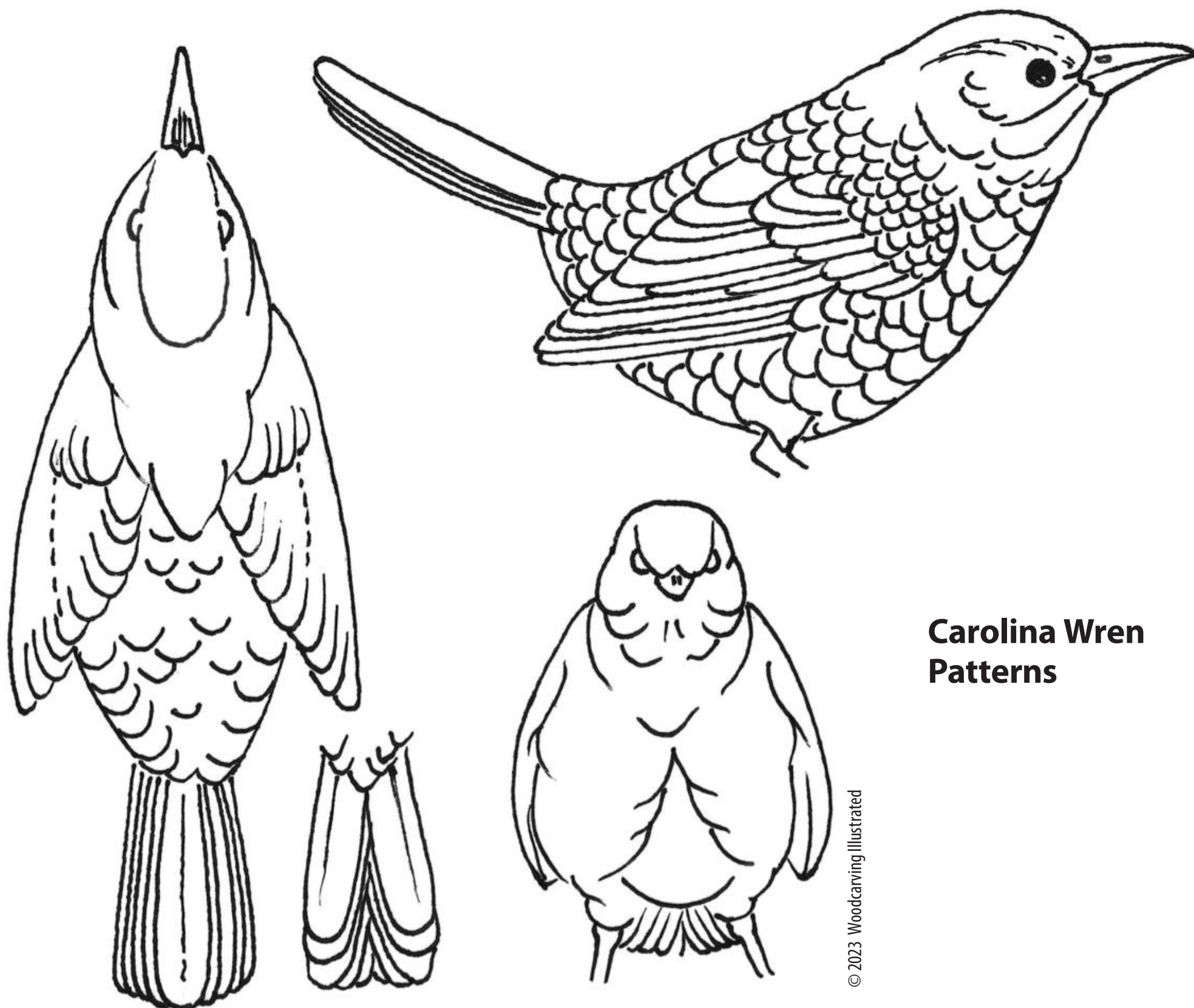
Add stippling. A worn-out bristle brush works best for this step. Stipple the rock with light gray acrylic paint, made from a mixture of titanium white and carbon black, adding texture. Carefully tapping straight up and down and renewing the paint on the brush as needed will create a beautiful, stippled pattern over the entire rock. Then alternate loading a dry, 1" (25mm) paintbrush with watered-down paint in titanium white, carbon black, and various shades of gray, flicking the bristles to enhance the speckled design on the rock.



Finishing

Seal the piece. Once you finish carving and painting, look at your piece from all angles; you might catch a blemish in the light that you would have otherwise missed. Re-burn or repaint the blemishes with a wash of the appropriate color. After all areas are fully painted, apply a coat of semigloss or glossy spray as a final protective coat. The sealant makes the colors pop and allows for easy dust cleanup with a soft, wet cloth.

You can mount your bird on the base in several ways. I secured a peg to each foot, marked the feet placement on the rock with my woodburning tool, drilled a properly sized hole in the base, and then inserted the pegs, but you can use glue, tacks, or epoxy.



Carolina Wren Patterns

© 2023 Woodcarving Illustrated

materials & tools

MATERIALS

- Basswood: 2" (5.1cm) thick: wren, 3½" x 4¾" (8.9cm x 12.1cm)
- Basswood: 2" (5.1cm) thick: base, 3" x 4½" (7.6cm x 11.4cm)
- Sandpaper, various grits
- Gesso: black and white
- Acrylic paint, such as Americana®: burnt sienna, carbon black, real brown, titanium white, yellow ochre
- Clear, matte spray paint, such as Krylon®
- Clear, semigloss or glossy spray paint, such as Krylon®
- Glue, such as Titebond®

- Epoxy putty
- Two-step epoxy putty
- Glass eyes
- Legs: cast silver

TOOLS

- Scroll saw or band saw
- Rotary tool
- Diamond engraving tips
- Kutzall® ball nose burr, coarse ¼" x ½" (6mm x 13mm)
- Kutzall taper burr, coarse ¼" x 1¾" (6mm x 44mm)
- Drill bits: ⅛" (3mm) to ¾" (5mm)

- Micro grinder, such as WECher® high torque
- Metal hand file: 6" (15.2cm)
- Wood burning unit, such as Colwood Cub®, with nib: skew
- Paintbrushes: assorted
- Precision knife, such as X-ACTO®
- Clamps
- Sanding disc: 80-grit

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



B. David Duncan is a lifelong artist and has been carving for over 25 years, winning many awards. After teaching art for several years, he

retired to the mountains of northwest Arkansas. He has illustrated and self-published several pattern books for artists and woodcarvers as he continues to explore new ways of creating, teaching, and sharing his art. To learn more, visit facebook.com/bdavid.artist.

Smoking Garden Gnome

This spunky character comes with a pipe and a whole lot of personality

By Edgar Shrum

This whimsical little gnome came to life from a piece of ponderosa pine, a chainsaw, and various carving and grinding tools. He makes a great garden ornament, too; if you choose to leave him in the elements, just make sure to use a finish rated for outdoor use!

Getting Started

Begin with a half a log of ponderosa pine and cut it down to approximately 10½" (26.7cm) long by 5½" (14cm) wide. Using half-cut logs can help prevent major cracks from forming across the front of the carving.



Sketch the pattern on a half-log blank to prevent major cracks from forming across the front.

ROUGHING OUT



1

Draw the design. Sketch the pattern on the flat (back) side of the wood. Make note of which direction you want the gnome's hat to tilt; it will end up on the opposite side when you transfer the image to the front of the log. This drawing will also help identify negative space to be removed.



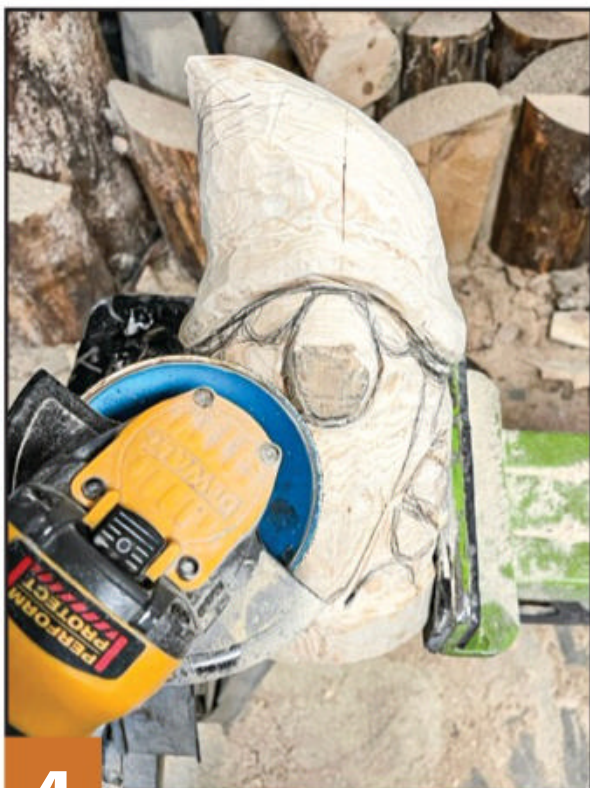
2

Begin blocking out. Start by removing the negative space around the pattern, cutting away any wood that isn't part of the design. In this case, make two cuts around the gnome's hat. I used a chainsaw fitted with a carving bar and chain, but you could also use a band saw.



3

Carve the pattern lines. Redraw the pattern onto the rounded (front) side of the log. With a $\frac{3}{4}$ " (19mm) extra-coarse dovetail bit in a $\frac{1}{4}$ " (6mm) die grinder, cut the pattern into the wood. Try to cut about $\frac{1}{4}$ " (6mm) to $\frac{1}{2}$ " (1.3cm) deep here, as you will be removing quite a bit of wood in the next step. Carving these lines will help you keep track of your pattern as you go.



4

Add depth. With a coarse $4\frac{1}{2}$ " (11.4cm)-dia. shaping disc in an angle grinder, begin to shape the figure by removing areas that need recessing, such as the eye sockets and beard. This disc removes a lot of material quickly, so be light-handed. Take care not to completely remove the cuts you made in Step 3; use them as guides and pencil them back in regularly, if needed.



5

Shape the face.

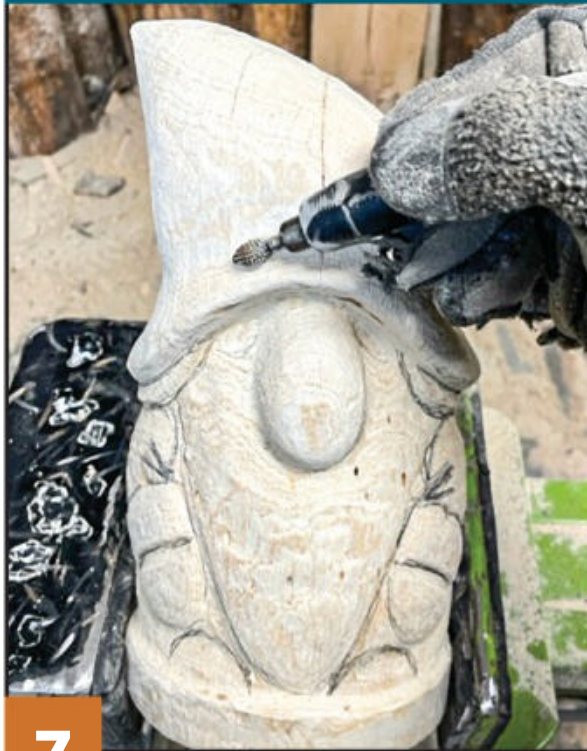
Following the techniques from Step 3, redefine the pattern lines and continue to shape the figure. Cut another $\frac{1}{4}$ " (6mm) of depth around the nose; try to maintain control of the bit here, as it can easily tear through the nose. Use the flat, angled sides of the bit to "feather" the beard away from the nose. With the flat tip of the bit, begin tapering the bridge of the nose into the hat, and then deepen the eye sockets. Add shape to the figure by carefully removing wood around the areas that need to stand out.

ADDING DETAILS



6

Redraw your pattern lines. It's a good idea to check your pattern lines after every carving step, as this keeps the details of the figure in place. Switch to your rotary tool with a $\frac{1}{8}$ " (3mm) flame-tip burr and continue to define the figure, adding more shape to the hat, nose, and beard. Then go over the whole carving, "feathering" away any harsh marks from the tools.



7

Carve the hat and hair. Flip the piece over and sand away any visible pencil marks. Then draw the backside of the gnome. Using the front as a guide, follow the pattern to the back; the placement of the hat and hair lines should be obvious at this point. Carve in the hat and hair using the $\frac{1}{8}$ " (3mm) flame-tip burr and bring the entire back section to the same level of finish as the front.



8

Refine the features. With an $\frac{1}{8}$ " (3mm) safe-end cylinder-shaped bit in the rotary tool, further define the details. This bit cuts clean, sharp edges that will start to separate the different sections of the figure. Cut around the beard, arms, boots, and hair. Then cut some crease marks into the arms and hat; don't forget the back of the carving! Then make the beard and hair look more realistic by cutting many short, overlapping cuts with the same bit. Later, you can use this technique on the base to make it look like tree bark.



9

Clean up the carving. Use a 60-grit sanding drum to clean up the entire carving. Smooth away harsh carving marks or fuzzy areas. Pay attention to areas such as the beard, hair, and bark—fuzzies and splinters like to hide here. With the sanding drum, add grooves to the sleeve cuffs and texture the brim of the hat. Drill a hole $\frac{3}{16}$ " (5mm) wide and 1" (2.5cm) deep, just under the nose, for the pipe. I like to position the pipe opposite the tip of the hat, as it balances out the carving. Avoid drilling straight into the figure; instead, angle the drill slightly to the side for a better view of the pipe.



10

Carve the gnome's pipe. Cut a $2\frac{1}{2}$ " (6.4cm) length of $\frac{3}{16}$ " (5mm)-dia. dowel for the stem of the pipe. Then cut a 1" (2.5cm) length of $\frac{5}{8}$ " (1.6cm)-dia. dowel for the bowl of the pipe. Drill a $\frac{3}{16}$ " (5mm) hole through the bowl, about a $\frac{1}{4}$ " (6mm) from the bottom (either end can be the bottom). Add a bit of wood glue in the hole and press the stem through the bowl until it protrudes from the other end by about $\frac{1}{8}$ " (3mm). Glue the pipe in place with wood glue.



11

Prepare the carving for painting.

Fill in any bug holes, splits, or cracks that may have revealed themselves during the carving process. I sprayed on a bit of rubbing alcohol and ran a small wire through the bug holes before filling them in. If you're filling large holes or cracks, you may need to let the glue dry overnight before continuing. Once the glue is dry, clean up all patched areas with the sanding drum before going over the entire carving by hand with 150-grit sandpaper. Then prime the entire carving with flat exterior house paint. Let dry completely before applying the base colors: off-white for the hair and skin and burnt umber for everything else.

TIP

DIY FILLING

To make your own filling for the cracks and holes, mix wood glue and sawdust to the consistency of peanut butter.



12

Begin painting.

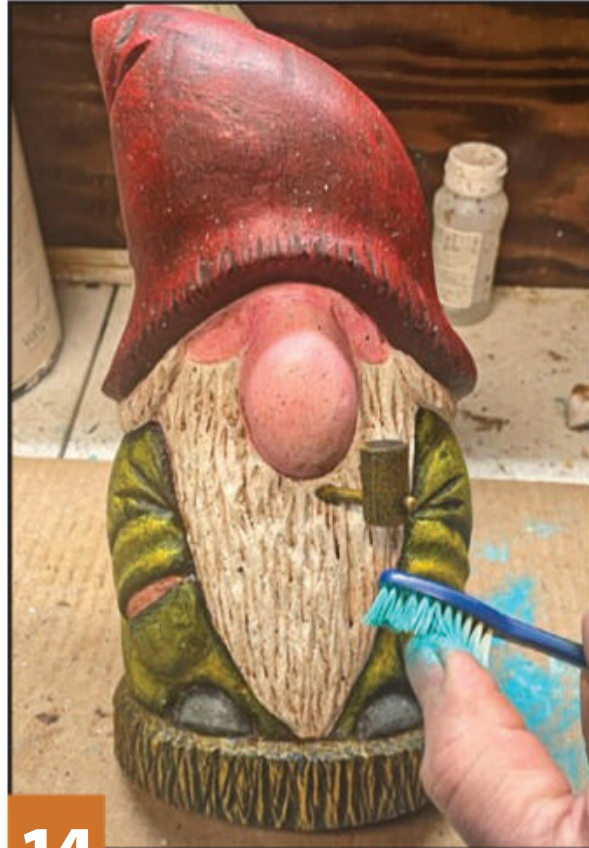
Drybrush multiple layers of color on each section of the carving: red for the hat, yellow for the suit, pink for the flesh, gray for the boots, and yellow ochre for the pipe and bark base. Let the paint dry for at least 30 minutes.



13

Antique the piece.

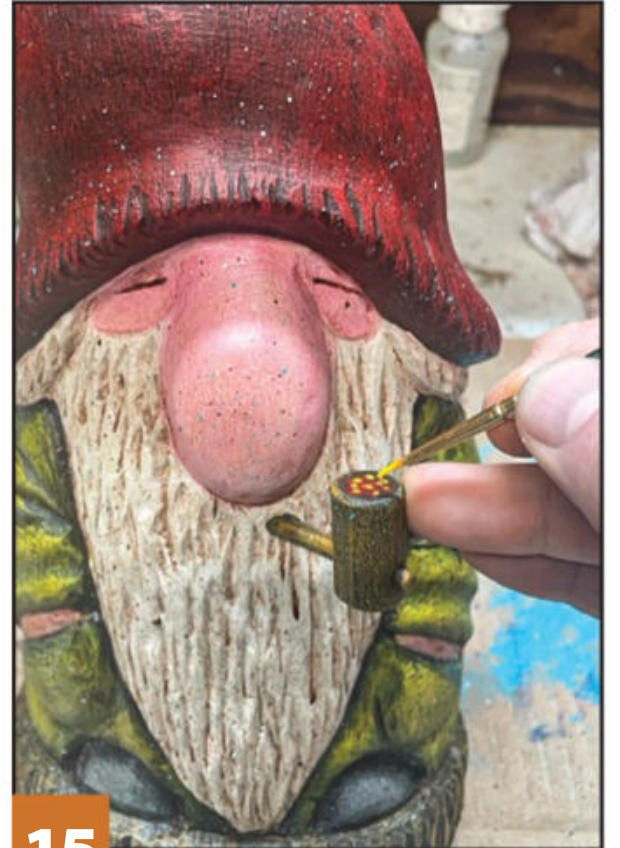
Cover the entire carving with a liberal coat of burnt umber wash (made from burnt umber paint, varnish, and water). Once the piece is covered, lightly wipe down the carving with a clean rag. Allow the wash to settle in the crevices.



14

Speckle the carving.

With an old toothbrush, lightly splatter burnt umber, off-white, and aquamarine (separately) over the entire carving. Let dry.



15

Add final details.

With burnt umber, paint eye slits and drybrush shadows around the beard, nose, and under the hat. Paint several dots of red and yellow on the top of the pipe to resemble embers. Then embellish the pipe with a gold metallic marker.

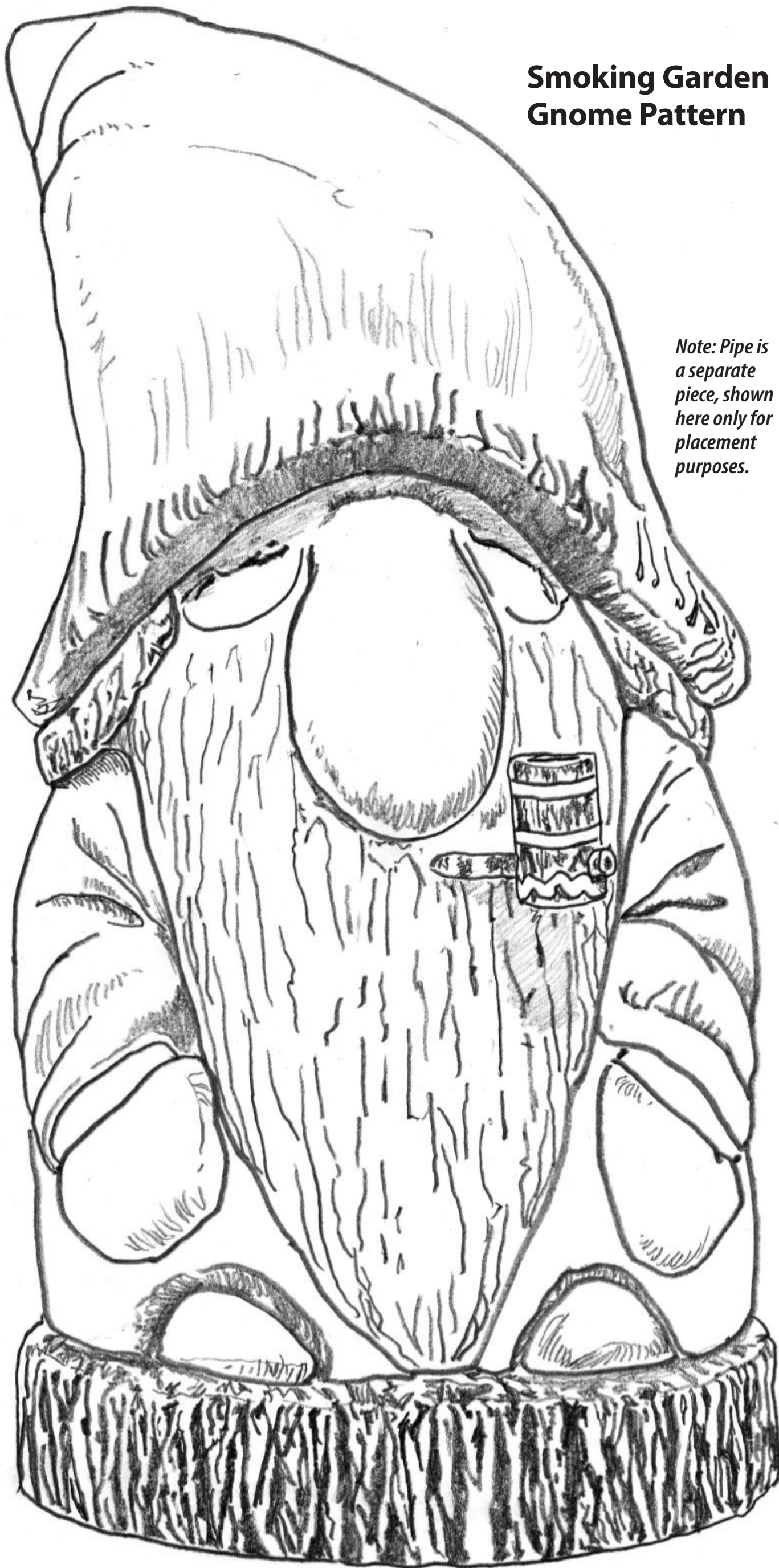
Smoking Garden Gnome Pattern

Note: Pipe is a separate piece, shown here only for placement purposes.



Finishing

Weatherproof the carving for outdoor garden display. Add a thin coat of spar urethane to the entire carving. Let dry for at least four hours before adding a second coat. Recoat once a year.



© 2023 Woodcarving Illustrated

Smoking Garden Gnome Pattern

materials & tools

MATERIALS

- Ponderosa pine wood, 2¾" (7cm)-thick: gnome, 5½" x 10½" (14cm x 26.7cm)
- Wood dowel, 3/16" (5mm)-dia.: 2½" (6.4cm) long
- Wood dowel, 5/8" (1.6cm)-dia.: 1" (2.5cm) long
- Acrylic paints: aquamarine, burnt umber, grey, off-white, pink, red, yellow, yellow ochre
- Primer: flat exterior house paint (dark)
- Varnish, such as Liquitex™
- Wood glue
- Pencil
- Clean rag
- Rubbing alcohol
- Small wire
- 150-grit sandpaper
- Metallic marker: gold
- Spar urethane, such as Helmsman®

TOOLS

- Rotary tool with bits: flame, such as Kutzall®; coarse dovetail, such as Saburrtooth®; safe-end cylinder
- Die grinder
- Electric angle grinder, such as Dewalt®
- Coarse shaping disc, such as Kutzall® 4½" (114.3mm)-dia.: 7/8" (22mm) bore
- Sanding drum: 60-grit
- Chainsaw with carving bar and chain, such as STIHL-Chainsaw MSA-200
- Drill with bit: 3/16" (5mm)-dia.
- Paintbrushes: assorted
- Toothbrush

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



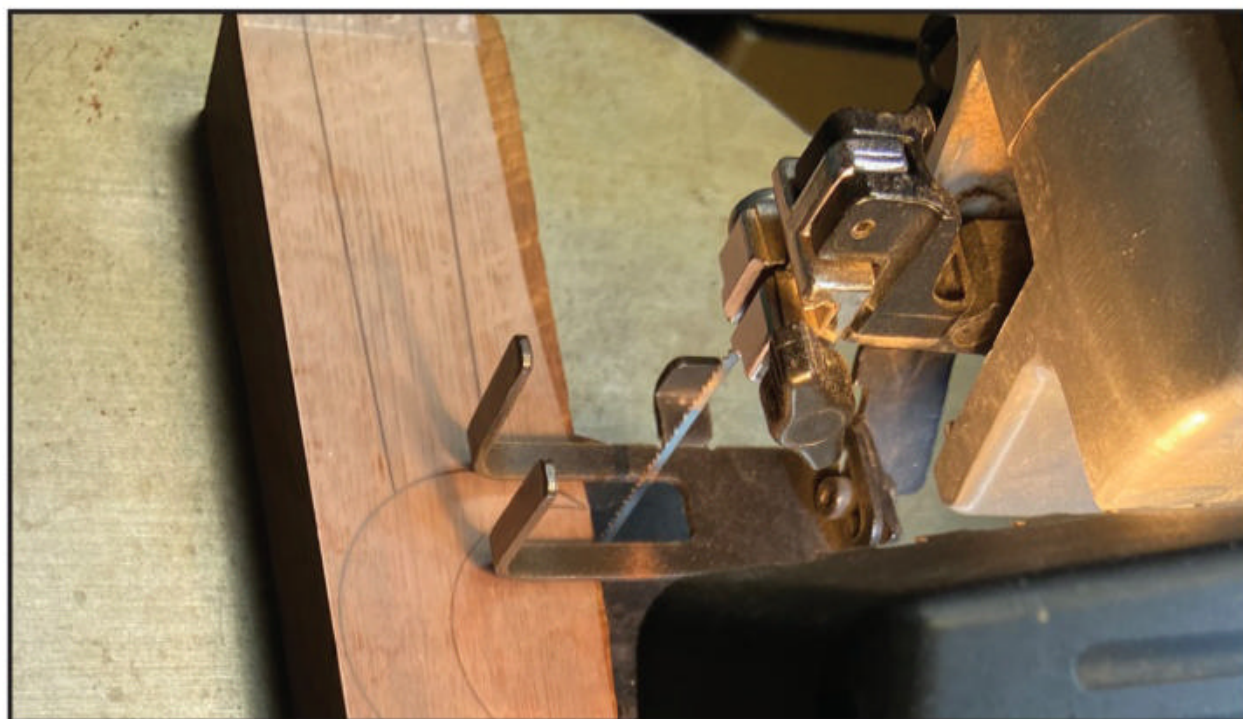
Edgar Shrum is a full-time artist living in Northern New Mexico with his wife and two children. He enjoys drawing, sculpting, oil-painting, and most recently, woodcarving. His woodcarving journey began about five years ago, after moving into the mountains. For updates on his pieces or more information, visit Edgar's website, theshrumshop.com.

Crescent Moon Wand

Make a little magic for the fantasy fan in your life

By Tamara Seevers

As a young girl, I loved to stargaze. Many nights, I'd find myself watching the moonlight cast its eerie shadows on the ground. So what kind of carver would I be without a moon wand? The moon, as with many natural things, has different phases and "faces"—just like this wand. Holding the wand one way makes it a waxing crescent; hold it another way and it wanes. The decision is yours.



1

Cut the rough shape. Trace the pattern onto adhesive paper and adhere it to the wood blank. Alternatively, you could sketch it on directly or transfer the design using graphite paper and a pencil. Before scrolling, make sure there is enough room for your crystal to be inset at the top of the handle, with at least $\frac{1}{8}$ " (3mm) all the way around. Then use a scroll saw to cut along the outside of the pattern lines, making sure to leave the moon connected to the wand shaft.



2

Start shaping the shaft. Using the ultra-high-speed rotary tool and the flat tip of Bit B, start taking material down around the base of the moon on one side of the shaft. Using the side of the bit, shave off the corners on the shaft. Then remove material above and below the moon to separate it from the shaft. Do this on both sides.



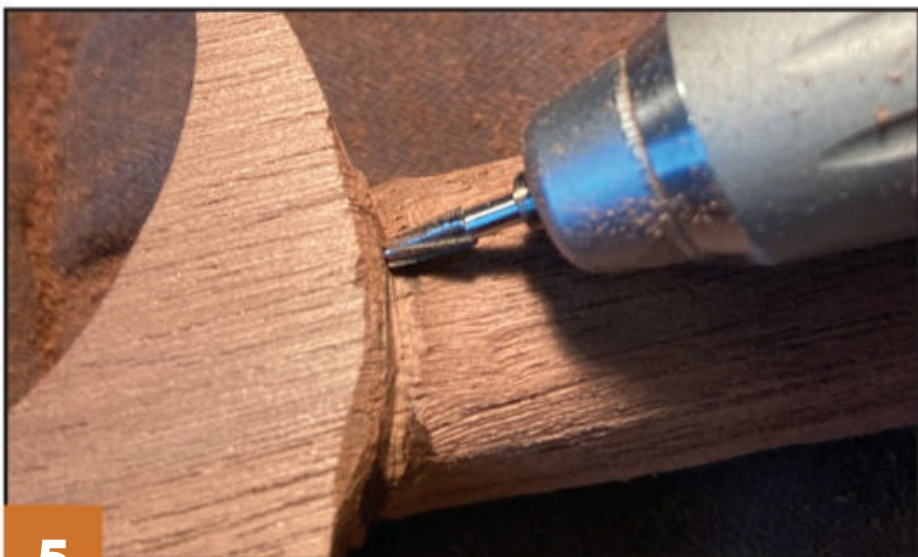
3

Round one corner. Switch to the flexible shaft tool and, using the side of Bit A, cut away one corner down the wand handle. Go against the rotation for quicker removal. Then draw a line down the center of the handle all the way from the tip to the moon on two adjoining sides to either side of the corner you just cut away. Take off more material with the side of Bit A until you have a nice, rounded edge all the way to your two lines.



4

Feather the edges. Using the side of Bit A, feather material away to the top centerline. Then feather material away to the bottom line. Repeat this process of rounding and feathering for the other three edges until your handle is fully rounded, and then do the same for the shaft.



5

Sharpen the crease between the shaft and moon.

Switch to the ultra-high-speed rotary tool and Bit B. Hold the bit so the flat edge (the top of the bit) cuts material away from the moon and the side of the bit cuts material away from the shaft.



6

Smooth. Use the tip to the middle of the ball of Bit D to taper the area under the moon on the shaft, smoothing it into the rest of the shaft. Now repeat steps 6 and 7 to sharpen the crease on the handle side, too.





7

Round the moon. Using the flexible shaft tool and Bit A, carve the sharp edge off the right side of the moon. Use the side of Bit A to taper from this freshly rounded edge to the center of the outside of the moon. Then feather off material to the center of the inside of the moon. Repeat on all sides of the moon.



8

Finish rounding the inside. Using the side of Bit A, feather the two inner sides together, meeting at the middle point inside the moon. Then switch to the ultra-high-speed tool and Bit D and use the area between the tip and the ball of the bit to smooth the shaft and handle where they meet the moon.



9

Create sharp edges under the moon. With the sharp edge of a flat file, remove the small curve between the shaft and moon and the handle and the moon to get a sharp, square crease.



10

Sand and polish. Sand out bumps and dimples over the entire wand, working from 80-grit sandpaper through 400-grit. Then switch to micro mesh, working from 1,500-grit through 12,000-grit. Finally, apply your chosen finish to the surface of the entire wand; I used a clear water-based finish.



11

Add stars. With a pencil, scatter "X" marks around the moon, one for each star you want to make. Then use the ultra-high-speed tool and the top edge of Bit E to cut each star like so: cut one small line with a quick stroke, cut a second line to form an "X", and then add a divot between each of the four lines with the tip of the bit.



12

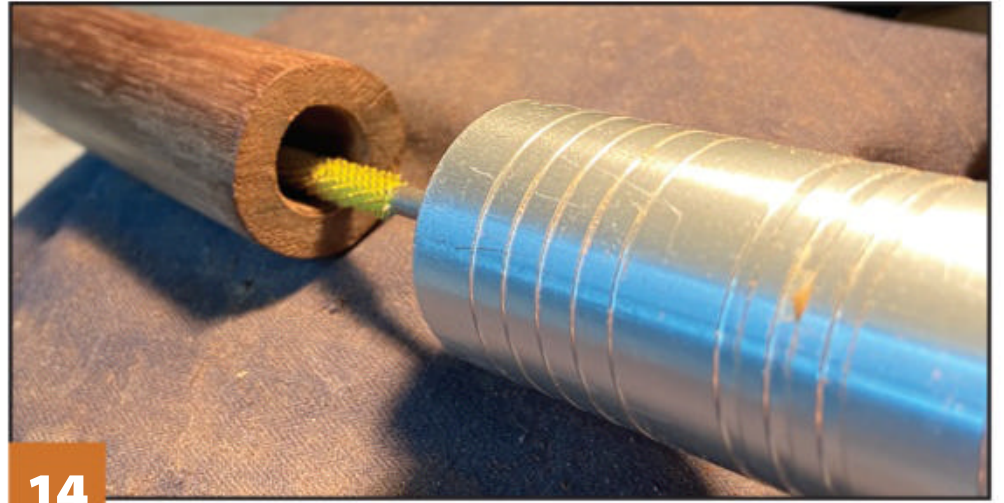
Mark the spot for the crystal insert. You can eyeball the placement for the hole for the crystal, if desired. Alternatively, trace the top of the handle and cut it out as a paper circle, fold the circle into quarters to find the center, and then use the paper to mark the center on the handle, carving right through the paper using a bit in a lead holder. Measure the size of your crystal and transfer this dimension to your handle.



13

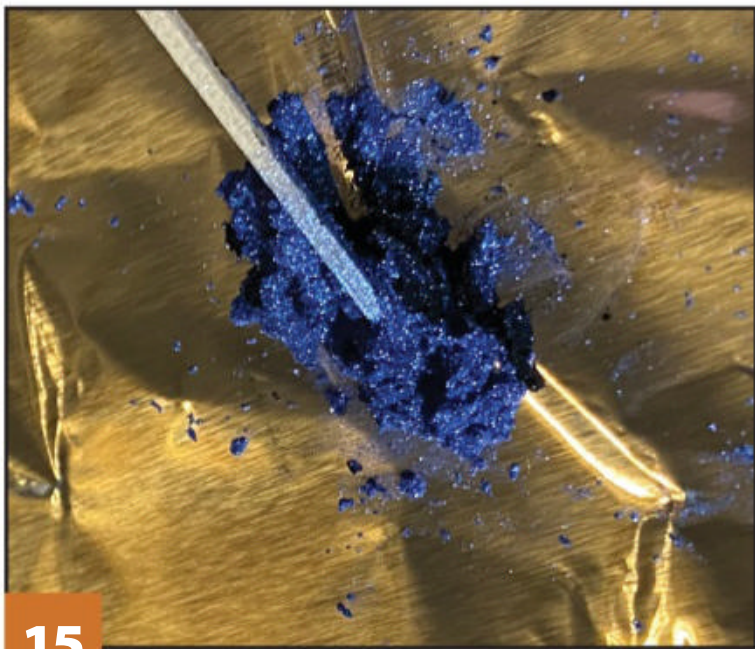
Start the

hole. Using the ultra-high-speed tool and the top edge of Bit B, dig in a starter spot for the hole, going in at almost a parallel angle. This gives a place for the bit to sit in during the next step.



14

Angle and deepen the hole. Go in vertically, moving the bit around in a circle. Start to angle the top portion of the hole to fit the angles of the crystal. At some point, Bit B will be too short to go deeper, so switch to the flexible shaft tool and Bit F. Push the bit in a little at a time in a circular motion, going deeper with each rotation until you reach your final desired depth. Don't permanently insert the crystal yet, though—first, we need to paint and decorate!



15

Mix the moon color. Mix two parts blue and one part black pigment powder on a piece of scrap paper using a toothpick.



16

Apply heat-

activated adhesive. Use a #4 round paintbrush to cover the moon with adhesive, making sure to push it into all the crevices. Use a heat gun to heat and activate the adhesive. The glossy shine will turn dull—that's how you know it has been activated.



17

Apply

the moon color. Load a #4 round or flat paintbrush with your moon color mixture. Tap the pigment-filled brush on the activated adhesive all over the moon. In the end, the moon should have an even, glittery shine.



18

Add more adhesive. Use a toothpick to dab a small amount of heat-activated adhesive onto the center of each star on one side of the moon only. Heat it up with a heat gun.



19

Pick up some silver. Using the tip of a #4 flat paintbrush, break a small portion off from the sheet of palladium leaf and pick it up with the brush using simply static—before picking the piece up, sweep the paintbrush on a piece of your clothing to create static.



20

Add the silver. Touch the palladium-loaded brush to one star. Tap firmly over the star to push the material into the creases. Repeat for the rest of the stars on both sides of the moon.



21

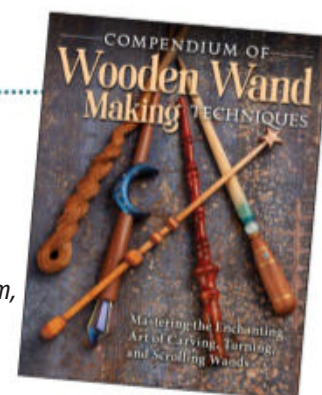
Add the crystal. Using a toothpick, mix a small quantity of the 2-part epoxy per the manufacturer's instructions on a piece of aluminum foil. Use a well-coated toothpick to apply epoxy to the inside of the drilled hole at the end of the handle, coating the entire inside of the hole. Insert the crystal and hold it in place until it sets.

FURTHER READING

Compendium of Wooden Wand Making Techniques

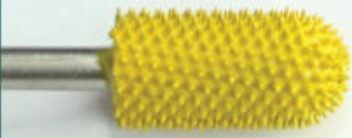
By Editors of Fox Chapel Publishing

Item 02828. Available for \$29.99 + S&H (parcel post) from Fox Chapel Publishing, FoxChapelPublishing.com, 800-457-9112, or your local retailer.



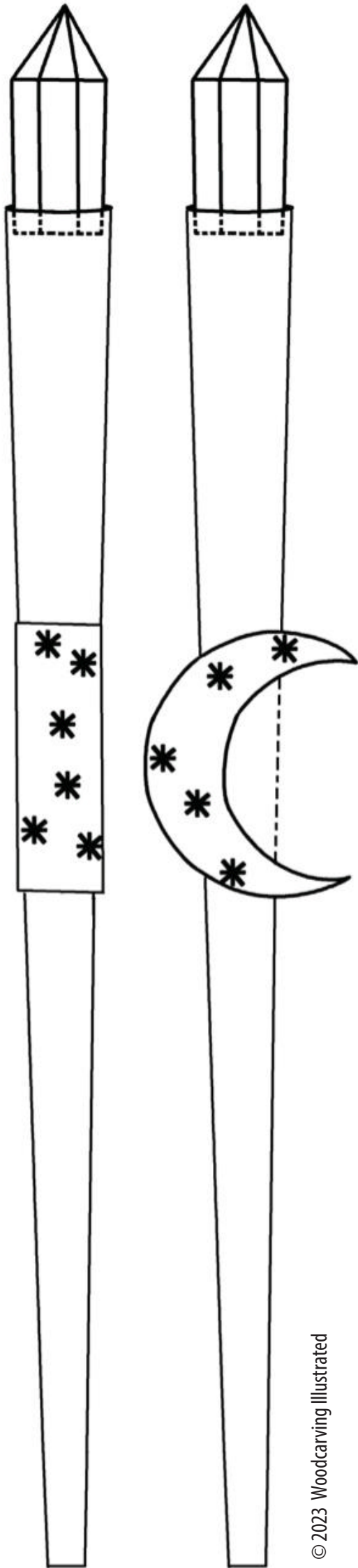
Tamera Seevers loves to use reclaimed, found, or standing dead wood. To know where the wood comes from gives a sense of harmonic value to her. She specializes in carving peaceful things that calm the soul, such as elk, hummingbirds, or buffalo. For more of her work, visit TameraSeeversStudio.com.

Bit Chart

	Bit	Description	Shaft Dia.
A		Fine-grit carbide ball-nose cylinder	1/8" (3mm)
B		Tapered carbide cutter	1/16" (2mm)
C		Small carbide tapered flat-end cylinder	1/16" (2mm)
D		Large medium-grit diamond football	1/16" (2mm)
E		Medium carbide inverted cone	1/16" (2mm)
F		Long fine-grit carbide ball-nose cylinder	1/8" (3mm)

Crescent Moon Wand Patterns

Photocopy at 125%



materials & tools

MATERIALS

- Wood, such as black walnut, 2" (5.1cm) square: 14" (35.6cm) long
- Self-adhesive paper
- Sandpaper: 80- to 400-grit
- Micro mesh: 1,500- to 12,000-grit
- Finish: polyurethane, penetrating oil such as Danish oil, or clear water-based finish such as General Finishes® Woodturners Finish
- Mica pigment powder, such as Pearl Ex® brand: blue (True Blue #687) and black (Carbon Black #640)
- Heat-activated adhesive
- Toothpicks
- 2-part epoxy: 15-minute
- Piece of aluminum foil
- Spear crystal prism: 1 1/16" (4cm) long
- Palladium leaf
- Scrap paper
- Pencil
- Graphite paper (optional)

TOOLS

- Scissors
- Ruler
- Toothbrush
- Damp towel
- Rag
- Scroll saw
- Lead holder
- Flat file
- Embossing heat gun
- Paintbrushes: #2 round, #3 round, #4 round, #4 flat
- Rotary tool: flexible shaft, such as Foredom® or Dremel®
- Rotary tool: ultra-high-speed air-powered precision carver, such as NSK Presto® or ShoFu Lab Air Z®
- Rotary tool bits: see chart above

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

© 2023 Woodcarving Illustrated

Three-Point Ribbon

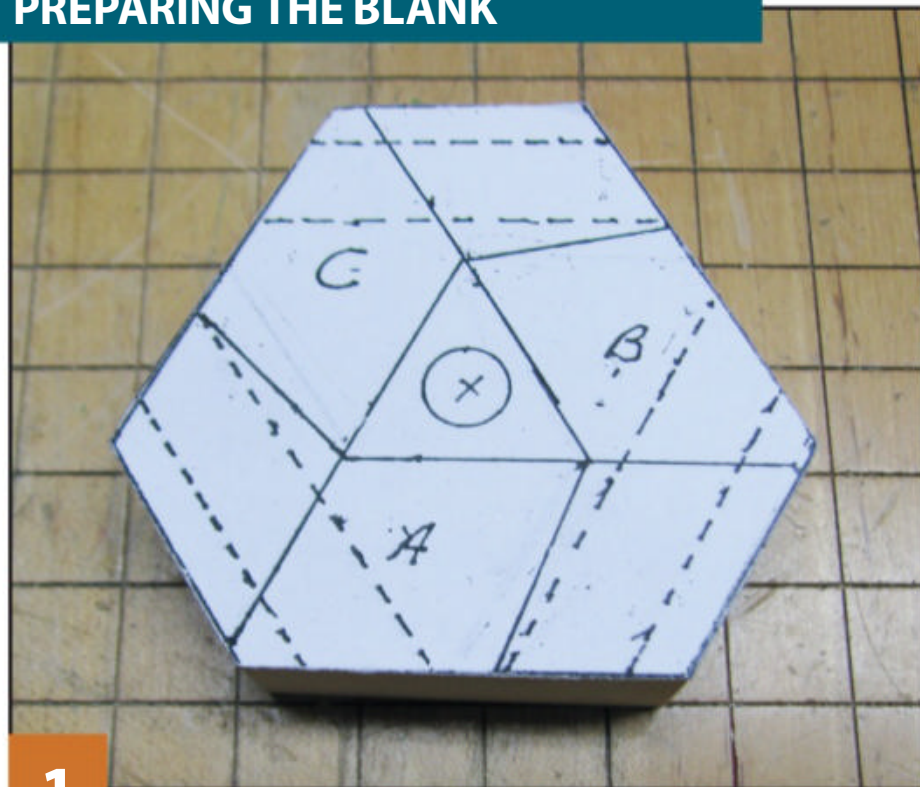
Create a classic wooden whimsy with just a rotary tool and a knife

By Garth Burgon

Small, carved whimsies are a staple for newcomers to the craft. Fun, simple, and approachable, they allow you to practice basic cuts and test your knife against different grain orientations—all while completing a cool piece of art! With precision and care, you can carve my design in one afternoon.



PREPARING THE BLANK



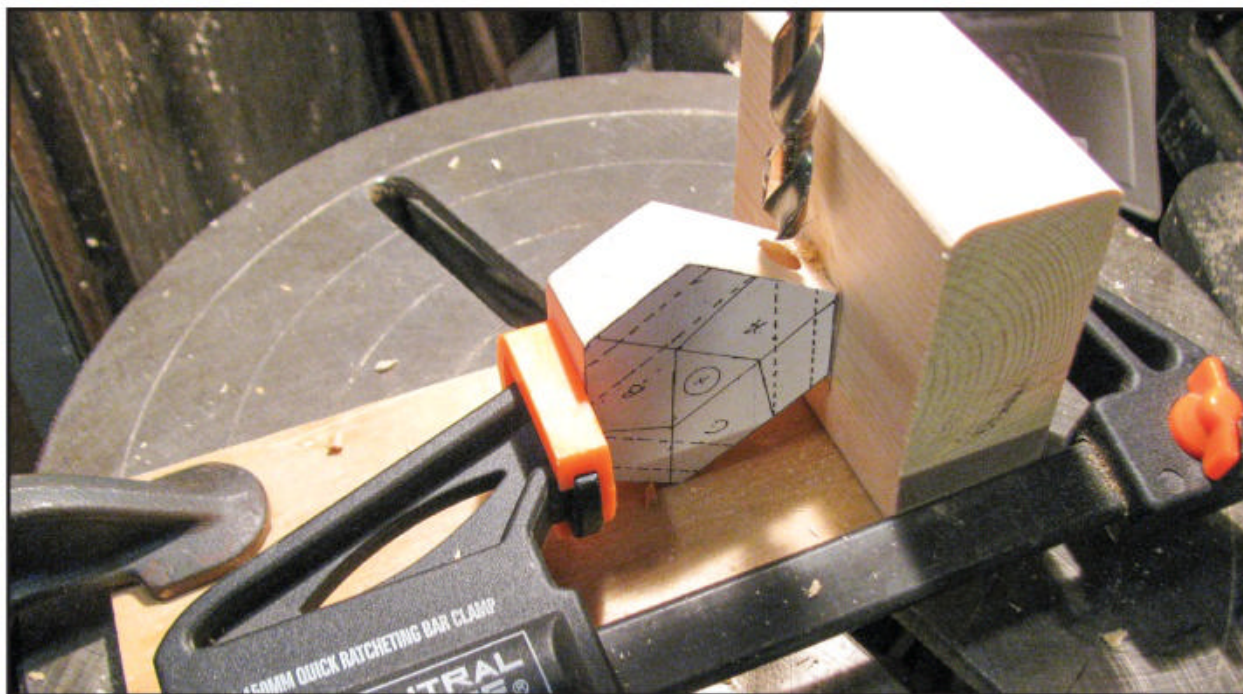
1

Attach the pattern to the blank using repositionable spray adhesive. Cut the perimeter on a band saw or scroll saw. Leave around $\frac{1}{16}$ " (2mm) of extra room on all sides as you cut, and then hand-sand down to the perimeter lines with 180-grit sandpaper. Glue another copy of the pattern on the reverse side of the blank.



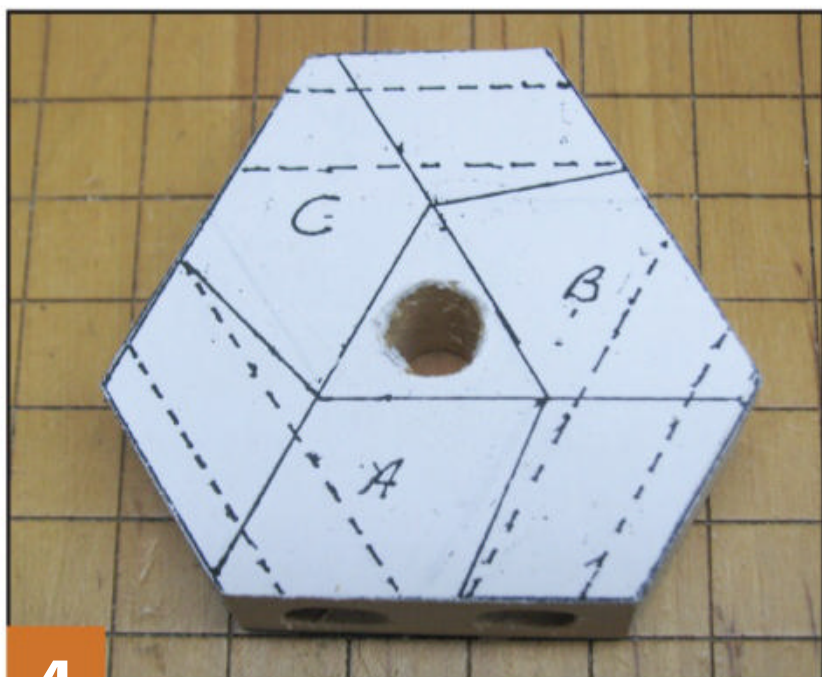
2

Make the jig for the drilled holes. I screwed a small piece of a 2x4 to the end of a $\frac{1}{4}$ " (6mm)-thick piece of plywood, roughly 3" by 8" (7.6cm by 20.3cm).



3

Clamp a short end of the ribbon blank to the 2x4. Then clamp the jig to a drill press table. With a $\frac{3}{8}$ " (10mm)-dia. bit, drill a hole $\frac{3}{16}$ " (5mm) in from each of the three short sides, following the dashed lines on the pattern. Move the drill slowly through the blank to avoid tear-out. When done, draw a pencil line on the jig where the two sides of the blank rest against it. Release the blank from the jig, rotate it one third turn, position it between the two pencil lines, clamp it, and then drill the next hole. Drill the third hole using the same method.



4

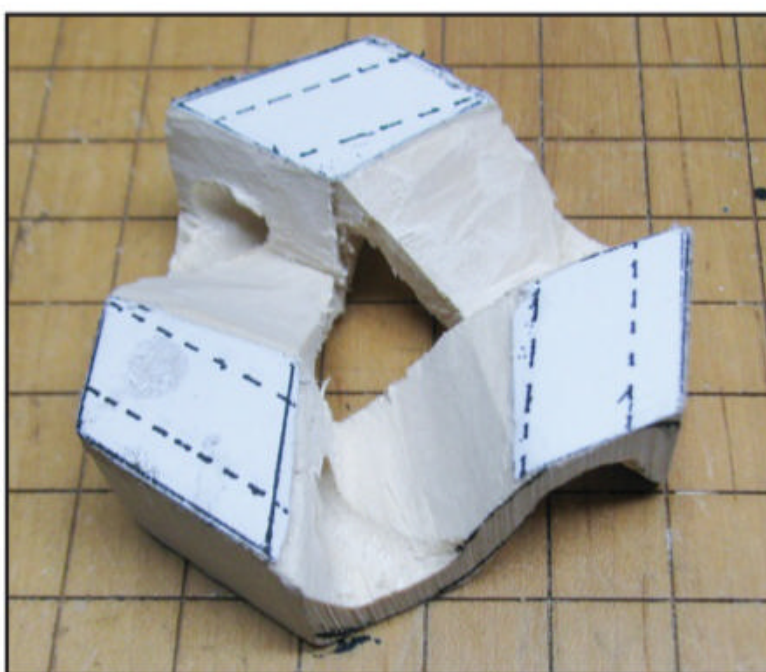
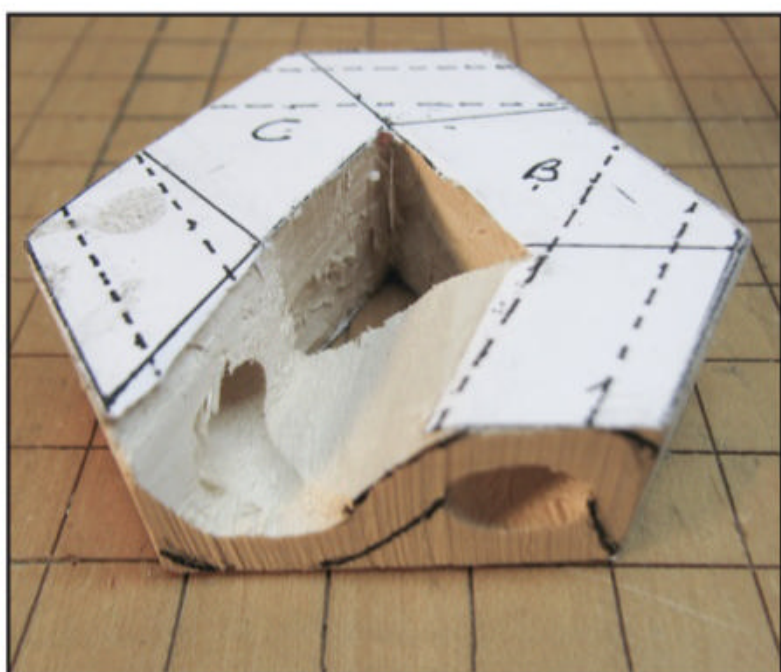
Lay the blank flat. Then secure it in a vise and drill the center hole.

CARVING & FINISHING



5

Mark the ribbon shape along the sides. The shape will be the same for each long side—sloping down under the first hole and snaking up over the second. With a carving knife, make vertical stop cuts along the lines of the center triangle, and then gradually remove all of the wood inside it. Do this on both sides. *Note: A completed ribbon was placed on top of the blank for reference.*



6

Begin to shape the ribbon. Use the knife. Carve out area A on one side of the blank, sloping the surface down until you almost reach the inside bottom of the predrilled hole. Do the same for areas B and C on that side. Then flip the carving over and do the same for the back.



7

Refine the curves. Round all corners and smooth the entire surface of the ribbon. Make sure all pattern remnants are carved off. Place your thumb on the end of the hole and draw your knife toward your thumb to make small thinning cuts. *Note: Always be aware of the direction of the grain, as the blade could catch it and sever the ribbon.*

Sanding and Finishing

Hand sand the entire carving, working up progressively through the grits until you reach 320. Remove excess dust with a clean cotton cloth. Finish with natural tung oil or similar.

materials & tools

MATERIALS

- Basswood, $\frac{3}{4}$ " (1.9cm) thick: $2\frac{3}{4}$ " (7cm) square
- Spray adhesive: repositionable
- Pencil
- Permanent marker: black
- Sandpaper: assorted grits up to 320
- Clean cotton cloth
- Finish, such as tung oil

TOOLS

- Band saw or scroll saw
- Shop-made jig
- Drill press with bit: $\frac{3}{8}$ " (10mm)-dia.
- Carving knife
- Dremel® with sanding drum: $\frac{1}{4}$ " (6mm)-dia.
- Clamps

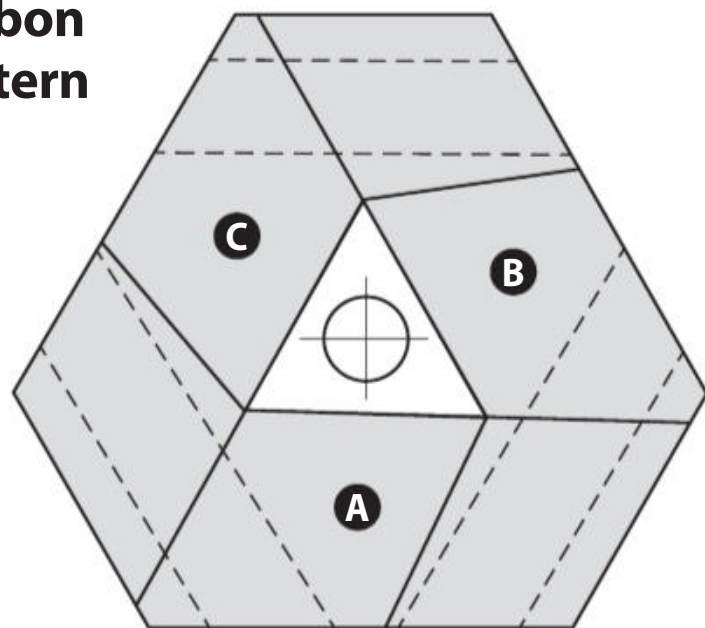
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



8

Enlarge the holes and add the final details. I used a Dremel® with a $\frac{1}{4}$ " (6mm)-dia. sanding drum. Bring the ribbon down to its desired thickness by making small, gentle cuts with the knife; I like to make my carvings fairly thin (around $\frac{1}{4}$ " [6mm] or less), but do what feels comfortable for you. Look the carving over to ensure symmetry from all views, and then thin the ribbon some more with the knife, being very careful not to snap the delicate edges.

Three-Point Ribbon Pattern



© 2023 Woodcarving Illustrated



Garth Burgon lives in Riverview, Mich., and is a member of the Wyandotte Woodcarvers Club, one of 37 clubs in the MWCA (Michigan Wood Carvers Association). When he retired 22 years ago, he started carving to spend more time with his wife, who was also a woodcarver. After she passed, he remarried, and now carves with his current wife, too. They belong to the Orangewood Shadows Woodcarving Group in a resort park in Mesa, Ariz., where they have spent the last 22 winters.

Hardwood Mouse



Transform colorful scraps into a cute little rodent on a bed of leaves

By Paul Purnell

I have a garden shed with a small, three-drawer cabinet that I use to store odds and ends. One of the drawers is for leftover flower seeds, and while tidying the shed, I discovered that a pair of mice had made a nest among them. It was made from dried leaves, lined with downy bird feathers and hair from our dogs, scavenged from around the garden. Needless to say, they happily fed their newborn every last seed I had stored. This carving is a great way to admire the cuteness of a garden mouse—without all your seeds being eaten.

Getting Started

This pattern is based on the European wood mouse, which is approximately 3" to 4" (7.6cm to 10.2cm) in length with a tail as long as its body. However, this species is very similar to the North American deer mouse, which grows to be around 3" (7.6cm) but can grow up to 6" (15.2cm) in woodland areas. Both have a large head (approximately a third of their body size), protruding eyes, and large ears. Gather plenty of reference material before you begin carving.

I chose cherry for this project, as it holds fine detail and is a good match for the color of the subject. Any fruitwood or boxwood would suit this project well, however.

Draw the pattern for the side view of the mouse to your blank, and then use a band saw to cut the side view. You will add the tail and the nut separately. Pencil a centerline around the entire blank.



CARVING THE MOUSE

TIP

CARVING KEY

Sometimes it can be hard to visualize what material needs to be kept and what needs to be removed. A simple way to help is to devise your own symbols. For this project I am using a red crayon and an 'X' for an area where I need to leave wood and a scribble or crosshatch where I need to remove wood.



1

Cut the top view. Draw the pattern for the top view of the mouse on the top of your blank. Draw on the main features of the side view: the arms, the legs, the ears, the eyes, etc. Using a rotary tool with a coarse-grit safe end cylinder-shaped carbide bit, begin to block in the main features of the mouse. Start at the back end and work forward. Continue carving, refining the shapes of the face, arms, legs, and ears.



2

Round the body. Using the same coarse bit as in the previous step, start to round over the body, avoiding the legs and feet.



3

Refine the

body. Switch to a coarse-grit flame-shaped carbide bit to further reduce and define the main features of the mouse, still avoiding the legs and feet. After several rounds of carving, the mouse should be roughly at its finished size.



4

Carve the forearms and hind legs. Draw the details of the hands and feet on the underside of the carving. Although the feet will be mostly hidden by the leaves, I still prefer to carve these details. Use a 1" (2.5cm)-long tapered-cylinder carbide bit to begin shaping the bottom of the hind feet. The front paws, when cupped in this stance, will sit beneath the eyes. Remove $\frac{3}{8}$ " (1cm) from the front portion of the arms using the coarse-grit cylinder-shaped safe end carbide bit. Establish where the hazelnut will fit between the hands and mark the shape of the fingers where they wrap around the nut. Round the edges of the forearms.



5

Define the head. Use a 1" (2.5cm)-long round-nose fluted carbide cutter to continue separating the head from the forearms and to undercut the hind legs from the thigh muscle. A carving knife can also help with shaping the head, relieving the forearms, and cutting behind the ears.



6

Hollow out the hazelnut area.

With a $\frac{5}{32}$ " (4mm) bud-shaped diamond bit, shape the ears and begin shaping the face. Identify where the hazelnut will sit and draw on the fingers where they wrap around the nut. The measurements of the forearms are as follows: approximately $\frac{3}{8}$ " (1cm) for the fingers, $\frac{1}{4}$ " (6mm) for the wrist, and $\frac{5}{8}$ " (1.6cm) for the upper part of the forearm. Using the diamond bud, remove the wood between the hands, but leave the hands somewhat thick at this stage for protection. Use the diamond bud to remove any deep tool marks from the mouse.



7

Sand the piece. Give the whole piece, except for the legs and arms, a sand with 120-grit abrasive. Use a cushioned sanding drum and a split-mandrel sander, using hand-sanding when necessary to reach difficult places.



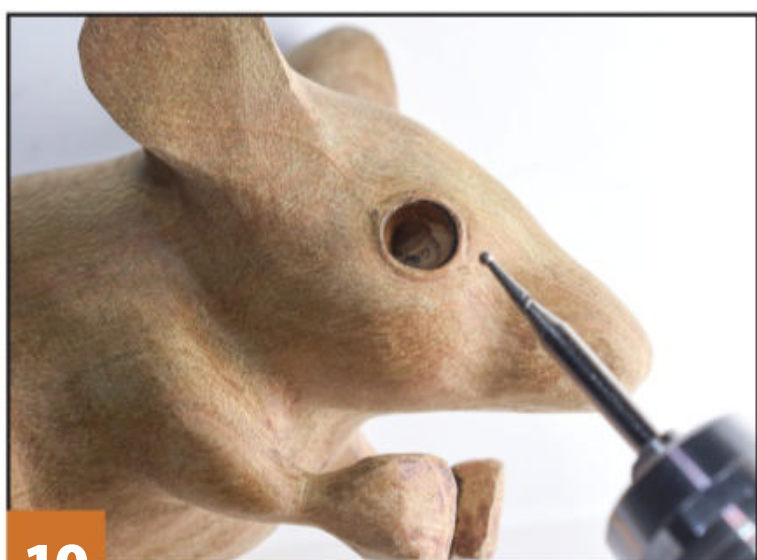
8

Plan the eye location. The eyes are $\frac{5}{32}$ " (4mm) pieces of round, black glass. Use thumbtacks to locate the center of both eyes. Align the tacks from above and in front, and then use a circle template to draw a $\frac{5}{32}$ " (4mm) circle around the tack.



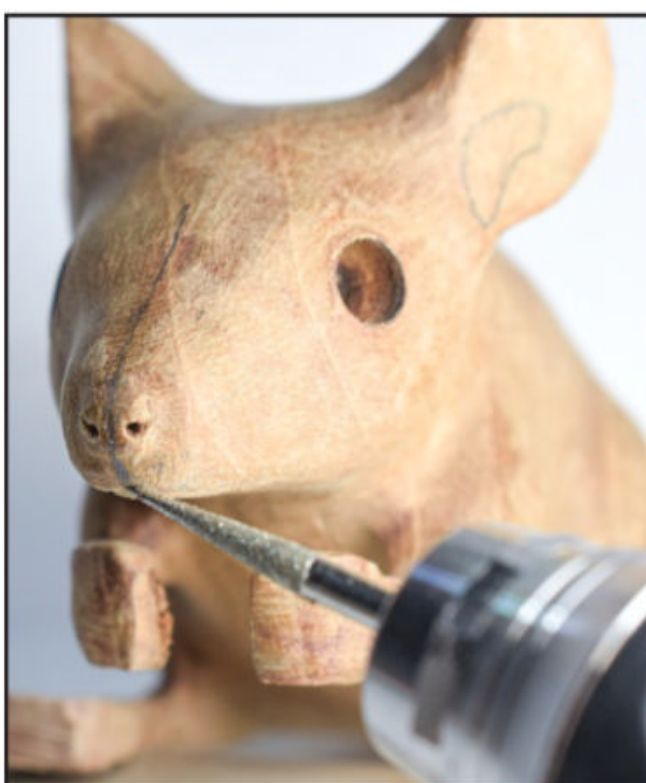
9

Carve the eye sockets. Using the $\frac{5}{32}$ " (4mm) bud-shaped diamond bit, create the eye sockets. Keep testing the fit of the eyes, as you want them to sit snugly within the wood. Once the opening is the proper diameter, enlarge the back of the socket with a $\frac{1}{8}$ " (3mm) fluted carbide cutter.



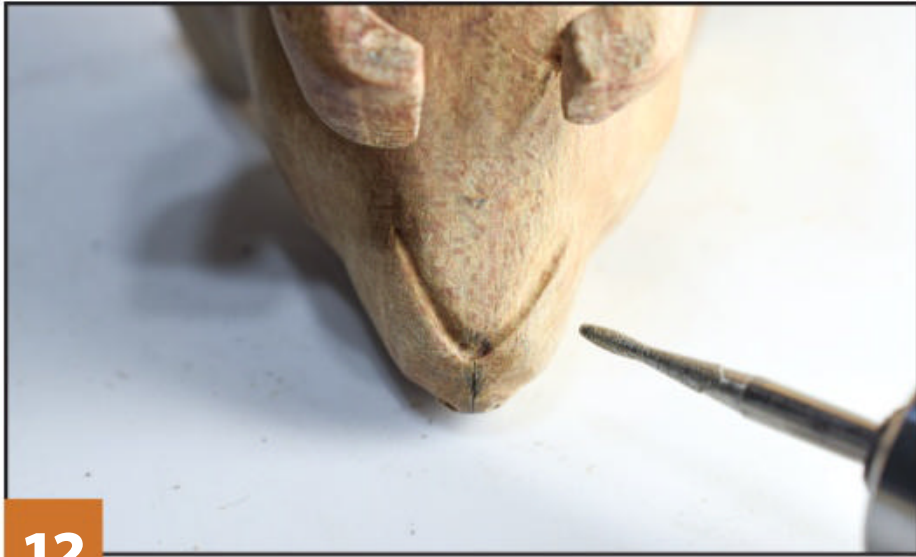
10

Define the eyelids. Use a $\frac{3}{64}$ " (1mm) ball-shaped diamond bit to outline the eyelids. Sand very lightly by hand with a 400-grit abrasive.



11

Carve the nose. The nose is approximately $\frac{1}{8}$ " (3mm) across at its widest. Define the edges and round it with a $\frac{3}{64}$ " (1mm) teardrop-shaped diamond bit. Pierce the nostrils and shape with a small needle-shaped diamond bit. Use a scalpel to cut the philtrum; this is the groove that runs vertically down half of the nose to the top of the mouth.



12

Add the mouth. Pencil on the position of the mouth and use the same teardrop-shaped diamond bit to outline it, running the bit along the inside edge of the mouth.



13

Bore the whisker holes. The whiskers are situated in five grooves. Cut these with the $\frac{3}{64}$ " (1mm) teardrop-shaped diamond bit. Then pierce the whisker holes with the point of a compass or set of dividers.



14

Carve the inner ears. Open the inside of the ears using $\frac{5}{32}$ " (4mm) and $\frac{5}{64}$ " (2mm) ball-shaped diamond bits. Then sand this area with the split-mandrel sander and 240-grit abrasive.



15

Carve the hazelnut.

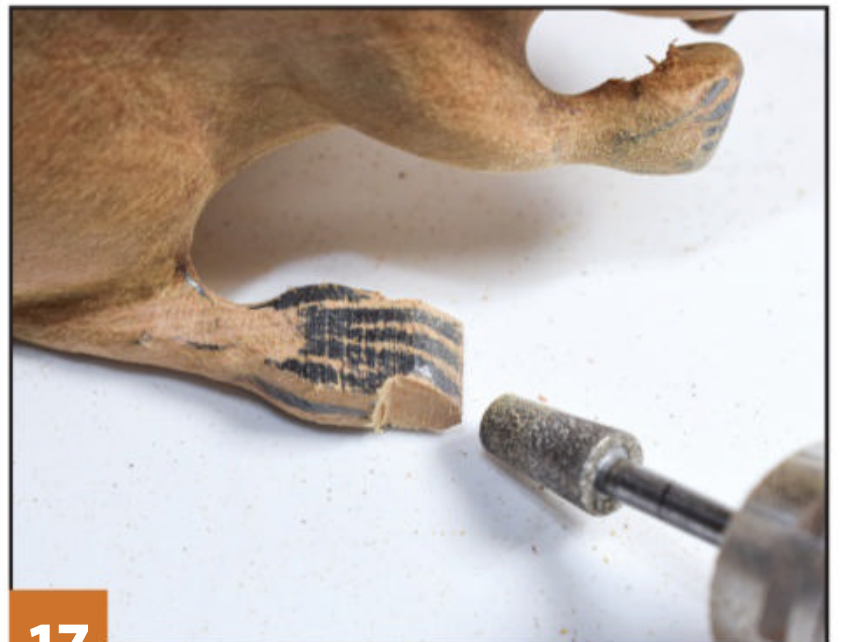
Shape the hazelnut from a $\frac{1}{2}$ " (1.3cm) cube of yew wood or similar. Check that these dimensions will fit between the front paws of your mouse and adjust them as needed. Cut the wood so that you have a piece of white sap at the top to represent the lighter area of the nut. At this stage, the nut should be a bit too big to fit between the front paws; the excess will be reduced in the next step for a tighter fit.



16

Fit the front paws to the hazelnut.

Carefully shave down the inside edges of the front paws and fingers while checking the fit of the nut. I removed a shallow groove on the rear of the nut for it to fit snugly against the chest. Pencil on the fingers where they will fall against the nut. Do not shape the fingers any further at this point.



17

Shape the hind legs and feet. Reduce the thickness of the hind legs. Draw on the position of the five toes. With a truncated cone diamond bit, decrease the height of the inner and outer toes and reduce their length per your reference.



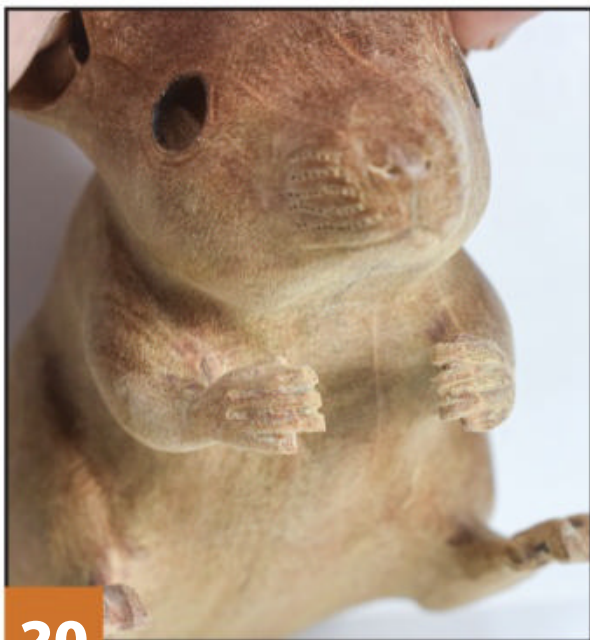
18

Separate the toes. Use a $\frac{7}{16}$ " (1cm) needle-shaped diamond bit.



19

Shape the toes. With the $\frac{3}{64}$ " (1mm) teardrop-shaped diamond bit, round over the tops of the toes and create the arch at the front of the foot. Leave sufficient material for the toe pads and claws.



20

Refine the front paws. Use the same techniques as for the back paws.



21

Add texture. Pencil on the fur. Texture the body, starting at the rear, with a $\frac{13}{64}$ " (5mm) blue stone at a high speed.



22

Texture the head. For the head and hard to reach areas, use a $\frac{5}{64}$ " (2mm) blue stone. Remove any loose fibers with a 400-grit nylon buffing wheel.



23

Carve the leaves. Craft the leaves from any suitable hardwoods available to you. I chose yew, elm burr, and a beautiful orange chakte viga to represent the colors of fall. I cut templates for maple and beech leaves, carved several of each, and then arranged them until I felt I had the correct balance. Cut a recess in one of the bottom leaves and leave a tab on the other to enable them to be glued together.

TIP

STABLE BASES

You could mount the mouse and leaves on a shaped plinth, but I wanted the leaves to be freestanding, so I ensured that I had a flat, stable base on the bottom leaves.



24

Carve the tail. The tail needs to conform with the shape of your leaves and layout. Use a piece of wire to determine the shape of the tail, and then cut the tail from a piece of cherry. Aim to find a piece of wood whose grain curves down from the tab that inserts into the mouse and then runs horizontally. Carve the tail using the truncated cone diamond bit, and then sand and lightly texture only the top of the tail with the $\frac{5}{64}$ " (2mm) blue stone. Because the change in direction of the tail could make the piece fragile, I left mine slightly thicker.



Finishing

Fit the eyes with epoxy putty. Drill a hole in the heels of the mouse and the base to accommodate a pin for added strength, and then apply a minimum of three coats of the finishing oil or clear matte spray of your choice. When the finish is dry, assemble the piece using epoxy glue.



25

Carve the claws. Cut the claws on all the toes and fingers with the $\frac{1}{8}$ " (3mm) diamond disc. Lightly sand by hand with a 400-grit abrasive.



Hardwood Mouse Patterns

© 2023 Woodcarving Illustrated

materials & tools

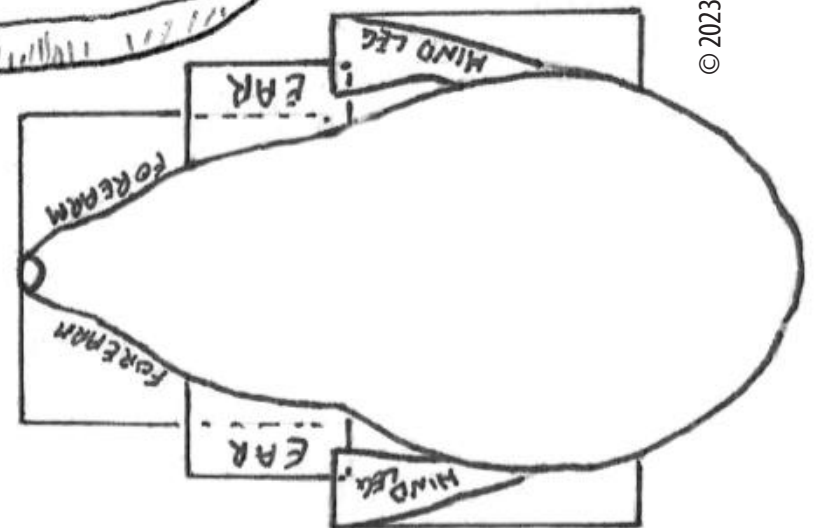
MATERIALS

- Cherry, 2" (5.1cm) thick: mouse, $3\frac{1}{4}$ " x 5" (8.3cm x 12.7cm)
- Cherry, $\frac{3}{4}$ " (1.9cm) thick: tail, 2" x 3" (5.1cm x 7.6cm)
- Wood, such as yew, $\frac{1}{2}$ " (1.3cm) square: hazelnut
- Various hardwoods of choice, $\frac{1}{2}$ " (1.3cm) thick: leaves, various sizes
- Pencil
- Red crayon
- Epoxy glue
- Epoxy putty
- Sandpaper: 120- to 400-grit
- Clear finish of choice
- Thumbtacks
- Wire
- Pin

TOOLS

- Band saw
- Rotary tool
- Carbide-point bits: coarse grit safe end cylinder, coarse grit flame, 1" (2.5cm) taper
- Fluted carbide cutters: $\frac{1}{8}$ " (3mm), 1" (25mm) round nose
- Diamond bits: $\frac{3}{64}$ " (1mm) teardrop; $\frac{3}{64}$ " (1mm) ball; truncated cone; $\frac{5}{64}$ " (2mm) ball; $\frac{5}{32}$ " (4mm) bud; $\frac{5}{32}$ " (4mm) ball; $\frac{7}{16}$ " (11mm) needle; $\frac{1}{8}$ " (3mm) disc
- Blue stones, such as CeramCut®: $\frac{5}{64}$ " (2mm) cylinder, $\frac{13}{64}$ " (5mm) inverted cone
- Carving knife
- Scalpel
- Pair of dividers or compass
- Sanders: cushioned-drum; split-mandrel
- Buffing wheel: 400-grit nylon or Scotch-Brite® pad

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



Paul Purnell has been carving as a hobby for 15 years. While he carves mostly wildlife in the round, he has been known to make anything from tiny netsuke to owls in flight. He started making walking sticks, with either basic or fancy heads, following a request from the owner of his local gun shop, where his handiwork is now sold. Paul is retired and lives with his wife in a village near Lincoln in the United Kingdom. He is the author of *Carving Creative Walking Sticks and Canes*, available at foxchapelpublishing.com.



Ice Skate Ornament

Add an unexpected embellishment to an easy holiday ornament

By Keoma McCaffrey

Add a vintage touch to your holiday decorating with this nostalgic ice skate ornament. It has a delightful folk-art feel, and the spoon (or fork) handle used for the skate blade adds a touch of whimsy. The piece is easy to carve with a rotary tool or a knife.

Getting Started

Trace the pattern onto the wood. Cut the perimeter of the skate with a band saw. I use a maple 2x4; the weight of the maple helps the ornament hang well.

materials & tools

MATERIALS:

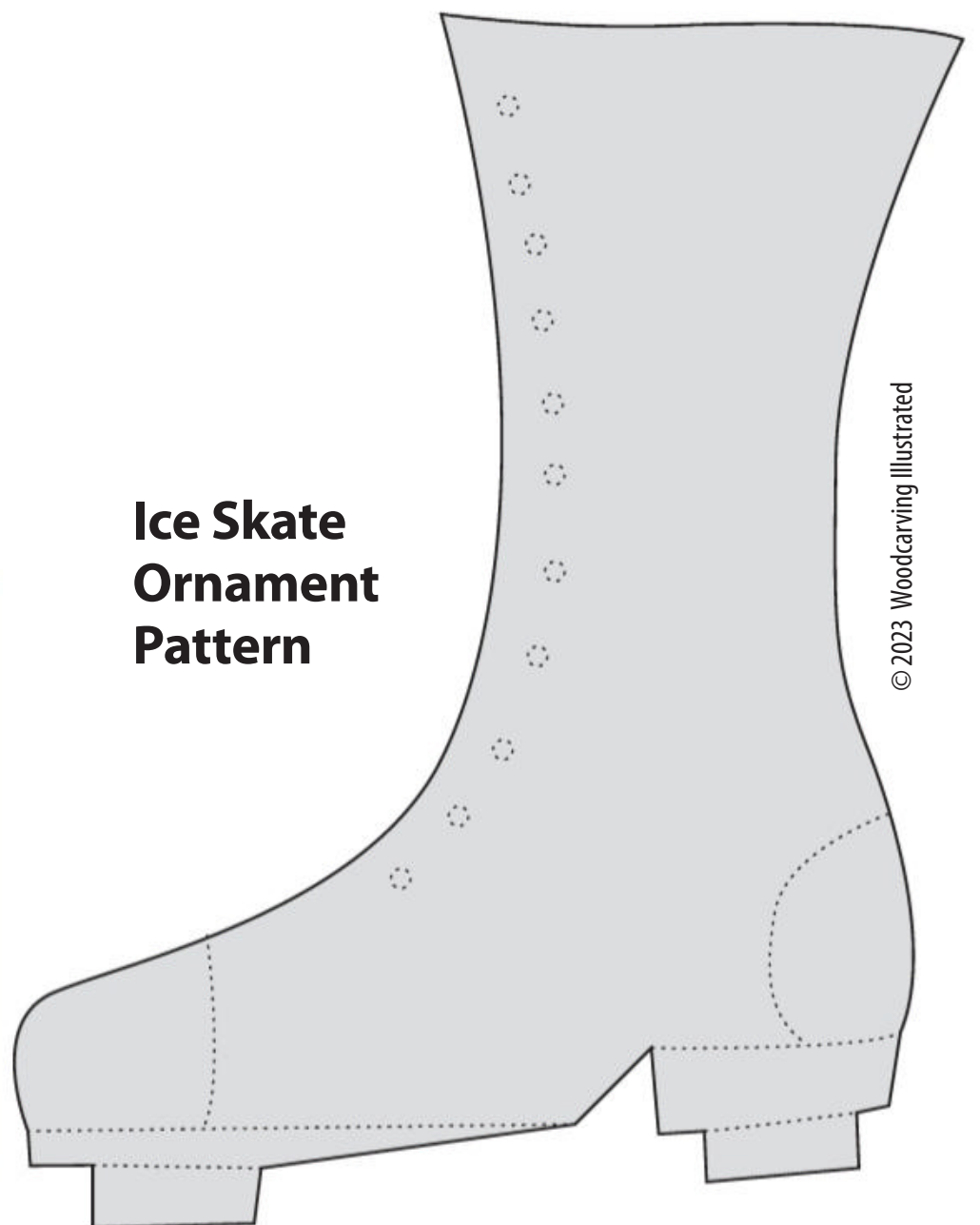
- Maple, 2" (5.1cm) thick: 4" x 5" (10.2cm x 12.7cm)
- Spoon or fork (metal)
- Spray paint: black
- Acrylic paint: white
- Epoxy, 5-minute
- Ribbon or jute
- Hanger
- Embellishments, such as bells or greenery
- Sandpaper

TOOLS:

- Band saw
- Rotary tool
- Fluted bits: large cylinder, small cylinder, tapered pointed
- Carbide-point bits: ball-shaped, flame-shaped
- Abrasive cutoff wheel with mandrel
- Vise

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

Ice Skate Ornament Pattern



© 2023 Woodcarving Illustrated

CARVING THE ORNAMENT



1 Round the sharp corners. Use a ball-shaped carbide-point bit in a rotary tool. Round the toe and heel. Decide if it's a right or left skate and add the arch. The front of the laced section comes to a subtle ridge, but the back of the section is more rounded. Use a cylinder-shaped fluted bit to shape the blade rest and heel, and to separate the sole from the upper part.

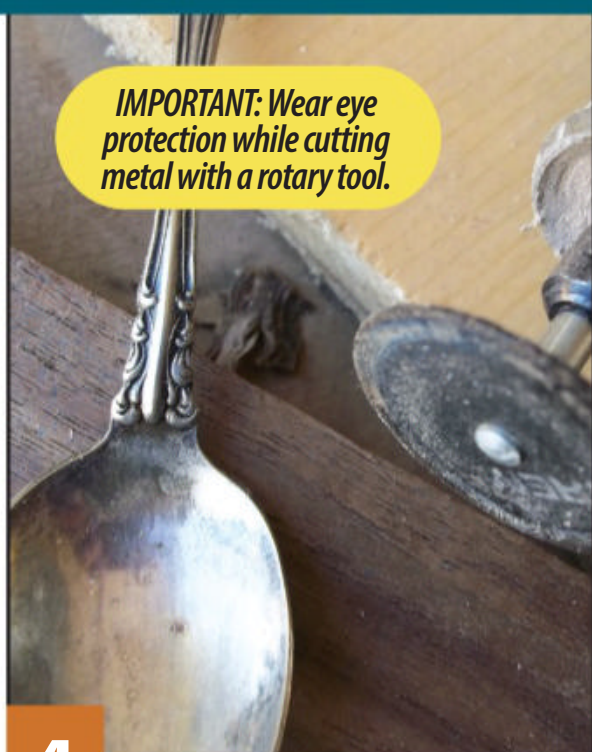


2 Carve the slot for the skate. Use a small cylinder-shaped fluted bit and carve the groove down the center of the blade rests. Use a small, tapered-point fluted bit to drill the lace holes straight through the skate until you see the tip of the bit coming through. Then carefully drill in from the other side. As soon as the bit clears the last bit of wood, it will jump, snap the wood, and ruin the ornament if you are not careful.



3 Hollow the inside of the skate. Use a flame-shaped carbide-point bit. Use the side of the bit to start hollowing it, and then carefully expand the hole. If you push the bit straight in, it will choke and jump, potentially causing injury and damaging your project. Carve down about three-quarters of the way to the sole. Use the corner of a large cylinder-shaped bit to carve the details on the heel, toe, and back.

FINISHING THE ORNAMENT



4 Cut the spoon bowl from the handle. Make a series of shallow grooves on both sides until the metal parts. Clamp the spoon in a vise, and then use an abrasive cutoff wheel in the rotary tool. Then use the edge of the wheel to smooth the cut section. Place the handle on a piece of wood and pound it flat with another piece of wood.

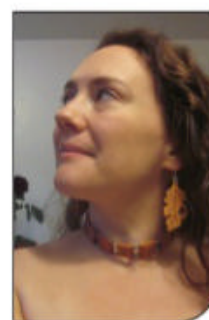


5 Spray the bottom of the skate black. Then use 5-minute epoxy to attach the spoon handle to the grooves in the blade rest. Allow the epoxy to dry. Apply white acrylic paint to the shoe, allow it to dry, and then sand some off for a folk-art look. Use red ribbon or jute to lace the skate. Use epoxy to attach a hanging hook as well as greenery, bells, or other embellishments as desired.

TIP

FIXING THE BLADE REST

If your blade rests are misaligned, carve one off and epoxy on another piece of wood to carve another.



Keoma McCaffrey lives in Northern California with her husband, Jeff, and two sons. She carves most of her work from salvaged local hardwoods. She is also a moderator on the Woodcarving Illustrated message board, woodcarvingillustrated.com/forum. Keoma sells her work at etsy.com/shop/willowthewisp.



Tiny T. Rex

This king of lizards will be a hit with dino lovers of all ages

By Brian Altison

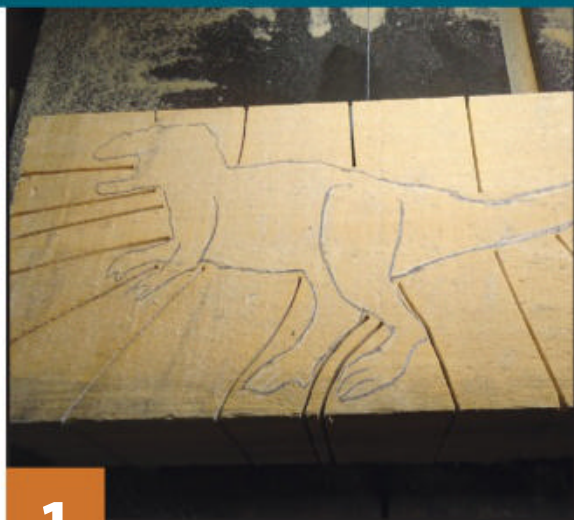
I've loved dinosaurs since I was young, so I finally decided to carve one. I couldn't find any patterns I liked, so I gathered reference images of the *tyrannosaurus rex* and created my own. You can customize your carving by changing the color palette to suit your vision for this fierce predator.

Getting Started

Pick a piece of knot-free pine or tupelo. Use carbon paper to transfer the side-view pattern to the blank. Make sure the lines are bold enough that you can see them when cutting on a band saw.

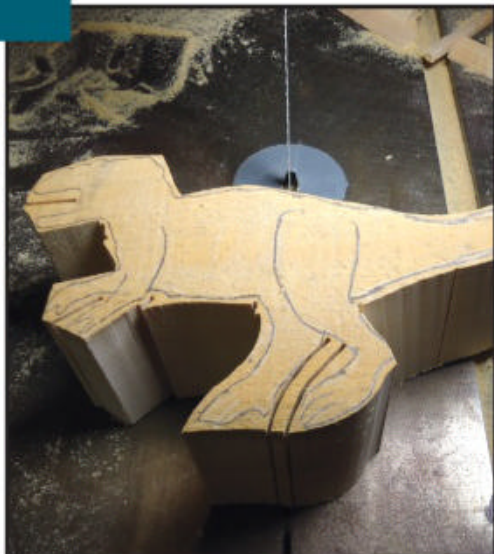
For this project, I use a flexible shaft machine with an assortment of bits. The flexible shaft tool allows me to use large, aggressive bits with ¼" (6mm)-dia. shafts. These bits remove wood quickly. If you have smaller rotary tools, refer to the bit chart on page 22.

ROUGHING OUT



1

Make a series of relief cuts before cutting the perimeter of the dinosaur. This keeps the band saw from binding as you cut. Cut the perimeter. Use a coping saw or a tapered bit in a rotary tool to remove the wood between the arms and legs.



2

Rough out the dinosaur. Use a large coarse cylinder-shaped, carbide-point bit (Bit A, referring to patterns on page 78). Switch to a rotary saw carbide-point bit (Bit B) to remove the wood between the arms and legs.



3

Round and shape the arms and legs. Use a small tapered carbide-point bit (Bit C). Use Bits A, B, and C to finish rounding and roughing out the dinosaur.



4

Draw the joint where the arms and legs attach to the body. Then draw the muscle groups. Shape the muscles and the areas where the arms and legs attach to the body. Use Bit C and a small cylinder-shaped carbide-point bit (Bit D). Shape the fingers and mouth with the tapered ruby bit (Bit F). Draw the head ridge, eyes, and nostrils.

ADDING THE DETAILS



5

Carve the ridge down the back and tail. Use Bit C. Then carve the crown with the same bit. On the underside of the head, use Bit C to carve the jowls and shape the stomach. Separate the toes.



6

Shape the eyes. Use the tapered pointed diamond bit (Bit E). Use the same bit to shape the tongue and teeth, using a magnifier for the smaller details, if desired. Use the same bit to shape the toes and toenails. Refine the legs and arms, and then shape the snout, nostrils, and major wrinkles with Bits C and E.



7

Sand the *T. rex* with 220-grit sandpaper. Do not sand off the carved details. Add a series of curved wrinkles to the dinosaur using Bit E, running them into each other. Refine the crown, jowls, and teeth. *Note: The teeth should not be perfect, even, or straight; this dinosaur stomped around eating other dinosaurs, so its teeth reflect this rough diet.*



8

Shape the base with Bit A. Drill matching 1/8" (3mm)-dia. holes in the base and the feet. Cut dowels to fit into the holes and attach the *T. rex* to the base with five-minute epoxy.

materials & tools

MATERIALS

- Wood, such as pine or tupelo, 2 3/4" (7cm) thick: dinosaur, 5 1/2" x 11" (14cm x 27.9cm)
- Wood, such as pine or tupelo, 1 3/4" (4.4cm) thick: base, 4" x 6" (10.2cm x 15.2cm)
- Hardwood dowel, 1/8" (3mm)-dia.: 2" (5.1cm) long
- Sandpaper
- Gesso
- Carbon paper
- Acrylic paints, such as Delta Ceramcoat®: bright yellow, burnt umber, cadmium yellow, carbon black, hunter green, naphthol crimson, raw sienna, Seminole green, white
- Finish, clear spray: matte
- Finish, clear brush-on: gloss
- 5-minute epoxy

TOOLS

- Band saw
- Coping saw
- Rotary tool: flexible shaft
- Drill press with bit: 1/8" (3mm) dia. twist
- Paintbrushes
- Ruby bit: tapered
- Diamond bit: tapered pointed
- Carbide-point bits: large coarse cylinder, rotary saw, tapered, small tapered, small cylinder
- Magnifier

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

Painting and Finishing

Thin gesso with a little water. Apply it to the entire dinosaur and base. Make sure you cover all the cracks and crevices. Let the gesso dry thoroughly, and paint the dinosaur and base, referring to the Paint Notes (see below). I apply thin washes of paint and blend the colors together. After the paint dries, seal it well with clear matte spray finish. When the finish is dry, use a paintbrush to apply clear gloss finish to the inner and outer lips, eyes, nostrils, tongue, teeth, toes, and claws.

Paint Notes

Head and body: *Seminole green and bright yellow blended together*

Eyes: *bright yellow with carbon black pupils*

Teeth: *white*

Mouth and tongue: *white blended with naphthol crimson*

Toes and fingernails: *carbon black highlighted slightly with white*

Muscle separations: *accentuated with carbon black*

General highlights: *bright yellow*

Base: *carbon black, hunter green, burnt umber, cadmium yellow, raw sienna, white blended together*



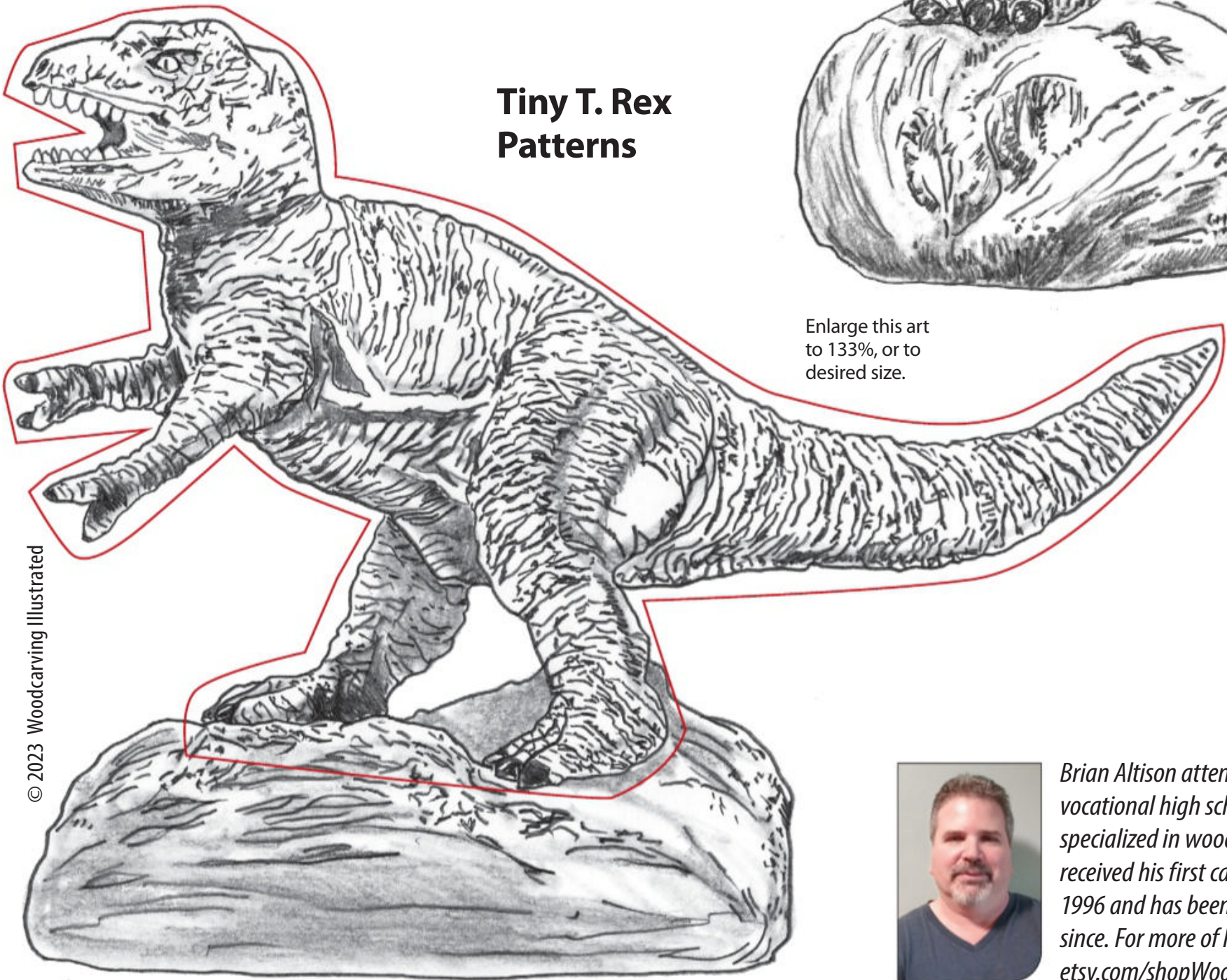
Power Carving Bits Used

Bit	Name	¼" (6mm) shaft	⅛" (3mm) shaft
Bit A	Coarse cylinder-shaped carbide-point bit		
Bit B	Rotary saw carbide-point bit		
Bit C	Tapered carbide-point bit		
Bit D	Small cylinder-shaped carbide-point bit	N/A	
Bit E	Pointed diamond bit	N/A	
Bit F	Tapered ruby bit	N/A	



Enlarge this art to 133%, or to desired size.

Tiny T. Rex Patterns



© 2023 Woodcarving Illustrated



Brian Altison attended vocational high school and specialized in woodworking. He received his first carving kit in 1996 and has been carving ever since. For more of his work, visit etsy.com/shopWoodCreations11.



Realistic Bear Head

Make this handsome beast without endless hours of fur texturing

By Lori Andrews

Bears make majestic carvings, but it's easy to get bogged down with adding fur texture to the whole body. This versatile bear bust captures the spirit of the bear while saving you carving time. Though it looks great as a stand-alone carving, I drill a hole in the bottom and use it for a cane or walking-stick topper. You can even enlarge it to create a striking piece for your mantle.

Getting Started

Trace the outline onto the wood and cut it with a band saw. For a walking stick topper, drill a hole with a Forstner bit before carving. For any other carving, draw a circle on the bottom of the neck. Draw a line where the muzzle meets the head, and then draw a tapered line from the forehead to the end of the nose starting about ½" (1.3cm) from the centerline on both sides.

ROUGHING OUT



1

Taper the muzzle. Use a $\frac{3}{4}$ " (19mm)-dia. safe-end carbide-point bit. Make a groove in front of the line you drew at the base of the muzzle and always pull the tool toward you, until you have removed the wood up to the tapered lines on the top and bottom of the muzzle. Square up the radius left by the bit where the muzzle meets the head.



2

Round the neck. Use the same bit. Use the circle or hole on the bottom as a guide. Round the back of the neck to just below the ears and round the front of the neck to under the jaw. Hold the bit at a 45° angle, and then remove wood from the forehead, working in from the front of the ears to expose more of the outside lobe.



3

Cut in between the ears. Use the same bit, held perpendicular to the head. The goal is to smoothly join the forehead plane to the back of the head and the neck.



4

Draw two lines parallel to the centerline equally dividing the top of the muzzle. Use calipers to make sure both sides are symmetrical. Use the same bit to carve the corner of the muzzle off at a 45° angle up to the lines to further shape the muzzle.



5

Carve the depressions for the eyes. Position a $\frac{1}{8}$ " (3mm)-diameter round-nose cylinder-shaped carbide-point bit level with the top of the muzzle and under the brow. Pull it down at an angle on either side of the nose ridge to remove wood in the cheek area. Use this bit to round the neck under the jaw and carve some fur separations.



6

Smooth the eye area. Use a $\frac{3}{16}$ " (5mm) coarse-grit ball-shaped ruby bit. Draw the eye circle, use an eye punch, or a piece of brass tubing. Darken the circle if needed, and then carve a moat around the outside of the drawn circle with a $\frac{1}{16}$ " (2mm)-dia. fluted engraving bit. Do not carve away the lines. Remove enough wood that the material in the circle sits high enough to become the eye mound.





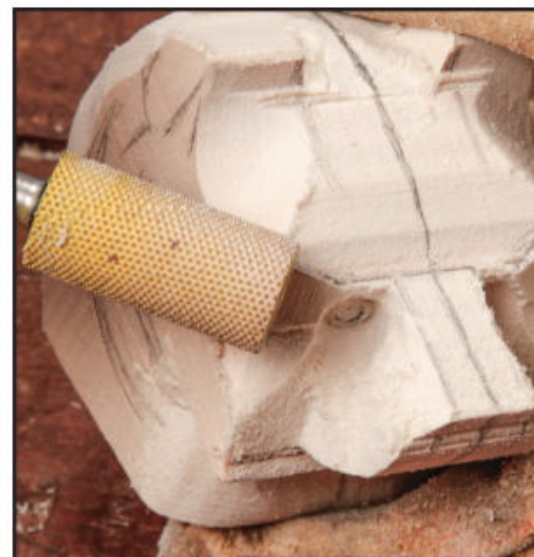
7

Deepen the tear duct areas. Use a pointed diamond bit to cut the moat deeper at the inside of the tear duct areas. Use the same bit to round the mound until it fills the eye socket. Cut the moat deeper as needed to round the mound. Round the outside of the groove to blend into the cheeks.



8

Taper the side of the forehead. Use the 3/4" (19mm)-dia. cylinder-shaped carbide-point bit. Carve off the sharp angles of the brows. We will finish carving the eyes in Step 18.



9

Make a V-shaped cut along the jawline. Hold the corner of the same cylinder-shaped bit perpendicular to the surface of the wood. Then carve a few flowing V-shaped cuts to indicate the hair separations and hair flow.



10

Thin the jowls up to the muzzle. Use the same bit. Carve down the sharp corners. Remove wood from in front of the outside of the ear lobe so that you can see the inner and outer lobes from the side. Make an undercut to tuck the bottom of the outside of the ear into the head to give the ear a rounded appearance. Round the corners on the bottom of the muzzle.



11

Draw lines around the back of each ear. Use the same bit to round the back of the ears following the lines. These cuts should meet at the bottom of the outside of the ear where it tucks into the head. Blend the groove into the back of the head and neck so the ears protrude.



12

Carve the hair separations around the chin and down to the collarbone. Use the same bit to carve the V-shaped grooves. Make the folds flow down in sweeping curves on each side of the neck. They don't need to be in the exact same location from side to side.



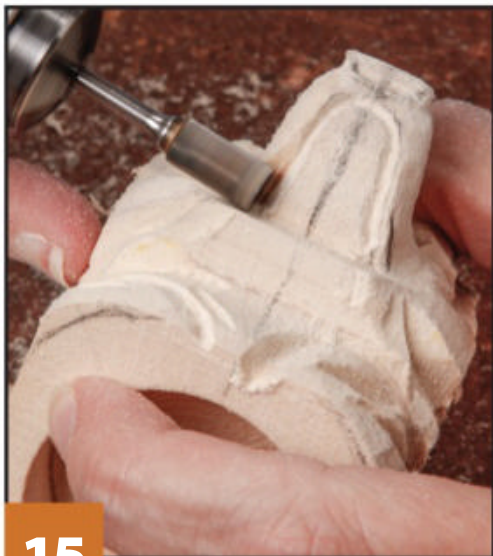
13

Draw the shape of the nose and lip. The nose pad is a rounded keystone shape starting at the top corners of the nose ridge/bone, coming down less than halfway on the front of the muzzle. The lips separating the upper jaw from the lower start just below the nose and curve back, forming an elongated omega shape. Carve along these lines with a small inverted cone-shaped diamond bit.



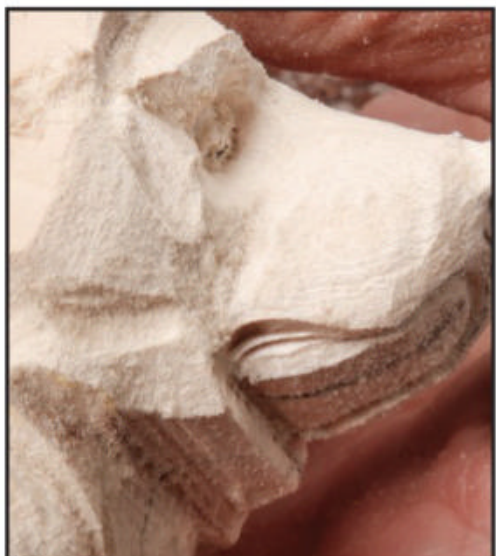
14

Separate the nose pad from the muzzle. Use a coarse-grit long-tapered ruby bit. Round upper lip to the groove cut by the inverted cone, leaving an even thickness to the lip. Round up to the lower corner of the nose pad shape. The upper corners of the nose stay fairly square and are only slightly rounded in the finish sanding or buffing of the piece.



15

Carve a sight depression to separate the top lip from the bottom. Use a small cylinder-shaped fluted bit. At the corners of the mouth, following the omega-shaped groove, cut into the upper jaw's lip without altering the shape of the lower jaw. The upper lip at the front of the muzzle overlaps the lower jaw, forming the flews, but raises up so the lower jaw becomes visible as you approach the neck.



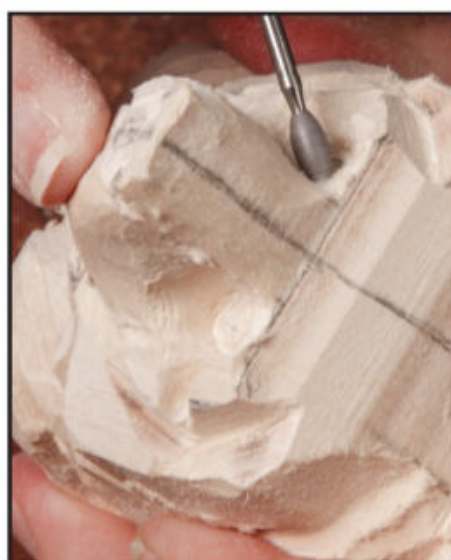
16

Define the nose and mouth. Use the pointed diamond bit. Make depressions for where the nostrils will be and roll the bit around the side of the nose and back toward the eye using the point to form the side slit. Use the same bit to deepen and slightly undercut the groove that forms the upper lips.



17

Clean up and hollow the nostrils. Use a flame-shaped diamond bit. Open the nostrils, making sure they are symmetrical. Then use the same bit to clean up the corners of the eye mound where they tuck under the eyelids.



18

Draw the shape of the eyelids. Make sure they are equal in size, distance from centerline, and shape. Use the corner of 1/16" (2mm)-dia. cylinder-shaped diamond bit to carve a V-shaped groove to lower the eyeball, leaving the lids raised. Open up the eye depressions and define the brows with the same bit.





19

Add a depression to the forehead between the eyebrows.

Use the flame-shaped diamond bit. Now the centerline can be carved off since everything has been established. Make a subtle angled groove from the forehead divot that sweeps down both sides of the nose, joining the inside corner of the eyes to strongly define the brows.



20

Hollow the ears.

Use the same bit. Make the finishing cuts to the rest of the piece, taking some volume off each side as needed to increase symmetry.



ADDING THE FUR TEXTURE



21

Begin adding fur texture.

Draw some lines representing the fur flowing from the nose over the head and down the back. Carve along these lines with the corner of a large safe-end cylinder-shaped fluted bit to create V-shaped grooves. Make subtle S- and C-shaped cuts in both forward and backward curves. Overlap these cuts slightly angled to each other. Alter the depth of each cut. The more you do, the more furlike the texture becomes. Apply this texture to the top of the head, neck, and cheeks.



22

Add the finer fur texture.

Use the smaller cylinder-shaped fluted bit to add the texture to the face, nose, collarbone, and ears. Switch to the inverted cone-shaped diamond bit to add texture to the snout.



23

Remove any fuzzy wood from the carving.

Secure a square of coarse-grit synthetic steel wool, such as Scotch-Brite®, in a mandrel. Then run the bit with and against the flow of the fur to remove any fuzzies.

Painting and Finishing

You can finish this carving in several ways. For a natural finish, use Danish oil or an oil-based urethane. You could also paint it with acrylic paints (see Painting Guide on page 84), or glazes (like gel stains or artist oils).

Unfortunately, any water-based product (stain, acrylic paint, or gesso) raises the grain, which gives the wood a rough feel. To prevent this, I seal with General Finishes® oil urethane (Arm-R-Seal®). Oil finishes don't raise the grain, and urethane stiffens any hard-to-sand wood fibers. Then buff the carving again with synthetic steel wool in a mandrel to produce a smooth paintable surface. Gesso, acrylic paints, and glazes adhere well to the urethane.

To make the eyes look shiny and wet, coat them with gloss medium or epoxy.



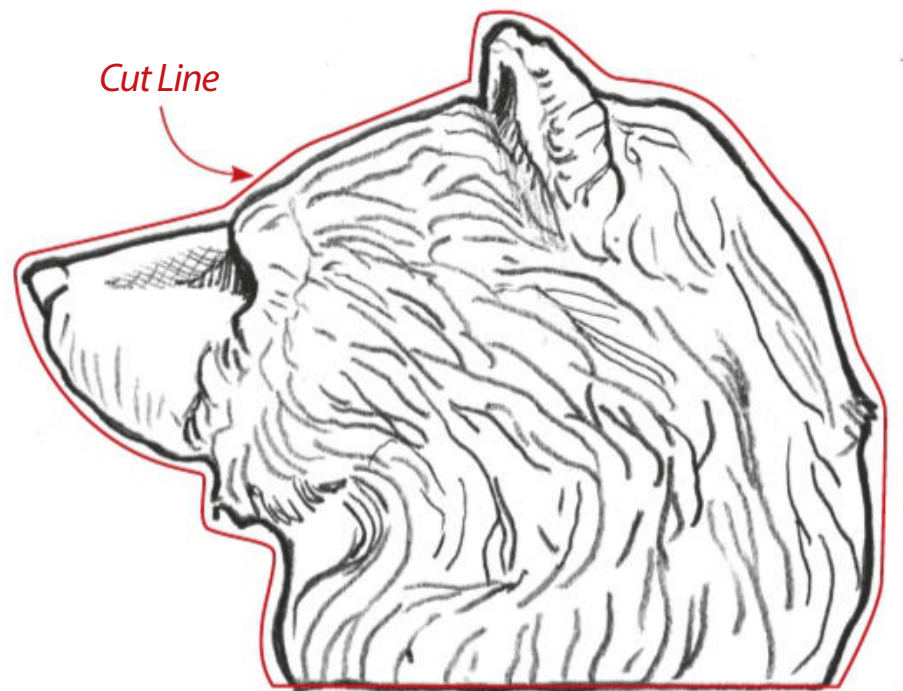
Painting Guide

Fur, eyes, nose: black

Eyes: gloss medium or epoxy to make shiny

Muzzle, inside of ears: natural color of wood

Bear Head Patterns



materials & tools

MATERIALS

- Basswood, 2" (5.1cm) thick: approx. 3½" (8.9cm) square
- Synthetic steel wool, such as Scotch-Brite®: coarse
- Urethane: oil-based (optional)
- Acrylic paints (optional)
- Water-based stain, such as General Finishes®: walnut (optional)
- Spray urethane: semigloss (optional)
- Epoxy

TOOLS

- Band saw
- Flexible shaft tool
- Drill with bit: 1½" to 2" (4.1cm to 50cm)-dia. spade or Forstner

- Carbide-point bits: ¾" (19mm)-dia. safe-end cylinder, small round-nose cylinder
- Ruby bits: ¾" (5mm)-dia. coarse-grit ball, coarse-grit long tapered, coarse-grit cylinder-shaped
- Diamond bits: ¾" (2.5mm)-dia. cylinder, pointed, small inverted cone, flame, ¼" (2mm)-dia. cylinder, ball
- Fluted bits: ¼" (2mm)-dia. engraving, large cylinder, small cylinder
- Mandrel (for synthetic steel wool)
- Calipers
- Eye punch (optional)

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



Lori Andrews earned a degree from the Columbus College Of Art & Design before she started power carving. She works at the Woodcraft store in Columbus, Ohio, and teaches classes at the store and around the country.

CARVING THE Female Face

**Master the technique of
sculpting a human portrait**

By Chris Howard

Carving a female face will challenge every carver—both novice and experienced. I started carving faces because not many others do. With around five decades of carving experience, I have figured out a few techniques to carve a beautiful woman's face.

Beauty is hard to describe. It's a combination of proportion, symmetry, and subtleties. All of these can be learned through observation. Start by looking at a children's coloring book, which are full of simple drawings that exaggerate proportions and features. Learn how the artists have made drawings look like a girl with just a few lines. Then move on to black-and-white photographs and hair styling magazines to help find references for carving.

Here is a short list of the basic differences in a man's and a woman's face. All these traits are typical to women of all races, but you can always find exceptions.

- A woman's forehead is rounder and protrudes more, and the eyes are a bit larger and slightly farther apart.
- Men have heavier brows, while women have more slender noses.
- A woman's jawbone is more angular than square, and the mouth is smaller.



WHAT IS AVAXHOME?

AVAXHOME-

the biggest Internet portal,
providing you various content:
brand new books, trending movies,
fresh magazines, hot games,
recent software, latest music releases.

Unlimited satisfaction one low price

Cheap constant access to piping hot media

Protect your downloadings from Big brother

Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages

Brand new content

One site



AVXLIVE:ICU

AvaxHome - Your End Place

We have everything for all of your needs. Just open <https://avxlive.icu>

Getting Started

I chose a piece of black walnut for this carving because the dark wood makes you pay more attention to shape; details are easily lost to the darkness of the wood. Always use a good dust collection system when working with black walnut. I chose a seasoned log about 8" (20.3cm) in diameter with a side limb that makes the log about 12" (30.5cm) wide. It should be about 15" (38.1cm) tall. When using a log, always look at the top for season cracks and turn them away from the center of your piece. Seal the end grain to help prevent checking when you start, and keep it away from direct sunlight while carving.

TIP

FACIAL RATIO

In general, the height of the face equals the width of the face divided by 1.6.

ROUGHING OUT THE FACE



1

Rough out the carving. I used a chainsaw. In a bust, the width of the shoulders should be twice the height of the head. For this piece, the widest part of the log is 12" (30.5cm), so I made this the shoulder width. That will make the head height 6" (15.2cm).



2

Mark the height and width of the face. Since the height of the face from Step 1 is 6" (15.2cm), divide the 6" by 1.6, and find that the face is 3¾" (9.5cm) wide. Mark the centerline, eye line, and the outside edges of the face. Remove the excess wood alongside the face with an Arbortech™ three-tooth woodcarving wheel in an angle grinder. Create a rough oval shape for the face.



3

Start hollowing the eye sockets. Use a large ball-shaped carbide-point bit in a flexible shaft tool. The marks remind me to carve away from the nose and crown of the mouth. Extend the cuts to the back of the jawbone, but do not cut the bottom of the nose yet.



4

Carve a slight slope at the bottom of the nose. Use the ball-shaped bit. The nose is half the distance from the top of the eye socket to the bottom of the chin. Mark the bottom of the cheek slightly below the bottom of the nose.



5

Carve the temple area outside the edge of the eye socket slightly. Use the ball-shaped bit. This allows the cheekbones to protrude. Set in the mouth mound. Make the eye sockets extend from the top of the brow down to the middle of the nose, with the bottom of the socket slightly deeper. The head is turned slightly, and the neck reflects this, so draw the centerline of the esophagus from the chin to the center of the chest.



6

Smooth the face. Secure two squares of heavy-duty synthetic steel wool, such as Scotch-Brite® Tan 7440, in a mandrel and buff the face to remove the marks from the coarse bits. Sand again with a sanding disc in a mandrel to create a smooth surface as you draw the eyes, nose, and mouth.



7

Shape the bottom of the nose. Use a ¼" (6mm)-dia. cylinder-shaped fluted carbide bit in a micro motor. From the back of the wings to the tip, the nose is half on the face and half protruding from the face. Do not cut the sides of the nose yet; leave wood to blend it with the cheeks to keep the nose from being too skinny.



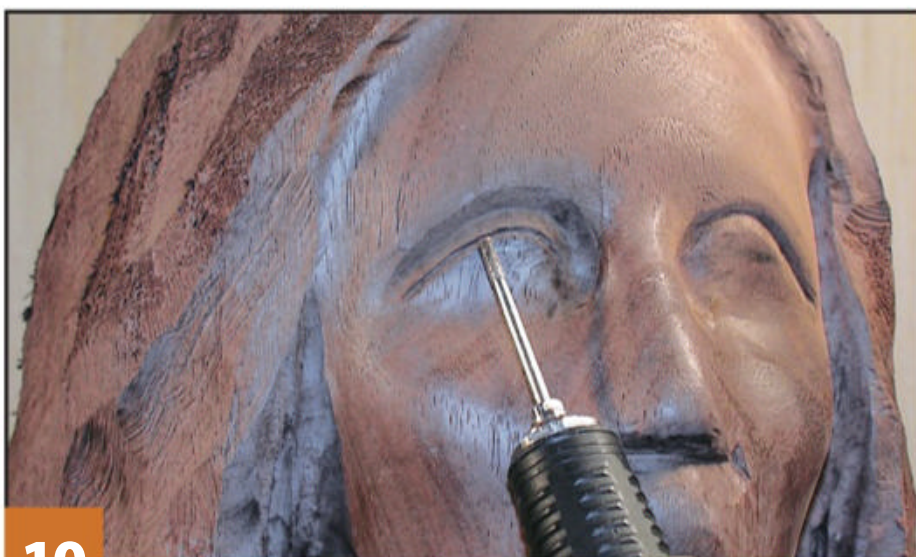
8

Carve the inner corners of the eyes. Use a small ball-shaped diamond bit in a micro motor. The C-shaped groove should be ⅜" (5mm) deep right next to the nose to begin curving the eyeball. Extend the cut along the top of the eyeball, following the shape of the eye socket.



9

Carve a V-shaped groove to separate the top of the upper eyelid from the eye socket. Use the edge of a small cylinder-shaped diamond bit in the micro motor to carve the groove in the center of the groove cut in Step 8. Note the angle of the bit in the above photo so it starts to shape the eyeball as you carve.



10

Move down ⅜" (5mm) and carve a matching groove. Use the cylinder-shaped diamond bit. This separates the bottom of the upper eyelid from the eyeball. Make this groove only ⅛" (2mm) deep; if you carve any deeper, it will make the eyelid too thick.



11

Carve the top of the lower eyelid. Use the cylinder-shaped bit, but hold the tool at less of an angle as you carve the ⅛" (2mm)-deep groove. The top of the lower eyelid tucks in under the bottom of the upper eyelid.

CARVING THE EYES



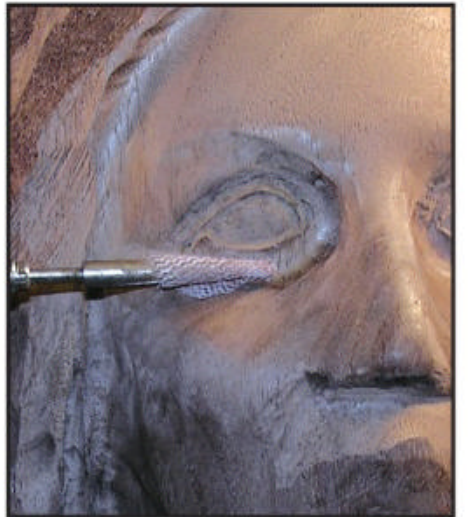
12

Carve down the exposed eyeball. Use the end of the cylinder-shaped bit to remove $\frac{1}{16}$ " (2mm) from the eyeball between the eyelids. Using the end of the bit gives me more control in tight areas. The goal is to make the eyeball look like a marble set behind the lids. The eyeball should not protrude farther than the edge of the upper eyelid.

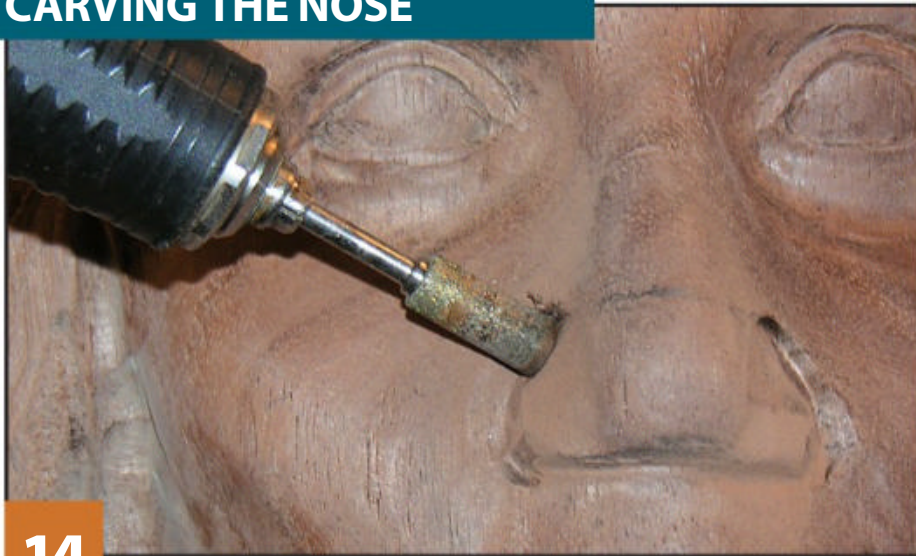


13

Carve a groove from the inside of the eye out above the socket. Use a ball-nose cylinder-shaped fluted carbide bit. This groove provides the appearance of the eyebrow, so make it deep inside the eye and progressively shallower as you carve out. Use a split mandrel and 240-grit sandpaper to sand below the eyeball and eyebrow.



CARVING THE NOSE



14

Locate the wings of the nose in line with the inside corners of the eyes. The top of the wings are located one-third of the distance from the bottom of the nose to the bridge. Cut in the wings with the cylinder-shaped diamond bit. Note the angle of the handpiece toward the outside of the eye and use the end and edge of the bit to form the outside of the wing.



15

Refine the ball of the nose. Use the small ball-shaped diamond bit. The ball is on the front of the nose and takes up at least half the overall width of the nose. Carve alongside the ball from the wing down around the bottom of the nose. Buff with the synthetic steel wood in the mandrel to blend and remove any cut marks.



16

Carve the bottom of the nose to follow the crown of the mouth. Use the cylinder-shaped fluted carbide bit. Outline the sides of the wings with a small tapered diamond bit. Extend this cut down the smile line. The lowest part of the dental crown sits beside the wings of the nose.



CARVING THE MOUTH



17

Draw the mouth. The bottom of the bottom lip is half the distance from the nose to the bottom of the chin. The outside corners of the mouth stop just to the inside of the center of the eyes. The top lip has three muscles and the bottom has two; this makes the top lip arch more and creates the Cupid's bow. The bottom lip is recessed 15° from the top. Using the ball-shaped diamond bit, follow the top line of the upper lip, cutting $\frac{1}{8}$ " (3mm) deep just below the line. Make the second cut just below the first, but make it $\frac{3}{16}$ " (5mm) deep to round the lips.



18

Cut a groove down the center of the lips. Use the cylinder-shaped diamond bit. Angle the bit so you carve the bottom lip with the side of the bit while you shape the upper lip with the end of the bit.



19

Form the chin. Use a fine-grit medium ball-shaped carbide-point bit to cut right below the bottom lip. Make the cut deepest under the lip, and more shallow as you carve toward the jawbone at the corners of the mouth. Refine the jaw under the cheekbone with the same bit.



20

Sand the top and bottom lips. Round them from the center. Use a Magnum® sanding disc, which features a snap-on disc with a plastic backing that allows the disc to conform to the shape of the piece. Sand above the top corners of the upper lip to narrow the lips in the corners.



21

Tuck the corners of the lower lip under the upper lip. Use the ball-shaped diamond bit. Then sand the entire face. Take your time to sand thoroughly. One of the keys to carving women's faces is creating softness by blending the features, so I spend about a third of the time on a carving just sanding.

CARVING THE HAIR



22

Carve the flowing locks of hair. Use the large ball-shaped carbide-point bit. Carve S shapes to give the hair direction. Use a smaller ball-shaped carbide-point bit to refine and carve across the larger grooves to give the hair a flowing appearance. Make the cuts at a variety of depths to add contrast. Use a flame-shaped carbide-point bit to make finer cuts. Remember that gravity pulls hair down, so it will be drawn tighter to the scalp on the top.



23

Refine the hairline. Use a small cylinder-shaped carbide-point bit and the flame-shaped bit. Start at the temples and make the cuts deeper and deeper as you approach the shoulder. Cut to the back of the neck to give the appearance of hair coming from the back of the head.



24

Burn the hair with a propane torch. This gives the hair color and softens the look. Cut a Scotch-Brite® pad into 1" (2.5cm) squares and put two on a mandrel to make it cut more smoothly. The square corners will quickly wear down as you buff off the charred wood with the rotary tool set at a slow speed.

Finishing the Carving

Apply two coats of teak oil, allowing it to dry between coats. After the finish has dried completely, apply a coat of Howard's Feed-N-Wax® and buff it with a soft brush, such as a Muffer Buffer®. Black walnut reacts well to teak oil and wax, giving it a richness that will last.



Chris Howard was born in the mountains of Tennessee and resides in Gatlinburg, Tenn., with his life partner, Leah Goddard. An award-winning carver, Chris worked in the motion picture and TV businesses building and setting up exhibits in Europe and North America. He was featured on the TV series Wood Sculptors. He started carving at the age of eight, has been carving professionally for 20 years, and has been teaching for 15 years.

materials & tools

MATERIALS

- Black walnut log, 8" (20.3cm)-dia.: with branch to make it 12" (30.5cm) wide by 15" (38.1cm) tall
- Synthetic steel wool, such as Scotch-Brite® 7440 tan
- Sandpaper: 240-grit
- Teak oil
- Howard's Feed-N-Wax®

TOOLS

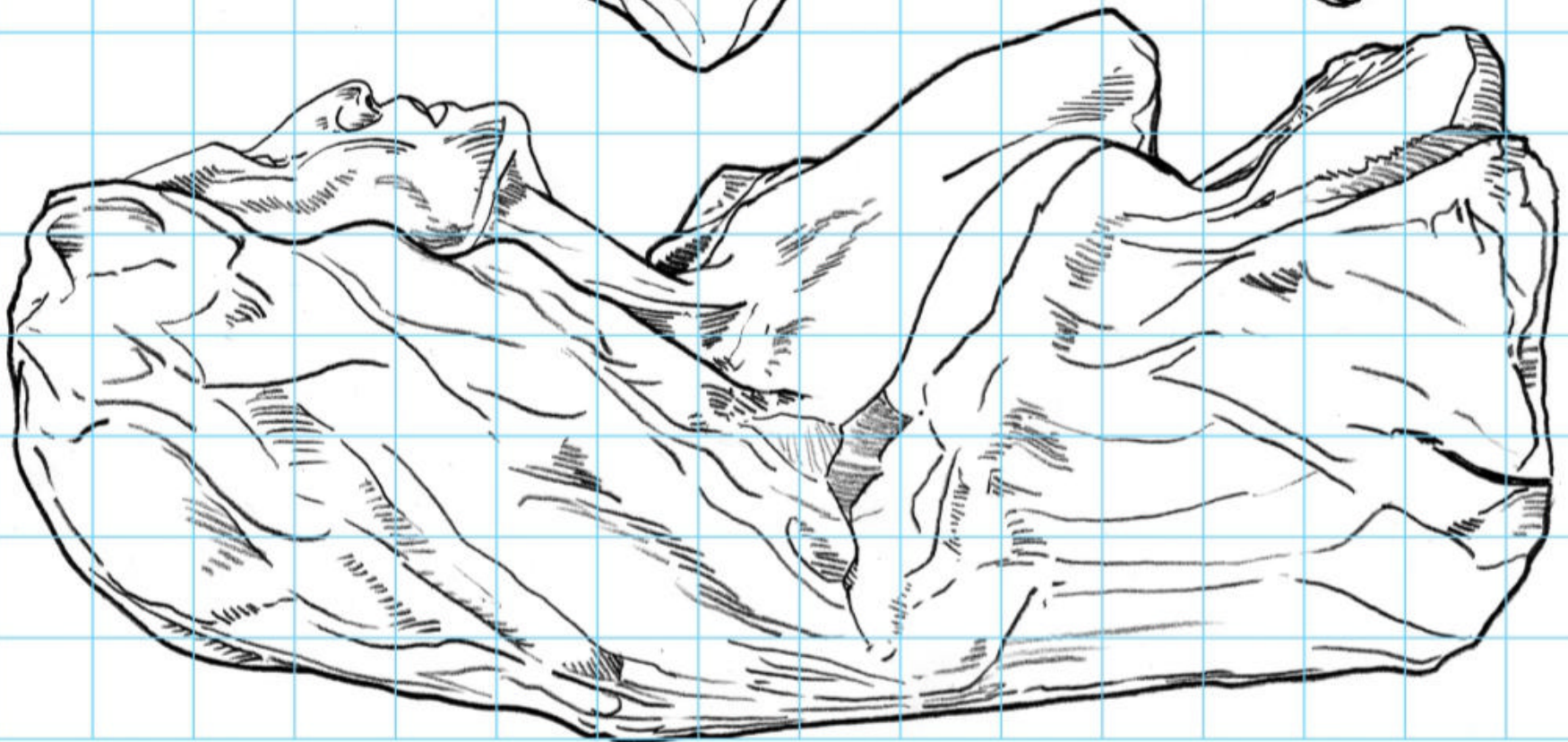
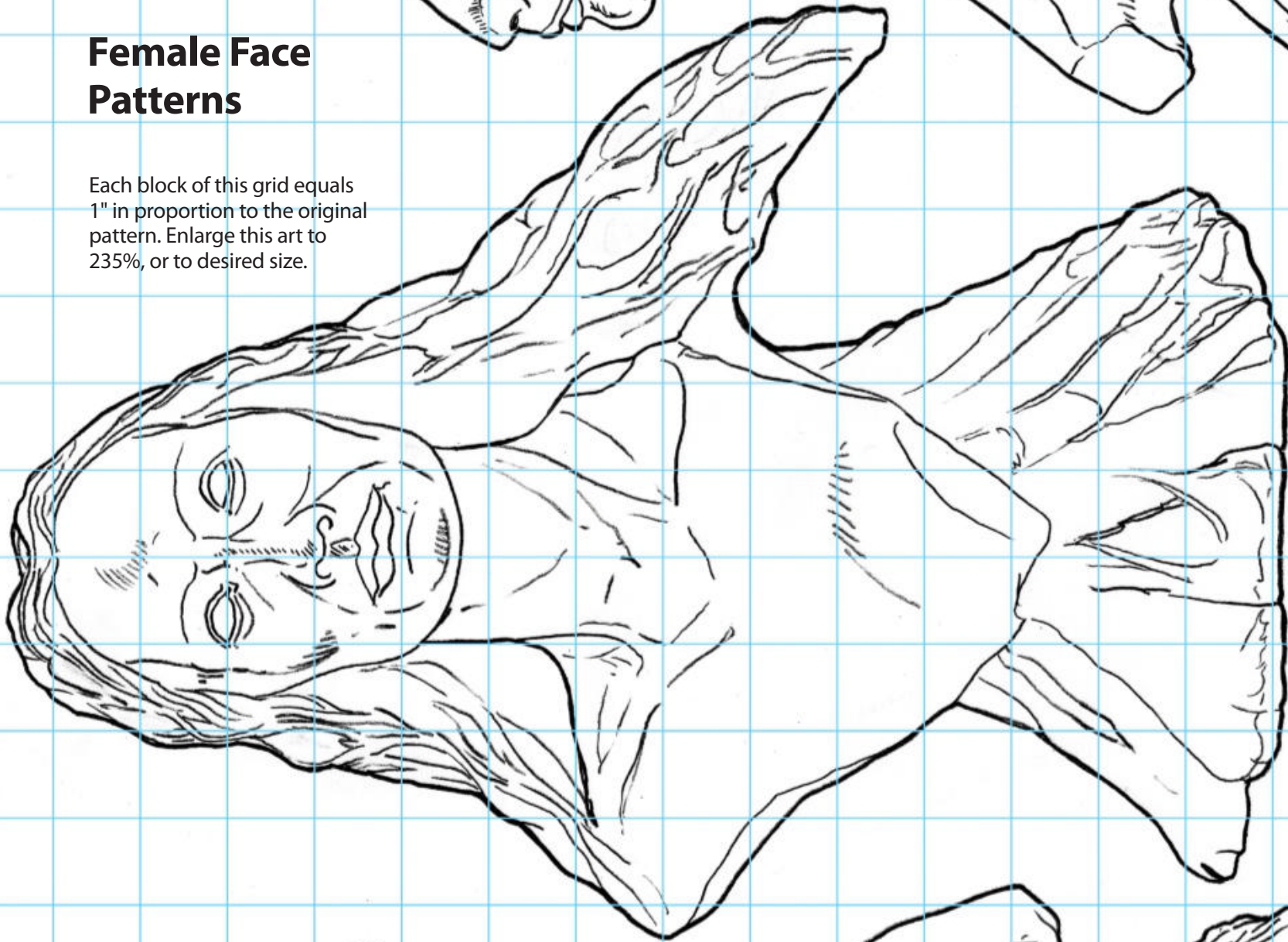
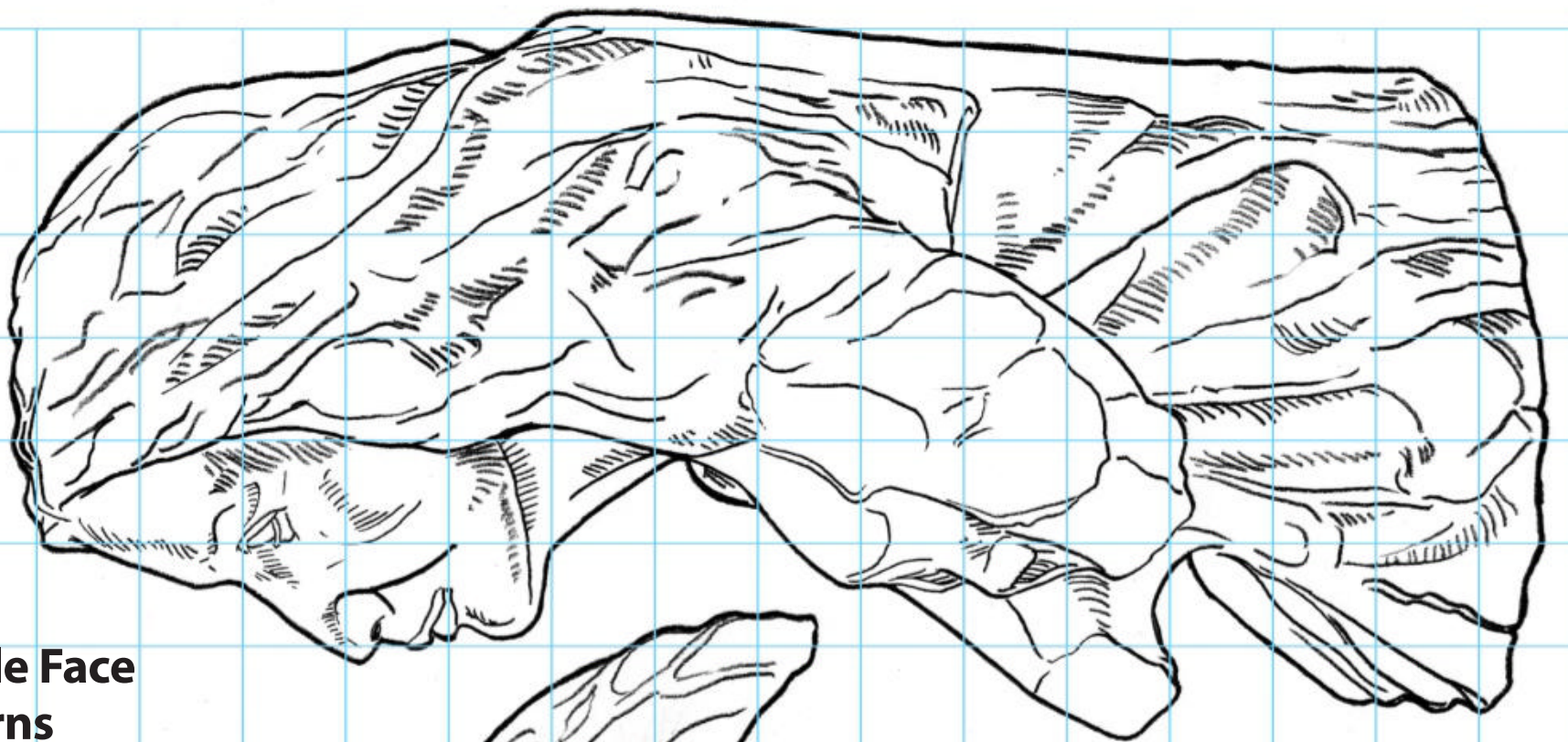
- Small chainsaw
- Angle grinder with woodcarving disc: Arbortech™ three-tooth
- Rotary tools: flexible shaft, micromotor
- Structured carbide-point bits, such as Typhoon®, with 1/4" (6mm)-dia. shaft: large ball-shaped, medium ball-shaped, small cylinder-shaped, flame-shaped

- Random carbide-point bit, such as Kutzall®, with 1/4" (6mm)-dia. shaft: small tapered cylinder-shaped
- Fluted carbide cutters, 3/32" (2.5mm)-dia. shaft: small cylinder-shaped, small ball-shaped
- Diamond bits, 3/32" (2.5mm)-dia. shaft: tiny ball-shaped, small ball-shaped, large ball-shaped, small tapered, medium cylinder-shaped, large cylinder-shaped
- Mandrel for sanding discs and synthetic steel wool
- Sanding disc, such as Magnum® aluminum oxide
- Tapered split sanding mandrel: 3/32" (2.5mm)-dia. shaft
- Soft brush, such as a Muffer Buffer®

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

Female Face Patterns

Each block of this grid equals 1" in proportion to the original pattern. Enlarge this art to 235%, or to desired size.



© 2023 Woodcarving Illustrated

Power-Carved Pirate Ship

Indulge your inner pirate by making a miniature Jolly Roger

By Benjamin Tyler

I made this pirate ship for my grandson's first birthday. Whether you're a landlubber or a seadog, this project will delight everyone who sees it. If you prefer, leave off the pirate insignia to make an 18th-century sloop.

Making the Pirate Ship

I used a band saw to cut all the pieces, and then shaped them with an oscillating spindle sander. Whenever people see this piece, they ask me how I bent the wood for the sails. The secret is that the sails and the sail booms are each carved from one piece of wood. I used dowels for the masts. I finished shaping the ship and sails with a rotary tool and some hand sanding.

Finishing

I stained the ship with Watco® golden oak Danish oil, the masts with Minwax® dark oak stain, the masthead with Minwax medium oak, and the area under the bow with Minwax red mahogany. I used Rust-Oleum® latex black paint for three of the sails, and then added printed graphics of a skull and cross bones and my grandson's name. The sails that aren't painted were stained with Watco golden oak Danish oil. When everything was painted and stained, I assembled it with glue and sealed it with Deft® semigloss lacquer. After letting the lacquer dry, I attached brass portholes and an anchor (see Special Sources), and then added recessed hangers on the back.



materials & tools

MATERIALS

- White oak: $\frac{3}{4}$ " (1.9cm) thick: 6" x 20" (15.2cm x 50.8cm)
- Sandpaper
- Dowels, $\frac{3}{8}$ " (1cm)-dia.: main masts, 2 each, 7 $\frac{1}{4}$ " (18.4cm) long
- Dowels, $\frac{1}{4}$ " (6mm)-dia.: front sail, 1 $\frac{1}{4}$ " (3.2cm) long; back sail, 1 $\frac{3}{4}$ " (4.4cm) long
- Stain, such as Minwax®: dark oak, red mahogany, medium oak
- Danish oil, such as Watco®: golden oak
- Latex paint, such as Rust-Oleum®: black
- Lacquer, such as Deft®: semigloss
- Glue

- Brass portholes
- Pewter anchor

TOOLS

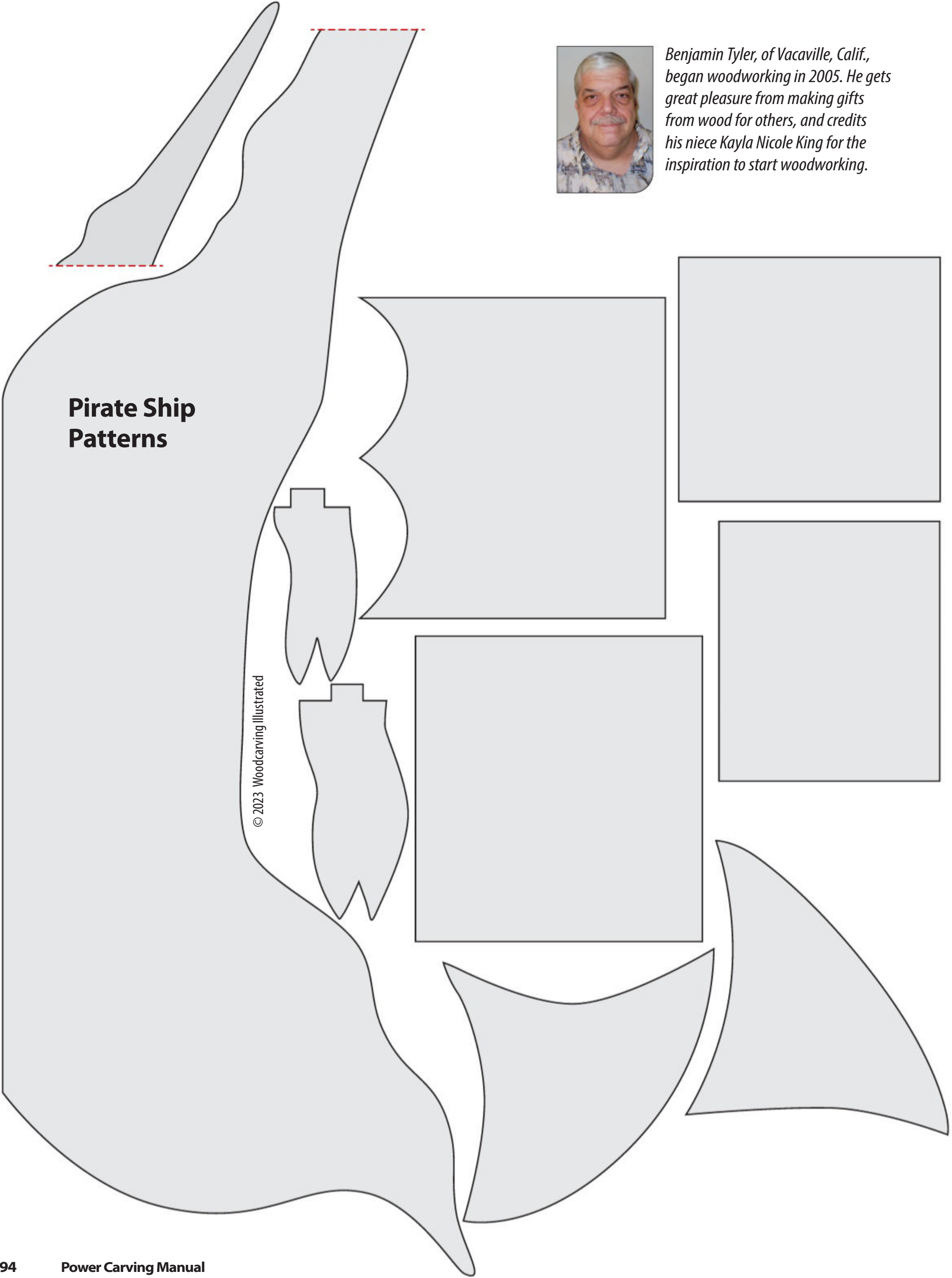
- Band saw
- Oscillating spindle sander
- Rotary tool with sanding drum and assorted bits

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

SPECIAL SOURCES

Portholes & kedge anchor available from Cast Your Anchor Hobby, castyouranchorhobby.com.





**Pirate Ship
Patterns**

© 2023 Woodcarving Illustrated



Benjamin Tyler, of Vacaville, Calif., began woodworking in 2005. He gets great pleasure from making gifts from wood for others, and credits his niece Kayla Nicole King for the inspiration to start woodworking.

Realistic Tropical Fish



Hone your fish-carving skills on a vibrant reef dweller

By James Spencer

Over the years, I have kept several fish aquariums, both fresh and saltwater. My favorite by far were the reef tanks, which explode with color, both from the fish and the decorations. Saltwater fish tend to be much more active than freshwater fish, so I gravitate toward them as carving subjects. I could sit and watch the copper-banded butterfly fish swim around for hours. I hope you enjoy this vibrant carve as much as I did. *Editor's Note: The editorial staff, in agreement with the author, made changes to some of the terminology referring to fish anatomy. This was done in order to make the steps easier to understand.*

Getting Started

Attach the patterns for the body, D fins, and E fins to the tupelo using repositionable spray adhesive. Then cut around the perimeters with a band saw. Remove the patterns. With a pencil, draw a line on the body separating the body from fins A and C.



ROUGHING OUT



1

Separate the main fins from the body. I used a large coarse-grit ball-nose carbide bit, pulling the rounded tip along the fin side of the line. Round the fish body into the fin, still leaving a distinct valley between the two sections. The goal is to have a soft, concave transition from body to fin. Round the fish body and gradually taper the edges of the fins and mouth. *Note: You could use a large ball-shaped ruby bit instead of the carbide, if desired.*



2

Smooth the surface of the fish. I started with a medium-grit sanding drum, but you could sand by hand, if preferred. Whichever sanding method you choose, move up progressively through the grits from coarse to fine.



3

Thin the fins. Thin fins A and C down from $\frac{1}{4}$ " (6mm) at their widest point to a sharp edge. Doing this gives the fin the appearance of being very thin while providing structural integrity. Use the large coarse-grit ball-nose carbide bit.



4

Shape the tail. A portion of the body extends into the tail rather than stopping short with the body proper. Mark a junction as shown, using a fine-grit ball-shaped ruby bit. Thin the area from the junction to the end of the tail, and then soften the outer edge to remove the hard line.



5

Draw on the head details. Use calipers to ensure symmetry between the right and left sides. *Note: I like to turn the fish upside down to ensure symmetry.* Then draw the bony spines on fins A and C, as well as the tail. These guidelines are used to suggest the direction of the soft rays; you do not have to follow them perfectly. Accentuate the head detail lines with a skew nib in a woodburner, cutting them in around $\frac{1}{16}$ " (2mm) to $\frac{1}{8}$ " (3mm) deep.



6

Shape the head details. Use a small safe-end cylinder-shaped diamond bit to lower the areas behind the detail lines burned in Step 5. These areas should be as smooth as possible and gently tapered away from the detail lines. Cut in the round eye socket using the large ball-shaped ruby bit, making it just deep enough to hold the epoxy putty you will use later on. *Note: Any size ball tip will work; however, it must be a smaller diameter than the eye itself. The larger the bit, the more control you will have over the cut.*

ADDING DETAILS



7

Carve the fin spines. Starting halfway back from the nose and continuing to the tail and all of the fins, split the length of the spines in half with a line running parallel to fin A. Use a 1/8" (3mm) 400-grit ball-shaped fluted bit to roughly follow the lines you drew in Step 5 for the first half of fin A. Then, for the remaining fin sections, only follow the lines halfway up the spines, as shown.



8

Shape the fins D and E. As with the other fins shaped in Step 3, leave these parts thicker at the base and taper them to a point toward the outer end. To give the fish a more lifelike appearance, I did not carve the fins completely flat, instead giving each one a little twist. Carve the rays as in Step 7.



9

Add the fine ray details to the tail and all of the fins. Use the woodburner with the skew tip, referring to the fin pattern.



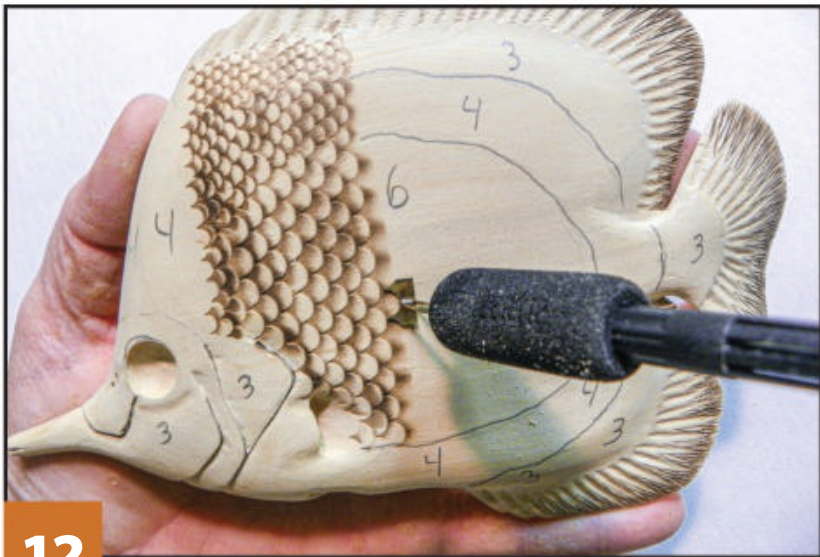
10

Texture between the spines and rays. Use a small tapered-cylinder-shaped white stone to add little horizontal "ribs" to these sections.



11

Add fins D and E to the body. Cut each conjoined pair in half on a scroll saw; you could also snap them manually. Draw lines to mark the attachment points on the body, and then cut slots for the fins with a small flame-shaped diamond bit. Cut the nostrils and the mouth using a small ball-shaped diamond.



12

Add the scale texture with the woodburner.

Draw lines to mark the needed scale size. Where the scale size changes, blend the sizes so there is a gradual progression. *Note: I used three different sizes of scale burning tips from Razertip, but you could approximate the texture manually, if desired.* Add the lateral line along the body by pulling a bent nib down each side of the line so it protrudes. Refer to the pattern.

PAINTING & FINISHING



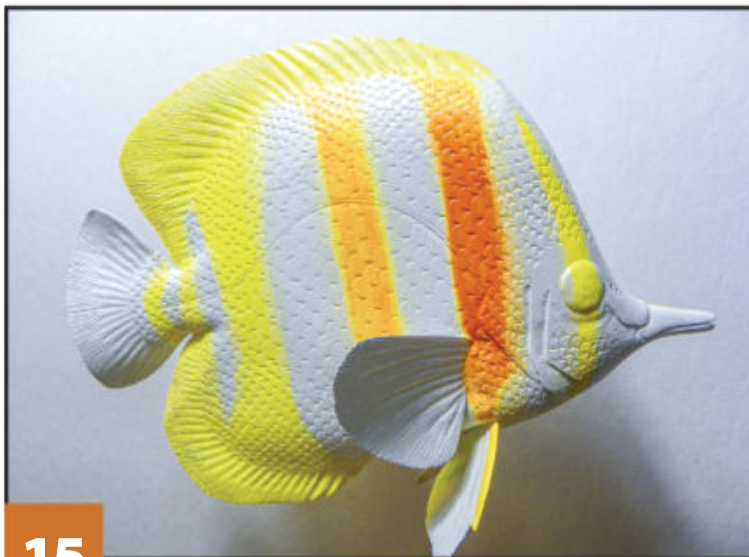
13

Prepare the fish for paint. Fill the eye sockets with epoxy putty to make the eyes. When viewed from the front, they should bulge out slightly. Glue fins D and E in place with cyanoacrylate (CA) glue, filling any gaps with epoxy putty. Seal the entire piece with a heavy coat of spray lacquer, making sure there are no runs. Once dry, paint the fish with several coats of gesso until it is completely white. Then, using a #12 Filbert brush, apply a mix of 50% gesso, 25% iridescent white, and 25% iridescent bright silver to the entire piece. Use a hair dryer between coats.



14

Add the yellow stripes. Using the #12 Filbert brush, paint large stripes of thinned cadmium yellow medium down the sides. Then apply it to the spine of fin E, as well as fins A and C. Apply several coats to build up the color gradually.



15

Detail the stripes. With a #10 Filbert brush, darken the centers of each stripe with a thinned mixture of 70% cadmium yellow medium and 30% cadmium red medium. Darken the stripe centers further by adding about 10% more yellow and 20% raw umber to the mix. Blend this into the top, bottom, and sides of the stripes to create a gentle progression from orange to yellow.

TIP

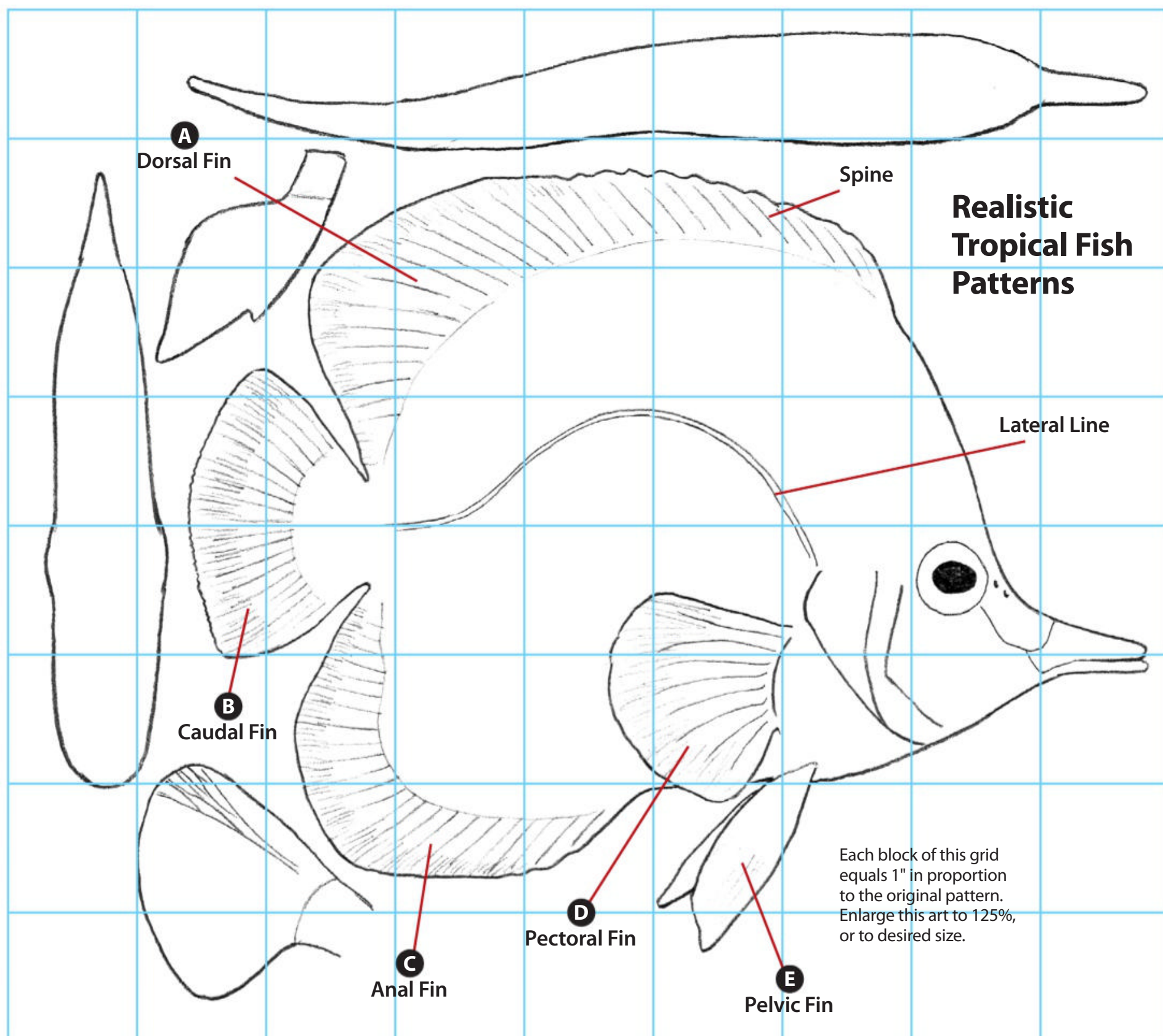
SOFTENING THE EDGES

To remove any hard lines while painting, use a clean, damp brush to soften the edges of the colors once applied.



16

Add the final details. Once all of the stripes are roughly the same color value, add a very thin coat of iridescent rich copper to the center of the stripes. Add the stripe outlines, large side spots, nostrils, eye centers, and fin stripe using a mix of 50% Mars black and 50% raw umber and a #4 round brush. Add highlights to the tail, the back of the body, and the face details with a thinned mixture of 60% phthalo blue and 40% gesso, using the #10 Filbert. With a #0 round brush, add a thin line of the blue to fins A and C, and around the spot on the back. Let dry and display as desired.



© 2023 Woodcarving Illustrated

materials & tools

MATERIALS

- Tupelo, 1" (2.5cm) thick: fish body, 6" x 8" (15.2cm x 20.3cm)
- Tupelo, ½" (1.3cm) thick: E fins, 1⅜" x 1" (3.5cm x 2.5cm), 2 each
- Tupelo, ½" (1.3cm) thick: D fins, approx. 2" (5.1cm) square, 2 each
- Spray adhesive: repositionable
- Pencil
- Epoxy putty
- Glue: cyanoacrylate (CA)
- Finish: clear spray lacquer
- Gesso, such as Liquitex™ Professional: white
- Acrylic paints, such as Liquitex™: cadmium red medium, cadmium yellow medium, iridescent bright

silver, iridescent rich copper, iridescent white, Mars black, phthalo blue, raw umber

TOOLS

- Band saw
- Scroll saw (optional)
- Rotary tool
- Carbide-point bit: large coarse-grit ball-nose
- Ruby bits: fine-grit ball-shaped, large ball-shaped
- Diamond bits: small safe-end cylinder-shaped, small ball-shaped, small flame-shaped

- White stone bit: small tapered-cylinder-shaped
- Fluted bit: ⅛" (3mm) 400-grit ball-shaped
- Measuring scale
- Sanding drum: medium grit
- Sandpaper or sanding sticks: assorted grits to 500
- Woodburner with nibs: skew; bent; scaling, ⅛" (3mm), ⅜" (5mm), ¼" (6mm)
- Paintbrushes: Filberts, #10 and #12; round, #0 and #4
- Hair dryer
- Calipers

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



James (Jim) Spencer has been carving since 1990. He enjoys carving all types of carvings but

specializes in birds and fish. In May of 2019, Jim took 2nd in World at the World Fish Carving Competition in Springfield, Mo. Find more of his work at jamespencerart.com.



Golden Eagle Walking Stick

Dress up a functional cane with this glorious raptor

By Paul Purnell

Nothing dresses up a walking stick quite like a realistic eagle head. There are a few ways to add an eagle head to a stick: add it directly to the top, or orient it so the head acts as the handle.

I was inspired to use a classic Derby-style cane handle to balance out the eagle head.

I carved this walking stick as an aid for a friend who has developed Parkinson's disease. He has a love for all birds of prey, so I designed the head of this traditional Derby-style cane to incorporate the head of a golden eagle.

Getting Started

The first place I start when carving anything with a degree of realism is collecting reference material. You cannot have too much.

Use the pattern to cut cardboard templates of the side and top view of the eagle's head. My pattern is sized for a 1" (2.5cm)-dia. shaft with an extra $\frac{1}{16}$ " (2mm) to allow for any errors; you might need to adjust the pattern if you're using a shaft with a significantly different diameter. Orient the template on the wood so that the grain runs through the neck of the handle. This will provide strength at the joint with the shank and along the length of the eagle's beak.

Cut the outline of the blank with a band saw. Draw diagonal lines from corner to corner; these lines will intersect in the center of the bottom of the neck. Draw a $\frac{1}{2}$ " (1.3cm) by $\frac{1}{2}$ " (1.3cm) square around the center point. Use a $\frac{1}{2}$ " (13mm)-dia. bit to drill a $\frac{3}{4}$ " (1.9cm)-deep hole in the center of the neck. Draw a centerline around the blank. Whenever you carve off the centerline, redraw it. Make marks $\frac{1}{16}$ " (1.4cm) from both sides of the centerline to indicate the diameter of the handle.

Talon Show

- The golden eagle (*Aquila chrysaetos*) can swoop down on its quarry at speeds up to 150 miles per hour. The force of impact is comparable to that of a bullet.
- Golden eagles mate for life and use the same nest each year. They can live for up to 30 years in the wild. A breeding pair needs a territory of 7.7 square miles (20 square kilometers).
- The Bald and Golden Eagle Protection Act of 1940 makes it a criminal offense in the United States, punishable by one year's imprisonment or a \$5,000 fine, to possess a single feather from this bird.
- Five countries have the golden eagle as their national symbol: Albania, Austria, Germany, Kazakhstan, and Mexico.
- In Mongolia, golden eagles are used to hunt wolves.

TIP**DRILLING HOLES FREEHAND**

To keep the hole vertical when drilling a deep hole freehand, drill down approximately $\frac{1}{8}$ " (3mm), and then turn your body 90° and drill down another $\frac{1}{8}$ " (3mm). Repeat the process of drilling and turning your body until you reach the desired depth.

**ROUGHING OUT THE CARVING****1**

Rough out the handle. Use a coarse-grit, safe-end, cylinder-shaped, carbide-point bit in a rotary tool. Carve down to the lines to leave the handle $1\frac{1}{8}$ " (2.9cm) thick. Leave the eagle's head the full thickness of the blank. Starting about $1\frac{1}{2}$ " (3.8cm) from the end, taper the end of the handle to $\frac{1}{2}$ " (1.3cm). Use 120-grit sandpaper in a cushioned sanding drum. Keep well away from the square drawn on the bottom of the neck.

**2**

Draw the rough top view onto the eagle's head and beak. Refer to the pattern. Use the same cylinder-shaped bit to rough out the bird's head. Then use the 120-grit sandpaper on the cushioned sanding drum to roughly sand and shape the head.

**3**

Round the edges of the handle. Use the same cylinder-shaped bit. To help keep the handle round and not oval, draw a line about $\frac{1}{8}$ " (3mm) in from all of the edges to use as a reference. Sand the handle with 120-grit sandpaper on the cushioned sanding drum.

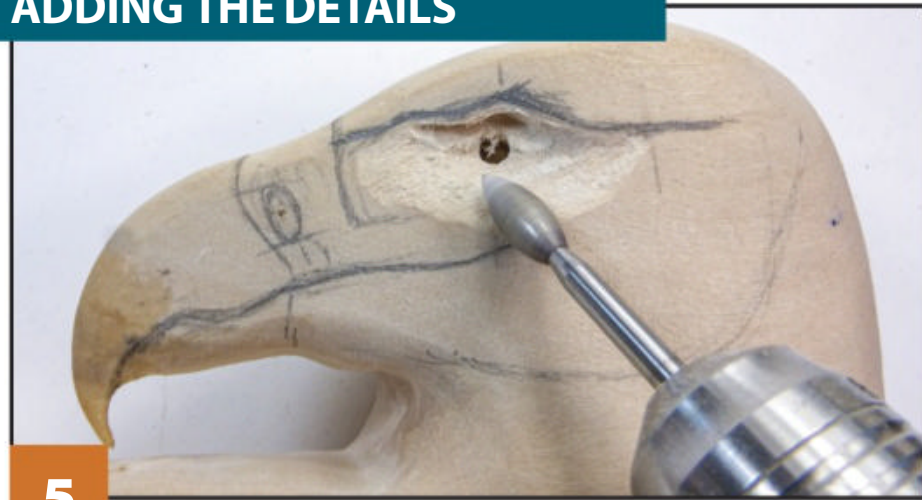
TIP**ALIGNING THE EYES**

Press pins or thumbtacks into the center of each eye. This allows you to check the accuracy and symmetry from both the top and the front.

**4**

Draw the details of the eagle's face. Refine the shape of the beak using a carving knife. Once you have the beak to its final size, apply thin-consistency cyanoacrylate (CA) glue, such as Super Glue®, to strengthen this fragile area. Locate the eyes and drill $\frac{1}{8}$ " (3mm)-dia. pilot holes for each eye (see Drilling Holes Freehand tip above).

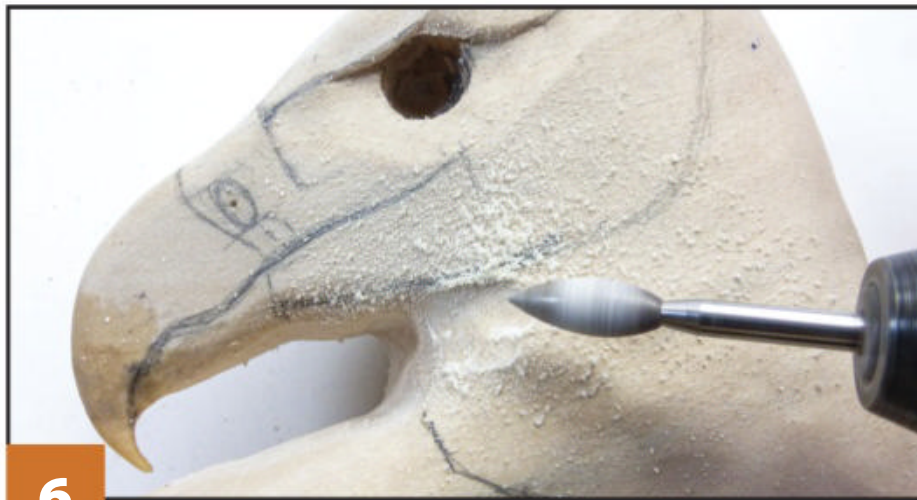
ADDING THE DETAILS



5

Enlarge the eye sockets to accommodate the 7mm eyes.

Use a flame-shaped ruby bit in the rotary tool. Make sure the holes are deep enough to accommodate the eyes and the epoxy putty used to secure them. Carve slowly until you get a good fit. Then use the same bit to create the eye depressions. Establish the position of the nostrils using two pins, similar to how you positioned the eyes.



6

Define the eyebrows. Use the same ruby bit. Then carve the thin ridge above the eyes (the supra ridge) that runs from just in front of the eyes to just over the halfway point of the eyes. Refer to your reference material and photos for details. Use a pair of dividers from the nostril locations to check the accuracy of the eyes and other facial features. Create the cheek line using the same ruby bit.



7

Locate the front and back edges of the cere on the beak.

Carve the outline of the cere with the knife, and then soften the edges with the 240-grit sandpaper in a split-mandrel sander. Make the area around each nostril protrude slightly. Draw the lips. Carve the outline of the lips with the carving knife, and then soften the edges with the 240-grit sandpaper in the split mandrel. Use the knife to separate the upper and lower bill. The lower fits just inside the upper. Except for the nostril holes, all of the facial features should now be defined.

ATTACHING THE HEAD



8

Carve the end of the shaft into a dowel. Use the knife. Make the dowel 1 $\frac{3}{4}$ " (4.4cm) long. Carve it down to fit tightly in the hole in the walking-stick head. Mark the dowel, shaft, and head to make it easier to replace. As the collar will cover this joint, it does not need to be as exact as when you join the head directly to the shank.



9

Carve the neck and top of the shaft down to accommodate the collar. The collar covers $\frac{3}{8}$ " (1cm) of the neck and $\frac{5}{8}$ " (1.6cm) of the top of the shaft (below the dowel). Use the carving knife to place a stop cut around the circumference at your marks on the neck and shaft. Shave away wood up to the stop cuts until the collar slides into place. Remove wood slowly; you want the tightest fit possible. Do not glue anything in place yet.

CARVING THE FEATHERS



10

Hand-sand the head and handle with 240-grit sandpaper. Repeat with 320- and 400-grit sandpaper. Draw the feather flow and lay out the position of the feathers on the top and back of the head. The feathers of the lores and cheeks are so small that it is not necessary to outline them. Use a $\frac{1}{16}$ " (2mm)-dia., cylinder-shaped, blue ceramic stone in a rotary tool to texture the lores and cheeks.



11

Outline the feathers on the back of the head. Use an elongated, round-end, tapered diamond bit. Deepen the area around the feathers to provide definition. Use the flame-shaped ruby bit to shape the feathers and knock off the shoulders of the feathers where they disappear beneath the feather above them.



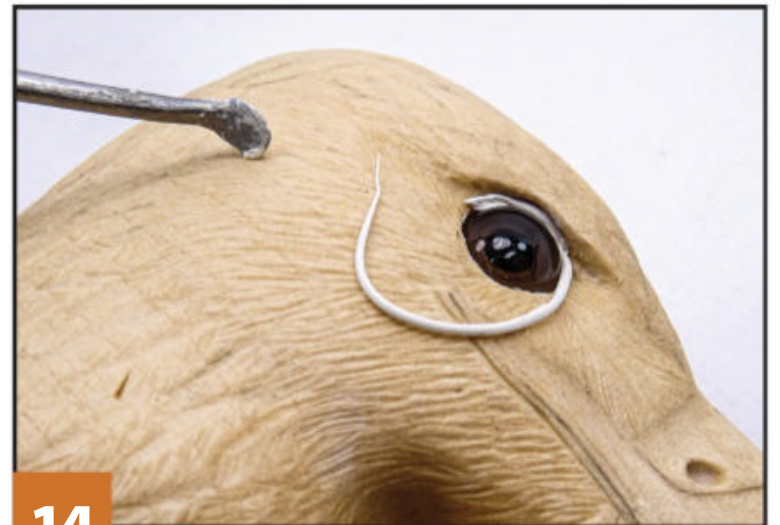
12

Smooth the feathers. Use 320-grit sandpaper in the split-mandrel sander. Remove any bit marks. Switch to a bull-nose blue ceramic stone for stubborn marks. Soften the edges of the feathers with a gray (400-grit) nylon buffing wheel. A good alternative is a fine-grit Scotch-Brite® pad cut into small squares and used in layers of two or three on a mandrel.



13

Add a few splits to the feathers. Use a scalpel. Do not add too many splits, as this will spoil the carving. Add a line down each feather to give the impression of a quill. Use a 1/8" (3mm)-dia. inverted cone-shaped blue ceramic stone. Use the same stone to texture each feather, starting at the bottom of the head and working upward so that the texturing overlaps.



14

Wipe down the head to remove any dust. Apply two coats of sanding sealer to the head. Fit the eyes with epoxy putty and make a thin worm of putty to create the eye rings. Allow the epoxy to set.

PAINTING THE PROJECT



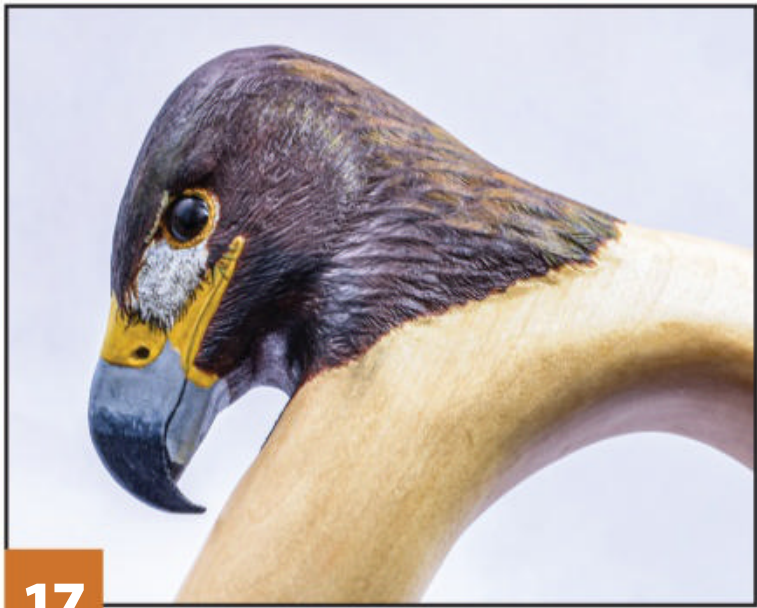
15

Paint the lores. Mix titanium white with a hint of Payne's grey and thin the mixture with water to the consistency of skim milk. This keeps the paint from clogging up the carved texture. Paint the cere and mouth with a medium yellow mixed with a hint of yellow ochre, thinned to the consistency of skim milk.



16

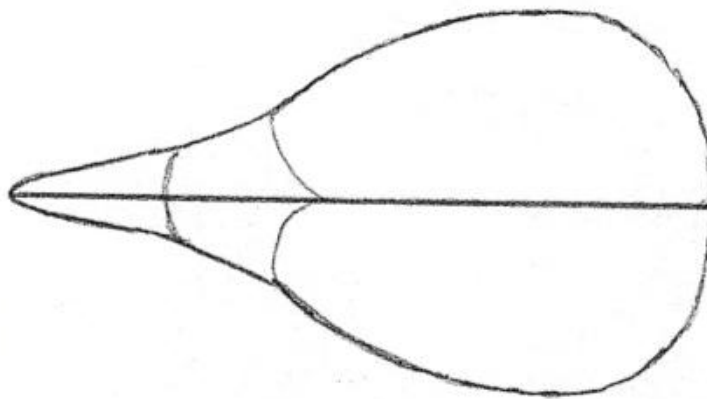
Paint the beak. Use thinned Payne's grey and a hint of white. Blend the two to a darker value at the tip. Apply yellow ochre to the eye ring. Paint the head with a mixture of raw umber, yellow oxide, and a hint of medium red. Once a base coat is established, apply additional coats with differing values of this mix to add subtle variety to the color. Use a darker blend of these colors for the crown and throat. Mix a blend of raw umber, a hint of red, and a hint of yellow ochre for the golden feathers on the back of the neck. Use a lighter value to highlight the supra ridge. Apply a thin wash of quinacridone gold over the back of the neck. Then apply a very thin wash of raw umber over the lighter colored areas. Allow the paint to dry.



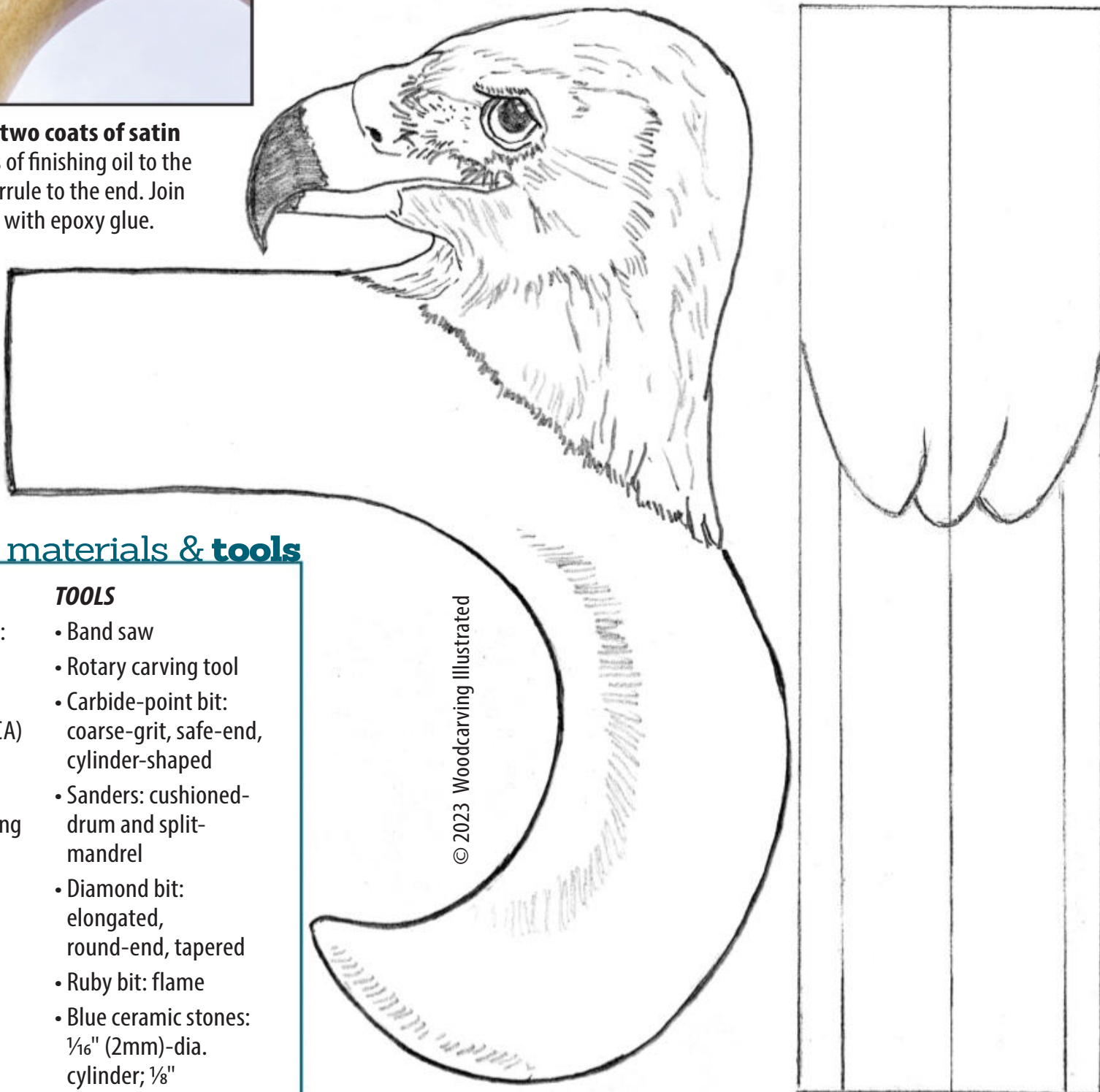
17

Finish the head with two coats of satin

varnish. Apply several coats of finishing oil to the shank, and then fit a brass ferrule to the end. Join the handle, shank, and collar with epoxy glue.



Golden Eagle Walking Stick Patterns



materials & tools

MATERIALS

- Basswood, 1½" (3.8cm) thick: 4" x 6" (10.2cm x 15.2cm)
- Epoxy putty
- Glue: epoxy; cyanoacrylate (CA) glue, such as super glue
- Copper rolled-top collar, 1" (2.5cm)-dia.: 1" (2.5cm) long
- Brass ferrule
- Shaft, such as hazel, 1" (2.5cm) dia.
- Sandpaper, assorted grits from 120 to 400
- Glass eyes: 7mm-dia. dark brown
- Sanding sealer
- Varnish: satin
- Oil finish
- Acrylic paint, such as Windsor and Newton™: medium red, medium yellow, Payne's gray, quinacridone gold, raw umber, titanium white, yellow ochre, yellow oxide

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

TOOLS

- Band saw
- Rotary carving tool
- Carbide-point bit: coarse-grit, safe-end, cylinder-shaped
- Sanders: cushioned-drum and split-mandrel
- Diamond bit: elongated, round-end, tapered
- Ruby bit: flame
- Blue ceramic stones: ¼" (2mm)-dia. cylinder; ⅛" (3mm)-dia. inverted cone; ⅛" (3mm)-dia. bull-nose
- Drill with bit: ⅛" (3mm), ½" (13mm)-dia.
- Carving knife
- Scalpel
- Dividers
- Buffing wheel: nylon, or Scotch-Brite® pad

© 2023 Woodcarving Illustrated



Paul Purnell has been carving as a hobby for 15 years. While he carves mostly wildlife in the round, he carves everything from tiny netsuke to owls in flight. He started making walking sticks, with either basic or fancy heads, following a request from the owner of his local gun shop, where his handiwork is now sold. Paul is retired and lives with his wife in a village near Lincoln in the United Kingdom.



Autumn Jewelry

Sculpt a lovely array of wearable acorns and leaves

By Keoma McCaffrey

These versatile leaves and acorns are a fun way to try your hand at power carving. They require just a few bits, and you can add as much or as little detail as you like. You can scale the patterns up or down as desired and use them to create pendants, charm bracelets, and a variety of earrings ranging from understated to dangly and fabulous. Make several dozen in a sitting and see where your imagination takes you!



Use multiple leaves and acorns in a single necklace.



Making the Leaves

Trace the patterns onto the wood (I used small oak leaves from my backyard), making sure the grain runs the length of the leaf. Cut the leaves on a scroll saw; rather than cutting out each ¼" (6mm)-thick leaf individually, use a 1" (2.5cm)-thick blank to save time. Once you've cut the perimeter of the leaf, draw lines at ¼" (6mm) intervals along the newly exposed side. Then, following these lines, divide the thicker blank into thinner slices. *Note: If you choose a piece thicker than 1" (2.5cm), you run the risk of bending or bowing the thin scroll saw blade and skewing the cuts.*

Shape the leaves. Use a large, pear-shaped fluted bit in a rotary tool to add dips and movement along both sides of the leaf. Switch to a small cylinder-shaped fluted bit to round and smooth any sharp edges or flat areas. Remove all square edges along the sides of the leaf, going slowly to keep from snapping the delicate edges.

Add the leaf details. With an 80-grit sanding disc in a mandrel, use the edge of the disc to "burn" shallow grooves for the leaf veins. Don't worry about making the lines perfectly straight; nature abhors a straight line. Smooth the entire leaf with the same tool. Carefully drill holes for the jump rings and spray with clear gloss polyurethane, buffing between coats with a 120-grit sanding disc.

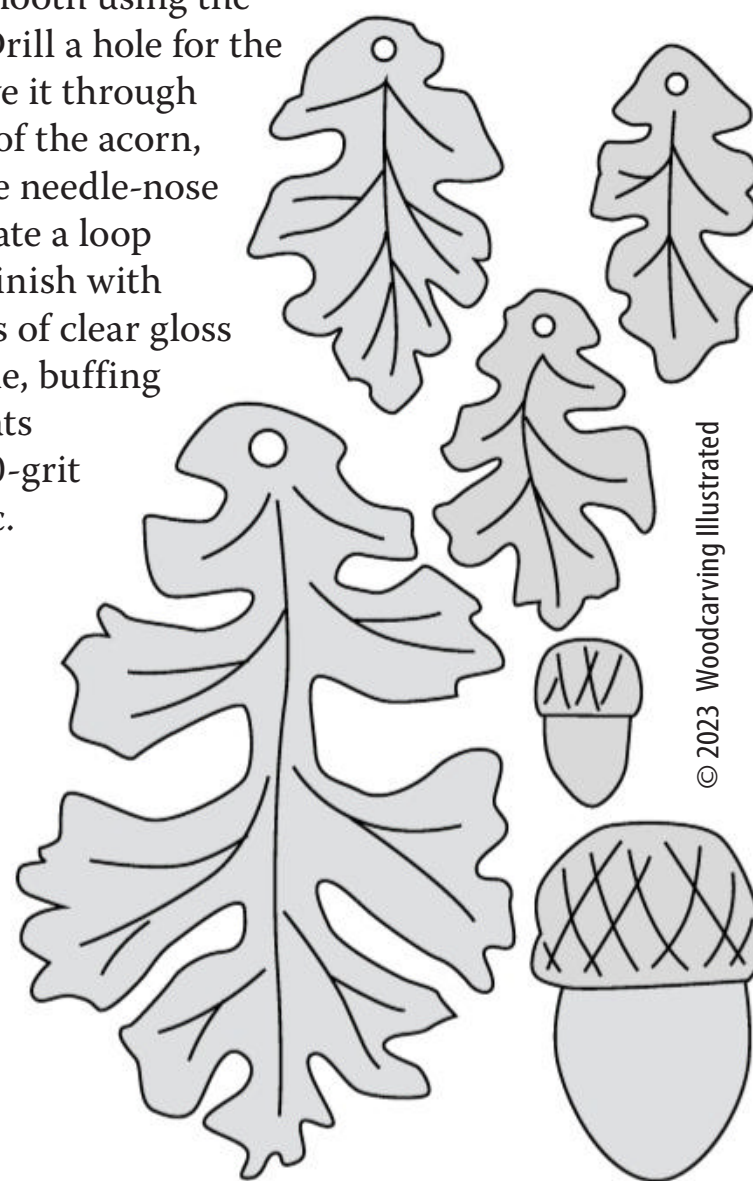
Making the Acorns

Epoxy and clamp together two contrasting chunks of wood; I used walnut and oak. The pieces should have roughly the same thickness and width if you want a rounded acorn. Once dry, use the scroll saw to slice the assembly into equal strips; make as many strips as you want acorns.

Round the acorns using a flame-shaped carbide-point bit. Then use the 80-grit sanding disc in the mandrel to add the diamond pattern on the caps. Sand and smooth using the same tool. Drill a hole for the eye pin, drive it through the bottom of the acorn, and then use needle-nose pliers to create a loop at the top. Finish with several coats of clear gloss polyurethane, buffing between coats with the 120-grit sanding disc.



Autumn Jewelry Patterns



© 2023 Woodcarving Illustrated

materials & tools

MATERIALS

- Assorted hardwood scraps, such as oak, walnut, and yew, 1" (2.5cm) thick: leaves, sized for pattern
- Assorted hardwood scraps, such as oak, walnut, and pecan: acorns, sized for pattern
- Wood glue
- Epoxy: 5-minute
- Jump rings
- Eye pins
- Accent beads (optional)
- Charm bracelet blank with toggle closure

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

- Finish: clear gloss polyurethane

TOOLS

- Scroll saw with blades: #5 reverse-tooth
- Drill with bits: assorted small
- Rotary tool
- Fluted bits: small cylinder-shaped, large pear-shaped
- Carbide-point bit: flame-shaped
- Mandrel with sanding discs: 80 and 120-grit
- Pliers: needle-nose
- Clamps



Keoma McCaffrey lives in Central Valley, Calif. with her husband, Jeff, and two sons. She carves her work from salvaged local hardwoods and is a moderator on the Woodcarving Illustrated message board, woodcarvingillustrated.com/forum.

Find Keoma on Etsy at [willowthewisp](https://www.etsy.com/shop/willowthewisp).

Making a Rustic Measuring Cup



Power carve a kitchen staple from salvaged wood

By David Drake

At a rib and brisket competition in Texas, our group of chefs decided to use coded measuring cups so we could share information in our recipes without giving away secrets. Using a reptile theme, we decided a $\frac{1}{4}$ cup would have a tadpole handle, $\frac{3}{4}$ cup would have a lizard handle, etc. Now we can make our recipes in public and only those who know the code recognize the measurements. The coded cups also make fun serving ladles and water dippers.

Wood selection is important for this project; choose a large piece of natural, untreated wood. I used a piece of black oak salvaged from an old bar. Cut down the large piece, watching for knots, soft spots, and fissures that can either help or hinder your project.

SHAPING THE CUP



1

Prepare the blank. Use a band saw or table saw with a rip fence to smooth and square one face for drilling. Note the knot and fissures; we will use the knot and carve away the fissures. Lay the pattern on the blank, mark the center of the cup, and drill a $\frac{1}{4}$ " (6mm)-diameter hole through the blank at the mark.



2

Define the inside perimeter of the cup. Use a $2\frac{1}{2}$ " (64mm)-dia. hole saw on a drill press to define the inside of the cup. You will need to remove about $\frac{3}{4}$ " (19mm) of wood for every $\frac{1}{4}$ cup you want the cup to hold, or about 1" (25mm) for every $\frac{1}{3}$ cup. To make a $\frac{3}{4}$ -cup measure, drill down about $2\frac{1}{4}$ " (57mm).



3

Define the outside perimeter. Switch to a 3" (76mm)-dia. hole saw and etch the top side to show where the outside of the cup will be. Flip the blank over and secure it to the drill press. Use the center hole to line up the 3" (76mm)-dia. hole saw and cut the outside of the cup about $1\frac{1}{2}$ " (38mm) deep. This leaves $1\frac{1}{2}$ " (3.8cm) for the handle.



4

Rough out the inside of the cup. Clamp the blank to the drill press and use a 1" (25mm)-dia. Forstner bit to remove most of the excess wood from the inside of the cup. Drill down $2\frac{1}{4}$ " (57mm).



5

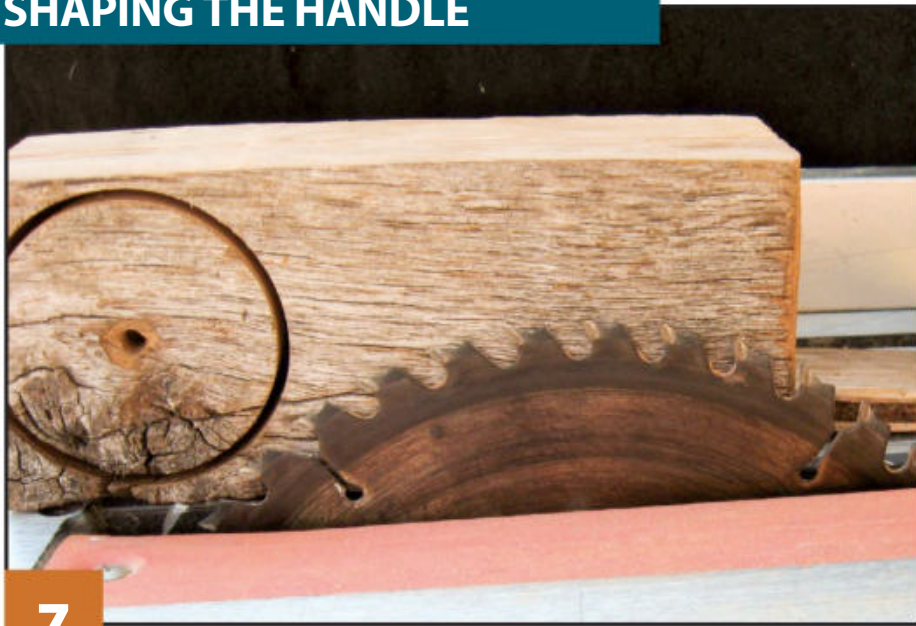
Clean out the inside of the cup. Use a rotary tool with a carbide-point bit. Be careful around the thin sides. Refine the inside of the cup with a chisel. Cover the center hole with tape, fill the cup with water, and pour the water into a measuring cup. To accommodate more water, cut the inside deeper. To accommodate less water, trim away wood from the rim to make the cup shorter.



6

Transfer the patterns to the handle. Size the patterns to fit the stock, cut them, and trace them onto the blank.

SHAPING THE HANDLE



7

Prepare to remove the excess wood from under the handle. Set the blade of a table saw to cut a little more than half the thickness of the blank. Set a stop to keep from cutting into the body of the cup, and set the rip fence to remove the wood from under the handle.



8

Remove the excess wood. Cut at a 45° angle on both sides of the cup. Then, make a series of relief cuts with the table saw to remove the excess wood, but stay 1/8" (3mm) away from the handle and cup at all times.



9

Rough out the lizard. Use a band saw to cut the rough shape of the cup and handle. Use a variety of bits in a rotary tool to rough out the lizard's shape. To make the best use of the long grain, adjust the head or legs as needed.



10

Refine the lizard. Use finer-grit bits to wrap the tail around the cup. Remember to watch the grain; it will guide the flow of the piece.



11

Finish the cup. Fill the center hole with a piece of scrap cut off the handle. Glue center hole piece in place, if desired. I try to match the grain of the plug with the grain of the cup. Finish the cup with beeswax and orange oil, and use it for drinking, dipping, or measuring.

materials & tools

MATERIALS

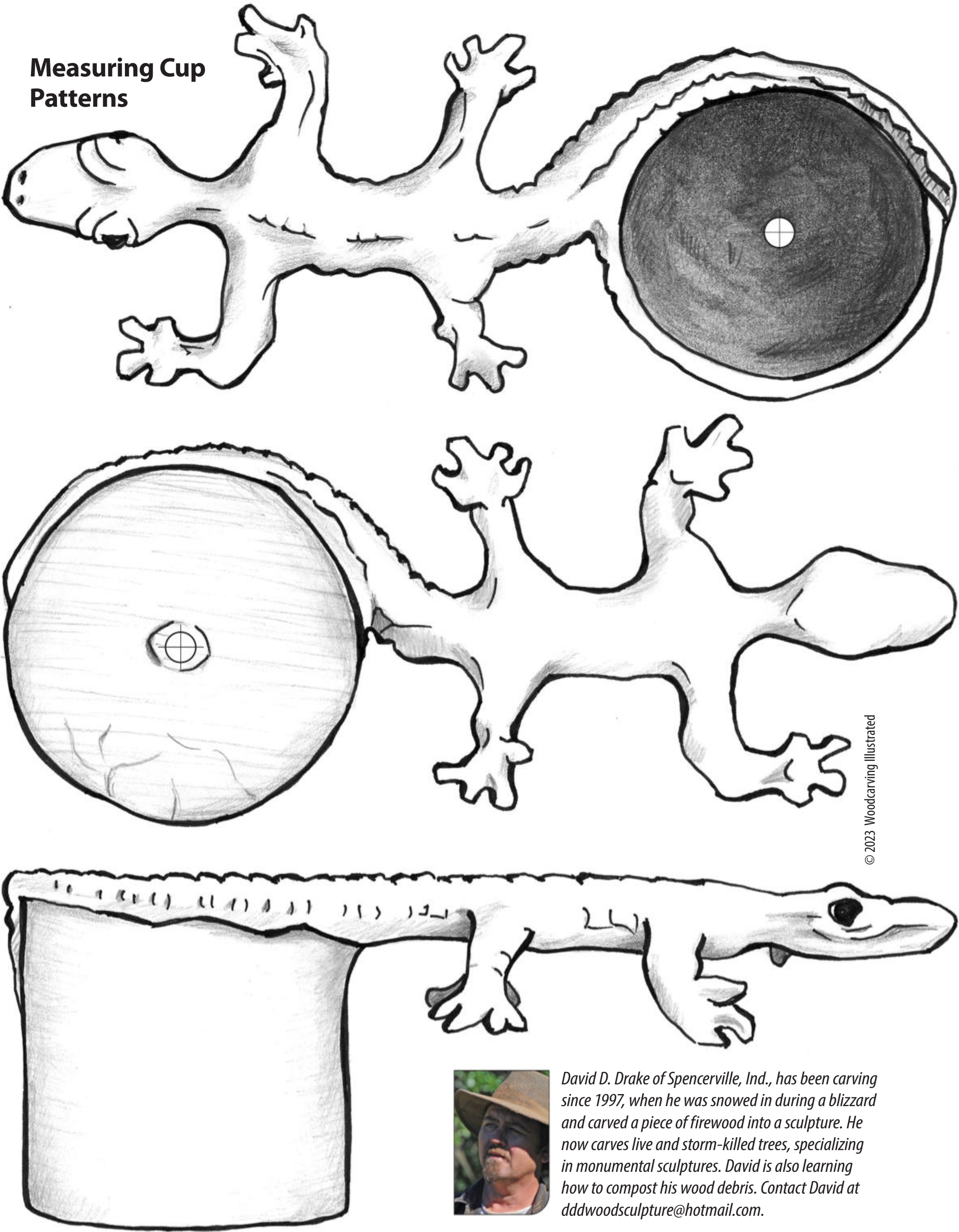
- Natural, untreated wood, 3" (7.6cm) thick: 6" x 9" (15.2cm x 22.9cm)
- Wood glue
- Food-safe finish, such as beeswax and orange oil
- Tape

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

TOOLS

- Band saw
- Table saw
- Drill with bits: 1/4" (6mm)-dia. twist, 1" (25mm)-dia. Forstner
- Hole saws: 2 1/2" (64mm) dia., 3" (76mm) dia.
- Rotary tool with assorted bits, including a carbide-point bit
- Chisel
- Clamps
- Measuring cup

Measuring Cup
Patterns



© 2023 Woodcarving Illustrated



David D. Drake of Spencerville, Ind., has been carving since 1997, when he was snowed in during a blizzard and carved a piece of firewood into a sculpture. He now carves live and storm-killed trees, specializing in monumental sculptures. David is also learning how to compost his wood debris. Contact David at dddwoodsculpture@hotmail.com.

Rolling Pin Santa

Use a reciprocating carver to give old utensils a new face

By Randy George

I am always trying to come up with new ideas for carving projects and have recently taken up the art of vintage rolling pins. So far, I have found rolling pins made out of red oak, white oak, maple, and old-growth pine (I was surprised to find the pine as hard as the rest). When carving projects in harder woods, I normally use a mallet and large tools. The problem is that rolling pins are small and difficult to hold. So, I turned to my Automach® HCT30A reciprocating carver to rough out the work and then finished it with hand tools. Are rolling pins difficult to carve? Yes. Is it worth the effort? Absolutely!

MAKING THE SANTA



1

Outline the pattern. Secure the workpiece in a vise. Use a V-tool in the reciprocating carver. Then use the same tool to create depth under the nose and hat. Use a $\frac{5}{8}$ " (16mm) #5 gouge to shape the face.



2

Establish the eye socket area. Use a $\frac{5}{16}$ " (8mm) #7 gouge. Use the same tool to remove wood from the sides of the nose.





3

Shape the beard. Use the $\frac{5}{8}$ " (16mm) #5 gouge. Use the same gouge to blend the cut made under the lip into the beard.



4

Finish the carving. After removing most of the excess wood with the reciprocating carver, add the details with the hand tools of your choice. Refer to the tools list for the ones I used.

Note: Once complete, this project is meant for decorative uses only.

Rolling pins vary in size. This pattern is made to fit a $3\frac{1}{2}$ " (8.9cm)-dia. rolling pin. Enlarge or reduce this art to desired size.

materials & tools

MATERIALS

- Rolling pin
- Acrylic paints: black, dark blue, light blue, red, white
- Finish: clear spray

TOOLS

- Reciprocating carver, such as Automach®
- Reciprocating carver tools:

- $\frac{5}{8}$ " (16mm) #5 gouge,
- $\frac{5}{16}$ " (8mm) #7 gouge, V-tool
- Dividers
- Detail knife
- #5 gouge: $\frac{1}{4}$ " (6mm)
- #7 gouge: $\frac{5}{32}$ " (4mm)
- #8 gouge: $\frac{3}{4}$ " (19mm)
- #11 gouge: $\frac{1}{8}$ " (3mm)
- Vise

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

Rolling Pin Santa Pattern



© 2023 Woodcarving Illustrated



Randy George is an award-winning carver who has been making wood art since 2000. He lives in Pleasant Valley, Mo., with his wife, Shannon. He is a member of the National Wood Carvers Association and the Northland Wood Carvers Club. You can contact him and see more of his work at georgewoodcarving.blogspot.com.

Great Horned Owl

Let the chips fly where they may with this striking chainsaw sculpture

By Michael Robinson

Have an interesting log lying around that you aren't sure what to do with? Don't throw it away—turn it into a bird of prey who keeps watch over your lawn. Since this is a stylized piece, you can do most of the work with a chainsaw and switch to a rotary tool for the fine details. I hope you enjoy it!

Getting Started

Find a nice, round log that's wide and flat on the bottom so it stands by itself. You can choose whichever species of wood you like; I used a cedar log for this project. Mount and secure the log upright in a jawhorse (I used Rockwell®) or similar tool; this will allow you to complete the project more safely. You're ready to go!

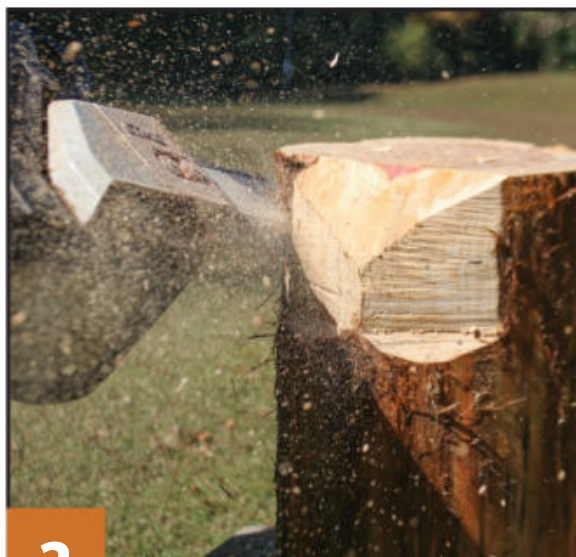


ROUGHING OUT



1

Start your saw. Once it's warmed up, make two shallow V-shaped cuts to establish where the face will be. Doing this will also set the center and basic angle of the face.



2

Establish the forehead. Make sure you're holding your saw firmly and safely with both hands. Hold it at an angle upward, making a cut at the top of the log to establish the owl's forehead. Make a similar cut at a downward angle on both sides of the head, about 3" (7.6cm) long. Then make another cut coming up the head to meet that first cut to remove a triangular piece of wood on each side. This creates the rough shape of the horns.



3

Rough out the back. Make a tapering cut at the back of the head angled downward and out, and then carve down from the top to remove a chunk of wood, establishing the basic shape of the back.



4

Separate the horns. From the front, make a V-wedge cut at a downward angle in the center of the head. Then come in at the same angle from the opposite side to remove a triangular piece at the center of the head. Be very careful with this cut; if you are not careful, you can cut too deeply into the head, ruining the owl's proportions.



5

Refine the back of the head. From the back, make another relief cut underneath the horns, cutting out a small wedge-shaped piece so that the horns stand out by themselves.



6

Round the hard edges of the head. Make a shallow line cut at the front of the face, running down the horns on both sides and meeting in the center of the face. From the center of those cuts, lightly cut the shape of a diamond down the center of the face to set the shape of the nose. Start to remove the wood on both sides of the nose and below the line separating the forehead from the horns. Using the tip of the saw, make sweeping cuts, creating a shallow dish shape on each side.



7

Establish the tail. Make a stop cut about 2" (5.1cm) deep with the nose of the carving bar, starting at the front of the body and making your way around the entire log as you descend. Stop at the tail area. Then carve down toward the stop cut you just made to separate the body and tail from the log it sits on. Round the body further.



8

Separate the face from the body. Create the round shape below the eyes with the tip of the saw by making two smile-shaped stop cut lines along the chin, one on either side of the nose. Then carve up to those stop cuts, removing the wood below so the face protrudes.



9

Establish the wings. Use the tip of the chainsaw bar to make a stop cut line about 1/2" (1.3cm) deep, starting at the front of the owl and tapering down toward the middle of the tail. Meet that line with a similar cut on the back side to complete the basic wing shape. Then make a relief cut up to these lines so the wings stand out from the body.



10

Separate the tail from the base. At the base of the owl where the tail is located, make a wedge cut on either side, revealing the sides of the tail.

ADDING DETAILS



11

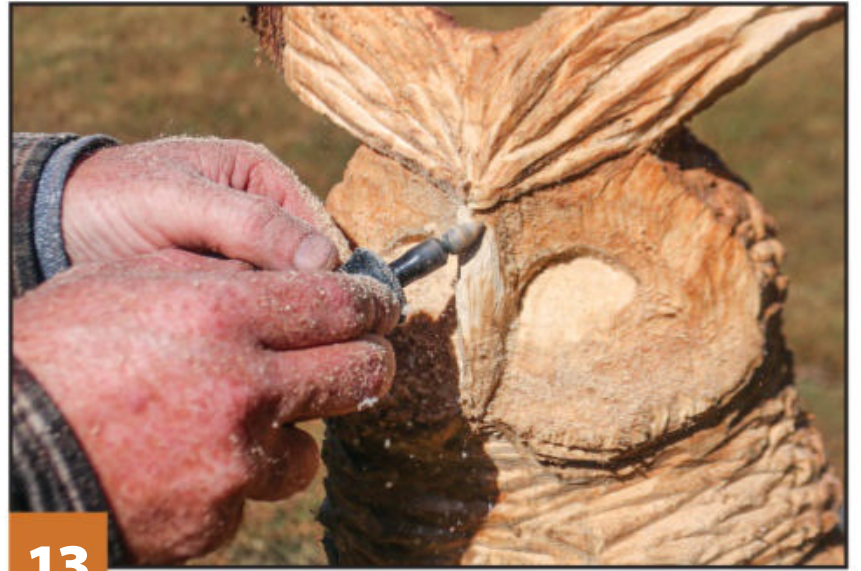
Add the feathers. With a pencil, break the wings into three horizontal subsections. With the nose of your chainsaw bar, make a shallow stop cut across the lines all the way along to the other side of the wing. Make a relief cut up toward each line you just carved to create an overlap effect. Then break the tail into about five vertical subsections. Add texture to the body, starting from the top of the head and working down to the first line you cut for the feathers. I use a zigzag back-and-forth motion. I like to use the side of the tip of the bar on the bottom to prevent kickback, but whichever method you use, make sure you maintain a firm grip.



12

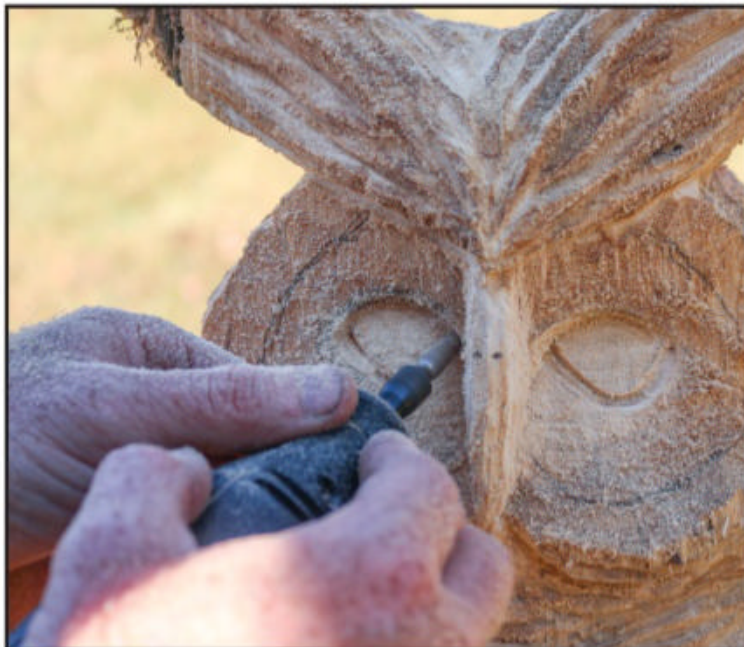
Continue texturing.

Using the tip of the bar, cut in the larger feather lines down the remaining wing areas and tail; I like to make these cuts at an angle. Texture the horns using the same method. Separate the wings with a cut in the center, and then round off any hard edges along the base of the piece. Moving to the face, decide where the eyes will go; take the very tip of the bar, hold it vertically, and then make a shallow stop cut establishing the top lid on each side.



13

Rough in the facial details. Use a rotary tool with a flame burr to remove the wood below the lid you created, checking for symmetry on both sides. Using the same flame burr, start to round the nose, removing the hard edges and smoothing out the transition from the beak to the face. Once finished, take a small bit or the tip of the flame burr and create nostril holes on the beak.



14

Define the bottom

of the eyes. Sketch them on, checking once again for symmetry. Then follow the lines with the flame burr. I like to draw a circle around the eyes and create a stop cut line, and then lower and remove the outer edge, creating another layer for feather texturing.



15

Texture the face. Using the flame burr, start texturing around the eyes and around the face, all the way to the outside edge.



16

Add paint. I like to color the center of the owl's eyes black and the outside yellow. I draw a circle in the middle as a guide to help keep things even on both sides. Once the eyes are painted, let them dry a few minutes and then add a small white dot of paint in the upper part of each eye to make them pop.

Bigfoot Carving Tools – Page 15
479-321-1650
bigfootcarvingtools.com

Chipping Away
Inside Front Cover & Page 1
888-682-9801 – chippingaway.com

Flock It! – Page 17
815-986-1097 – flockit.com

Fnabco – Page 17
855-579-6767 – fnabco.com

King Arthur's Tools – Back Cover
800-942-1300
katools.com

Klingspor's Woodworking Shop
Page 15 – 800-228-0000
woodworkingshop.com

Kutzall – Page 13
kutzall.com

MDI Woodcarver's Supply
Page 117 – 800-866-5728
mdiwoodcarvers.com

Maple & Bass
Page 7 – 833-520-2277
mapleandbass.com

Oneida Air Systems
Inside Back Cover – 800-732-4065
oneida-air.com

Saburrtooth – Page 17
saburrtooth.com

Stadtlander Woodcarvings
Page 17 – 330-931-7847
stadtlandercarvings.com

Tokyo Automach Co., Ltd
Page 5 – automach.com
automach.com/pages/frame10/index-e

Treeline – Page 15
800-598-2743 – treelineusa.com

**Are you Looking For Low Prices
With Fast Service ?**

No Need For Rocket Science
To Figure This One Out.

MDI Woodcarvers Supply

Call for our latest free Catalog 800-866-5728
PO Box 4, Pittsfield, Maine 04967 www.mdiwoodcarvers.com




17

Add fire. Make sure to wear flame-retardant gear for this part, and follow the safety instructions for your chosen tool; I used a torch attachment and a small propane can. This highlights the cuts and details and gives the owl a cool look. *Note: Avoid burning too close to the painted eyes.*

materials & tools

MATERIALS

- Log, such as cedar, approx. 10" (25.4cm)-dia.: approx. 30" (76.2cm) high
- Pencil
- Acrylic paints: black, white, yellow

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

TOOLS

- Jawhorse, such as Rockwell®
- Chainsaw, such as Stihl®
- Rotary tool with bit: flame
- Paintbrush: small
- Propane torch



Michael Robinson lives in Hendersonville, N.C. with his three children Klay, Jacob, and Lennox. Michael has been woodcarving for six years and has been chainsaw carving for two. See more of his work @knottyspirits192007 on Instagram, Michael Robinson on Facebook, or email him at swordfish192007@yahoo.com.

Rhino epoxy block.



(Continued from page 120)

with a chainsaw), and glues the pieces together to create a solid block.

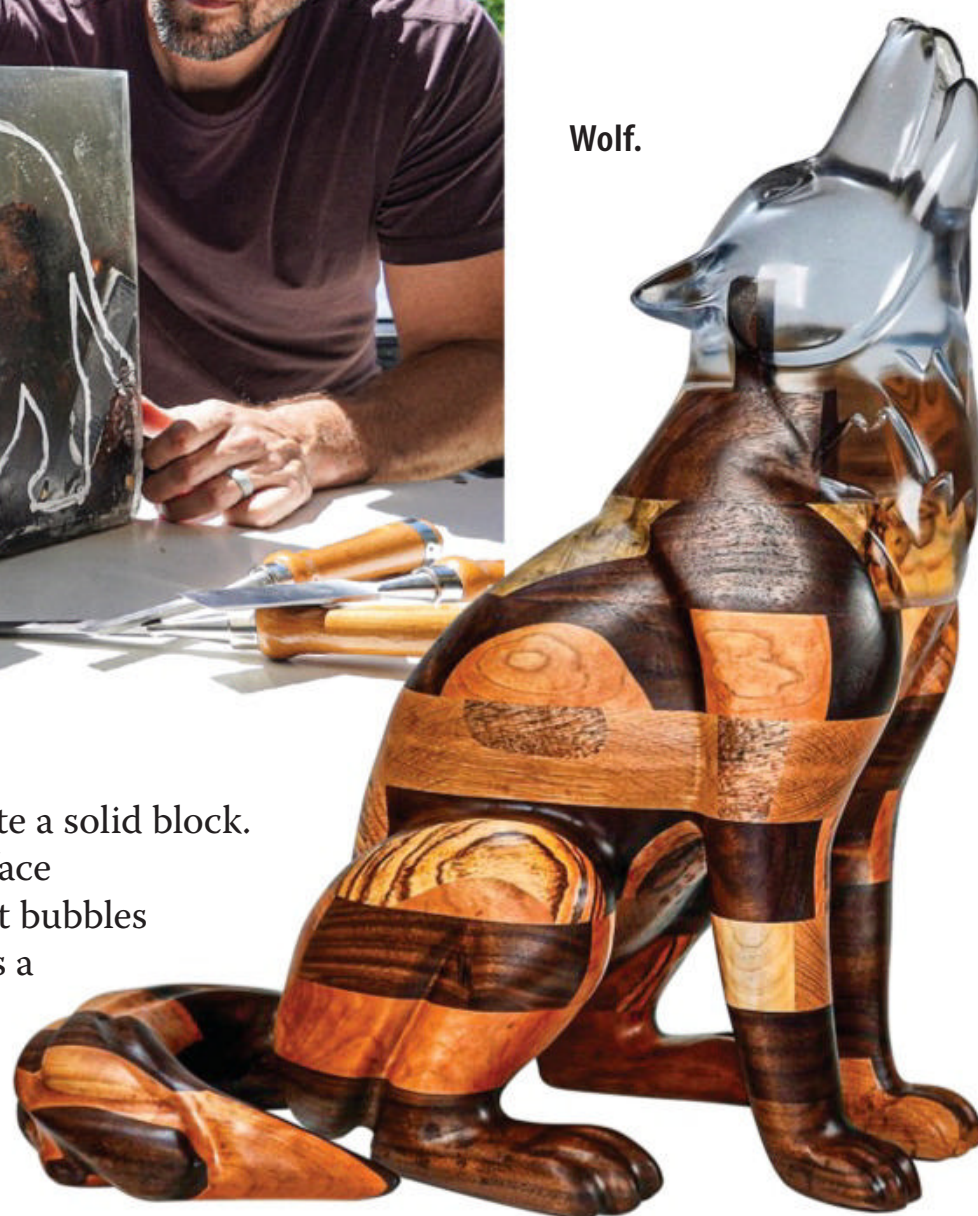
Once all the wood is glued up, Blake coats the surface with three layers of epoxy to seal the wood and prevent bubbles from forming before the main pour. For this, Blake has a unique method: “I do all my epoxy pours inside a large refrigerator to have full control over the temperature,” he said.

After the block has cured (which can take from seven to ten days), Blake uses his chainsaw, angle grinder, die grinder, and rotary tool to shape the sculpture. He then uses an orbital sander for additional shaping, and hand sands the epoxy portions with various grits up to 5,000.

After five years of creating epoxy wood masterpieces, Blake is still eager to learn about the properties and limitations of resin and how to make it sturdier in his sculptures. “It may be tricky to work with at times, but I found my calling as a woodworker with epoxy resin,” he said.

To see more of Blake’s sculptures, visit BM Sculptures on Instagram and YouTube.

Wolf.



Did You Know?

The time it takes for epoxy resin (after being mixed with a hardener) to transform from a liquid state to a solid is called curing. The curing time for Blake's sculptures is typically seven days.

Rhino.



Whale.



Subscribe Today and Save!

WOODCARVING

ILLUSTRATED



The *How-To Magazine* for Carvers—step-by-step projects, tool reviews, user-friendly patterns, & more!

SAVE 22%
off the cover price!

AVAILABLE IN
PRINT OR DIGITAL!

Receive 4 issues for 1 year

ONLY \$24.99

2 years/8 issues for \$49.98

Toll Free: 888-506-6630

WoodcarvingIllustrated.com

(International: 717-560-4703)

**Join
Today!**

WOODCARVING FORUM

Meet your new
carving
community.



- Get expert advice
- Swap tips & inspiration
- Build your skills

To register, go to
forum.woodcarvingillustrated.com

LEARN TO CARVE

WITH AMERICA'S LEADING
CARICATURE CARVER, HAROLD ENLOW

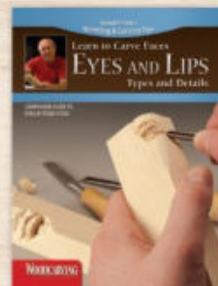


Study sticks made from high-quality, hand-cast resin detailing a step-by-step progression and come with an easy-to-follow instructional booklet

**SPECIAL
OFFER!**

**BUY ANY 2, GET A 3RD
STUDY STICK KIT 50% OFF!**

Use code **STUDYSTICKS3** at checkout



**LEARN TO CARVE EYES
AND LIPS**

40-Page Booklet
11.5" Solid Resin Study Stick
#5793 • \$24.99



Study sticks are
carefully wrapped
and packaged in
durable and
high-impact
shipping tubes
for worry-free
delivery



**LEARN TO CARVE
THE BASIC EAR**

24-Page Booklet
11.25" Solid Resin Study Stick
#5816 • \$24.99



**LEARN TO CARVE
A COWBOY**

32-Page Booklet
10.5" Solid Resin Study Stick
#5762 • \$24.99



**LEARN TO CARVE NOSES
AND HAIR**

32-Page Booklet
12" Solid Resin Study Stick
#5809 • \$24.99



**LEARN TO CARVE
A FEMALE FACE**

32-Page Booklet
12" Solid Resin Study Stick
#5755 • \$24.99



LEARN TO CARVE SANTAS

32-Page Booklet
12" Solid Resin Study Stick
#5786 • \$24.99



**LEARN TO CARVE
A WITCH**

32-Page Booklet
12" Solid Resin Study Stick
#01197 • \$24.99

ORDER TODAY! 800-457-9112 • FoxChapelPublishing.com

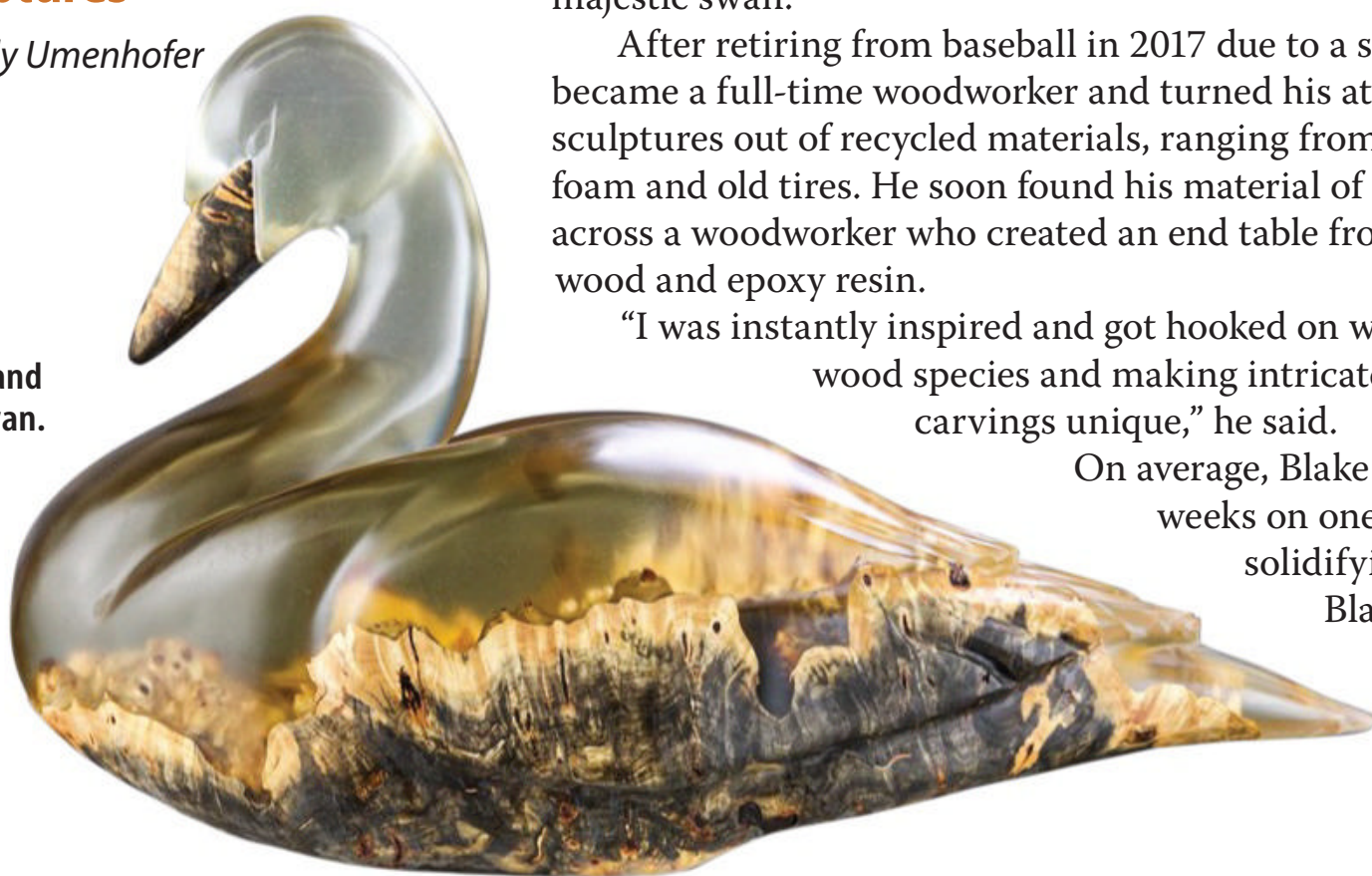


Dream Team

Former baseball player Blake McFarland combines epoxy resin and wood to power carve one-of-a-kind sculptures

By Kelly Umenhofer

Epoxy and burl swan.



On a sunny day in 2021, Blake McFarland hauls a massive piece of Buckeye Burl out of his truck bed. Once he has cut the burl to size with a chainsaw, Blake prepares the piece for carving by adding 13 gallons of clear epoxy resin. After the epoxy has cured, Blake spends hundreds of hours using his trusty chainsaw and grinders to transform the block into a majestic swan.

After retiring from baseball in 2017 due to a shoulder injury, Blake became a full-time woodworker and turned his attention to creating sculptures out of recycled materials, ranging from wood and metal to foam and old tires. He soon found his material of choice after coming across a woodworker who created an end table from various pieces of wood and epoxy resin.

“I was instantly inspired and got hooked on working with different wood species and making intricate glue-ups to make my carvings unique,” he said.

On average, Blake spends seven to ten weeks on one sculpture. After solidifying a design template, Blake decides on a wood species. He then mills the pieces of wood to size (or, for dense burls, cuts them up

(Continued on page 118)



The Industry Leader in Dust Collection

"I've tried several different dust collection setups and this is by far the most concentrated dust collector for power carving. The fact that I can move it around the shop and even take it with me to other locations is huge!"

- Steve Thomson, Happy Life Wood
@HappyLifeWood

**Benchtop
Dust Collector**

HEPA Option
Coming Soon

NEW!
Benchtop Mini

Learn More About
Steve's Art



Celebrating 30 Years of Made in the USA  800-732-4065 oneida-air.com

**YOUR
VISION.**

**KING
ARTHUR'S
TOOLS®**

**OUR
TOOLS.**

For over 30 years, KAT has been your **POWER CARVING EXPERT** with over 500 carving, shaping, sanding and finishing products for woodworkers and craftsmen. We are committed to innovative, quality products and customer service.

800-942-1300 • katools.com

**Multi
Extension
Carvers
& Cutters**

Multi Extension Carvers & Cutters cut incredibly fast, smooth and controlled, whether in pushing away or pulling toward you. Can be used in a variety of general carving & texturing applications. Its extended reach & angles greatly improve productivity & creativity.



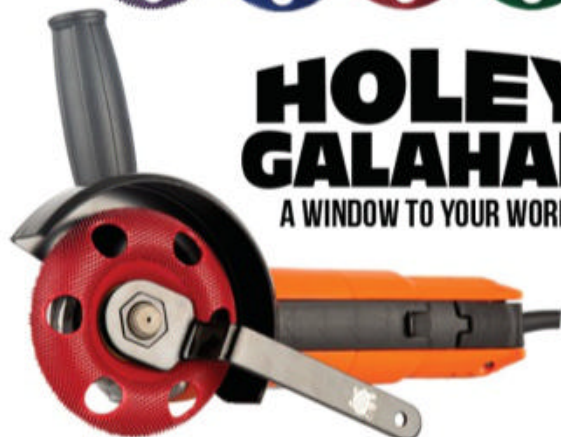
MANPA



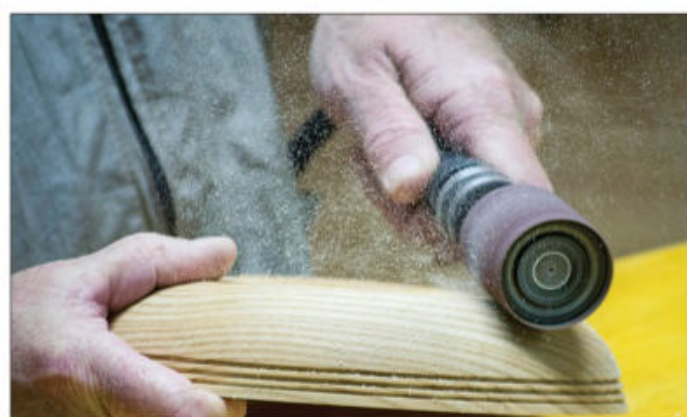
NO STOPPING TO CHECK YOUR WORK WITH OUR ORIGINAL 6-HOLE DESIGN



**HOLEY
GALAHAD**
A WINDOW TO YOUR WORK



See-thru tungsten carbide discs are available in 4 grits and 2 profiles.



GUINEVERE
The **FLEXIBLE** Finisher



Complete Sanding & Polishing System

Guinevere's patented system is the perfect solution for working with the simplest to the most complex profiles, with its five (5) uniquely sized inflatable bulbs that conform to the shape of your work, whether concave, convex or flat.



**NO MORE
SANDING
BY HAND**

CARVING • SHAPING • SANDING