WHALE of a DESK

Right to the POINT

TOOL COMPARISON: The Jig is Up

CANADIAN
Woodworking & HOME IMPROVEMENT

AUGUST/SEPTEMBER 2012
ISSUE #79

DEVELOP YOUR SKILLS • TOOL YOUR SHOP • BUILD YOUR DREAMS

Weekend Project: Cedar & Copper Flower Trellis

Create a Split-Turned Bowl

Finer Details: Integrated Circular Pulls

Build a WANNIGAN

From Canada's waterways to your living room

$5.95 PUBLICATIONS MAIL REG NO. 40035186

09

0 55113 70028 6

CANADIANWOODWORKING.COM

The Angle on ACCESS RAMPS

Precisely what you've been looking for...

8390

12" Sliding Dual Compound
Miter Saw With
Twin Laser

Fully adjustable twin lasers, sectional fences, improved bevel positive stops, upper dual rail sliding system, retractable extension wings and horizontal handles all combine to make these new models the best yet.

KING CANADA

8385

10" Sliding Dual Compound
Miter Saw With
Twin Laser

8380

10" Sliding Compound
Miter Saw With
Twin Laser

www.kingcanada.com

Above & Beyond the Call of Duty

Powered by:
HONDA
GX160 Engine

You... can count on the power, performance and reliability of the new line of King Industrial air compressors for any size shop.

KC-5510G1

- 2 cylinder cast iron single stage oil lubricated pump
- High output 11.2 CFM @ 90 PSI
- HONDA engine 5.5 HP 4 stroke
- 10 Gallon (2 x 5 gal.) ASME approved tank is rated for 150 max PSI

KC-5160V1

- 3 Cylinder cast iron single stage pump with reed valves
- High output 18.5 CFM @ 100 PSI
- 6.5 Peak HP heavy duty 23 amp.208/240 volt motor is thermally protected
- 60 Gallon ASME approved tank is rated for 150 max PSI

KC-6160V1

- 2 Cylinder cast iron single stage pump with reed valves
- High output 11.2 CFM @ 90 PSI
- 6.5 Peak HP 15 amp. 208/220 volt motor is thermally protected
- 60 Gallon ASME approved tank is rated for 150 max PSI

KC-2051H1

- 2 Cylinder cast iron single stage pump with reed valves
- High output 6.0 CFM @ 90 PSI
- 5.5 Peak HP 15 amp. 120 volt motor is thermally protected
- 20 Gallon ASME approved tank is rated for 150 max PSI

KING INDUSTRIAL

www.kingcanada.com

CANADIAN Woodworking & HOME IMPROVEMENT
DEVELOP YOUR SKILLS • TOOL YOUR SHOP • BUILD YOUR DREAMS

CONTENTS

AUGUST/SEPTEMBER 2012

FEATURES

DEPARTMENTS

COVER STORY

Cover photo by: Rob Brown

CANADA'S WOODWORKING & METALWORKING SPECIALISTS

12" Dovetail Jig

Watch the video @ busybeetools.com

- Max. width 12" thickness 5/16" - 1 1/4"
- Precision CNC machined aluminum comb.

Model CT052 - Reg. $79.99

$69.99

12" Deluxe Dovetail Jig

Now with new height adjustment

new!

Model CT052N - Reg. $99.99

$79.99

24" Dovetail Jig

- Multiple Combs available & on sale!

Watch the video @ busybeetools.com

- Thickness Capacity: 1/2" 1-1/4"

Model CT154 - Reg. $189.00

$149

6" x 48" Belt and 9" Disc Sander

new!

- Motor: 3/4-HP, 120V, 1PH
- Work Table Size: 12" x 6"
- Work Table Tilt: 0 – 4°
- Belt Speed: 1020 SFPM
- Sanding Belt Tilt: 0 - 90°
- 2 Year warranty

Model CT174 - Reg. $399.00

$339

Mini Dust Cyclone Kit

Watch the video @ busybeetools.com

- The cyclonic effect ensures that 99% of all dust particles get trapped into the tank before it can reach your vacuum filter

Model B3069 - Reg. $59.99

$49.99

10" Wet Bench Grinder

Watch the video @ busybeetools.com

- 1/4 HP, 110V 1 PH
- Designed in Germany
- 2 Year warranty

All optional accessories on sale!

Model CT171 - Reg. $225.00

$189

14" Deluxe Band Saw

BONUS
Instructional DVD CX104 - Complete step by step instructional video "From set up to first cut"
Free with purchase of the CX104

- Motor: 1HP, 110V, 1 PH
- Cast Iron Table Size: 14" x 18"
- 7" Depth of Cut
- Cast Iron Wheels
- Powder coated paint

3 YEAR WARRANTY

Watch the video @ busybeetools.com

Model CX104 - Reg. $799.00

$659

2 HP Dust Collector

3 YEAR WARRANTY

- Motor: 2HP, 220V
- 1596 CFM
- Static Pressure: 12" in water
- Balanced Impeller 13"
- 1 Micron upper bag
- Includes an "Easy On Bag"

Model CX405 - Reg. $849.00

$399

2 HP Dust Collector w/Canister Filter

3 YEAR WARRANTY

- Motor: 2HP, 220V
- 1700 CFM
- Balanced Impeller 13"
- Static Pressure: 10"

Watch the video @ busybeetools.com

Model CX400 - Reg. $649.00

$579

Oscillating Vertical Spindle Sander

3 YEAR WARRANTY

- Motor: 1/2-HP, 110V, 1 PH
- Spindle Diameters: 1/4", 1/2", 5/8", 1-1/2", and 2"
- Spindle Speed: 1720 RPM
- Oscillation per Minute: 29 SPM
- Oscillation Stroke: 1"
- Table Size: 14-1/2" x 14-1/2"
- Table Tilt: 0 – 45°
- Powder coated paint

Model CX502 - Reg. $529.00

$399

Mortising Machine with Tilting Head

3 YEAR WARRANTY

- 3/4 HP Motor, 110V, 1 PH
- Chisel Capacity: 1/4" to 5/8"
- Tilting Head for angles mortising (0° to 30° to the right and left)
- Chuck Capacity: 1/2"
- Sliding Table Size: 20" x 18 1/4"
- Sliding Table Travel: 16"
- Max. Chisel Stroke: 6 1/2"

Model CX302 - Reg. $525.00

$399

10" Cabinet Table Saw with Extension Table

- 3HP, 220V, Single Phase, Leeson Motor
- Max Depth of Cut @ 90 degree – 3 1/8"
- Max Depth of Cut @ 45 degree – 2 3/16"
- Max. Rip Capacity – 50"
- Powder coated paint

Watch the video @ busybeetools.com

3 YEAR WARRANTY

- Quick release riving knife
- Left Tilting Arbor

Model CX201 - Reg. $1999.00

$1599

PRICES VALID UNTIL JULY 28TH, 2012

Busy Bee Tools

busybeetools.com

1-800-461-BUSY (2879)

New Westminster - Concord - Mississauga - Ottawa - London - Barrie - Pickering - Dartmouth N.S. - Calgary - Edmonton

editor's letter

rbrown@canadianwoodworking.com

While our last two issues (Design & Build, Working in a Small Shop) focused on specific topics, this issue runs the gamut. Inside you'll find articles about everything from furniture design and tool comparisons, to a nonagenarian clock maker … and, of course, some great projects. I should say, some great Canadian projects. Wannigans played an important role in our country's early years, storing supplies for traders and trappers as they canoed our great waterways. Today they make wonderful coffee tables, not to mention conversation pieces, with lots of storage space below.

Our short summers dictate that we enjoy the warm weather as much as possible when it arrives. The flower trellis project is the perfect mix of woodworking and gardening, ensuring we spend part of our weekend outdoors. This is a satisfying project that introduces a little metal-work into your repertoire, and leaves you enough time left over to mount it outside and get something into the ground and watered. Choose wisely and you will have flowers climbing your trellis later this year.

I'm also very excited that John Wiggers has shared his experience about designing his incredible "Whale Tail" desk. John is one of Canada's most respected furniture designers/makers, and I hope to bring you more articles from him in the future.

Enjoy your time in the shop this summer, but don't forget to spend at least a bit of time outdoors enjoying the warm weather.

Rob Brown

Paul Fulcher
Publisher & Advertising Director
pfulcher
@canadianwoodworking.com

Joan Riou
Circulation
circdept
@canadianwoodworking.com

Bill MacDonald
Forum Administrator
bmacdonald
@canadianwoodworking.com

CANADIAN Woodworking & HOME IMPROVEMENT
DEVELOP YOUR SKILLS • TOOL YOUR SHOP • BUILD YOUR DREAMS

Issue #79

PUBLISHERS
Paul Fulcher, Linda Fulcher

EDITOR
Rob Brown

ART DIRECTOR
Jonathan Cresswell-Jones

CONTRIBUTORS
Ted Brown, Matt Dunkin, Reed Hansuld, Alex McCubbin, Mark Salusbury, Mark Spowart, John Wiggers, Don Wilkinson

PREPRESS
Bonnie Wittek

PROOFREADER
James Morrison

SUBSCRIPTIONS/INQUIRIES
Joan Riou
1-800-204-1773

ADVERTISING
(519)449-2444

CANADIAN WOODWORKING & HOME IMPROVEMENT
One-year subscription (6 issues) $27.95
Single-copy price: $5.95

H.S.T. Reg. #878257302 ISSN #1497-0023
Publications Mail Agreement No. 40035186
RETURN UNDELIVERABLE CANADIAN ADDRESSES TO CIRCULATION DEPT.
CANADIAN WOODWORKING
PO BOX 286 DARTMOUTH, NS B2Y 3Y3

E-mail: circdept@canadianwoodworking.com

TEL. (519)449-2444 FAX (519)449-2445
e-mail: letters@canadianwoodworking.com
website: www.CanadianWoodworking.com

We acknowledge the financial support of the Government of Canada through the Canada Periodical Fund (CPF) of the Department of Canadian Heritage toward our periodical.

Canada CMCA AUDITED Magazines Canada

Grizzly Industrial®

Purveyors of Fine Machinery®

Smokin' Summer Sale

PLEASE GO TO GRIZZLY.COM® TO SEE ALL SALE PRICES

FREE BROKERAGE RATES ON MACHINERY ORDERS TO CANADA!

PLEASE VISIT GRIZZLY.COM® FOR DETAILS

10" CONTRACTOR TABLE SAWS
With Riving Knife

- Motor: 1¾ HP or 2 HP,110V/220V, single-phase
- Precision-ground cast iron table w/wings: 27"D x 44"W
- Table height: 35⅜"
- Footprint: 26"W x 26¼"D
- Arbor: ⅝" • Arbor speed: 4200 RPM
- Capacity: 3⅛"@ 90°, 2¼"@ 45°
- Rip capacity: 36" R, 12" L
- Approx. shipping weight: 342 lbs.

MADE IN TAIWAN

CSA C US 175370

1-3/4 HP LEFT-TILTING, SINGLE-PHASE
G0713 ~~$895.00~~ SALE $875.00
$99 shipping

2 HP, LEFT-TILTING, SINGLE- PHASE
G0661 ~~$895.00~~ SALE $850.00
$99 shipping

10" HYBRID TABLE SAW
With Riving Knife

- Motor: 2 HP,110V/220V, single-phase
- Precision-ground cast iron table size w/ wings : 27" x 40" • Arbor: ⅝"
- Arbor speed: 3850 RPM
- Capacity: 3⅛" @ 90°, 2³⁄₁₆" @ 45°
- Rip capacity:12" L, 30" R
- Cast iron trunnions
- Approx. shipping weight: 404 lbs.

CSA C US 232857

BEAUTIFUL WHITE COLOR!

INCLUDES BOTH REGULAR & DADO BLADE INSERTS

G0715P ONLY $795.00
$99 shipping

12" 5 HP LEFT-TILTING TABLE SAWS
With Riving Knife

EXTREME SERIES

MADE IN TAIWAN

- Motor: 5 HP, 220V, single-phase or 7½ HP, 220V/440V*, 3-phase
- Precision ground cast iron table size w/extension: 30¾" x 48¼"
- Arbor: 1" • Max. rip capacity: 36"
- Max. depth of cut: 4" @ 90°, 2¾" @ 45°
- Approx. shipping weight: 756 lbs.

CSA C US 175370

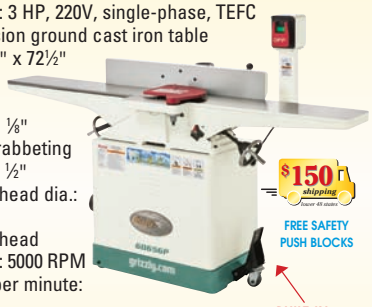
$179 shipping

5 HP, SINGLE-PHASE
G0696X ~~$2195.00~~ SALE $2150.00

7½ HP, 3-PHASE
G0697X ~~$2195.00~~ SALE $2150.00

8" JOINTERS

- Motor: 3 HP, 220V, single-phase, TEFC
- Precision ground cast iron table size: 9" x 72½"
- Max. depth of cut: ⅛"
- Max. rabbeting depth: ½"
- Cutterhead dia.: 3"
- Cutterhead speed: 5000 RPM
- Cuts per minute: 20,000
- Approx. shipping weight: 500 lbs.



$150 shipping

FREE SAFETY PUSH BLOCKS

BUILT-IN MOBILE BASE

WITH 4 KNIFE CUTTERHEAD
G0656P ~~$795.00~~ SALE $750.00

WITH SPIRAL CUTTERHEAD
G0656PX ~~$1195.00~~ SALE $1150.00

15" PLANERS

- Motor: 3 HP, 220V, single-phase
- Precision-ground cast iron table size: 15" x 20"
- Min. stock thickness: 3⁄16"
- Min. stock length: 8"
- Max. cutting depth: ⅛"
- Feed rate: 16 FPM & 30 FPM
- Cutterhead speed: 5000 RPM
- Approx. shipping weight: 675 lbs.

BUILT-IN MOBILE BASE

WITH 3 KNIFE CUTTERHEAD
G0453P ~~$1050.00~~ SALE $1025.00

WITH SPIRAL CUTTERHEAD
G0453PX ONLY $1650.00
$150 shipping

14" 1 HP BANDSAW

- Motor: 1 HP, TEFC, 110V / 220V single-phase, 1725 RPM
- 4" dust port
- Cutting capacity/throat: 13½"
- Max. cutting height: 6"
- Overall size: 66½"H x 26⅜"W x 30¼"D
- Precision ground cast iron table size 14" x 14"
- Table height: 43⁵⁄₁₆"
- Tilt: 45° R, 15° L
- Fence construction: Deluxe extruded aluminum
- Blade speeds: 1500 & 3200 FPM
- Blade size: 92 ½ - 93½" (⅛" to ¾" wide)
- Approx. shipping weight. 198 lbs.

CSA C US 252923 LIMITED SUPPLIES

MADE IN TAIWAN

G0555P ONLY $495.00
$79 shipping

14" HEAVY-DUTY BANDSAW

- Motor: 1½ HP, 110V/220V, single-phase, TEFC
- Precision ground cast iron table size: 14" x 20½"
- Table tilt: 15° L, 45° R
- Cutting capacity/throat: 13½"
- Max. cutting height: 6"
- Blade size: 92½" - 93½" L (⅛" - ¾" W)
- Quick release blade tension lever
- Cast iron wheels
- Approx. shipping weight: 262 lbs.

MADE IN ISO 9001 FACTORY!

EXTREME SERIES

MADE IN TAIWAN

Reviews & Awards

CSA C US 252923

$99 shipping

G0555X ~~$795.00~~ SALE $775.00

12" BABY DRUM SANDER

- Sanding motor: 1½ HP, 110V, single-phase
- Conveyor motor: ⅛ HP, 110V, single-phase, variable speed 5–35 FPM
- Max. stock thickness: 3½"
- Min. stock length: 8"
- Sanding drum size: 4"
- Sanding belt: 3" x 70" hook & loop
- Dust collection port: 2½"
- Approx. shipping weight: 160 lbs.

MADE IN TAIWAN

CSA C US 177335

$79 shipping

G0459P ~~$595.00~~ SALE $550.00

2 HP DUST COLLECTOR
With 2.5 Micron Bag

- Motor: 2 HP, 220V, single-phase, 9A, 3450 RPM
- Air suction capacity: 1550 CFM
- Static pressure: 11"
- Bag capacity: 5.7 cu. ft.
- Impeller: 12¾" balanced steel, radial fin
- Height w/ bags inflated 78"
- Portable base: 21¼" x 33½"
- Approx. shipping weight: 126 lbs.

CSA C US 247570

MADE IN TAIWAN

FREE G3376 2 STAGE CYCLONE SEPARATOR W/ PURCHASE OF G1029Z2

$79 shipping

G1029Z2 ~~$325.00~~ SALE $315.00

*To maintain machine warranty, 440V operation requires additional conversion time and a $250 fee. Please contact technical service for complete information before ordering.

14784R

PRICING CODE 12CANWW

MENTION THIS CODE WHEN PLACING YOUR ORDER

1-800-523-4777

TECHNICAL SERVICE:
570-546-9663
FAX: 800-438-5901

VISA MasterCard AMERICAN EXPRESS DISCOVER NOVUS PayPal

readers' letters

Great Community!

I have really enjoyed the addition of the "Community" section to the magazine. As a long time subscriber (to many woodworking magazines) I welcome these woodworking / human interest stories with open arms. It's great to see what people, and communities, are doing across Canada.

Louise A.
Edmonton, Alberta

I'm glad you're enjoying the Community column, Louise. I try to vary the content and geographical location of the story, but I will admit, it's been a challenge finding stories from all corners of our large country. If you, or any other readers, have ideas for future topics I would love to hear about them. You can always reach me by email or phone.
—Rob Brown

woodworkers' gallery

Fly-Tying Desk

by Stan Otto

Stan Otto, of Edmonton, Alberta spent about 80 hours building this black cherry fly-tying desk. He designed it, though he drew heavily from other Arts and Crafts furniture. According to Stan, the most difficult aspect of the build was getting the drop front lined up perfectly with the rest of the desk. The desk is finished with three coats of Danish oil and two coats of Antiquax.

Show your work to the world!
Visit **canadianwoodworking.com** and join our forum!

bestbuild

Check out the Woodworking section of our forum for our latest "Best Build" thread – a wall-hung entertainment unit. This month's winner, Don Kondra, receives a **dual marking gauge** from **Lee Valley**.

www.forum.canadianwoodworking.com

Seventy-Six Years in Business, Hundreds of Machines

See hundreds of new, used and refurbished machines on Ford's website, and even more in stock. All refurbishing is done in-house by expert technicians and guaranteed for 90 days. Service is available via phone, in-house or on-site. Ford Machinery has extensive experience in schools, factories, retail outlets and home shops and has thousands of parts in stock. Visit the store to view woodworking and metalworking machines. Book your appointment for shop inspections, safety inspections, on-site repairs, training on safe machine use and set-ups. Ford's knowledgeable staff takes the time required to find the right product for you. Family-owned and -operated since 1936. **www.FordMachinery.com**

Cork Flooring from Home Hardware

Cork provides warmth and beauty like no other product and is an excellent choice for kitchens. It can be installed above- or below-grade and performs very well over radiant heat. Cork panels click together for easy installation, making it a great DIY project. Home offers three popular finishes: natural, cattail, and mushroom, to suit any décor. Visit your local Home Building Centre or Home Hardware Building Centre to learn more. **www.HomeHardware.ca**

A Big Thank You!

From solid wood doors and desks to bookcases and beds, I enjoy building furniture for my family. I also enjoy doing home renovations. I built a woodworking shop a few years back and added a new sunroom to our home last summer. My kids and I just finished this furniture-sized cribbage board made of white oak to sit outside on the deck; my kids painted the pictures of the coffee cups on the board. The Festool CXS had its first use on this project.

I greatly appreciate winning the Festool CXS. I plan on getting many years of good use out of it. Every year, I re-subscribe with Paul at the Waterloo Woodworking Show and do not plan on stopping.

Keep up the good work.

Wayne H.
Elmira, ON

Stanley **FatMax Compressor** available at RONA

Available across Canada, Stanley's new compressor kit is perfect for any DIYer. The 2HP, six-gallon compressor has an oil-free engine and delivers 3.7 CFM at 40 PSI, 2.6 CFM at 90 PSI and 150 PSI max. Included in the kit are the compressor, a 2" 18-gauge nailer, a box of 1000 2" nails, tool lubricant, ¼" x 40' hose and case, all for $199.99. For more information, visit www.rona.ca.

The New **SRG-50** from Toronto Tool

New to the market, the SRG-50 is designed for one-person operation and will accurately rip, cross-cut, mitre and rout up to full 4' x 8' sheets. It is a table saw, cross-cut saw, mitre saw and router table in one. The best part is that it is completely portable, with fold-up legs and wheels, easily fitting in a small mini-van or SUV.

The rip sled slides along the top clamp guide channel for rip cutting, ensuring a high degree of accuracy. Cross-cutting panels on the SRG-50 is easier and more accurate than a standard table saw. The SRG-50 allows you to move the saw against a cut fence rather than struggling to move a panel into a blade. You can also accurately cut mitres up to 36", in addition to many routing options. For more information, visit **www.torontotool.com**.

Coming Events

The Woodstock Woodshow
September 28, 29, 30, 2012
Woodstock Fairgrounds
Woodstock, ON
www.thewoodstockwoodshow.com

KMS Wood Show VICTORIA
October 11, 12, 13, 2012
KMS Tools and Equipment
1652 Island Highway, Victoria, BC
www.kmstools.com

KMS Wood Show KELOWNA
October 11, 12, 13, 2012
KMS Tools and Equipment
158 Penno Rd., Kelowna, BC
www.kmstools.com

KMS Wood Show COQUITLAM
October 18, 19, 20, 2012
KMS Tools and Equipment
110 Woolridge St., Coquitlam, BC
www.kmstools.com

KMS Wood Show EDMONTON
October 25, 26, 27, 2012
KMS Tools and Equipment
14520 111 Avenue NW, Edmonton, AB
www.kmstools.com

The Toronto Woodworking Show
November 9, 10, 11, 2012
International Centre
Mississauga, ON
CANCELLED

For more woodworking events:
www.CanadianWoodworking.com
List your club and event FREE.

Find A Dealer
Scan this code or visit
www.festoolcanada.com
to find your nearest dealer.

REVOLUTIONARY NEW TOOL! REVOLUTIONARY

To learn more about the Domino Joining System, visit www.festooldomino.com

Domino XL Joiner

Massive tenons for massive projects.

Build solid and durable mortise and tenon joints in a fraction of the time it takes with traditional methods or stationary equipment. The Domino XL lets you bring the tool to the work, greatly reducing set-up time while simply and effectively producing full-sized mortise and tenon joints. Create mortises up to 9/16" (14 mm) thick, perfect for constructing doors and full-sized furniture like tables, benches, beds, and much, much more. Easily the smartest, most efficient joinery tool you'll ever experience.

NEW LONGER AND THICKER TENONS!

FESTOOL®

Faster. Easier. Smarter.

The Old Way – Churcher uses traditional tools and techniques whenever possible. Here he drives home a nail, securing a piece of solid wood trim to the case.

A Clock-Making Hobby

There's a new challenge every day for this nonagenarian clock maker. Knowledge is just the beginning.

BY MARK SPOWART

Ten years after retiring from his career with Veteran Affairs, Len Churcher, 93, of London, Ontario was looking for a hobby to fill his days so he began collecting and fixing old clocks. "I was repairing clocks as a hobby. I was buying them [old clocks] at flea markets and so forth, repairing them and then giving them away. At one time I had over 200 clocks in my basement," said Mr. Churcher.

Slowly, a new goal started to appear: build a grandfather clock for himself. At that point in his

Photos by: Mark Spowart

Lots of Fun – Every minute in his basement shop is enjoyable for Churcher, but the realization that he's once again turned a bunch of rough lumber into a beautiful clock gives him the most satisfaction of all.

Giving Back – Well into his 90s, Churcher doesn't rush through many projects. Enjoying the day-to-day process, and supporting his local community is what keeps him building clocks.

late seventies, he learned some woodworking skills. "I always wanted to build myself a grandfather clock. Now I've built 70, and still haven't built one for myself," said Mr. Churcher. "I get up every morning, and I give thanks to my saviour that I am 93, going on 94 and I have another day. I go out to my workshop, I am by myself, no tension, and when the clock is finished I look at it and say 'that was just a bunch of wood when I started,'" he said. "I know there is going to be an anniversary somewhere, or there is going to be somebody who has worked within our church and it goes as their memorial."

The clocks Mr. Churcher builds follow a design which dates back to the 1700s. Each clock is built, assembled, stained and lacquered all by hand. "I am creating something that was built 300 years ago and I'm trying to do it in a way similar to how they did it 300 years ago," he said. He uses half-inch oak sheetstock for the panels, along with solid oak for the frame and trim. "I build them, everything is glued. All the nail holes are drilled and I do that for two reasons. Oak is hard wood and with the carpel-tunnel syndrome it is hard for me to hold the nail, so I pre-drill the hole to make sure the nail goes in straight," said Mr. Churcher. "I normally apply one coat of stain. Once the stain has dried I use five or six coats of lacquer."

Once the cases are complete, the German-made clock mechanism and face is installed and another one of Len Churcher's grandfather clocks is ready for delivery. All of his clocks are donated to local churches to commemorate a special anniversary or to acknowledge the contribution of an individual.

"My clocks are the only thing keeping me alive. I don't know how much longer I can continue to build clocks. When I cannot I will do some missionary work. I am limited [mobility and sight] and other than church I have no social life. Most people, they get a lot of pleasure in receiving something, but if they only knew the pleasure is really tenfold if they gave."

MARK SPOWART
spowartmark@gmail.com

Mark is a journalist in London Ontario who spends as much time looking through the viewfinder of his camera as he does typing on his laptop. When not working, he unwinds with a good book and a strong coffee.

Garden Trellis

Spruce up your yard with this great looking and easy-to-build garden trellis.

BY ROB BROWN

I love wood, but I also enjoy using other materials whenever possible. They add contrast and texture, and often different materials add a functionality that wood cannot. In this case I chose to use copper pipe as it does add a lot of colour and practicality to this outdoor trellis. And over time the patina will develop, turning a deeper brown or even green, depending on how it was treated. You could easily use wooden dowel rods in place of the copper pipe.

Because the flowers will eventually cover most of the trellis, I decided to follow my high school shop teacher's advice and "Keep It Simple Stupid". Any curves would likely disappear under the foliage. As with any non-wood items you use for a project, make sure you have everything you're going to use before you start. I found out the hard way that ½" diameter pipe is actually ⅝" outside diameter and ½" inside diameter. I should have known better.

Materials List

- **1 pc. Cedar 2" x 4" x 8'**
- **2 pcs. ½" x 12' copper pipe**

One of the nice things about this project is that the sizes are not critical. You can easily adjust the trellis to suit the materials you have on hand or the look you want. The cedar I used had been in my shop for years. It was dry. Take your time to dry any 2 x 4 lumber you buy from big box stores because it will be wet. With the two vertical pieces still together in one blank, cut them to length. I chose 56" for the overall height. Cut the top on a 30˚ angle to help shed water and to add a touch of style.

Drill the Holes

I separated each of the nine copper sections by 6". Lay out the location of the holes on the side of the 2 x 4 and mark them with crosshairs. Keep them equidistance from the top and bottom. Thankfully, accuracy isn't critical here, since both vertical members will be drilled at the same time, and then ripped apart, to ensure consistency. After drilling a test hole in some scrap and checking the fit of the copper pipe, drill all the holes.

Photos by: Rob Brown

Mark then Drill the Holes – With a square and pencil, mark the location of the holes that will accept the copper pipe on the side of the 2 x 4. A drill press will keep the holes square and straight. Test the fit in some scrap wood before drilling all the holes.

Ease the Edges – A small diameter router bit installed in a trimmer or router will soften the edges. Be sure the bearing doesn't dive into the holes and gouge the wood.

Attach a Hanger Block – Two small wood blocks can be glued and screwed to the back of each of the wooden vertical members. These blocks will give you something to screw into when hanging the trellis, as well as allow more space for the flowers between the fence and the trellis

I used a 5/8" Forstner bit for this, as it gave me a perfect friction fit, but a spade bit or twist bit will work also. Since your drill press likely can't drill the entire depth of the 2 x 4 just drill as deep as possible – the rest will be drilled once the two pieces are cut apart. Now rip the 2 x 4 in half on a table saw. Back at the drill press, finish the holes in the one vertical, making sure to use a flat bottom board and a slow plunge rate to reduce chipping. Lightly joint all the parts then plane the other two sides smooth, taking no more than 1/16" from each face.

I used a 1/8" diameter round-over bit to ease every corner. The exact size doesn't matter, but you should keep an eye on the tracing bearing to make sure it doesn't drop into the holes and create an uneven edge.

Attach a total of four 4" long blocks to the back of the uprights in order to keep the trellis away from the fence it will be mounted on, giving the flower vines some room to work their way up the trellis. The blocks I used were 1 1/4" square. Pre-drill two holes per block and fasten them with exterior screws and waterproof glue.

After sanding the two cedar sections, apply a finish. Usually I opt for a penetrating oil finish on outdoor products because they don't peel, but this time I went with a spar varnish. Since there are only two small wood sections any maintenance will be on a smaller scale, if needed at all. I also like the look of a spar varnish. Three coats and the cedar was ready for the elements.

Using Copper Pipe

Since I needed nine pieces of pipe, I bought two sections of 12' pipe. Each pipe was divided into five pieces – each about 28 3/4" long. A hacksaw works well. Sand or file the ends, as they'll be sharp. The inside of the pipe will need some TLC too.

There are many options for dealing with the colour of the copper. It can be left alone to turn a medium brownish red colour. It can also be lightly sanded then coated with a varnish or polyurethane if you want to keep the brighter sheen. If you're looking for the green patina that's associated with many rooftops, I've heard a number of things. A metal worker I talked with mentioned orange juice and tomato juice as two so-so options, but he said, strangely enough, that urine works best. I've also heard Miracle-Gro mixed with water then brushed on does the trick. What option you choose is completely up to you!

With the parts completed, start with one vertical cedar section and insert all the copper pipes about 5". Then line up the other section of cedar with the pipes and insert each one-by-one into the appropriate hole. A mallet and block come in handy to evenly tap everything home. If the fit is on the loose side, you may want to drill a small hole through the wood into the pipe and hammer in a small copper nail. It will stop everything from moving and help keep the trellis together for years to come.

ROB BROWN
rbrown@canadianwoodworking.com

Since buying his first house six years ago, Rob has been busy improving it. At least his morning glories now have a place to climb and play.

Ramping Up for Access

Stairs pose an insurmountable barrier to many Canadians, but access ramps are an easy way to get around the problems that stairs leave behind. Here's a primer on designing and building an access ramp for your home.

BY MATT DUNKIN

You'll encounter a significant but invisible barrier even before you cross the threshold of most Canadian homes: the difference in elevation between the sidewalk or driveway and the main floor of the house. Stairs are the typical means to gain access to those elevated floor levels, and spatially they are quite economical, gaining the fastest ratio of rise to run. Stairs, however, don't work for everyone. A visit from someone for whom those stairs are a nearly insurmountable obstacle – perhaps a friend or relative in a wheelchair, or an elderly person who no longer has the stamina to do much climbing, even a parent lugging a child in a stroller – will soon illustrate the unforgiving nature of stairs for those carrying heavy loads or who have mobility issues. Access ramps offer a means to bridge the height difference and enable those on wheels or on foot to gradually raise themselves up that crucial distance to the ground floor.

A significant and growing percentage of the Canadian population experiences mobility issues. Statistics Canada estimates that nearly 2.5 million Canadians over the age of 15 have "difficulty walking, climbing stairs, or moving from one room to another." Given an aging population of baby boomers, that number will continue to increase in the coming years. As of 2010, seniors made up just over 14 percent of the Canadian population, whereas projections predict a massive acceleration in which seniors represent over 25 percent of the population by 2056. That demographic shift, combined with a tendency for seniors to remain living at home longer instead of moving into health-care settings, means that adaptations to their houses, like adding access ramps, will become increasingly common and necessary in the future.

There are a number of important theoretical and practical guidelines that you'll need to consider in designing and building a safe and effective physical access ramp for your home. We'll take a look at building code requirements

Photos by: Rob Brown Illustration by: James Provost

Think Long-Term – While handrails are not required on this low ramp, they make for a more comfortable and safer user experience. Two details to improve upon in this photo are: deck screws should be ACQ approved and posts should be 4 x 4s to resist lateral loading.

Well Thought Out – This ramp, instead of abruptly terminating at a level landing, gently curves at the ramp top and along the top rail. The ramp was intentionally included into the larger framework of the design of this home.

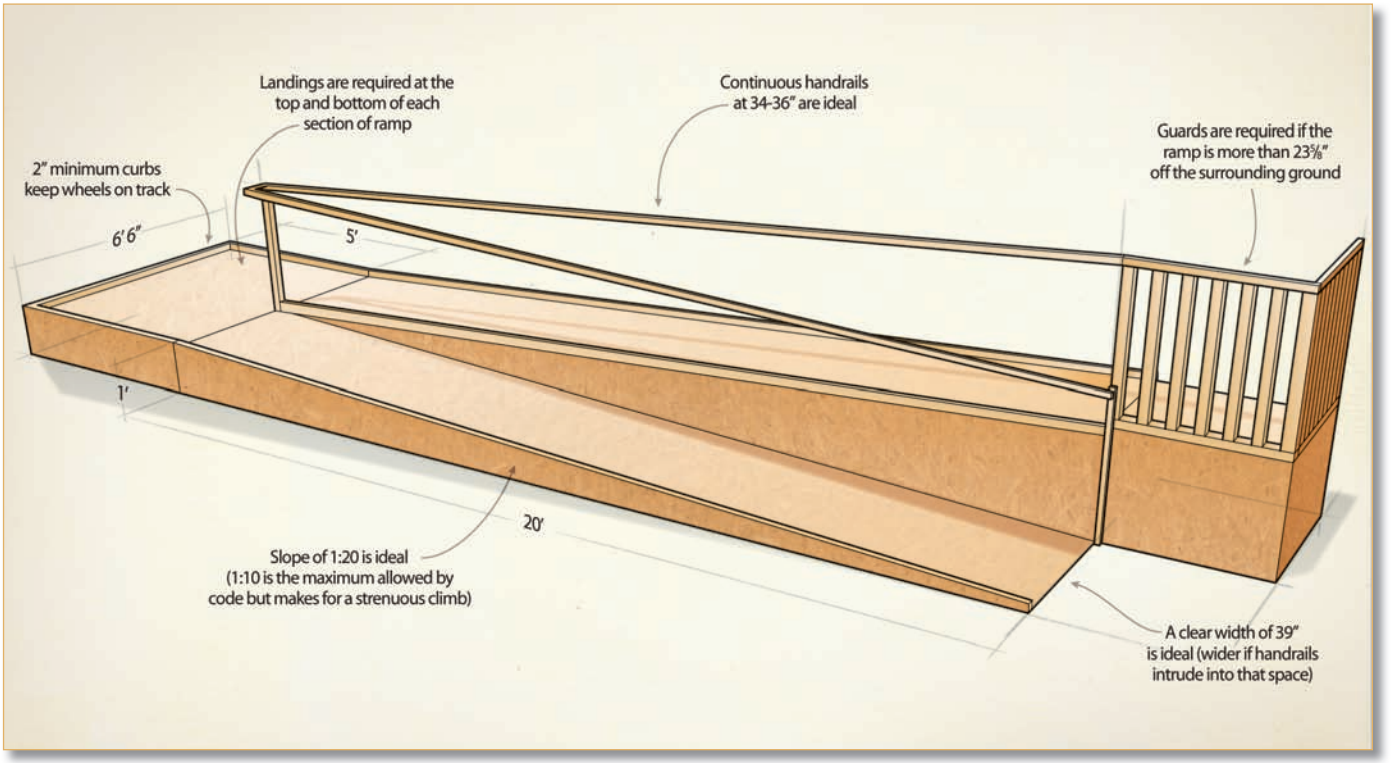
for private residential settings that regulate the construction of physical access ramps, design and material considerations, and some nuts-and-bolts advice about how to construct them. I'll be referring predominantly to the Ontario Building Code, which is informed by the National Building Code of Canada, and is quite similar to codes in other provinces. In most cases, I would recommend you build to exceed code requirements to avoid designing and constructing a ramp that is uncomfortable or challenging to use.

Ramp Slope

Building codes specify that the slope of a ramp accessing a private dwelling be no steeper than 1:10; that is, for every inch of rise there must be at least 10 inches of run. That number signifies the outer limit of what is recommended and while helpful, won't lead you to create a user-friendly ramp. A case in point is a ramp at PEI's Brackley Beach built by Parks Canada, which rises an unrealistic 18 feet over 250 feet of length. As a YouTube video about the Brackley Beach ramp illustrates, if a ramp is too steep or too long it will become itself a nearly insurmountable barrier to those with mobility issues (www.youtube.com/watch?v=AHL2twJoJuk). A more effective and forgiving slope lies in the realm of 1:16 or even a more gently sloping 1:20.

Length & Width & Height

If you're planning to build a ramp, the first practical consideration you'll come up against is that you'll need a lot of space to make it happen. To gain access to a front door or porch that is 30" off the ground at a slope of 1:20, you'll need a staggering 50 feet of ramp length, which for most yards is a significant amount of real estate, especially when you add in landings for change in direction. Therefore, rising any more than 30" is usually not practical. Single stretches of ramp should be no longer than 20 feet so that the user will not become exhausted while walking or wheeling between landings. As for the width of access ramps, code minimums for residential settings will specify a minimum clear width of 34", although, practically,



Low Maintenance – Durable materials such as the composite decking on this access ramp will ensure a long life and require very little maintenance.

Details are Important – Small details like leaving minimal spacing between decking (less than ¼") will make for a much more wheelchair-friendly ramp. A screw makes a good spacer.

39" will make for a better ramp that won't feel cramped. If handrails intrude into the width of the ramp space, you'll have to make it wider to maintain the clear width you're aiming for.

Landings

Landings allow for breaks between ramp sections and are necessary to allow a wheelchair to pivot at a turn and a person to rest before continuing on to the next slope. They are required at the top and bottom of every ramp with a slope of 1 in 50 according to code, and if there is a situation where there is a door or opening partway along a ramp, it will be necessary to have a landing that extends 11 ¾" on either side of the opening. Practical landing dimensions will be different depending on whether a scooter or a wheelchair will be turning on them. Wheelchairs can pivot on a 60"x 60" landing while a scooter with a longer turning radius will need 83"x 83".

Barriers, Handrails & Railings

Just as with stairs, a railing, or guard is required by code if the height of the ramp is more than 23 5/8" higher than the surrounding grade level. Guards over this height must prevent against the passage of a spherical object 4" in diameter (that is, a young child's head). Curb barriers keep a wheelchair's wheels from slipping off the side of a ramp and, while not a code requirement, are recommended especially on low ramps when a guard is not required. They should be at least 2" high in order to be effective. A handrail is required on at least one side of a ramp if it's less than 43" wide, and both sides if wider. Handrails should be maximum 2" wide otherwise they are hard to easily grasp and there should be at least 2" of space between a handrail and an adjacent wall. Handrails by code must be 31–38" above the surface of the ramp, but will be most effective at a height of 34–36".

Landscape vs. Built

It's quite possible to landscape an access ramp directly into a yard with concrete or smooth stones, especially if the required rise is only a few inches. Otherwise, you'll have to get creative and build something out of wood, deciding first on a shape to fit your yard. Straight ramps are the simplest, but most higher ramps will need to be switch-backed, L-shaped, or U-shaped to negotiate obstacles and fit into your yard space.

Built-in or Removable?

If you choose to construct an access ramp, you can build it so that it becomes a permanent addition to your home, or so that it can be removable. Removable ramps are only as reliable as the surfaces they are placed upon, however, especially as the seasons change. A ramp placed on concrete deck blocks resting on grass will be affected by freeze and thaw cycles and could make for some unruly and unsafe transitions onto and off the ramp. A ramp that is built overtop of a stable existing walkway with stairs could be sufficient to withstand seasonal changes. However, if you're starting from scratch, it is best to construct a permanent ramp on a proper foundation that goes below frost depth.

Materials

When choosing materials for building your access ramp, you'll follow the same thought process as if you were building stairs or a deck, so you'll need to use materials that are resistant to decay. For framing wood, you'll likely choose pressure-treated lumber, but for decking and railings you can use pressure-treated wood, cedar, or composites depending on what your preferred finish will be. If you're using pressure-treated wood, you'll need to make sure your fasteners are galvanized nails or ACQ-treated deck screws so that they will resist corrosion. You may want to add texture to your ramp with outdoor carpet, a textured paint, or even roughly sanding the decking boards to provide more traction for feet or wheels. Typically, materials that are durable and low-maintenance suit ramps and their owners, as elaborate staining or finishing is often challenging for those with mobility issues.

Construction

Construction of ramps will need to be in accordance with your site conditions, local building codes and municipal bylaws. In many parts of the country, you'll need to set concrete footings to a depth of at least four feet to avoid frost damage. Galvanized metal 4 x 4

Transitions – Unlike the example in this photo (above), the transition onto the bottom of the ramp should be smooth as possible, following the slope of the ramp. Carefully poured concrete, or in this case (below), a precisely fitted piece of plywood, will smooth the transition from ground to ramp.

post saddles set into the concrete will anchor the bottoms of structural posts. Ramps will be constructed with the framing joists or "stringers" running parallel to the direction of travel, and decking running perpendicular to the framing. Tight spacing on the decking will make for a smoother ride (max. ¼"), and in some cases a treated plywood may be necessary for an easier climb in a wheel chair. Four-by-four posts that will support handrails and guards should be tied into the framing to be more solid and surrounded by blocking to support where the decking will meet the posts. Three-inch treated deck screws will allow you to connect your framing safely and even remove it in future if necessary.

For spacing between posts and joists and required lumber sizing, consult your local building codes, treating the landings and guards as you would an exterior deck.

One of the areas that is critical to get the details right is in the transitions onto and off the ramp. At the bottom of the ramp, there should be a gentle transition onto the ramp, with no tripping hazard or bump to have to climb before rolling upwards. This may mean ripping a very smooth transition strip that follows the slope of the ramp, or even using a metal plate if required. You may need to sink the ramp's framing members below grade, which is not ideal for preventing decay in the wood you're using. If you need to do this, excavate the area and fill it with crushed stone, which will provide good drainage and foil the attempts of frost to heave the ramp upwards. At the top of the ramp, the transition must be equally smooth, with no awkward place for a tire to get slowed down just as a person in a wheelchair may be starting to tire.

Parting Thoughts

If you're going to go to the trouble of constructing an access ramp, it's not a place you will want to cut corners or opt for the minimum dimensions. As its builder and designer, it's a great idea to borrow a wheelchair and try a couple of existing ramps out before you even start designing. You can get a sense of what works spatially and what materials will provide the most user-friendly experience. That knowledge, coupled with the limitations of your site, will allow you to craft a ramp that will create a welcoming and barrier-free access to your home.

MATT DUNKIN
greenbydesign@cogeco.ca

Matt is a green building contractor specializing in renovating existing homes in Peterborough, Ont. In his off-time, he writes and spends time adventuring outside with his family.

Chisels for Furniture Making

There are many different types of chisels on the market, but you don't need all of them to make beautiful furniture. You will need to know a bit about the different types of chisels and the materials they are made with though.

BY TED BROWN

Chisels are fundamental tools that, when tuned, are a joy to use. Many texts provide details on a plethora of different chisels available, but I have found myself using only a small selection of fine tools. This is a relief for those putting together their hand tool list; limit the chisels in your tool collection, then spend your money on fine tools you will actually use. In this article, we will explore bevel-edged chisels and mortising chisels.

Bevel Edged Chisels

When I refer to bevel-edged chisels, I include in that group both the "bench chisels" and "firmer chisels", as long as they have bevelled edges. Bench chisels are shorter versions, usually fitted with a socket type of handle that features a hoop at the top end to resist chipping. Firmer chisels usually have a tang-style wooden handle with hoops at the top and bottom ends to reduce splitting.

When buying a set of chisels, consider the length of the handle, shape of the handle, shape and length of the blade, steel composition, durability, the feel in your hand and, of course, price.

I studied under James Krenov in 1994. Jim used a set of short bevel-edged chisels made in Sweden by the E.A. Berg Company. Jim did not have large hands, so he found tools that felt good, were the right length for him, that held a good edge. The steel was carbon steel, nothing fancy, just good honest tools. I find many chisels have excessively long blades, forcing me to hold only the blade while paring, which is undesirable. Today I enjoy the use of Japanese chisels for their physical size and excellent edge; these shorter tools just fit right, for me. I use two sets of chisels – one burly set for general purpose work, and one set for fine work, where my best edge is essential.

When it comes to edge tools, there is always a lot of discussion about steel. There are a wide range of options out there, ranging from carbon steel, to carbon steel alloyed with metals to resist deformation, to bi-metal blades made with soft

Photos by Ted Brown (Lead Photo by Rob Brown)

steel for the blade body, mated with very hard, fine-grained carbon steel at the cutting edge.

Inexpensive chisels are generally cast from carbon steel and then ground into shape. These tools tend to suffer from a rather large grain structure and relatively soft blades. Blade hardness is defined by the Rockwell "C" hardness scale. The Rockwell test applies a known force to a 120° diamond cone causing a dimple in the chisel blade. The penetration depth in the subject steel is directly read out on a dial indicator that displays a higher number for harder steel. Woodworking chisels typically range from RC58 to RC64. At the high end of the scale, there is a possibility that the steel may become brittle.

Rockwell "C" 58 is the usual starting point for chisels: hard enough to take and hold a reasonable edge, but soft enough to resist cracking. If you are handy with your wet stones, you can achieve good results, but you will be back to the stone more often.

High carbon steels contain between 0.5 and 1.5 percent carbon. Some tools employ alloys such as chromium, vanadium, and molybdenum to increase the toughness of the steel, while reducing edge softening if the tool is overheated. I use German-made, Two Cherries chisels for my day-to-day work because they take a reasonable edge, are moderately hard at RC61, they resist chipping, and the cost is reasonable. I do not like their handle design because the tools roll off of my bench. The real downside is that you cannot obtain that super-keen edge with the above-mentioned alloys. The large grain size created by alloying with chromium causes a serrated edge when viewed at a micro level. This leads to micro-fractures during use and inevitably a loss of keen edge performance. However, these chisels will work all day with very little degradation of that reasonably sharp edge due to the toughness of the steel.

Everyday Use – These bevel-edged chisels by Two Cherries are a decent choice for an everyday chisel.

A2 steel works about the same – tougher and harder than simple carbon steel, but the edge is somewhat limited by the trade-offs taken for toughness. A2 contains about 1 percent carbon, 5 percent chromium and 1 percent molybdenum.

So why do most people have a reverence for old tools? Why do so many old-timers say that edge tools used to be much better? The answer is most likely in the manufacturing method; the chisels may well have been forged. This process tends to keep the grain structure small, allowing the maker to achieve a keen edge with carbon steel tools.

Japanese Chisels

Japanese chisels are made of two metals. The body of the tool is made of relatively soft steel, while the back that forms the cutting edge is made of hard, high carbon steel. These are forged tools that take and keep a keen edge. The hardness at the edge is typically Rockwell "C" 64, which is very hard. The fine grain of Japanese tools is superb, resulting in a very fine edge that is the best I have used.

The Japanese chisels really shine when it comes to hand work such as paring. The experience is hard to describe – find someone with these tools, and try paring some dovetails, and then you will see and feel the difference.

Bevel Angle

Bevel-edged chisels are ground to a primary angle of 25°. Remember that your six-inch Aluminum oxide grinding wheel will create a concave grind angle, which means the effective cutting angle will be less than 25°. Therefore, I grind my chisels at 27 to 30°. The absolute angle is not critical. If you are chopping bubinga, make

Bi-Metal Blade – Japanese chisels are made with a softer metal on the upper portion of the blade, and a harder metal that does the cutting on the underside of the blade.

Ease the Honing – To reduce effort when honing the backs of Japanese chisels, they are hollow ground.

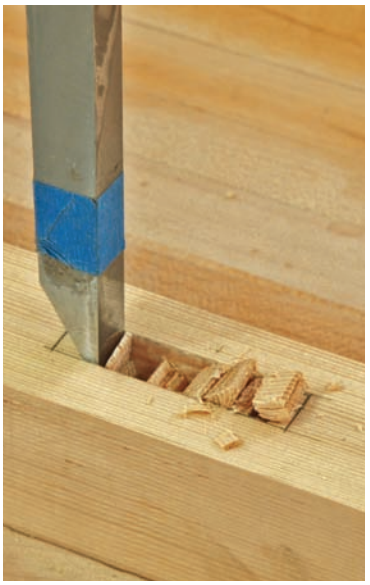
Small can be Good – Japanese chisels' smaller size makes them more comfortable for paring work, especially for people with smaller hands.

the angle more obtuse – there is nothing to say you cannot grind the tool to 32˚.

Do not grind your Japanese chisels with a 6" wheel creating a hollow grind. I actually made this error a long time ago; the result was that I weakened the tool, and my chisels chipped excessively. I like to re-establish the 25˚ primary bevel on my Japanese chisels by honing the entire bevel on a 1000 grit water stone. If you have difficulty holding the tool flat, use a Veritas honing guide; it is perfect for this job. I then create a micro-bevel at about 27˚ using my 4000 grit water stone and move on to some 3 micron, then 1 micron diamond paste on a maple block.

Mortising Chisels

I think everyone should have a ¼" and a ⅜" mortising chisel. These tools are very sturdy, and feature a very thick trapezoidal (in section) body from front to back of the blade. Mortise



Quieter than a Router – When using a mortising chisel, drive the tool into the material with a mallet, then lever the waste out by tilting the chisel. The blue tape indicates the finished depth of the mortise.

Beefy Construction – Mortising chisels (left) are much more robust than other chisels, as you can see with these two ½" versions. This is because they will be asked to withstand heavy mallet blows and remove more material than other types of chisels. (Photo by Rob Brown)

chisels are meant to be struck hard, and then used as a lever to remove the waste. They are ground at a stout angle with a primary bevel of 35˚. Adding a micro-bevel makes an effective cutting angle of about 37˚.

Leave the front edges of your mortising chisels sharp after flattening the back of the tool. This is essential to allow the edges to cut the fibres within the mortise during the lever operation following chopping.

Handle size is important if you are whaling away at a mortise – the German tools have massive hornbeam handles that will take a serious blow while also ensuring that you will strike the tool and not your favourite woodworker. These tools are referred to as registered mortise chisels. They feature wooden handles with hoops top and bottom, and a leather "shock washer" to reduce vibration.

The British Sorby registered mortise chisel is another design that is favoured for its relatively small size. If you are put off by the sheer size of the Two Cherries or Hirsh tools, have a look at the Sorby tools which also use hoops top/bottom and a shock absorbent leather washer.

Learn to chop a mortise by hand; it is very rewarding. I often clean up the sides of my mortise by paring with a bevel-edged chisel before fitting a tenon.

So, to finish, buy a few chisels, and build your set as time and budget permit. Take the time to flatten and polish the back side of the tool to a mirror finish. Make room in your kit for a couple of Japanese dovetail chisels, which are triangular in section to aid access to tight dovetail corners. Buy a few good tools rather than an inexpensive eight-piece set, and enjoy the experience.

TED BROWN
tedbrown613@gmail.com

Ted shares his time today between building hand-made furniture, cycling and motorcycling. He loves projects that are hand-tool-intensive for quiet enjoyment in the shop.

A Split-Turned ROCKING VESSEL

These eye-catching rocking vessels are fun to make and will allow you to show off your skills. The learning curve is steep, but after making one or two you will be ready to experiment with different shapes and forms.

BY MARK SALUSBURY

Joinery, joining parts to make a whole piece, is an "additive" process. Woodturning, on the other hand, involves taking a whole piece and removing the unwanted bits to create the final piece; a "subtractive" process. Making split-turned objects is a perfect blend of both processes. It's a wonderful way to develop creative skills by considering both inner and outer shapes harmoniously to suit your style and the piece's purpose. Split turnings are also a great way to use grain and figure for visual effect and add a distinctive dimension to your work.

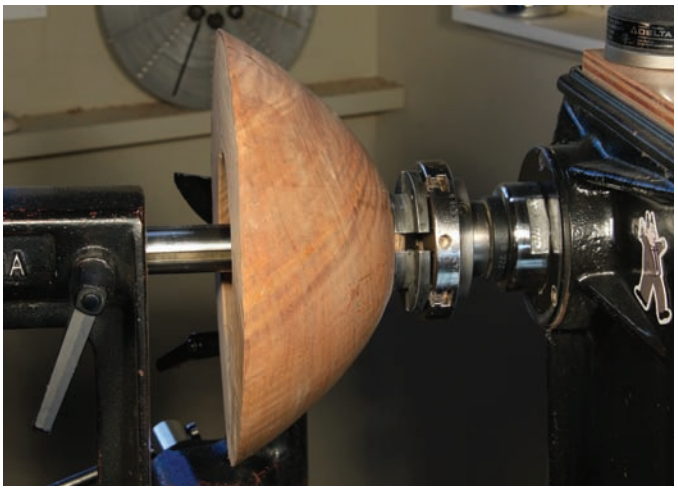
I began exploring "split turning" in the late 1990s, inspired by Stephen Hogbins' "Walking Bowl" of the '80s and by Michael Hosaluk and Mark Sfirri, who were demonstrating both split and multi-axis spindle forms of turning, encouraging others to take the style to new levels of decorative and functional expression.

Split-turned elements are seen in furniture pedestals, legs and case corners plus in architectural fixtures such as columns, newel posts, wall sconces or demi-lune shelves. But here I'll explore the vessel form, creating display pieces that are both attractive and functional. Fun and way easier to make than it may appear, follow along as a simple bowl transforms into a dynamic vessel form ... once you've tried it, you won't quit by making just one.

Experiment

I've found the easiest way to get "into the groove" is to take some practice wood, turn a flat-rimmed bowl, flip it upside-down and cut it exactly in half on

Photos by Mark Salusbury, Lead Photo by Rob Brown



Rough and Ready – The rough bowl form is mounted in the chuck, ready for turning. It's supported by the tailstock with live center (within the bowl and unseen).

Three's Company – The three phases of completing the bowl; the rough form (left), turned inside and out (middle) and the completed profile with the foot removed (right). Shown also are my inertia sander resting on the toolrest post and my large chuck (background), used to hold the bowl by its rim when turning the foot away and refining the outer profile.

the band-saw to reveal what form is made when the rim edges are held together. From there, I refine my thoughts, consider the purpose of the vessel, consult my sense of style and make a quick pencil sketch of the shape I want to see outlined by the rim of the finished vessel; one half of that will be the cross-section of my bowl. Seldom a perfect drawing, it's just enough to show the length, width and internal volume of the piece I see in my mind's eye. It helps me see the relationships of shapes and decide on defining details plus the diameter and depth to turn the bowl. I also use this time to think about the placement of the bowl's greatest diameter, upon which the final vessel will rest, choosing how much stability is best for each vessel I make. A few quick thoughts with a relaxed mind then it's on to the fun stuff.

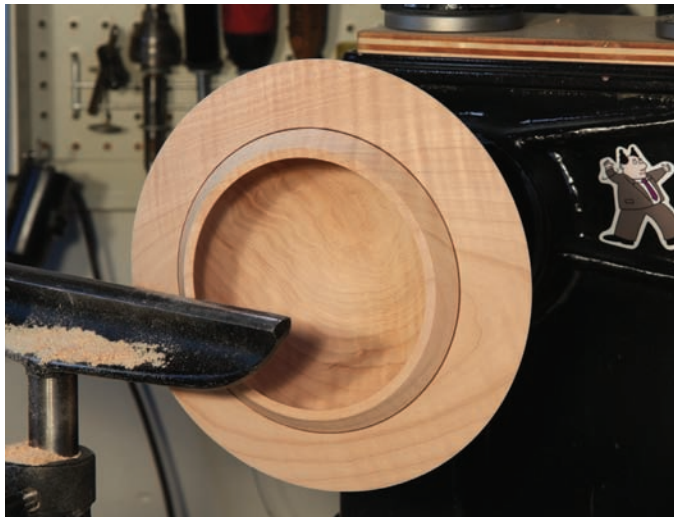
With the O.D. of the bowl decided, it's time to make the foundation of all future pieces, a cutting sled. My sled, of ¾" cabinet-grade veneer core plywood, is exactly 10" wide and about twice as long, with a 10" long kerf cut exactly on the centerline; all the bowls I'll be halving will be less than 10" in diameter. A brace, milled straight and square, is glued across the sled behind the saw kerf for stiffness and a hand grip. The side supports that cradle the work-piece are glued at exactly 45° to the saw kerf, 90° to each other. By guiding this precision jig between a fence and a feather block, its kerf centered on a sharp blade with the saw table set exactly 90° to the blade, I'm assured my vessel halves will be perfectly equal and need minimal sanding to perfect the vessel's rim after glue-up.

Now to the lathe …

The vessels shown here began as blanks I cut roughly twice as round as they were tall, including the allowance for a proud foot; 10" x 5" for example. I used figured maple here, but these vessels are just as satisfying turned from any clear hardwood.

I like the dynamic created between the concave inner shape and the convex outer form. With that in mind, I cleanly turn the bowl's outer profile and a stout protruding foot for my chuck to compress onto. Next, I reverse the piece, centering it within my chuck's jaws and with the piece supported by the tailstock and live center, I refine the outer profile and flatten the top to bring the piece into round and almost fully balanced.

With the tailstock removed, I decide on the bowl's inner diameter. I like something over half the bowl's O.D. The greater the inner diameter at the rim, the more relaxed the look and functional the final vessel will be. But too large and the vessel will suffer visually. Now I turn the inner shape, undercutting from the rim down, going deeper and wider in stages. I try to follow the outer profile as much as possible, smoothly and uniformly, leaving a reasonable wall thickness, say $^{5}/_{16}$" for a piece of this size, right down to the footed area. The foot will be turned away later and the wall thickness and smooth internal profile referenced when completing the final profile.



Partially Done – The bowl showing the rim, inner surface and the greater diameter of the bowl, which will be the vessel's "rockers".

Time to Split – A simple jig assists with splitting the turning in two. While cutting, my thumbs advance the sled while my fingers dampen vibration.

Seeing is Believing – With the bowl now split in two, you will learn how consistent your wall thickness really is. You can also finally see how the bowl looks when the two halves are re-aligned and come together to form a new shape.

With the piece now fully balanced and main wall thickness measured, I mark that dimension surrounding the rims inner diameter and proceed to remove material outside that line, downward and outward, roughing out what will be the "rocking" rims the vessel will rest on. I like a spacing of about 2" between the vessel's "rockers", so I make the bowl's greatest diameter just over an inch down from the upper rim. I also like an outer profile here that complements the inner form. Here's where continuity, the profiles and detailing will set the tone for the final piece, geometric or organic, once the halves are reunited. With this area shaped and detailed, it's important to make the top surface of the rim perfectly flat across; this will be the gluing surface to unite the two halves. I gently scrape this surface to perfect it and, with the lathe stopped, check it by bridging a straightedge across the rim.

Next, I power-sand the outer and inner surfaces to 180 grit then do my final sanding using an inertia sander and a 240 grit disc, leaving a uniformly sanded, swirl-mark free surface. I make sure not to round over any edges, keeping them crisp and I leave the rim just as I scraped it.

Now I release, reverse and rechuck the bowl, expanding firmly yet gently within the rim (there are many ways to do this so choose your preferred chucking method) as it's time to gently turn the foot away, blend the outer profile and sand the entire outer surface to perfection.

Split the turning

Over at the workbench, I set the finished bowl upside down, resting flat on its rim between the left and right guide shoulders on the cutting sled. Looking down on the bowl, I orient it so that the

Add Masking Tape – The tape aligns the two vessel halves and acts like a hinge, allowing you to apply the epoxy adhesive and bring everything together.

Cupping the Bowl – The vessel temporarily goes back to being a bowl as the epoxy is applied to one of the rim halves. The coffee can cradles the parts, adding an extra set of hands during this careful process.

Epoxied Together – This is all the squeeze-out I want. Any more and it makes clean-up that much more difficult. The tape draws the halves together, while additional strips apply extra pressure where needed.

Flatten the Rim – Sand the vessels rim flat to remove the fine bandsaw cut marks. Rubberized gloves make life easy, providing grip and control.

wood's grain and figure are centered along the kerf; once it's cut and reunited, the vessel will appear book-matched. I apply ¾" wide painter's tape and stretch it to hold the bowl in position on the sled.

At the bandsaw, I cut the bowl slowly, my hand advancing the sled and my finger tips merely damping vibration the bowl may experience, minimizing any tear-out by letting the blade both cut and burnish the kerf. Once the blade is stopped again, I remove both halves from the sled, de-fuzz the cut edges by sanding them gently up and away using a hand held 240 grit sanding disc and remove all dust from the cut surfaces.

The moment of truth

I hold the two halves together rim-to-rim, inspecting for consistency and alignment. Satisfied, I invert the vessel halves, held edge-to-edge onto a thin router mat on my bench to keep things from moving. Strips of 2" wide painters tape are laid face down onto the mat and the cut surfaces of the vessel placed onto the tape's sticky side. Once stretched a little and wrapped around the sides of each half, the tape forms a hinge registering the halves in alignment. Now I gently fold the vessel open to return the halves to "bowl" form, nest the bowl halves together within the rim of a coffee can or other clean, supportive container and apply an oh-so-thin veneer of epoxy adhesive to one rim surface only. Epoxy offers longer working time, better bond and an invisible glue line compared to wood glues and requires little clamping for strength.

Now I carefully lift and invert the two halves again, using the tape hinge for reference and to draw the halves together, placing the glue-up down flat on the mat. Checking alignment as I work, I stretch tape across the bottom of the two halves; first bridging the center then across each side edge. Properly done, a slight uniform squeeze-out appears along the entire glue line and the two halves are perfectly aligned edge-to-edge and along the length. After the assembly has set face down for about an hour on a flat surface, Q-tips dampened slightly with lacquer thinner will remove any squeeze-out, but I'm careful not to wet the glue line and weaken the joint.

After 24 hours, I remove the tape and sand the saw-cut rim of my vessel on a sheet of 120 grit paper taped down to a flat piece of plywood or MDF, sanding in a random pattern until all traces of the bandsawn surface are gone. Then I sand the rim by hand using a back-up pad and hook-and-loop backed discs, 180 then 240 grits, softening the rim and all edges so the piece is as friendly to hold as it is pleasant to look at.

I enjoy Danish oil or a wiping varnish as finishes, applied generously, hand-sanded while wet with +400 grit wet/dry paper or sanding discs then removed thoroughly within a few minutes. After a few such applications have cured fully, a final coat of varnish can be ragged on and off, left to cure overnight then buffed out with wax applied with oil-free 0000 steel wool or an ultra-fine micro-fibre pad and buffed to a soft sheen.

But don't stop there – the creative potential has just started! Gold leaf, carving, texturing, cutting the vessel in half cross-wise and reassembling it another way ... all will produce wonderful work. Have fun exploring.

MARK SALUSBURY
mark@salusburystudios.ca

Circular Wood Handles: Beautiful and Functional

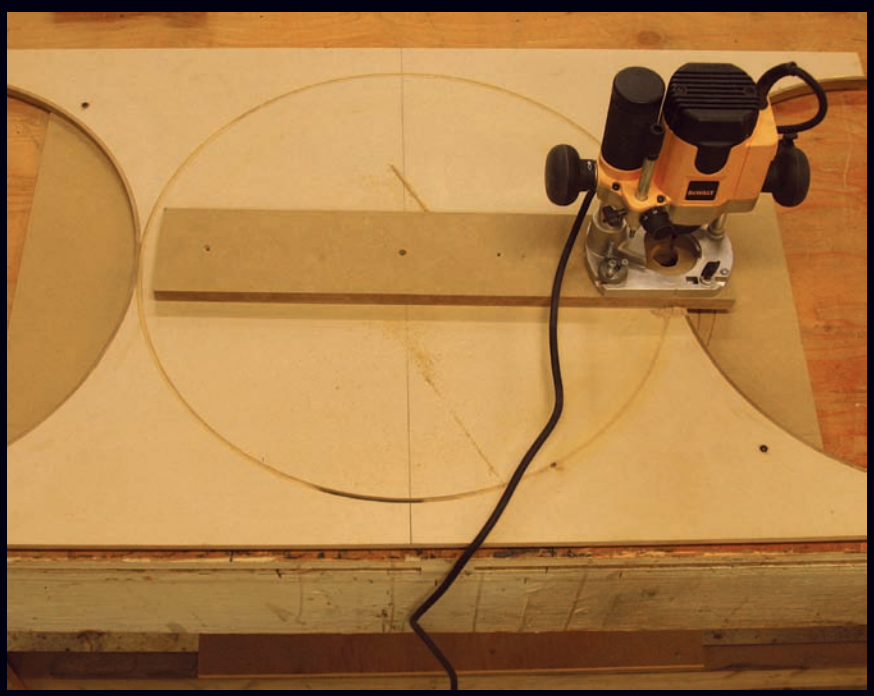
Learn the secrets for making this unique project

Instead of installing store-bought handles to doors and drawers, you could use carefully designed wood panels.

BY REED HANSULD

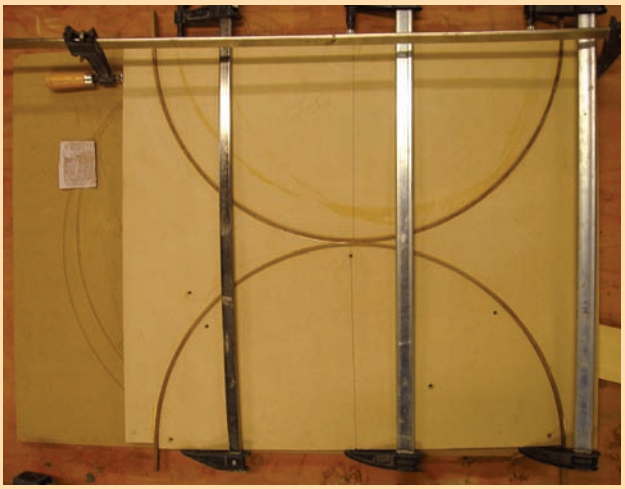
Lately I have noticed my aesthetic in furniture moving towards pieces with subtle contrast. So, when commissioned to design/build a sideboard entirely out of walnut, I couldn't pass up the opportunity to create a subtle contrast using a single species and my knowledge of how grain reflects light. How the light reflects off the grain direction in the board is what gives it certain tones, and why woods such as curly maple have that striped pattern throughout. Those dark/light contrasts are segments of the board where the grain switches direction. It's also what makes planing figured boards without tear-out so difficult.

The brief on the commission was a sideboard of a certain size containing doors and drawers without visible handles. The circular cut-out pattern was a way to incorporate handles into the design, as well as add some curvature to an otherwise rectilinear piece. Switching the grain direction inside the circle cutouts from horizontal to vertical produced a subtle contrast in tone; the result is what gives this piece its identity.



Rout Outside Circles – With the 3/8" back panels cut, Hansuld starts to work on the circular panels for the fronts of the door and drawer panels. Careful layout is essential for the circular panels to finish properly.

Photos by Reed Hansuld (Lead Photo by Janelle Falconer)



Same Thickness Bit – A 3/16" bit was used to rout the circular panels out; the same diameter of the steam-bent edging that was glued back onto the edge. This allows the off-cut to be used as a caul to apply even pressure during the glue-up.

Continuous Grain – The circular panels are machined to size and edged. Now the face veneer has to be applied to their front surfaces. In order to keep the panels aligned, and ensure the grain is continuous, Hansuld secures each circular panel with simple cleats during the vacuum pressing operation. For the sake of simplicity, he presses the left three panels first, then presses the right three panels later.

Cut them to Size – Now that the face veneer has been applied to the circular panels, they can all be adhered to the rectangular back panels. The doors and drawers can then be cut to size and edged.

When broken down, the process for this detail was rather simple, but the order imperative:

1. **Lay out with pencil**
2. **Rout outside circles**
3. **Cut-outside circles in half and edge with steam-bent edging**
4. **Flush edging and rout center circle**
5. **Cut center circle in half and edge both sides**
6. **Cut drawer fronts apart and edge around the rest of the cut-out panels**
7. **Veneer face of cut-out panels**
8. **Press on to backer panels.**

I started out with four drawer fronts and two doors, edged with solid walnut and veneered vertically front and back with 1/16" veneer over 3/8" MDF core. These would be the backer panels to which I would later press the circular cut-out panels.

I then took one sheet of 3/8" MDF the full size of the front of the cabinet (total surface of the doors and drawer fronts) and laid out the doors, drawers, and circles in pencil. Once satisfied, I routed the outside two circles using a compass jig and a router. I used a 3/16" bit, the same thickness of my edging. This allows me to use the off-cut as a caul later, when gluing on the edging.

Next, I cut those two outside circles in half vertically where the doors and drawers meet. Using steam-bent edging and the off-cut from the routing, I glue the 3/16" thick edging onto the circle cutouts. Once the edging is dry and has been flushed, the center circle can be routed.

Next, the center circle is cut in half and edging is applied to the remaining semi-circles.

Now that all six semi-circles are edged, it's time to cut the two outside panels in half making four drawer fronts. At this point, the panels can be edged with 3/16" thick solid the rest of the way around.

Once the edging is flushed, the veneer is laid out and the panels are ready to be pressed. In order to keep the grain running continuously throughout panels, I pressed them in two halves with location blocks pin-nailed to the back to keep things from sliding around once in the bag.

With the veneer cleaned up and panels pre-sanded, it was time to press the cut-out panels to the backer panels. This was done in the vacuum bag using 3/4" blocks pinned all around the backer panel in order to keep the cut-out from moving off of the backer panel. A glue resist was used to make clean-up easy.

The Big Payoff – Notice the continuous grain across the circular panels. All that hard work finally pays off. (Photo by Janelle Falconer)

REED HANSULD
mail@reedhansuld.com

Making a Wannigan

Though they were used in years past to store and protect goods while travelling by canoe, wannigans make wonderful coffee tables in modern homes. Making one is also a great way to practice some canoe-making skills before tackling the real thing.

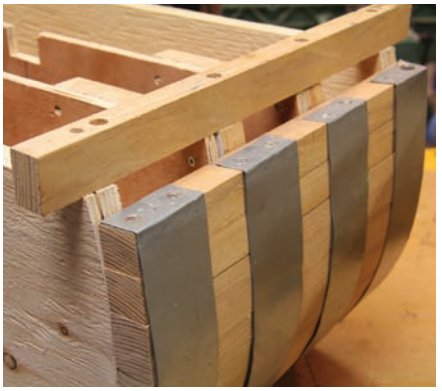
BY ALEX MCCUBBIN

The school I worked at for 30 years gave me a retirement present of all the materials needed to build a cedar strip canoe and three days with Jack Hurley, a master canoe builder in Dwight, ON. While working on the project, Jack showed me the wannigan he was making, and I loved it. They harken back to a time when the canoe was a crucial form of transportation in Canada. Wannigans stored supplies as paddlers crossed lakes, rivers and portages, but they also make great coffee tables. The techniques involved in building them were very similar to those used in constructing the canoe.

Build the Form

A solid form is constructed of ¾" plywood, strips of 1" hardwood and 2 x 6 pine or spruce. The shape of the cross section of the form resembles the cross section of a canoe at amidships. Too much tumblehome will cause difficulties later when removing the wannigan from the form, so straight sides are recommended. Cut four identical

Photos by: Rob Brown Illustration by: James Provost



In Fine Form – The form is ready for action, complete with four galvanized steel bands. Cheap materials are perfect, as long as the form turns out to be structurally strong.

13 ½" x 27" plywood rectangles in this shape then draw and cut a radius on the two bottom corners. Fasten a 2 x 6 near each arc for added strength. These are shaped to fit the plywood pieces with a bandsaw then a flush trim router bit. Two of these assemblies form the outsides of the form and two are fastened inside for added rigidity. Using 1"x1" x 16 ½" long hardwood strips, build the form starting at the centerline on the bottom. Starting is tricky, but by working on a flat surface and using a straight edge to work against, you can keep the four plywood pieces aligned. The more care taken to make sure it's symmetrical and square, the better the final result will be. Use 1 ½" long screws to fasten the strips to the plywood pieces. Countersink the heads so the outside of the form is smooth.

Joining the first few hardwood strips is fairly easy, since there are no angles cut into their edges, as the surface they are to be joined to is flat. When it comes to the curved section angle, the 1 x 1s on the jointer or table saw make the joint between the pieces tight. Continue all the way around to the top of the plywood. Screw two slightly longer pieces of 1 x 1 hardwood across the top of the form. They will support the wannigan sides during construction.

Finally, fasten four lengths of 20-gauge 2" wide galvanized steel bands, equally spaced, around the form. These bands will curl the canoe tacks over when you apply the ribs. They're fastened with screws at either end of the form. It may be easiest to approach a sheet metal shop to get the steel bands.

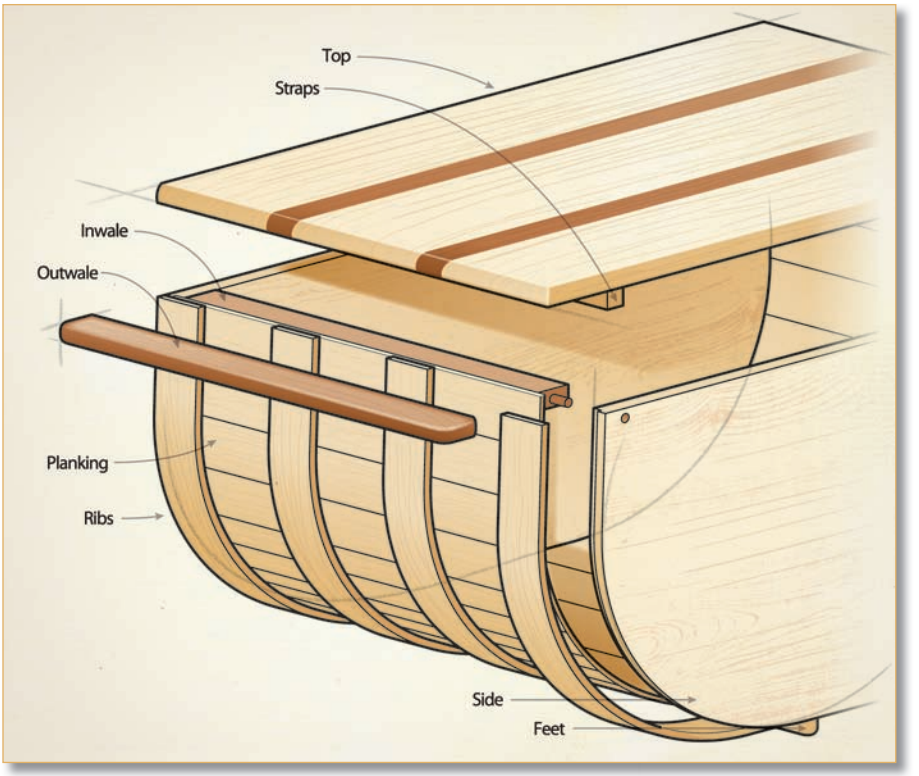
Constructing the Wannigan Sides

The sides are made by laminating clear white cedar with the option of inserting western red cedar for contrast. Pieces that are typically ¾" thick by 2" wide are used to make each side. A pattern needs to be made that is 3/16" larger than the side of the form. To make this pattern measure the overall width and height of the form, then add 3/16" to both ends and one side. Cut the pattern to this exact dimension. Next, place the rectangular pattern against the side of the form, butted up against the extra long 1 x 1 hardwood strips on the bottom of the form. As accurately as possible, trace the curve onto the pattern, continuing the 3/16" overhang on the curved sections. Rough cut it on the bandsaw, then sand to the line with an edge or disk sander.

Cut the two solid sides so they finish the exact same length and width as the pattern. Then use the pattern to trace the two curved areas onto the solid wood sides. Cut the arcs on a bandsaw, making sure the edges are smooth

Materials List

Part	Qty	T	W	L	
Sides	2	¾	14 11/16	29 3/8	Cedar
Planking	To Fit	3/16	2	To Fit	Cedar
Ribs	4	5/16	2 ¼	To Fit	Cedar
Inwale	2	¾	1 ½	16 ½	Hardwood
Outwale	2	¾	1 ½	18	Hardwood
Top	1	¾	18 ½	28 ¾	Cedar
Straps	2	¾	¾	16 ½	Cedar
Feet	2	¾	¾	18	Hardwood
Copper Ring Nails (1 ¼")	67Z06.04			Lee Valley	
Canoe Tacks (¾")	91Z26.05			Lee Valley	



Hot Stuff – By soaking the ribs in hot water the thin cedar strips become quite flexible.

and even. Leave the line on and fine-tune with a sander, if necessary. Using a router, with a 3/16" deep rabbeting bit, rout a rabbet around the inner edge of each side.

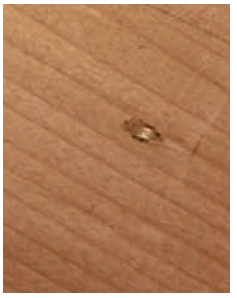
Planking

Prepare the planking from clear cedar that is 3/16" thick and about 2" wide.

Clamp the two sides to the form, with the rabbits on the inside, and fasten the planking across the form, between the two sides, cutting them to fit tightly in the groove. I use a pneumatic nailer with ¾" brads to attach the ends of the planks to the sides, starting from the center and working towards each end. The final row of planking will finish beyond the level of the side, and will be cut to size later.

Helping Hand – With the center of the ribs nailed to the flat section of the wannigan, apply clamps to the ribs, drawing their ends tight.

Turnover – The galvanized steel bands automatically bend the tips of the canoe tacks over as you hammer them home, creating an additional mechanical fastener.



Two Types of Nails – First, drive long copper ring nails through the outside half of two outside ribs. These nails will be held by the solid wood sides. Then add shorter canoe tacks to the other side of the outside ribs, and the two cente ribs, securing them to the planking.

Ribs

Four ribs are prepared by selecting straight-grained clear cedar that is long enough to go around the planking and extending another inch or so. These are finished to 5/16" thickness and 2 ¼" wide. The two center ribs are rounded over with a ¼" round-over bit, while the two outer ribs are just rounded over on the inner edge. Soak the ribs overnight in a water bath, and then heat the water in the morning to soften them for bending. A steam box would serve the same purpose.

Starting from the center of the rib, nail the square edge of the warm rib into the side of the wannigan using 1 ¼" bronze ring nails – just a few nails for now to help keep the rib steady. Use the ring nails at the outside edge of the rib, as they will have good holding strength when they are hammered into the ¾" wide solid sides. Smaller brass canoe tacks are hammered into the other side of the outer rib and into the planking. The ends of the brass canoe tacks will be turned over by the metal strips on the form as you go. Make sure that the edge of the rib is flush with the side as you go. Clamp the ends of the ribs to the form to hold them in place as you continue nailing. Repeat the process with the other outside rib. Nail the center ribs (two rounded edges) only with canoe tacks. Allow everything to sit overnight to relieve the strain on the bent ribs. The following day remove the clamps and take the wannigan off the form.

Gunwales

Prepare two "inwales" and two "outwales" out of hardwood. I have used black cherry, birds-eye maple or spalted maple, which add to the character of the piece. These are typically 1 ½" wide and ¾" thick. Round over any edges that will be grasped when the wannigan is finished. The inwale is made to fit exactly between the two sides, with the top flush

Clamp Overnight – Leave the clamps on overnight to help keep the bent ribs in place while they dry. (Photo by Alex McCubbin)

Important Area – Take extra care to keep the corner where the outside ribs, top planking and sides come together nice and tight. (Photo by Alex McCubbin)

with the top edge of the sides. It is fastened in place with two screws through the sides into the ends of the hardwood. The holes in the sides must be drilled out so they can be plugged later. The outwale is cut the overall width of the wannigan. It's clamped in place, sandwiching the planking and ribs between the inner and outer pieces. Care should be taken to make sure that the top surface of the inner gunwale is at the same height as the outer. Drill holes from the inside of the inwale through the ribs, into the outwale, so when these screws are tightened they draw the inner and outer pieces together. Again, these holes will be drilled out so they can be plugged. The edges of the planking and the ends of the ribs should be proud of the inner and outer gunwales now. Cut most of the waste off with a hand saw, then use a sander to finish the edge cleanly. Plug all the screw holes.

Two Feet to Stand On – Turn the wannigan over and add two strips of wood that will act as feet. (Photo by Alex McCubbin)

Feet

Two feet are made by rounding over two pieces of cedar ¾" x ¾" the same length as the overall width of the wannigan. These are fastened through the ribs using brass screws and brass washers, much the same as a keel is attached to a canoe.

Top it All Off – Once the boards for the top have been laminated, add a cleat under the top to help position it over the wannigan. Four small cleats in each corner would also work. (Photo by Alex McCubbin)

Nice Contrast – After everything is assembled, and a few coats of finish have been applied, the different wood tones will be more obvious. They add a traditional, hand-crafted look to this historical piece.

Top

The top is constructed of ¾" clear cedar laminated in the same fashion as the sides. It is the same width as the Wannigan and long enough to just cover the inwales to allow the top of the planking, ribs and outwales to show. Two ¾" x ¾" straps are fastened to the underside of the top using screws (holes to be plugged) so the top stays centered over the wannigan.

Finish

Sand all surfaces and clean everything with a tack cloth. Use a top quality, high-gloss canoe varnish to finish the piece.

ALEX McCUBBIN

After 40 years of teaching high school chemistry Alex is now enjoying woodworking, travelling by plane, canoe and automobile. His four-year-old grandson (also Alex) wants to start building wannigans as well.

One of Canada's most skilled furniture makers gathers inspiration for his next piece from some of the most unlikely sources. Here's the inside story.

Designing a 'Whale' of a Desk

BY JOHN WIGGERS

A number of years ago, my daughter was working on a school project about whales. Her writings contained all the standard textbook information, such as "whales are the world's largest mammals, they live in the sea, they eat fish or plankton, and they are endangered."

While doing this, she asked what I knew about whales. I told her that when a whale turns up dead in the St. Lawrence River, its carcass is so contaminated with pollutants that it has to be handled and disposed of as toxic waste. Her eyes went wide as saucers and her whale project evolved along a whole new tangent. The resulting discussions led to a promise that we would take a trip out east the following summer to see some real whales, up close and in the wild.

Right around this same time, I received an invitation from Forest Stewardship Council (FSC) and World Wildlife Fund to build a display piece for the Forest Leadership Forum being held in Atlanta, Georgia. Given that the show was focused on protecting the world's forests, I was challenged to come up with a cool idea for a piece of furniture that was made in a sustainable manner.

Designer's Block

For several months, I wavered about whether to even participate in the show. Quickly, my procrastination turned into a deadline and I was now stuck with the furniture designer's equivalent of writer's block. Nothing clever was manifesting in the way of ideas, although I had concluded that I should make a desk of some kind.

Then one night on television I saw actor Pierce Brosnan, who worked with the FSC, speaking on behalf of saving endangered whales. The connection of Brosnan to both whales and FSC suddenly melded with my idea for a desk, and everything came together in a flash. Grabbing a pencil and a thin piece of cardboard, I scribbled out a quick rendering of what a whale's tail would look like as it breeched. I then cut and taped the pieces together to form a scale model. This model was then scaled into working dimensions, and the building process began.

Building a Whale's Tail

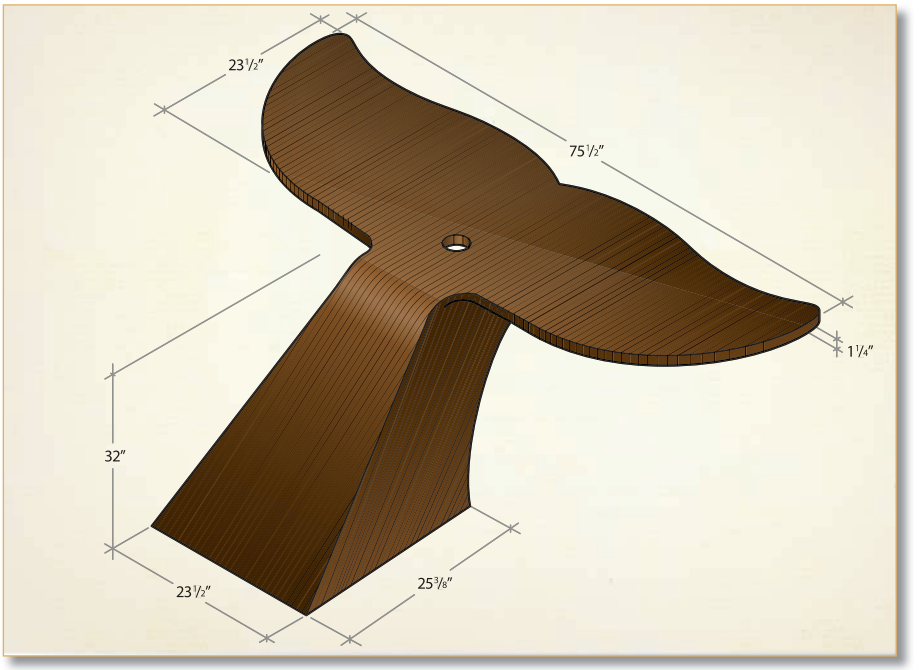
The main face of the torso and tail started as an oversized T-shaped slab of certified 1-¼" veneer core birch ply. Since this T-shape was larger than any available standard sizes of plywood sheet, it was necessary to butt-joint two pieces together to make the fascia portion of the top and lower torso.

To conceal this joint, a diagonal cross-band of maple veneer was applied between the core slab and the macassar ebony face veneer. After roughly cutting the basic shape to size with a jigsaw, this slab was then placed on a sliding table saw to cut relief kerfs into the underside, where the torso would bend to meet the top. The resulting offcuts from cutting the "T" to size were saved for use later to build up the

Photos by John Glos Illustration by: James Provost

The Inspiration – The typical form of a whale's tail as it dives underwater wouldn't bring a desk design to mind for many. Wiggers wanted to make a piece of furniture that would speak to environmental issues, as well create a striking piece of furniture. (Photo by dreamstime.com)

A Quick Mock-Up – As soon as Wiggers had the idea to build a desk in the form of a whale's tail, he immediately built a cardboard and masking tape mock-up to fine-tune the design. (Photo by John Wiggers)



apron on the leading edge of the tail. I then crafted a pair of plywood side gables from the same veneered 1 ¼" birch plywood, and made notched tabs that would allow these sides to extend underneath the top for support. The leading edge in front of the tabs were then mitred on the sliding table saw, to align with similar mitres that were also cut on the vertical torso portion of the T-shaped slab. Rabbets were then cut into the bottom edge of the side gables to receive a 1" thick plywood floor.

The mitres were then glued and joined on a bench, with an internal spline added for strength. While the glue was setting up the plywood floor was glued in place. Once dry, the leading edge of the tail was built up with the 1 ¼" thick plywood off-cuts saved from earlier. The purpose of this thicker apron was to provide both strength and aesthetic symmetry to the desk. This plywood was then sculpted by hand to create a soft, tapering edge around the perimeter.

Because of the imbalance of this cantilevered design, it was not possible to counterbalance the desk so it could support itself. Therefore, the structure was engineered to be secured to the floor using lag bolts.

Loose voids and chips in the plywood edge were filled with fibreglass putty before all surfaces were sanded smooth. After a thorough sanding all external surfaces were finished in multiple layers of high gloss low-VOC polyurethane finish to seal the grain and give a glossy, wet look, to simulate the effect of a wet whale rising from the water. The exposed edges of ply, underside of top and inside of torso were stained jet black and finish coated in black tinted polyurethane.

The finished whale tail desk was displayed alongside a custom credenza that was also crafted from the same flitch of Macassar Ebony veneer. Both pieces have since become part of a private collection in Moscow.

See the Inspiration

Later that summer, I kept my promise to my daughter by taking her east to the island of Grand Manan to go on a whale-watching tour. We were fortunate to have near-perfect weather conditions as we rode a lobster boat out into the Bay of Fundy to an area where whales traditionally feed. After a bitterly cold two-hour ride, the boat's captain spotted a pod of six or eight whales on the horizon. He slowly eased to within about one kilometre of where they were, and shut off his engine. Now we had to wait, with cameras ready, scanning the horizon in anticipation of the whales coming to the surface. We didn't know when or where these creatures might appear.

Given the unpredictability of the whales, I was snapping through an incredible amount of film in the vain hope that one of these shots might yield an amazing photo. At one point, I stepped back to change film when the most magical thing happened. Unbeknownst to any of us, a huge humpback whale had quietly surfaced behind the boat. As I busied myself with changing my film, an odd feeling suddenly came over me. Casting a sidelong glance over the stern, I found myself looking – no more than 10 feet away – right into one of eyes of this massive creature. The feeling of being small and powerless was overwhelming. Humpbacks can grow to a size of 40 tons, and if he wanted to, this whale could have easily flipped our tiny boat like a cork in the water. But this was not how things unfolded.

With everyone now gathered at the stern, the whale slowly raised the top

The Final Result – The desk, along with a credenza, ready for display at the Forest Leadership Forum in Atlanta, Georgia.

of his bumpy head out of the water, as if to confirm with his own eyes that we were all watching. He then exhaled a huge, bushy spout of misty air and emitted a sound not unlike that of an elephant's trumpet. And let me tell you that after a lifetime of eating seafood, that fellow could definitely have used a breath mint.

But the best was yet to come, as this whale seized the proverbial stage to ham it up for our cameras. It was a most amazing few minutes of time, during which this wild mammal – of its own accord – decided to approach our boat in a manner that gave us both the time and the angles necessary to take some absolutely incredible photographs. At some points, it almost seemed as if the whale was posing for some of the shots. On our long ride back to the harbour, I considered what might have motivated such an untamed creature to behave in this manner. I know that whales are highly intelligent, so on some instinctual level this mammal would probably know that the greatest threats to its survival (pollution, collisions with ships, entanglement in fishing nets, and slaughter by commercial industry) all come from humans.

In spite of this, this whale took an incredible risk to reach out and connect with us.

Perhaps, deep down, it was because this whale also realizes that as much power as man has to destroy, man also has the power to change – and to protect. And maybe through connecting with us, this whale is also trying to secure his own future survival by sharing with us that feeling of oneness with him. Life finds a way, and we should never underestimate the magic at work in nature.

JOHN WIGGERS
jwiggers@wiggersfurniture.com

John is chief cook, bottle washer and head sommelier at his shop in Port Perry, Ontario. When not in his studio he's either blogging or musing about being in his studio.

The dovetail is a time-honoured joint that's admired for its strength and beauty. There's only one problem – it can be very challenging to cut by hand. Enter the modern-day dovetail jig, which machines tails and pins with speed, ease and accuracy. There are six general styles to choose from, so learn the ins and outs before making any purchases.

Dovetail Router Jigs

BY MARK SALUSBURY

A well-made jig is a real friend in any shop. Once it's set and snugged, it guides you to perform accurate, precision cuts; achieving predictable results easily and enjoyably, while yielding projects you can be proud of.

One of the most recognized and respected features of fine woodwork, the dovetail joint denotes skill, quality, strength and attention to detail. Here, I'll discuss the layout and features of six dovetail jig designs to reveal the scope and value of each. Within those six designs are two main categories – fixed finger and variable finger jigs. Variable spacing jigs allow lots of flexibility in terms of how far apart each dovetail is.

With dovetail jigs, "you get what you pay for" refers mostly to features and versatility rather than value; all seem to offer good bang for your buck.

Before getting into the specifics of each jig, you should ask yourself a few questions to help select the best jig for you:

- **What's your budget?**
- **Are you willing to size your work to suit the jig or do you want the freedom to size and space your joinery as you wish?**
- **How wide are the panels you want to create?**
- **How many styles of joints will you want to make?**

Photo by: Rob Brown Product photos supplied by manufacturers

Fixed-Finger Jigs

First let's discuss "fixed-finger" jigs. Based on the decades-old "box" or "finger" joint jig, which required a straight router bit, the original "dovetail" jig was created from the same jig by substituting the straight bit with a dovetail bit. Both decorative joints offer a lot of glue surface, precise alignment and mechanical strength.

Today's refined "fixed-finger" jigs offer welcomed improvements over the original designs to produce half-blind dovetail joint styles only (Lee Valley's model being the one exception), plus "box" joints if used with a straight bit.

All the jigs I evaluated here require you to size your project parts to suit the jigs finger spacing; generally at 1" width increments plus ¼" (1 ¼", 2 ¼", 3 ¼", etc.) to yield half pins at each side of the joint. All jigs arrived 99 percent assembled, ready for setup and use. All are of painted, stamped steel and Nylon construction with solid aluminum guide templates (-¼" thick) yielding ½" joint spacing. All employ single-lever cam clamps top and front to hold your stock in place during routing and require a ¼" router or ½" router with reducer collet. All accept stock up to 1 ¼" thick and 12" wide, but in reality the thickness you can work will be governed by the depth of the dovetail bit and confined to an 11 ½" working width.

Fixed Finger Basic

A single adjustment sets the upper stock thickness plus guide template elevation, offering quicker setup than other jigs.

1

Busy Bee Tools Craftex model CT 052, $79

Includes a 16-page English manual outlining making half-blind joints for boxes and drawer backs plus flush-offset and rabetted half-blind joints for drawer fronts. An optional kit includes the required ¼" shank bits and companion guide bushing set. Busy Bee offers an excellent "online" instructional video for step-by-step visual guidance plus in-store support and available accessories. Also available in a 24" wide model. **busybeetools.com**

King Canada model K 2796, $79

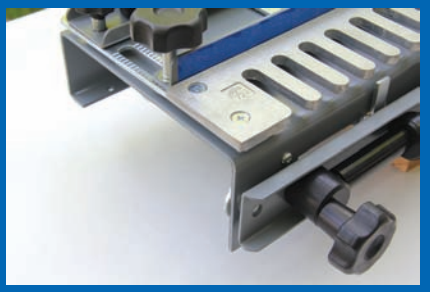
Comes complete with an eight-page English/French manual outlining the jig and its operation with router bits – guide bushings and a 12mm wrench, which must be sourced separately. I found the semi-gloss and textured paint finish offered excellent grip when securing stock. The stamped guide template wasn't as refined or precise as the machined guides provided with other jigs, but the large adjustment knobs on this model are welcomed and very user-friendly compared to those on similar jigs.

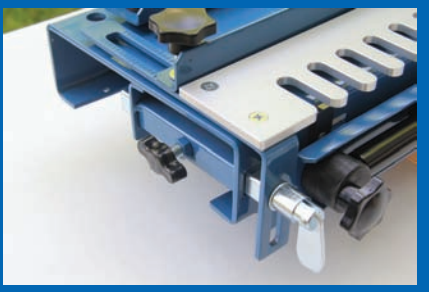
King Canada offers optional $^{7}/_{16}$" and $^{9}/_{16}$" guide templates to accessorize the ½" guide supplied, and sells through dealers nationally. **kingcanada.com**

Fixed Finger Standard

Separate adjustments for upper stock thickness and guide template elevation, offers noticeably improved rigidity for improved, repeatable precision.

2





Photos by Rob Brown

More Flexibility – Seen as an improvement over "fixed finger basic" (left), "standard" jigs (right) feature separate adjustments and locking devices for stock thickness and template elevation, offering stronger assembly, more rigid setups and repeatable precision.

Busy Bee Tools Craftex CT 052N, $99

With virtually the same fit and finish as their CT 052 (see "fixed finger basic"), this new model functions the same as the others of this design for a more rigid setup. It comes almost ready to use but requiring a dovetail and/or straight bit and router guide bushing, available separately, to make ½" half-blind dovetails and/or finger joints. **busybeetools.com**

General International 40-010, $99

Includes a concise seven-page English/French manual describing jig setup and use plus listing the required ¼" shank router bits and guide bushings, which must be bought separately. There's also a wider 24" version for making cabinetry, boxes and drawers and optional 5/16", 7/16" and 9/16" guide templates to expand each jig's versatility. Accessories and product support are available through dealers across Canada. **general.ca**

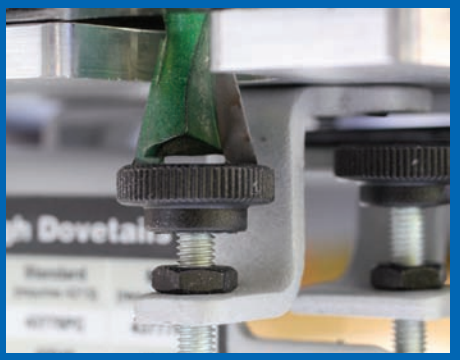
Lee Valley 86N80.10, $129

This new, refined, powder-coated jig arrives fully kitted and ready for use right out of the box; a change from all other jigs in this "fixed-finger" category. Requiring a ½" router for use, included are a ½" finger guide template, an 8° dovetail template, dovetail (2) and straight (1) router bits (all heavier 8mm shanks), an 8mm-½" router collet adaptor and a router guide bushing set. The detailed six-page English/French manual describes the making of both half-blind and through dovetails, making this the most versatile jig purchase in this group. **leevalley.com**

Fixed Finger Professional

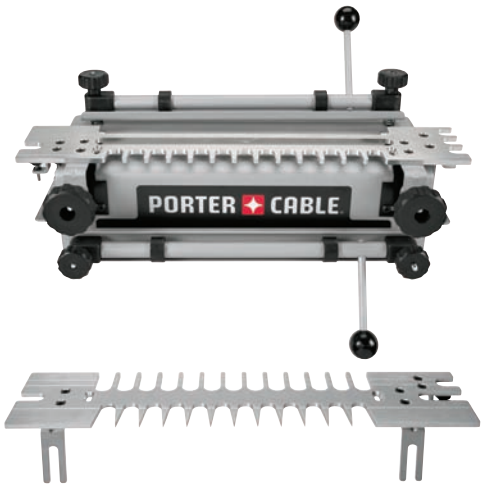
With integrated setup gauges and a full kit, this readily creates three styles of dovetail joints.

3



Lots of Extras – The Porter Cable 4212 offers integrated router bit height gauges, as well as a host of other helpful extras to assist the user.

Photo by Rob Brown



Porter Cable 4212, $249

This high-quality model kicks the "fixed finger" game up several notches in ways that really count. Instantly, there's no fence to set up and align. Instead, the guide templates themselves assure prefect joint depth and alignment in one setup. Included are two +¼" thick guide templates to produce through, half-blind, plus sliding dovetails. For use with a ½" router only, the jig arrives with dovetail and straight bits, two guide bushing sets and a hex wrench for stop adjustments. The clear, informative 79-page manual describes all aspects of the jig and its potential. Scintered steel surfaces, friction strips and single lever cam-clamps provide solid stock clamping. Large, user-friendly adjustment knobs, concise applied menus showing each operation and integrated router bit setup gauges make this jig fast, easy and enjoyable to use.

Available in 10", 12" and 16" widths with ample optional kits and accessories to expand on each jigs "base" capabilities, Porter Cable also offers extensive online support, many instructional videos and dealers across Canada. **portercable.com**

Fixed Finger Infinite Width

4

Three sizes of "through" dovetails and "box" joints can be cut in infinite widths by hand-held or table-mounted router.

The Wider The Better – Probably the biggest advantage in using the Leigh R9 jig is that infinite panel widths are possible. For someone who regularly joins larger panels, this is a serious plus.

Leigh Industries R9 Plus, $169

In a total departure from all other "fixed-finger" jigs, this new offering from Leigh is unique for those who need "outside the box" width capacity. It includes a fully illustrated 76-page manual (38 pages in both English and French) details all aspects of using this jig with either ½" hand-held or table-mounted router. Also included are 8mm shank dovetail and straight bits with adaptor collet, Leigh's unique adjustable router guide bushing set and the hardware required to marry the -3/8" thick template guide to a shop-made wooden beam of a whatever length suits your needs. You can produce joinery up to 18" long in one pass, easily extendable to wider project widths in 10" increments with no further investment, no stops to set, no fences and no adjustments during use. Precision CNC machined from solid anodized aluminum, the jig offers pin/tail spacing of ¾" or 1 ½" in stock from ½" – 13/16" thick; simply choose the spacing that's most suitable.

Leigh Industries has many accessory bits and guide bushings to extend the range of possible joint sizes, offers a 1-800 phone line, excellent online support plus a video demonstrating the features of this unique dovetailing solution. Leigh products are available factory direct and/or through select dealers. **leighjigs.com**

Variable Spaced Finger Jigs

Over 30 years ago, Leigh Industries introduced their "variable-finger" dovetail jig design, permitting users to tailor the jig to suit the material width; very important if you're making custom joinery, working from measured plans or building accurate reproductions. This design allowed for the making of through, variable spaced half-blind, single pass half-blind, rabbeted half-blind, asymmetric and sliding dovetail joints plus "box" joints.

Fast forward to today and this style of jig is not only wonderfully capable as delivered, it's also an amazingly versatile foundation, capable of creating a host of joints in a variety of sizes and spacings using readily available accessory cutters and guides. Each jig of this design can easily be tuned to suit your wood width, preferred pin/tail spacing and length plus the tightness of joint fit, accommodating both hard and soft woods. Each requires a ½" router (adjustable speed an asset). Both these Leigh jigs are quality constructed from extruded aluminum, high-strength Nylon and precision metal castings and feature a proven, infinitely adjustable finger guide with -½" thick finger elements. One major advantage these Leigh jigs have over others is their ability to accept Leigh's oh-so-slick VRS "Vacuum & Router Support", doubling support for the router and providing for dust collection, assuring no-fuss, exacting cutting while keeping your work environment clean and breathable. Five-year warranty coverage is included and Leigh has an extensive online presence including demo videos, provides a dedicated customer support team and sells direct plus through a knowledgeable dealer network worldwide.

Variable Finger Professional

Adjustable pin/tail spacing, many joint styles and type possibilities plus industrial quality offer longevity and an artisan look to your joinery.

5

They Look Hand-Cut – Having the option of adjusting pin and tail spacing goes a long way towards disguising machine-made dovetail joints as hand-cut. This, along with the ability to machine multiple joint types and style, makes these Leigh offerings much more attractive to some high-end users.

Leigh Super Jig 12" ($289), 18" ($399) and 24" ($489)

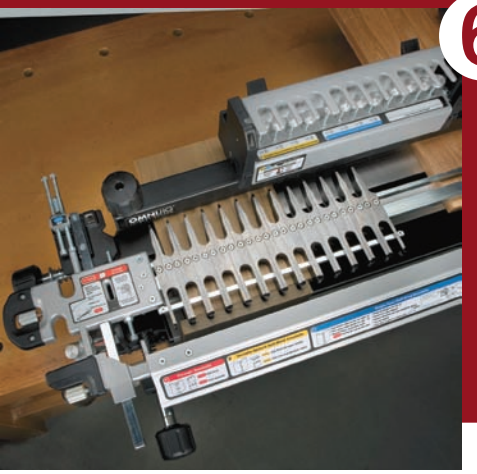
The Leigh "Super Jig" is available in three widths to suit your needs in making boxes, drawers or full-sized cabinetry in stock thicknesses up to 1". Its 77-page manual plus companion DVD walk you through the assembly, understanding, setup and operation of all aspects of the jig and the range of joinery it's capable of producing; very important considering the jig's diverse capabilities. The "Super" series are built from a two-piece aluminum extrusion with glass reinforced nylon end-caps and have adjustable bolt-on side stops and applied non-slip strips on the clamping areas. Included are three 8mm shank router bits (two dovetail and one straight), an 8mm – ½" collet adapter and a square-head (Robertson) guide-finger screwdriver. All operations are graphically supported on the jig components with finely marked, colour-coded menus plus a quick reference pullout card to make every setup fast and easy. Applied friction strips on the clamping surfaces and individual left and right cam locks perform quickly, easily and firmly to hold stock solidly. **leighjigs.com**

Leigh D4R Pro 24, $579

Leigh's "D4R Pro 24" is its latest engineered, variable-spaced jig. Similar in design, execution and supplied accessories to the Super series, the D4R Pro is available only in a 24" capacity, is constructed from a single machined aluminum extrusion with cast metal end-caps, has CNC machined side-stops and durable machine-textured clamping surfaces and is priced at $579.00. The D4R Pro handles project components up to 1 ½" thick. Right out of the box the DR4 Pro can produce a couple more joint forms than the Super series and with the many optional templates and router bits available uniquely for this jig, the potential sizes and styles of joinery it's capable of (even multiple mortise and tenon joints) make this the most versatile of jigs. The 86-page illustrated manual and companion DVD explains every facet of the jig and the joinery it makes, so while this jig is fairly complex at first glance, by isolating each function it's easy to understand and master. **leighjigs.com**

Variable Finger Industrial

This jig system boasts robust construction, quality parts and integrated user-friendly gauges for longevity, no-fuss setup and artisan output.



Colour-Coded – The Porter Cable OmniJig can do just about anything you can imagine. Because of its capabilities, the OmniJig's engineers added colour-coding to guide the user through the process of setting up the router and jig for many of the possible operations.

Porter Cable OmniJig, $799

Porter Cable takes the dovetail jig to a "gentle giant" level with its Omnijig. Everything about this jig says solid, precise, no-fuss output. Available also in a 16" version, the 24" I evaluated came out of the box almost fully assembled and weighing +70 lbs. (Leigh's D4R Pro is just over 20 lbs. by comparison.) Made from solid machined cast aluminum, it has large textured knobs for setup. Knurled steel knobs secure the finger template assembly (¾" thick finger elements) and router support (supplied standard) and quick-insert depth stop sets. Large offset, rubber gripped, single-lever clamps (top and front) secure work firmly against broad machined-textured clamping surfaces. In use, each possible joint style is colour-coded for quick identification on the finger template, factory-set/user-adjustable depth stop sets, factory-set/user-adjustable router bit depth gauge and the quick reference "dovetail setup guide"; simply decide on the style of joint to be made and the setup guide shows you the router bit, depth stop and router guide to suit your stock thickness. Supplied with a 70-page illustrated manual (one each in English, French and Spanish) plus instructional DVD, the jig arrives ready for quick setup, easy understanding and little if any measuring. Also included are ½" shank dovetail and straight bits (one each), seven sizes of router guide bushings, plus a wrench and screwdriver for fine-tuning. Alone, it makes eight styles of dovetail joints. By adding a small selection of available accessories, the list of joint style possibilities more than doubles. A robust, user-friendly dust collection shroud is also available to enhance your routing experience. Porter Cable back up the Omnijig with a three-year warranty, comprehensive online support and several entertaining instructional videos.
portercable.com

Round-up

Like most things in life, you mostly get what you pay for. If you only need a jig for joinery basics, there's a jig for that and the price is right. The more capabilities or versatility you require, there's a jig or "joinery system" to suit at an in-line price. Because we're comparing apples, oranges and pears here, it's hard to offer awards in the usual way. So … for "Best Value" I like Lee Valley's entry for a refined, complete and well supported kit offering the most used joints right out-of-the-box. For thinking outside the box, "Most Innovative Design" has to be Leigh Industries' R9 Plus. The "Most Versatile System" award belongs to Leigh Industries' DR4 Pro for its instant and long-term potential, amazing range of available templates/profiles/sizes and after-purchase support. Lastly, I send out my "Hardest-To-Send-Back"/"Most User-Friendly" award to Porter Cable, whose concepts, designs, features, online videos and after purchase support make both of its jigs and joint systems exciting and fun.

MARK SALUSBURY
mark@salusburystudios.ca

Whether it is joinery or turnery, Mark has enjoyed designing and making furniture, decorative and functional items and home remodeling ... anything to do with woodworking, for over 35 years.

A Small Bathroom Repair

BY DON WILKINSON

Since moving to B.C. last year, my situation has changed somewhat from the happy-go-lucky woodworker I used to be. I'm a slumlord now! My wife and I bought a duplex in a lumber town about a two-hour drive away from where we live in B.C. We bought the building so that we wouldn't have to work any more. The rentals pay for the mortgage on the duplex, as well as on our house. Sweet deal! I highly recommend it. The only problem we've noticed is that the rents don't quite cover repairs, and as all homeowners know, a house always needs repairs. A duplex, therefore, by its very nature and status, needs double the number of repairs. (Duplex: A Latin noun meaning double the damage, double the expense.)

Anyway, we recently had a tenant move out of one of our apartments: a nice young lady who was about to have a baby and whose doctor recommended she and her new baby not stay in a house that had a little mold in the bathroom, slowly growing down the hall and heading towards the kitchen. I said she was nice. I never said she was a great house cleaner.

After she moved out, we went to see if we needed to do something about the mold problem before we rented the place to someone else. We may be slumlords but we're conscientious slumlords. Mainly we're conscientious about the liability laws.

The house was in relatively decent shape other than the aforementioned mold problem, which we assumed could be easily dealt with using a weed-whacker and the judicial application of a good fungicide, a drum of germicide and possibly some homicide. The latter applied to the realtor who had recommended we buy the building in the first place.

A more complete survey of the problem indicated that the entire job could be very simply remedied in an hour or two for about seven dollars worth of bleach and a scrub brush. But as every homeowner or landlord of any persuasion knows, there is no such thing as a simple repair job. A case in point is the recent repairs to the Bolshoi Theatre in Moscow. That simple reno job took three years longer than allotted for and came in over budget to the tune of a little more than one billion dollars. I had been hoping to keep things a little lower than that, but if the Russians can't manage to do things right, what possible chance would I have?

As you may imagine, it was with some trepidation I began the job of repairing the bathroom. I carefully peeled away the fuzzy, greenish-black caulking around the tub that was supposed to have kept the water from damaging the wallboard. It looked as if the caulking had been applied using a trowel of some sort, possibly one normally used for levelling a very large cement floor such as a gymnasium or curling rink. Maybe a short section of interstate highway.

Once the caulking was removed, I was better able to judge the state the wallboard and tub were in, what I could find of it under the mold. It wasn't good. Not pretty at all, in fact. Water seeping through the rust holes in the tub had rotted every nail in every stud to the diameter of straight pins. At least in the studs that still remained. I knew I could easily deal with the places in the wall I could push my finger through, but when I slipped and fell against the wall and ended up on the floor of the closet in the bedroom next door, it became fairly apparent that my simple plans for a quick cleanup and an application of fresh caulking wasn't quite going to cut it.

I hit Mike Holmes' number on my speed-dial but hung up before he could answer. I knew I needed someone better. Or at least someone better dressed. No! This was one job I needed to handle on my own.

(To be continued. Probably forever)

DON WILKINSON
YukonWilk@gmail.com

Don has added yet another career to his somewhat disjointed life by becoming a self-confessed slumlord and semi-successful home handyman. He's hoping this endeavour will be a little less disastrous than some of his others.

Illustration by: Mike Del Rizzo

LAGUNA

14" BANDSAW AWARDS:

- **2011** Wood Magazine Overall Best - Editor's Choice
- **2011** Fine Woodworking - Reader's Choice
- **2008** Fine Woodworking and Fine Homebuilding Best Overall - Editor's Choice
- **2008** 3LUXE Simply find the best of everything - "BEST OF" SELECTIONS
- **2007** Fine Woodworking and Fine Homebuilding Best Overall - Editor's Choice
- **2005** Woodworking and Fine Homebuilding Best Overall - Editor's Choice
- **2005** Fine Woodworking and Fine Homebuilding - Reader's Choice
- **2004** Fine Woodworking and Fine Homebuilding - Reader's Choice
- **2004** Fine Woodworking and Fine Homebuilding Best Overall - Editor's Choice
- **2003** Wood Magazine features LT 14 in Idea Shop#5
- **2002** Woodworkers Journal Tools that Endure Award

LIKE US ON FACEBOOK

CANADIAN WOODWORKER
SURREY BC
604.574.1010

CANADIAN WOODWORKER
EDMONTON AB
780.702.3000

CANADIAN WOODWORKER
CALGARY AB
403.255.8743

CANADIAN WOODWORKER
WINNIPEG MB
204.786.3196

ATLAS MACHINERY
TORONTO ONT
416.598.3553

OTTAWA FASTENER
OTTAWA ONT
613.828.4117

FEDERATED TOOL
LONDON ONT
519.451.0100

BRETTWOOD MACHINERY
MADOC ONT
613.473.4122

SUMMIT TOOLS
SAINT–JEROME QC
450.592.0747

ELITE TOOLS
LEVIS QC
418.830.0124

PIERRE BERGER
LA PRAIRIE QC
450.444.3882

CHAS GENTMANTEL & SONS
MONTRÈAL QC
514.388.4060

CANADIAN WOODWORKER
SASKATOON SK
306.979.4000

RIDEOUT TOOL
DARTMOUTH NS
902.468.2060

RIDEOUT TOOL
CORNER BROOK NL
709.634.3294

RIDEOUT TOOL
ST. JOHN'S NL
709.754.2240

FOR MORE INFORMATION ON CANADIAN DEALERS, VISIT US AT

LAGUNATOOLS.COM

C US

WE'VE GOT YOUR LUMBER.

...and a whole lot more.

Whether your latest project is finishing your basement or some other home renovation, Home has more than 1000 locations that carry an exceptional selection of tools, paint and other essential supplies. More than 500 Home stores carry lumber, building materials and project plans to help you every step of the way. Visit **www.homehardware.ca** for our complete selection.

Home hardware building centre

Home hardware

Home Owners helping **homeowners**®