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JUNE/JULY 2005 Issue # 36

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PUBLISHERS
Paul Fulcher, Linda Fulcher

EDITOR
Carl Duguay

WRITERS
Jack Chaters, David Bruce Johnson, Michael Kampen, Laura Morris, Danny Proulx, J.P. Rapattoni, Paul Ross, Luc Rousseau, H.C. Sakman, Jim Shaver, Clive B. Smith, Michel Theriault, Hendrik Varju, David Voth

PROOF READER
Robert E. Johns

PRODUCTION
Linda Boudry

GRAPHIC DESIGNER
Cindy Givens

SUBSCRIPTIONS
Maureen Fulcher
1-800-204-1773

ADVERTISING
(519) 449-2444

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CANADIAN WOODWORKING
RR#3 BURFORD, ON N0E 1A0
Email: circdept@canadianwoodworking.com

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

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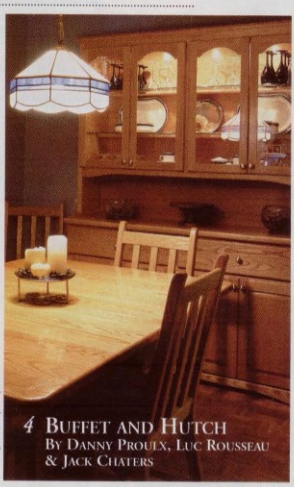

Cover photo by Ray Pilon

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Departments

Linda Fulcher

I was inspired by this issue's "The Soul of Woodworking", by Clive B. Smith.

I don't want to give too much of the article away, but I do want to touch on the writer's thoughts about being focused. Mr. Smith points out how working with tools and machines requires a great deal of focus.

I was reflecting on such points as I was raking the lawn the other day. I realized that it is easier to maintain focus when there is danger, or something interesting to do.

In my case (as the lawn stretched out in front of me) I started wondering "how does one maintain focus when the task seems endless or uninteresting?"

Perhaps you encounter this in woodworking when you are hand sanding, or rubbing in a finish. There may be a lot of repetitive action required, and the completion of the project may feel like it is on the other side of a lot of work.

What I realized is that I am better able to maintain my attention by narrowing my focus. Rather than thinking of raking the entire lawn, I began to focus on the specific area that I was raking. The size of the rake (and the range of motion I have the strength for) meant about one square foot.

I thought to myself: "What if this square foot of grass was the only grass that I had to rake?"

I no longer felt the pressure of completing the larger task. I also became aware of the effects of my efforts on this one small area. I started doing a more thorough job and actually enjoyed doing the job more.

Well, I hope that you, too, are inspired by, "The Soul of Woodworking". If it could help me rake the grass, just imagine what it will do for your woodworking!

Paul Fulcher

Over the last week or so, I couldn't help but reflect on the pleasure that I derive from focusing on a single task.

I started contemplating the benefits of focused attention after reading Clive Smith's insightful article on 'The Soul of Woodworking' (page 27). Clive speaks of woodworking, but his vision can be applied to many areas of life.

I hope that you take the time to read what he says. The sooner you do, the sooner you will be enjoying your woodworking even more!

Big oversight on 'Miniatures':

I was so enthusiastic about the photos and layout of our last issues's 'Miniature' article, I inadvertently neglected to include credit to Ken Manning as the craftsman who produced the musical instruments in that article (including the violin on the cover). It was a big oversight because it was Ken who inspired the article in the first place.

In the illustration for the "Wooden Floor Vents" article (issue 35), the measurement at the base of the floor vent template should have been 11 1/4" (not 11"). Also, on the right of the bottom vent slot, the measurement should be 1 1/8" and not 1".

A very special thank-you to Gale Proulx, Jack Chaters, and Luc Rousseau for contributing this issue's Buffet and Hutch (page 4).

Danny started our three-part 'dining room series' with a beautiful expandable dining room table (issue #34). Before the series was complete, Danny passed away. His good friend, student and associate Luc Rosseau picked up the series, and contributed the dining room chairs, to match Danny's dinning room table (issue #35). Now, with the help of Danny's father-in-law Jack Chaters, Luc presents the final piece, the buffet and hutch.

It was an honour to be a part of this tribute to Danny.

lettersto

Paul and Linda

I am sending you a photo of the cd cabinet that I made (designed by Danny Proulx and featured in the Dec/Jan '05 issue).

I have done a few woodworking projects before, but this was the first piece I've done for someone else. I gave it to my favourite brother-in-law for Christmas, and he loves it!

Keep up the good work.

Larry U.
Paris, ON

Paul

Thanks for updating the info for the Ottawa Woodworkers Association (on your website's listing of Canadian Woodworking Clubs). Our name change was actually suggested by a mutual friend of ours - Danny Proulx... He reasoned "association" would garner a bit more respect than "club".

He certainly knew a thing or two about respect, and I think he was right. Danny had a big influence on what the OWA is all about, and we all miss him lots.

Thanks for continuing to feature his projects and teachings in your magazine... that's what Danny was all about.

Cheers,
Chris V.

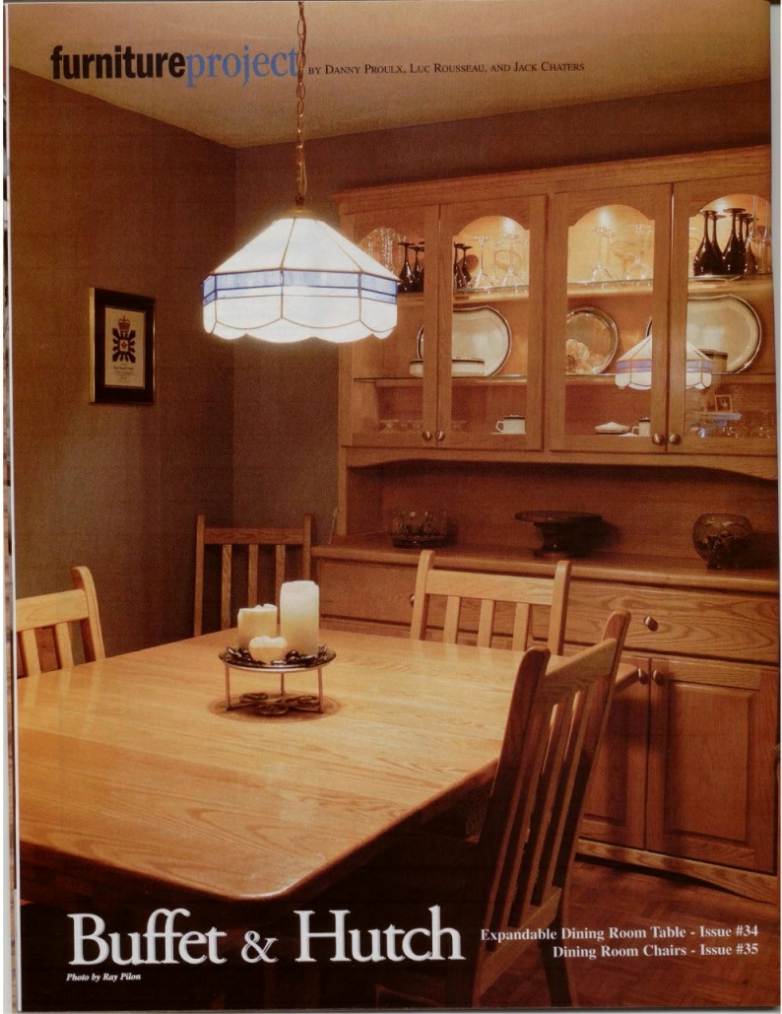
Hi Paul,

I especially enjoy articles that show/teach practical applications. Any plan that can produce something useful is welcome, especially those that involve using scrap wood. To that end, here is a photo of a tool tote that I made from Danny Proulx's project (Oct/Nov 2004)

Steve M, Ottawa, ON

continued on page 37

furnitureproject BY DANNY PROULX, LUC ROUSSEAU, AND JACK CHATERS



Buffet & Hutch

Expandable Dining Room Table - Issue #34
Dining Room Chairs - Issue #35

Photo by Ray Pilon

This is the third project of a three part series for your dining room. In Issue #34 of Canadian Woodworking we showed you how to build the dining room table, and in Issue #35 we detailed the step-by-step construction of the chairs. We now complete this dining room set with a buffet and hutch.

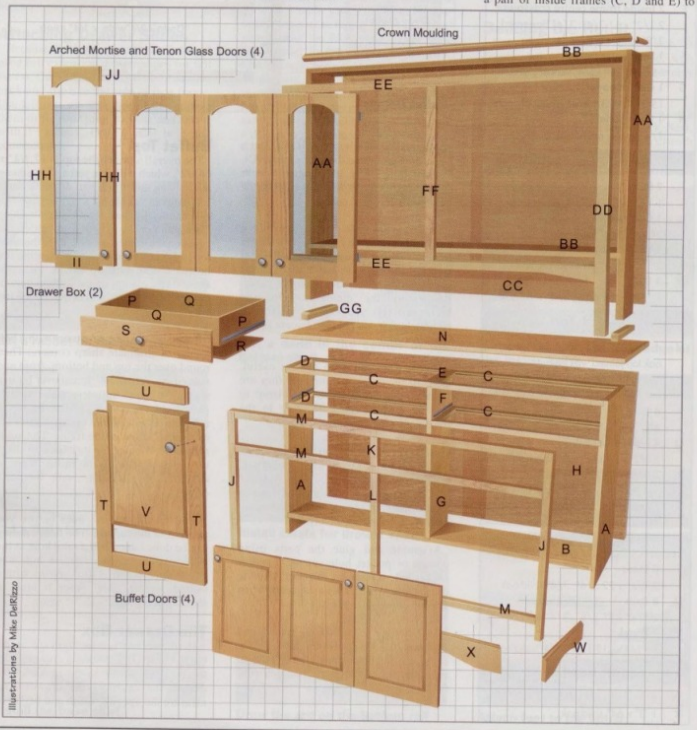
Once again we are using solid oak and oak veneer plywood for the project. You can use a different wood species and make changes to the dimensions of the buffet and hutch to suit the overall style of your dining room.

The carcase requires the most attention because it's assembled using dadoes and rabbets. The face frame is assembled using pocket hole screws and the doors using mortise and tenon joinery. The lower doors have a solid oak raised panel and the upper doors have 3mm glass inserts. We finished this project with three coats of oil-based polyurethane, sanding with 200-grit paper between each coat.

Building the Buffet

Begin by cutting two side panels (A) and mark them left and right. Then cut a 1/4" x 3/8" rabbet on the inside back of each panel. Next cut 3 dadoes, 3/4" x 3/8" on the inside faces of the panels. Follow the illustration for the cut locations on all the other parts. There is always a slight difference in thickness of veneer ply core, set the dado accordingly for a tight fit.

Cut the bottom shelf (B) and make a 3/4" x 1/4" dado in the center. You need to build a pair of inside frames (C, D and E) to



Illustrations by Mike DelRizzo

CUT LIST - Buffet Carcase

A	2	Side panels 16" x 34 3/4", 3/4" veneer ply-core
B	1	Bottom shelf 15 3/4" x 61 3/4", 3/4" veneer ply-core
C	4	Inside frame 2 1/2" x 61 3/4", 3/4" basswood, 3/8" groove on inside edge
D	4	Inside frame crosspiece 2 1/2" x 11 3/4", 3/4" basswood, 3/8" tongue both ends
E	2	Inside frame centre crosspiece 2 1/2" x 11 3/4", 3/4" basswood, 3/8" tongue both ends
F	1	Top centre panel 15 3/4" x 7", 3/4" veneer ply-core
G	1	Centre panel 15 3/4" x 23", 3/4" veneer ply-core
H	1	Back panel 1/4" veneer particle core

Buffet Face Frame

J	2	Stiles 1 1/2" x 34 3/4", 3/4" solid oak
K	1	Centre stile 2" x 6", 3/4" solid oak
L	1	Lower centre stile 2" x 21 3/4", 3/4" solid oak
M	3	Rails 1 1/2 " x 59 1/2", 3/4" solid oak

Buffet Top

N	4	4 1/2" x 64 1/2", 1 1/4" solid oak top jointed with biscuits

Buffet Drawers

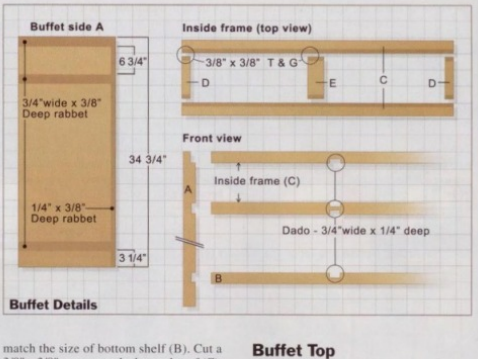
P	4	Sides 4 1/2" x 16", 1/2" Baltic birch ply
Q	4	Front and back 4 1/2" x 26 3/4", 1/2" Baltic birch ply
R	2	Bottom 16" x 27 3/4", 1/2" Baltic birch ply
S	2	Front 7" x 29 3/4", 3/4" solid oak

Buffet Doors

T	8	Stiles 2 1/4" x 22 3/4", 3/4" solid oak
U	8	Rails 2 1/4" x 11 3/8", 3/4" solid oak
V	4	Panel 11 1/4" x 19 1/8", 3/4" solid oak

Buffet Base Skirt

W	2	3" x 17 1/2" solid oak
X	1	3" x 64" solid oak



Buffet Details

match the size of bottom shelf (B). Cut a 3/8" x 3/8" groove on the long edge of (C). Cut matching 3/8" x 3/8" tongues at both ends of the 6 rails (D and E). Assemble the frame with glue brad nail.

Cut a dado 3/4" x 1/4" in the center of the top inside frame and the middle inside frame to fit the dividers (F and G). Cut parts (F) and (G) to size and dry fit all the parts of the carcase and clamp in place. Re-measure the dimensions for the backboard (H) and cut the backboard accurately as it will hold the carcase square when installed.

This is where an extra hand is useful. Glue all the parts, making sure they are flush at the front. Raise the clamp to provide enough space to slide in the backboard and tack it in place.

Buffet Face Frame

The face frame is made of 3/4" solid oak. Cut the parts for the face frame (J, K, L and M). At this point it is a good idea to re-measure your carcase to ensure that the face frame will fit accurately.

Assemble and glue the parts using dowels or pocket hole screws. I prefer pocket hole screws for this part. Use the center stiles (K and L) as spacers when screwing the rails to the stiles.

Glue the face frame onto the carcase and secure with 2 1/2" finishing nails. Set the nails with a nail punch and fill all the nail holes with coloured putty to match your finish.

Buffet Top

The overall size for the top is 17 3/4" x 64 1/2", which will give you a 1" overhang at the front and sides. Cut 4 lengths of 1 1/4" thick material (N). Put them side-by-side and try to alternate the growth rings. Then number the boards and square the edges on the jointer. As we did for the table top in Issue #34, use biscuits to align the boards during glue-up. Make sure you alternate the clamps on the top and bottom every foot or so: this will help keep the top flat.

Round off the 2 front corners with a belt sander to eliminate sharp corners. Then round over the top and bottom, front and side edges, with a 3/8" round over bit in a router. To avoid splinters make several passes with the router. To attach the top to the carcase, drill a series of expanded holes on the top of the inside frame. The holes should be oriented front to back to allow the solid wood top to move when it expands and contracts with humidity changes.

Sand the top on all sides before you attach it to the carcase. The final sanding can be done later. Drill a pilot hole in the center of the expended frame hole and attach the top with 1 1/2" screws with a slotted washer. Don't over tighten; it should just be snug.

The Drawer Box

The drawer box is made from 1/2" Baltic birch. Use16" full extension drawer glides to allow full access to the inside of the drawer. To calculate the drawer size, measure the opening width and height of

the face frame and subtract 1" from each measurement. From the depth measurement subtract 1/2". For this project the drawer opening is 6" high, 28 3/4" wide and 16 1/2" deep, so the finished drawer box size will be 5" high, 27 3/4" wide and 16" deep.

Cut two sides (P) and two fronts and backs (Q), and assemble them with glue and brad nails. Cut the bottom board (R) to size and glue it to the assembly. Then, drill pilot holes into the bottom and fasten it to the drawer box frame with 1 1/4" # 8 screws.

Attaching Drawer Slides

Because the drawers are only 16" deep, I used full extension drawer slides for full access. Cut and install wood cleats straight back and flush to the side of face frame. Use leftover wood for the cleats, cutting them to fit your project. Glue and fasten with 1" screws. Drill a pilot hole and countersink.

Making the Buffet Doors

To calculate the door size when using hidden hinges, add 1" to the height and the width of the door opening and divide the width by two. Our opening is 28 3/4" x 21 3/4" so our two doors will be 14 7/8" x 22 3/4". Cut the stiles and rails to length. Cut a 1/4" x 1/2" groove on one edge of both stiles and rails. Each rail needs a tenon 1/4" x 1/2" on both ends. Use the table saw to cut the center tenons.

You can make the center raised panel using a panel-raising bit on a router table or with a table saw. Glue enough 3/4" boards together to form a 11 1/4" x 19 1/8" panel. Rout the face edges of the solid wood panel so that they are 1/4" thick. Make slow, small cuts to avoid tear out and rough cuts. Sand the center panel and assemble the door. Use small strips of foam in the grooves to avoid rattling. Be sure the center panel is free to move as it will expand and contract with humidity. Glue the tenon and groove joints only, not the panel. Clamp securely making sure the door is square. Use 5/8" brad nail to secure the joint. Finally, round over the 4 sides of the door face with a 3/8" round over router bit.

Install the Base Skirt

Cut and install the base skirt on the front and both sides. The three boards are joined at the corner with 45° mitres. Use glue and 1 1/4" screws from the inside of the cabinets to secure the boards. The top edge of the 3" skirt is decorated with a cove router bit to match existing furniture.

Building the Hutch

Just like the buffet, the hutch is constructed of 3/4" oak plywood, with solid oak face frames, so the assembly steps are similar.

Cut the 2 sides (AA) to size, then cut a 1/4" x 3/8" rabbet on the inside back. Next, cut a 3/4" x 3/8" rabbet at the top of each side and a 3/4" x 3/8" dado at 34" from the

Cut a rabbet on the side panels

Cut a dado in the center of the bottom shelf

Cut a groove on the long edge of the inside frame

Cut a dado for the dividers

Install cleats for drawer slides

Rout the center raised panel

Install the base skirt

Draw the arc on the bottom rail

Attach feet to the hutch

Construction Notes

You can use either wood or glass for the shelves. We used two 6mm tempered glass shelves for the hutch. We also put a 2 1/2" shelf rail at the back with a 3/8" groove for plates. The rail is rabbeted 1/4" x 1/4" to allow the glass shelf to sit flush with the wood rail. It can be fastened from the back of the hutch or with angle brackets.

The final colour, your décor, and the type of wood that you used will determine your finish. We finished the cabinet with 3 coats of oil-based polyurethane and sanded with 220 grit paper between each coat.

Illuminate the cabinet interior with a fluorescent light or any lighting fixture available through hardware stores. We used 3 mm clear glass for the door, but glass with an etched pattern, frosted or even coloured glass can add a nice touch.

CUT LIST - Hutch Carcase

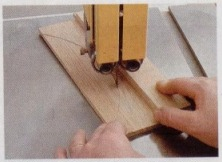
AA	2	Side panels 46 1/2" x 11 1/4", 3/4" oak veneer ply
BB	2	Top and bottom shelves 61 3/4" x 11", 3/4" oak veneer ply
CC	1	Back panel 61 3/4" x 48", 1/4" oak veneer ply
DD	2	Face frame stiles 1 1/2" x 46 1/2", 3/4" solid oak
EE	2	Face frame rails 3 1/4" x 59 1/2", 3/4" solid oak
FF	1	Face frame center stile 2" x 30 3/4", 3/4" solid oak
GG	2	Feet 2" x 13" x 1 1/4", solid oak

Hutch Doors

HH	8	Stiles 2" x 31 3/4", 3/4" solid oak
II	4	Bottom rails 2" x 11 7/8" (10 7/8" shoulder), 3/4" solid oak
JJ	4	Top curved rails 4" x 11 7/8" (10 7/8" shoulder), 3/4" solid oak

Plunge cut the hutch door stiles

Mark out the hutch door arches



Cut the arches on the bandsaw

top of each of the sides. Then cut the top and bottom shelves (BB) to size. Finally, cut the 1/4" back panel (CC) to size. Glue the assembly (AA and BB) together, then square it off by gluing and brad nailing the back panel to the assembly.

Cut the five pieces of the face frame, 2 stiles, 1 centre stile and 2 rails. To create the arch in the bottom rail, mark points that are 2" in from the end of the board, and another point that is 1 1/4" from the bottom and 12" from the end. Bend a thin strip of wood and draw the arc.

Assemble the face frame using dowels or pocket hole joinery with matching oak plugs to hide the screw holes. Glue the face frame on the carcase using biscuit joinery every 6 to 8 inches. Cut 2 pieces of oak 2" x 13" x 1 1/4" for the feet (GG) and round over the top and front edges. Center the 2 feet with the front face frame and secure with 2" screws from underneath the base unit.

The Hutch Doors

The arched mortise and tenon glass doors are made like the square buffet doors. The top rail is wider in order to create the arch. Begin by cutting the stiles 2" x 31 3/4". The rail length will be the width of the door, less the stiles widths, plus the tenons. So our bottom rails will be x 2" x 11 7/8" and the top rail 4" x 11 7/8".

Each stile and rail needs a 1/4" x 1/2" groove, centered on the edge. Create a 1/2" rabbet by cutting the back side of the bottom rail. Keep the small sticks that are created, as they will be used to secure the glass in the door. The stiles are cut the same way, except that we will need to plunge them into the saw blade leaving 1 1/2" of the groove uncut at both ends. This will leave a 1 1/2" mortise at each end of the stile for the rail tenon. To form the arch on the 4" top rail, I used an adjustable yardstick compass. The arc has a 6 1/2" radius. This leaves 2" of wood at the top and around 3/4" on each side of the rail.

Before cutting the top rail arc, form the tenons on both ends. Then, cut the back face to form a rabbet 1/2" deep x 2 1/2" wide. That way, we can use a square piece of glass.

Cut the arch on the band saw, then assemble the door with glue and brad nails. To install the door we used euro hinges with face frame plates. This requires you to drill a 35 mm hole in the frame. Follow the manufacturer specifications for your installation measurements. We used 3mm glass and secured it with the rounded over oak strips we put aside earlier. You can drill the holes for the doorknobs freehand, build a template out of plywood, or use a commercially available drilling guide.

The Crown Moulding

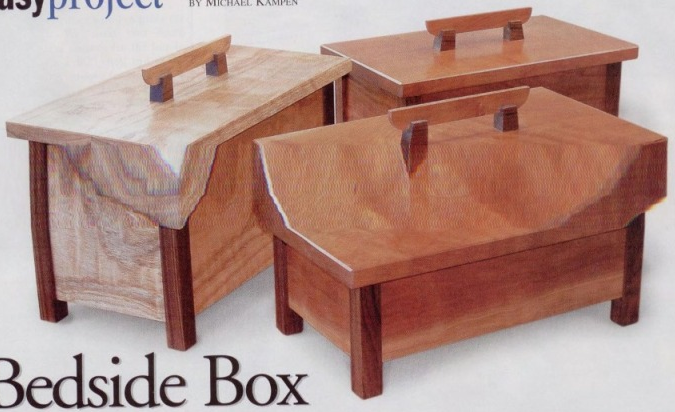
For the top moulding we used a commercial profile available at most lumberyards. One 8' length of moulding will be enough to trim the top. Glue and brad nail the moulding in place. Once the feet and crown moulding are installed we rounded over the outside edge of the stiles with a 3/8" round over bit. The router plate will define the cut distance at the top and bottom.

DANNY PROULX

LUC ROUSSEAU cabinetmaking.com

JACK CHATERS

BY MICHAEL KAMPEN



Bedside Box

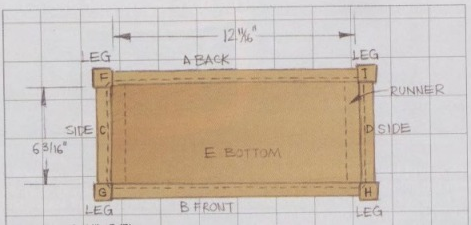
Everyone always has a number of items that gather on the bedside table, such as keys, change, watches, and wallet. Here is a simple, stylish box that will allow you to keep such items close at hand and eliminate clutter at the same time.

When choosing wood for this project, keep in mind that contrasting species will give you the most visually interesting result. The box featured here is a combination of walnut and cherry. All cuts on this project are simple, square 90° cuts, and the project is held together with dowels and glue.

Begin by preparing your stock to the proper thickness (see materials list). There are two different thicknesses of material required. The sides and the top are 3/4", and the legs are just under 1" square. I was fortunate enough to find a nicely figured piece of cherry that was wide enough to make the top from one solid piece. If you can't find material wide enough, you could easily glue it up from narrower pieces.

Mill all of the 3/4" thick parts to the final thickness and then cut the front, back, and sides to the final length and width. Each of these parts require a 1/4" x 1/4" dado the full length of the part to hold the bottom in place. The dadoes can be cut either on a router table or on a table saw. Set these parts aside and prepare the 15/16" x 15/16" stock for the legs. After these have been dimensioned and cut to length, take the time to mark the inside faces of the parts, including the legs. All dowel holes must be referenced from the same edge, if everything is to line up properly later.

Each leg is joined to the sides with three dowels per edge. I designed a special doweling jig to make this easier, but the same thing could be accomplished with a marking gauge and some dowel centers. To make it easier, use the top of your table saw and fence as a reference surface. Once you have drilled the holes for the dowels in the legs and sides, test fit the pieces together with the dowels. Mark notches on the legs where the bottom will sit in. These notches are quite small so they are easily cut with a small saw and cleaned up with a chisel.



Cut the top to size and mill the 1/4" material for the handle and runners (that hold the top in place). To make the stand-offs for the handle, I started with a piece of 3/4" x 1 1/8" walnut, about a foot long. Use a slot cutter on the router table to cut a 1/4" groove centered on the edge, and along the length of the piece.

From this blank cut the two stand-offs so that the base is 1" wide, and the top edge with the groove is 3/4" wide. Drill a countersunk hole for two #8 screws in the top (location shown in illustration). To avoid splitting the stand-offs during assembly, pre-drill for the shank of the

hole in the end of each runner.

Sand all of the parts through to 220 grit. Then, chamfer the bottom edges of the legs, and all edges of the top, with a block plane. Chamfer the bottom ends of each runner to allow it to seat in the opening easily. Once all sanding and shaping has been completed, finish the exposed faces of all of the parts with a finish of your choice. I used a Watco Oil, followed by a wax polish.

Test fit the body of the box. Then, assemble the dowel joints with glue.

To situate the runners in the proper spot on the underside of the top, center the top on the base. Clamp a 6 3/16" strip of wood to the top, so that it sits along the sides and between the legs. Remove the top and flip it over. Place a piece of wood the same size as the sides alongside the guides, and centered front to back. Place the runners alongside these 'sides', and mark the center of the countersunk holes. Drill a pilot hole for the screws and mount the runners.

To mount the wooden handle, screw the two stand-offs to the top from the underside. Use the cherry handle to line the two parts up before tightening the screws. Once the stand-offs have been screwed down, remove the cherry handle, spread some glue on the inside of the groove, and press the handle back in place.

Now, if there is enough room on your bedside table, set it down and fill it up.

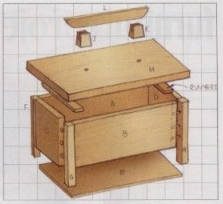
MICHAEL KAMPEN
aria_dog@hotmail.com

MATERIALS LIST

- 2 Cherry (front, back) 12 11/16" x 3 3/4" x 3/4"
- 2 Cherry (sides, left – right) 6 3/16" x 3 3/4" x 3/4"
- 4 Walnut (legs) 5 3/16" x 15/16" x 15/16"
- 1 Baltic birch plywood 6 11/16" x 13 1/4" x 1/4"
- 1 Cherry (top) 9 7/16" x 16" x 3/4"
- 1 Cherry (handle) 7 1/4" x 15/16" x 1/4"
- 2 Walnut (stand-offs) 1 1/8" H x 1" W (bottom) x 3/4" W (top) x 3/4" T
- 2 Cherry (runners) 6 1/8" x 3/4" x 1/4"

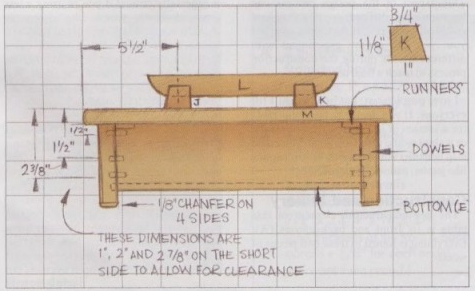
HARDWARE LIST

- 24 Compressed fluted dowels 5/16" x 1"
- 4 Brass flat head wood screws #8 x 3/4"
- 2 Brass flat head wood screws #8 x 1 1/2"



CUT LIST

- A 1 Back 12 11/16" x 3 3/4" x 3/4"
- B 1 Front 12 11/16" x 3 3/4" x 3/4"
- C 1 Side 6 3/16" x 3 3/4" x 3/4"
- D 1 Side 6 3/16" x 3 3/4" x 3/4"
- E 1 Bottom 6 11/16" x 13 1/4" x 1/4"
- F 1 Leg 5 3/16" x 15/16" x 15/16"
- G 1 Leg 5 3/16" x 15/16" x 15/16"
- H 1 Leg 5 3/16" x 15/16" x 15/16"
- I 1 Leg 5 3/16" x 15/16" x 15/16"
- J 1 Handle stand-off (left) 1 1/8" H x 1" W (bottom) x 3/4" W (top) x 3/4" T
- K 1 Handle stand-off (right) 1 1/8" H x 1" W (bottom) x 3/4" W (top) x 3/4" T
- L 1 Handle 7 1/4" x 15/16" x 1/4"
- M 1 Top 9 7/16" x 16" x 3/4"
- N 2 Runners 6 1/8" x 3/4" x 1/4"



By Hikmet C. Sakman

Floating Top Console

For this 'floating top' console, I strove for strength and grace: delicate, but not too frail. I also wanted some unique details that would entice the viewer to scan the whole table.

Essentially, I wanted an interesting and exciting look. For me, that was captured with the table's most unique design point: twisted legs. Such interest could also be achieved with double (or quadruple) tapered legs, or flared legs.

Since this design contains a minimal number of stretchers and other structural parts, its integrity of construction relies on the strength of the wood, and its large (though not oversized) mortise & tenon joinery. (For additional info on M&T joinery, see "Wood Joinery" Oct/Nov 04)

I used contrasting wood to emphasize and define certain lines of this design, but you could make it out of one species.

I wanted to use purpleheart, and I chose a light coloured curly maple as an accent. I felt that the purpleheart by itself would have been too dark, obscuring the curved ends of the top. The maple feet provide contrast and draw your attention downward, emphasizing the diagonal twisted legs.

Having said that, it is very easy to over use multiple contrasting woods in a design. The amount and placement of contrasting wood is a delicate balance to maintain. The goal is to compliment, not to overwhelm. This aspect of the design process can be somewhat difficult to visualize and establish on paper. If that's the case for you, you can always experiment with different woods during the construction process to reach a final decision.

I love purpleheart, but its look isn't for everyone. If you decide to build this table (or a version of it), cherry, figured maple, or walnut would also look great. You could also consider some reddish-brown exotics like jatoba, padouk or makore.

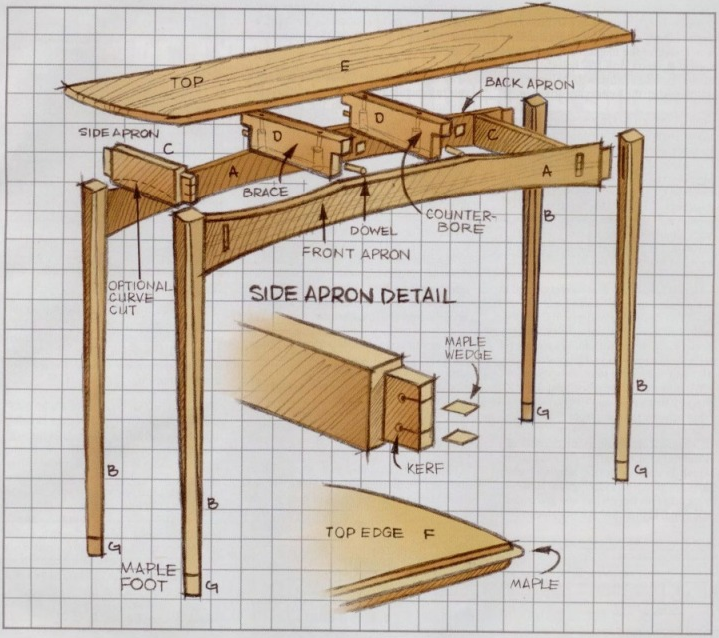
Construction and Joinery

The key construction element of this table is its front and back aprons (A). Everything is joined to these two pieces of wood.

Cut the tenons first. Then, using the shoulders, clamp a block of wood to guide your router to cut the through mortises. I use a 1/2" spiral router bit in my router, with the edge of the bit set 1 7/8" from the edge of the router base plate. If your router's base changes this dimension, even up to an inch, it should still be fine. If it's any closer than that, it would weaken the tenon that goes into the leg's mortise. This is especially critical if you're using a less dense domestic wood, like cherry or western maple. Mark the curved lines and bandsaw the waste. Use a router (with flush trimming bit) and a curved template (with 44" radius) to smooth the edges. You could also use a spokeshave and/or drum sander to smooth the edges.

Although I did not curve the bottom of the side aprons, I think now that it would have better complimented the curved edges of the top. If you decide to curve them, try a 36" radius.

The tenons of the side aprons go through the front and back aprons. You can use a table saw, bandsaw or handsaw to cut the tenons. Table saw cuts provide the most consistent results. You'll need to chisel out



Brace detail

CUT LIST

- **A** **2 purpleheart aprons: front and back**
  rough size: 1" x 6 1/2" x 43 1/4"
  finished: 7/8" x 5 1/4" x 41"
  (plus tenon lengths)
- **B** **4 purpleheart legs**
  1 5/8" x 1 5/8"x 27 3/4"
  (excluding feet)
- **C** **2 purpleheart rails (side aprons)**
  7/8" x 3 3/4" x 14 3/8"
  (plus thickness of the front & back aprons + 1/8" for each end if you want them proud.)
- **D** **2 maple braces**
  3/4" x 4 1/2" x 15 3/8"
- **E** **1 purpleheart top**
  15/16" x 15 5/8" x 47 1/4"
- **F** **2 maple beading: sides**
  1/8" x 3/16" x 15 5/8"
- **F** **2 maple beading: front and back**
  1/8" x 3/16" x 47 1/4"
- **G** **4 maple feet**
  1 5/8" x 1 5/8"x 2 1/4"

the mortises, so pre-drill out most of the waste on a drill press. Bevel the ends of the tenons before assembly, then cut the kerfs which receive the maple wedges. Before you cut the kerfs, drill 1/8" holes at the end of the kerf line; this will help prevent splitting when the wedges are driven in.

Cut a 3/8" x 1 5/32" x 5" mortise on the top of each leg. Pre-drill the waste, then chop the mortises with a chisel. You could also use a dedicated jig, like the Leigh Mortise and Tenon Jig (see review of Leigh M&T jig - Canadian Woodworking Aug/Sept '03). The leg mortises are the same size as the tenons, except their length from shoulder to the end is 1 1/8". That leaves a 1/32" gap at the bottom of the mortise for glue spill out.

The curly maple feet are simply glued to the purpleheart legs. I know purists will say "You can't glue end grain!", but I've never had a problem, even with chair legs. Technically, the reason end grain glue-ups fail is because porous end grain absorbs the glue and starves the joint. However, since PVA glue works on a cellular level, it literally fuses cells and fibers, to create a bond between the two pieces of wood.

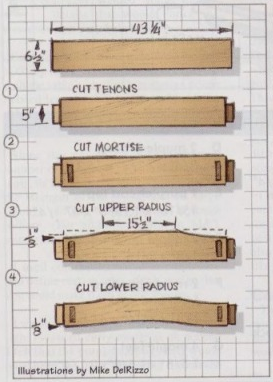
Cell structure and fibers are dramatically differently on end grain and face grain, which is another reason why end grain does not glue well to face grain. However, it's a different story when end grain meets end grain. In this case, I apply glue to both end grain pieces, wait a few minutes until the glue gets tacky (not dry), then apply a little more glue and clamp the two pieces together.

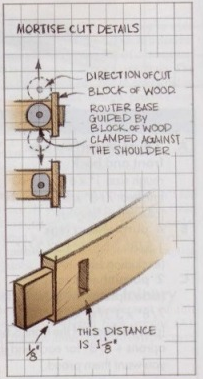
Pay attention to grain orientation when you're machining. Doing so will avoid unwanted tear-out due to the opposing grain direction. If you decide to attach the feet to the legs in this way, it's very important that you crosscut the legs and feet pieces carefully. For successful gluing you don't want any score lines or burn marks. If you prefer, you could always dowel the feet to the legs.

The legs are faceted on the jointer, with the fence set at 45°. It is a tricky operation, so use caution, especially at the beginning when the corners are sharp and have no flat reference faces for good contact with your jointer bed. Count every pass so you can keep the legs looking the same.

If you're nervous about performing this operation on the jointer, you can flare the legs using a #7 or #8 jointer hand plane. Use the jointer hand plane at the beginning to establish the flat facets, then switch to the jointer for the rest of the planing. If you prefer, you could even do the whole thing with a hand plane.

This table would also look good with a different leg design. You could try a simple flared leg to match the curve of the table.





Illustrations by Mike DelRizzo

Maple wedge detail

The braces that connect the top to the base are maple, inlayed with 1/2" x 1/2" purpleheart buttons. These braces are lap joined and doweled to the aprons. They are also counterbored to receive 4 screws for attaching the top.

I bevelled the edges of the top with a 45° chamfering bit, to emphasize the floating top. The beveled edge also makes the 1/8" beading more proportional. The slot for the maple beading is done with a Lee Valley 1/8" box slotting bit. I like this bit because with its 1/2" diameter, it's very easy to climb-cut, minimizing the possibility of tear-out. (Editor's Note: Climb-cutting is feeding the router right to left, the opposite of the normal feeding direction. This operation can be very dangerous with larger diameter bits or even small bits that are fully engaged into the work piece). Exercise caution, taking a series of small passes to remove material.

I glued 1/8" x 3/16" curly maple strips into the slot I had routed. These strips are mitered at the corners. Since there is no router bit that cuts 1/8" beading, I used the 1/8" bead cutter from my old Stanley #45. I took the cutter out of the plane and used it as a scraper to shape the bead on the curved ends to a 36" radius.

All in all, this was a fun piece to build. It also put good use to some of that mottled purpleheart I picked at the Victoria Woodworking show from Westwind Hardwoods. I finished it with linseed oil and 4 coats of hand-rubbed varnish.

HIKMET C. SAKMAN
sakman@shaw.ca

Tongue & Groove

Matched set of T&G bits

T&G joint frame

The Tongue & Groove (T&G) joint is primarily a structural edge-to-edge joint. You can use it to strengthen glued-up boards or to keep backing boards for a cabinet flush, even when not glued together. You can also use it to strengthen a butt joint such as on a cabinet frame. It's the same type of joint used to keep hardwood floorboards flush.

What You Need

You can make this joint many ways. You can use specialized hand planes or a table saw, but a router (attached to a router table) is the easiest way. To use a router, you'll need a 1/4" and a 1/2" (straight or spiral) bit. If you will be making a lot of tongue and groove joints, you might want to purchase a matched set of T&G bits (see sidebar).

How To Make the Joint

Making the joint on your router table is quite easy. However, it does require a little bit of set-up to make the parts fit together precisely.

Using a Matched T&G Set

Matched T&G bits offer a quick and easy way to create a tongue and groove joint, particularly if you are producing a lot of them. The advantage of these bits is that they will give you an exact groove and tongue size.

You are also able to rout your joint with the stock flat on the table. The single cutter bit makes the groove, while the double cutter bit creates the tongue.

Begin by making the groove. Install a 1/4" bit into your router, so that it projects 1/4" from the tabletop. Adjust your fence so that the bit will be exactly centered on the width of the project pieces. Use scrap from your project pieces to test your set-up, adjusting the fence as necessary.

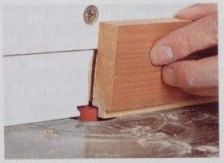
When satisfied with your set-up, rout the groove into your project pieces. If you want a deeper groove, raise the bit and rout again.

To make the tongue, set up a 1/2" bit in your router. Have it project just under 1/4" from the table top. This will keep the tongue shorter than the groove to allow space for the glue to collect and for proper seating of the shoulders. Adjust the fence so that the bit will cut a 1/4" width.

Use scrap from your project pieces to test the set-up. Rout one edge of the scrap and then flip it over and rout the second edge to create the tongue. Test the fit with the grooved pieces you just routed.

When the pieces fit together perfectly, rout all the tongues in the project pieces. If you routed a deeper groove, raise the bit, keeping the depth of cut just under the depth of the groove.

Rout the groove



Rout the tongue

MICHEL THERIAULT
woodstoneproductions.com
mjtheriault@sympatico.ca

By Hendrik Varju

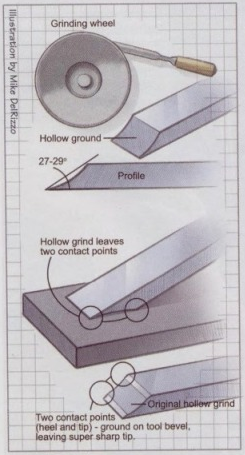
Waterstones

Although learning to use hand planes and chisels takes practice and patience, the learning process is made much easier if you know how to sharpen those tools. My new students often say how much they dread the hand planing portion of a course. When I hear that, I know it's because those students have only ever used dull tools. Once they've learned how to properly sharpen their tools, hand planing and chisel work become surprisingly enjoyable.

Select the Right Grits

The key to proper sharpening is to use good quality waterstones (see the sidebar 'Stone Tips'). These versatile synthetic stones can repair mildly damaged cutting edges and take you right up to razor sharpness. If you can only afford a single stone, I would recommend a combination stone with 1000 grit on one side and 4000 on the other. 1000 grit will give you a basic edge, while 4000 grit will give you a razor sharp edge.

If you have a more flexible budget, I recommend a 220 grit, which will rapidly remove material, a 1000 grit stone for initial edge-forming, a 4000 grit for further honing, and an 8000 grit to get a mirror-like finish. Having separate stones means that a lower grit stone can be used to flatten a higher grit stone. So, you can use a flat 1000 grit stone to flatten both your 4000 and 8000 grit stones. However, some other method must be used to flatten your lowest grit stone. I use 90 grit silicon carbide powder on a thick sheet of glass to get my lowest grit stone flat. You can also use a diamond bench stone or wet/dry sandpaper.



Hollow Grinding

Keep Them Flat

Remember that waterstones cut remarkably quickly because their surfaces wear quickly, constantly exposing fresh material to cut metal. That also means that waterstones wear quickly, so keeping your stones flat is an on-going process you need to do regularly. I like to do a bit of flattening every time I pick up a stone out of its water bath. If the stones aren't perfectly flat, they're incapable of creating truly sharp cutting edges.

Stone Tips

Select a synthetic waterstone; they are less expensive than natural waterstones, and more consistent in quality. Unlike oilstones, which use oil as a lubricant, waterstones use water. Because they are not as hard as oilstones they cut much more quickly, so you'll get back to work sooner, and you won't risk getting oil on your work.

Before using your waterstones soak them in water: about 5 minutes for a coarse stone or 15 minutes for a medium stone. In fact, you can store them in a plastic container filled with water. Lee Valley's 'Stone Pond' is an excellent waterstone storage container.

To reduce bacteria build-up, rinse and store them in fresh water after each use. Very fine stones (6000 grit and higher) don't need to be soaked prior to use, just splash water on them when using. When sharpening don't wash away all the slurry, it helps speed up the sharpening process.

Honing Guides

Honing freehand requires some hand skills, so some of you might prefer to use a honing guide. The guide will help you maintain the correct angle for honing your blades. The correct angle is around 25° for softwoods and a little closer to 30° for hardwoods. I hone mine in the range of 27 to 29° so that they hold up fairly well for hardwoods but still aren't too difficult to push. A honing guide will help you develop a primary bevel of around 25°. Then, by pulling the blade further into the guide, you can add a secondary bevel of around 27° or more, just at the tip of the blade.

Hollow Grinding

My preferred technique is to hollow grind my cutting tools on the round edge of a grinding wheel. I use an inexpensive slow rpm wet-wheel grinder because it is slow enough not to blue the steel and draw the temper of the tool. Being in a water bath also keeps the steel cool. These kinds of grinders cut a lot slower than the high rpm grinders, but they give better results without damaging the tool. Good results don't come quickly.

The beauty of hollow grinding is that it leaves a concave shape on the bevel side of my hand plane irons and chisels. When I hold the concave bevel on the surface of a stone, I can hold the tool at the correct angle by feel. With only two contact points on the stone, it's easy to tell if you are holding the tool at the correct angle.

Waterstone Technique

Once you've learned this holding technique, you can draw the tool backwards (pull it towards you) on the bevel side for four or five strokes on the 1000 grit stone. Then flip the blade over and push the tool forwards on the flat side for the same number of strokes. Pushing the blade on the bevel side is likely to catch badly on the stone if you aren't really careful, but pushing the blade on the flat side is easy and cuts off the metal burrs folded over from the bevel side.

If this establishes a clean, shiny cutting edge, then you can move on to a higher stone grit. If not, do more strokes on both sides again. When satisfied, move to your 4000 grit stone and do the same, and then on to your 8000 grit stone if you have one.

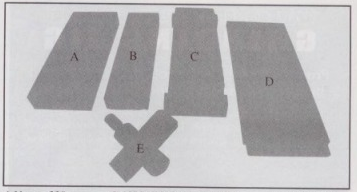
On the final stone, I like to do five strokes on each side of the cutting edge, then four, then three and so on. A certain number of strokes on the bevel side creates a certain size of burr on the flat side. By using the same number of strokes on each side and working your way down from five strokes to one, you methodically work towards sharpness.

Your goal is a cutting edge with almost zero thickness, which is the definition of true sharpness. Try to use all the surface of your stone when sharpening, or else you'll quickly create a 'valley' in the stone.

Start Shaving

When you've achieved a truly sharp edge, you'll be able to shave the hairs off your arm or leg. My left arm is half bald for most of the winter months, while my left leg is half bald in the summer months when I'm wearing shorts. But it's a small price to pay for tools that cut well.

HENDRIK VARJU
www.passionforwood.com
info@passionforwood.com



A Norton 220x **B** 1000x/4000x combination **C** 8000x 'Gold'
D DMT 600x/1200x diamond stone **E** Kell honing guide

Banksia Nut Candle Holders

This traditional turned candlestick project has a bit of a twist. Instead of starting with a block of wood, the material I selected is a 'Banksia nut' seed pod.

Many species of Banksia nuts grow in Australia, often producing cones that are large enough for turning. These are called 'Banksia Grandees' and are named after Sir Joseph Banks, 1743-1820, who sailed with Captain Cook on the 'Endeavour' in 1768. These particularly large seed pods have a very limited range in Western Australia. They usually grow on an underbrush tree in Jarra forests and can take several years to mature. While they are quite easy to turn, they are a little dusty. When you turn these pods, instead of producing shavings you'll get a pile of a 'felt-like' substance.

For these candlesticks, very little turning is actually done. The majority of the natural pod is left untouched, to evoke curiosity in the viewer. I turned a pair, and because the pods are naturally shaped, each one is a little different.

You'll notice that I turned wooden bases for the Banksia nut to stand on. I did that for two reasons: 1) the width of the natural base of the pod was not sufficient for support, and 2) the wood for the base would contrast the unevenness of the pod itself.

For this project you will need two Banksia nuts, two brass inserts, and two wooden bases. Glue a wooden spigot onto the bases so they can be grabbed with a chuck without sacrificing any of the wood from the base itself.

Drill the holes for the brass candle inserts before turning the nuts. This is done because the texture of the nut is somewhat crumbly, so if you were to turn the shape of the pod first, and then drill it, you could possibly break the turned part.

Saw or sand both ends of the pod to achieve a flat area. That way the drive centre, and the live centre of the lathe, will have something to grab onto. On the end where the base will sit, use a 1/4" parting tool and cut a little spigot approximately 1/2" in diameter and 1/4" long. This spigot will fit into the base.

Start shaping the pod about 2/3 of the way up from the spigot and the base. Use a 1/2" spindle gouge (ground at a 35º angle and with a 'fingernail' profile). I chose a fairly simple shape to turn: a half cove with a bead on the end. Because I wanted to feature the actual pod, I didn't want to detract from it. To create the cove, start on the outside of the pod, and slightly scoop down to the bottom of the cove. Position the flute of the gouge on its side, facing the direction of the cut. Now simply roll the gouge and drop the handle so that the flute turns up and the bevel keeps rubbing the surface. Repeat this process until the desired diameter of the half cove is achieved.

You want the bead to be more pronounced, or to have a bigger diameter, than the cove. Therefore, start on either side of the bead, with the flute up, and roll the gouge so that the flute ends up on its side. Repeat this process, left and right, until you have rolled a nice clean bead. Where the cove meets the bead, make a little 'v' cut with a pointed 9-in-1 tool, to define the two shapes.

Do all of your sanding at this point. I chose to finish only the portion that was turned. For that, I used Craftlac melamine to produce a durable, satin finish.

When the pod is done, turn your attention to the base. Using the same cut you would use when turning a little bowl, take an outside cut across the circumference with a 1/2" bowl gouge until the desired diameter is obtained. Then, move the rest across the face, and take a facing cut from the outside to the centre. Flatten the bottom using a square-end scraper. Then, shape the base using a 1/2" bowl gouge, travelling in the direction from the centre to the outside.

Transfer the diameter of the spigot on the pod onto the base. Use a small 1/4" square-end scraper, ground on the side as well as the front and scrap a hole so that the spigot of the pod will fit snugly into the hole. Next I sanded and finished the piece. Because I have used cyanoacrylate glue to fasten the spigot to the base, I can pop it off by shocking it. To do this I put a chisel just where the line of the two woods meet, and tap the chisel with a hammer. With the base reversed into a vacuum chuck, cut the bottom slightly concave. I used epoxy glue to fasten the pod to the base.

This is a very easy turning project, but by using a Banksia nut you can turn it into something extraordinary.

PAUL ROSS
www.chaletwoodcraft.com
(519)443-5369

Materials for the project

Drill the insert holes

Cut a spigot for the base

Completed bead

Cut a 'v'

Scrap base flat

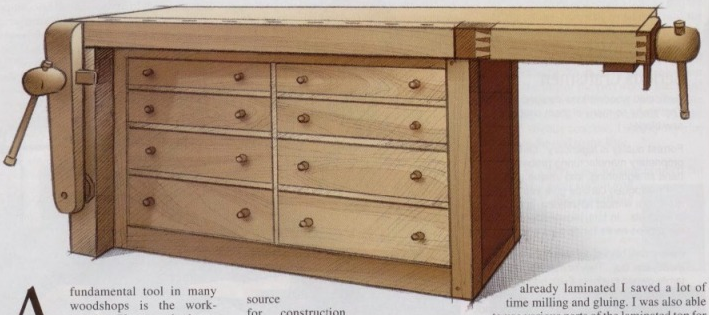
Shape base

Scrap hole for spigot on pod

Cut bottom slightly concave

By Jim Shaver

Shaker Workbench



A fundamental tool in many woodshops is the workbench. If you look at photographs of shops in days gone by you will often see a craftsman working on a project using the bench as a shop tool.

With such a wide variety of designs available, you really need to consider the work you do and the requirements you have for your shop, to be able to select the best options for yourself.

I had been woodworking for 5 years before I took on the task of making my first workbench. Until then, I had been working on a variety of non-efficient shop surfaces, often with a great deal of frustration.

Designing the Workbench

I began my search by making a list of the key characteristics that I wanted in a bench. My list continued to grow as I investigated books, shops, and the internet, looking for the right design. The main features I wanted were a large work surface, versatile vise options, ample drawer storage, and also a clean classic design. I finally settled on a design that is traditionally referred to as a Shaker Workbench.

There are many variations of the Shaker design. While I used a variety of sources for measurements and details, my primary source for construction details was Scott Landis' "Workbench Book" (Taunton Press).

The bench I designed has a 30" x 82 1/2" top with the case 57 3/4" long and 25" deep. The overall bench height is 35 1/2" (I stand 6' 2" tall).

The bench materials are a combination of hard maple with cherry plywood panels. The top is an assembly of four 1 3/4" hard maple lamination bench tops that I salvaged from work. The case construction is maple with cherry ply panels. The drawers are all hard maple with curly maple drawer fronts and plywood drawer bottoms.

The vise construction focuses on authenticity and function. I chose a design that was consistent with a traditional Shaker bench, incorporating both a tail and a leg vise. I was inspired by the functionality of these vises and I sought out a screw that would be in keeping with the authentic look that I wanted. The bench screws are solid 2" hard maple, made at Crystal Creek Mills (contact Howard Card for details: whcard@USDatanet.net).

The Bench Top

I began the bench by making the top. Since my salvaged wood for the top was already laminated I saved a lot of time milling and gluing. I was also able to use various parts of the laminated top for other parts of the bench.

The bench top has a heavy front rail, consisting of three ripped strips from the recycled top. There is a row of square bench dog holes set into the rail. The bench dog holes are 6" on center set 1 1/2" from the front of the rail. The bench dog holes were pitched 3° from vertical, facing the tail vise. I used a router and a spacing template to create the bench dog holes before gluing up the three- piece front rail to its final dimension of 4" x 5" x 57 3/4". I used quartersawn white oak to make the bench dogs.

The top needed to be configured to accept a tail vise, which has a body length of 21 1/2", width of 5", and height of 4". I cut the front rail 57 3/4" long and then glued it to the face of the bench top. At the other end of the bench the front sits on the leg portion of the leg vise, giving a massive solid top.

The front edge of the bench top is a double lamination (3 1/2" thick) 12 inches deep running the entire length of the face rail, supporting the prime planing working area. This mass and strength gives the top the structure to resist deflection under planing and also supports any work that requires a solid striking surface. The rear of the top is built up with a few laminations

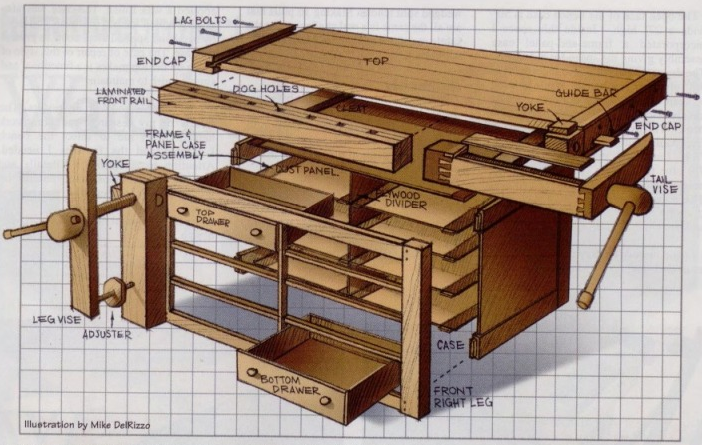


Illustration by Mike DelRizzo

of maple to accommodate the bench top's 3 1/2" thickness.

On either end of the top are end caps, attached with breadboard joinery and lag bolts. The end cap at the leg vise portion of the bench is 3" x 3" x 30". The end cap at the tail vise end is roughly 5" x 3" x 34", It acts as the captive member to which the tail vise is attached. The captive nut for the wood screw of the tail vise is located and secured into the end cap.

Tail Vise Construction

The tail vise is incorporated into the bench top. Its construction is essentially a two-sided box that is the body of the vise, with a wood screw and a vise bar that attaches the face of the vise to the tail of the vise. This provides strength and parallism in the vise as it travels through its full range of motion. The wood screw for the tail vise, leg vise and leg vise adjuster are all lubricated with an application of bees wax. The vise face is a solid piece of maple, 4" x 5" x 4". It is attached to the back of the tail vise by a dovetailed board that is fixed to the side of the vise face and the rear of the tail vise. These dovetails were hand cut and are incredibly strong. The vise face also has a single bench dog hole, cut and chiseled by hand to match the ones in the face rail, pitched 3° from vertical back towards the row in the face rail. The top of the vise body is a 3/8" x 5" x 17" cherry panel that is recessed into the vise face and into the tail portion of the vise body. The panel is attached with 6 brass screws, to enable access to the wood screw if maintenance is required.

Under the bench top I also created a channel for the tail vise guide bar. The channel runs the length of the bench face, about 3/4" deep and 2" wide. The guide bar is 1 7/8" x 24", attached through the end cap to the back portion of the tail vise and the front edge of the face of the tail vise. The wood screw is captured by a yoke. It is mortised into the end cap and captured by a turned recess milled into the head of the wood screw.

To protect wood held by the tail vise I glued a piece of leather on the face of the vise.

Leg Vise Construction

The leg vise is characterized by its size and vertical orientation on the face of the front left bench leg. The vise utilizes two screws, a 2" bench screw and a parallel base screw to help keep the face of the vise parallel to the clamping face of the bench leg.

The leg vise body is 4 3/4" wide x 29" tall, milled from 3" hard maple. I shaped it with a variety of hand and power tools to match the classic look of a Shaker bench. I cut a mortise into the side of the leg vise for the yoke that captures the leg vise wood screw.

I then took some of the 1 3/4" maple I salvaged from the extra bench top laminations and built up the front left leg with a 4 3/4" x 5" mass of maple. This acts as the face of the leg vise and also captures the captive nut for the wood screw, supporting the width and mass of the top front rail. I drilled two holes through the leg, one for the top screw and one for the lower parallel adjuster.

Case Construction

The case is essentially a chest of 8 drawers with a heavy front left leg to support the function of a leg vise. The main dimensions of the base case are 57 3/4" wide, 25" deep, and 31 1/2" high. The maple legs are 3" x 3" x 31 1/2" mortised to accept maple rails. The 1 3/4 "x 3" rails are salvaged wood from the re-cycled maple tops. The rails and the legs were milled to accept 3/4" cherry plywood for the side and rear panels.

The rail tenons are 3/4" x 1 3/4" x 2 1/2" deep for the top rails and 3/4" x 3" x 2 1/2" deep for the lower rails. They are all glued and pinned with 3/4" cherry dowels.

The open face of the bench case is 50" wide x 27" high. Inside this space I incorporated a frame-and-panel case assembly giving me space for 8 drawers. The drawer web frame also incorporated 3/8" plywood dust panels. While helping to keep dust out of the drawers the dust panels also add to the total mass of the bench. The drawers are 24" deep, made from hard maple with matched curly maple faces. I used 1/2" stock for the sides and 7/8" for the drawer faces. The drawer heights range from 4", 5", 6 1/2", and 8". The drawers are all finished with 3/8" plywood case bottoms, featuring through and half blind, dovetail construction.

I hand turned the drawer pulls from the re-cycled maple, attaching them with wedged split tenons. Making 16 pulls that are all the same is a real challenge, but the subtle variations add subtle character to the workbench.

Assembly

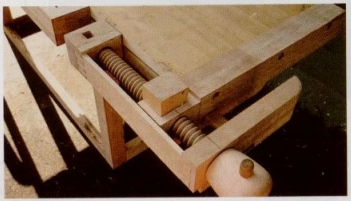
The bench top is indexed to the base case using location cleats. The cleats are attached to the underside of the top to control the front to back and side to side register. The mass of the top is all that is needed to hold it in position.

Finish

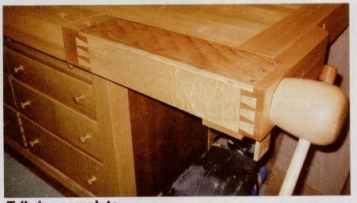
I finished the top with a 3 coats of a boiled linseed oil application. I left the finish to dry on the top for two weeks, then I rubbed it out with 0000 steel wool and applied a wax finish. The case was also given a boiled linseed oil finish, followed by two hand applied clear coats to protect the base. The ease of repair of this style of finish on the top makes it a functional and simple finish to maintain.

I am very pleased with my results. The efforts of my research and homework helped direct me to select the bench I wanted and the features I needed. Attention to traditional to details and construction methods also paid off by giving me a fundamentally sound bench with an appealing classical Shaker design.

JIM SHAVER
jim.shaver@sympatico.ca
www.penstreetwoodworks.com



Tail vise detail



Tail vise complete

MATERIALS LIST Height x Depth x Width are approximate. Adjust to suit your needs.

Top
1 **Top**
3 1/2" x 25" x 76 1/2"
1 **Front Rail**
4" x 5" x 57 3/4"
[laminated from 3 pieces]
1 **End Cap (Left)**
3" x 3" x 30"
1 **End Cap (Right)**
3" x 5" (shaped) x 34"

Case
2 **Side panels**
3/4" x 20 1/4" x 22"
2 **Side panel rails, top**
1 3/4" x 1 3/4" x 22"
2 **Side panel rails, bottom**
3" x 1 3/4" x 22"
1 **Back panel**
3/4" x 20 1/4" x 53 1/2"
1 **Back panel rail, top**
1 3/4" x 1 3/4" x 54 3/4"
1 **Back panel rail, bottom**
3" x 1 3/4" x 54 3/4"
16 **Drawer Frame rails**
3/4" x 2" x 24"
16 **Drawer Frame stiles**
3/4" x 2" x 23"
1 **Drawer Vertical Divider**
3/4" x 22" x 30"
8 **Dust panels**
3/8" x 23" x 23"
4 **Legs**
3" x 3" x 31 1/2"

Drawers
Sides
1/2" x (drawer height) x 22"
Fronts/Backs
7/8" x (drawer height) x 24"
Bottoms
3/8" x 23 1/2"x 23 1/2"

Leg Vise
1 **Front Member**
3" (shaped) x 4 1/2" x 29"
1 **Body**
4" x 5" x 31 1/2"
[laminated from 3 pieces]
1 **Adjuster**
Standard from
Crystal Creek Mills
1 **Yoke**
1/2" x 2" x 6"
1 **Screw**
Standard 2" from
Crystal Creek Mills

Tail Vise
1 **Face**
4" x 5" x 4"
1 **Top**
3/8" x 5" x 17"
1 **Guide bar**
5/8" x 1 7/8" x 24
1 **Yoke**
1/2" x 2" x 6"
1 **Screw**
Standard 2" from
Crystal Creek Mills

By David Voth

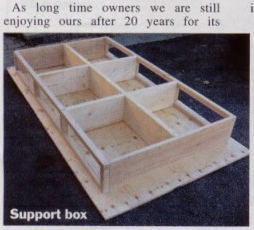
Waterbed

Waterbeds have come a long way since they were popular in the 1970's. They are available in all kinds of configurations, from a full-motion to a semi or full-motionless. All are available in a soft side (similar to a regular mattress with no box necessary) or a hard side (where you need a box to contain the mattress).

Many claim that the heated waterbed and equal distribution of body weight alleviates back pain and arthritis. Others find that the vinyl waterfilled mattress resists a build-up of dust-mites which provides one less source of dust for allergy and asthma sufferers.

As long time owners we are still enjoying ours after 20 years for its comfort, durability, and low maintenance. In fact we are so happy with ours that we decided to build this one for our 13 year old son who had out-grown his youth bed.

For this project we used wood from a large white birch on our cottage property that had died. We elected for a hard side version, in a 'super single' size (48" x 84"). Although it is largely hidden, the most important part of the bed is its support box, which bolsters the heavy mattress. We incorporated drawers into the support box, and kept the height of the bed a little lower than a conventional bed so it is easier to get in and out.



Support box

Support Box

The support box is constructed of solid birch for the drawer frames and ends, and 2" x 10" spruce for the interior blocking. I made the drawer frames from 1 1/2" stock. As an economical alternative you could use thinner stock, but don't use anything under 3/4". If you use smaller stock you'll need to use a small filler piece when attaching the guides for the drawers. Assemble the frame using 3" countersunk screws and glue. I used pocket hole joinery to attach the ends to the drawer frames. I attached the spruce blocking to the ends and drawer frame using pocket holes. I also toe-screwed the blocking to the drawer frame. To avoid splitting the wood, pre-drill before setting your screws. I did not use any glue on this part of the assembly.

Drawers

There are 6 drawers in this project, all having the same dimensions. I used half-blind dovetail joints to join the sides to the front and back, and then added a decorative false front. All the drawer parts are solid birch, except for the bottoms, which are birch ply. I opted for standard kitchen slides with a white baked enamel finish.

Head and Footboards

Although more decorative than structural, the head and footboards do serve to attach the sideboards and hold the mattress in at the ends. An alternative is to build a box that sits on the drawer box. While simpler, this method is also much plainer. If you do opt for the head and footboards, you can build them simultaneously, as the construction process is the same. The only difference is that the headboard is 40" high and the footboard is 28" high.

Begin by gluing together 2 pieces of 1 3/4" x 3" stock for each leg. When the glue has dried, plane each leg down to

MATERIALS LIST

Support/Drawer Box

1 **Platform (fir plywood)**
5/8" x 48" x 85"

Sides

4 **Top & Bottom Rails**
1 1/2" x 1 1/2" x 72"

8 **Stiles**
1 1/2" x 1 1/2" x 6"

2 **Ends**
1 1/2" x 9" x 39"

1 **Blocking (spruce)**
1 1/2" x 9" x 69"

4 **1 1/2" x 9" x 18 3/4"**

24 **Drawer Sides**
1/2" x 4 3/4" x 19"

24 **Drawer Backs & Fronts**
1/2" x 4 3/4" x 21"

6 **Drawer Bottoms (birch ply)**
1/4" x 19" x 20"
(cut to fit drawer size)

6 **Drawer Fronts**
3/4" x 7" x 23"

2 **Side Rails**
1 1/2" x 9" x 83"

Headboard

2 **Legs**
3" x 3" x 36"

1 **Curved Top Rail**
7/8" x 2" x 48"

1 **Bottom Panel**
7/8" x 9" x 46 1/4"
(includes 1/2" for tenon)

2 **Slats (outside)**
7/8" x 2 1/2" x 28"
(trim after assembly)

7 **Slats**
7/8" x 2" x 20"
(trim after assembly)

2 **Bracket Filler Strip**
1" x 1" x 7" (custom fit)

Footboard

2 **Legs**
3" x 3" x 24"

1 **Curved Top Rail**
7/8" x 2" x 48"

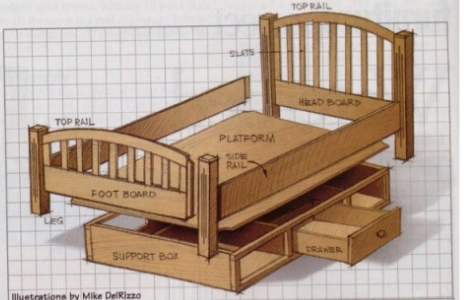
1 **Bottom Panel**
7/8" x 9" x 46 1/4"
(includes 1/2" for tenon)

2 **Slats (outside)**
7/8" x 2 1/2" x 16"
(trim after assembly)

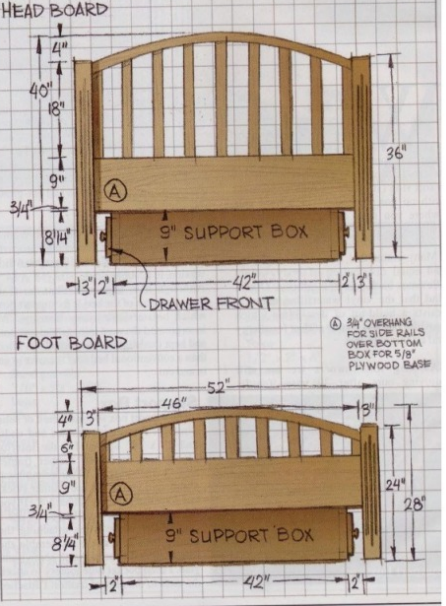
7 **Slats**
7/8" x 2" x 8"
(trim after assembly)

2 **Bracket Filler Strip**
1" x 1" x 7" (custom fit)

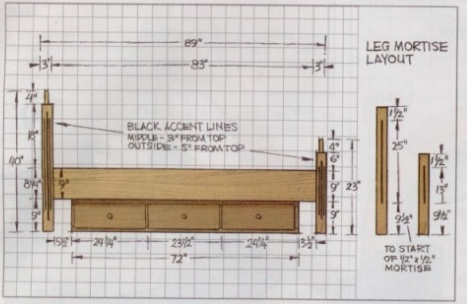
Note: unless otherwise noted, all materials are solid birch



Illustrations by Mike DelRizzo



A 3/4" OVERHANG FOR SIDE RAILS OVER BOTTOM BOX FOR 5/8" PLYWOOD BASE

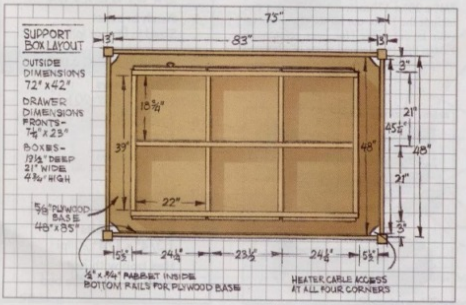


HARDWARE LIST	
4	Bed rail fasteners
32	#10 3/4" pan head screws
6	18" drawer guides
Waterbed Supplies	
1	Super single 6 baffle mattress
1	Liner
1	Heater

3" x 3". Chamfer the tops of the legs at a 45° angle. I used a mitre saw, but you could also use a table saw, stationary sander, or router. Sand to remove sharp edges. On each leg you'll need to cut a 1/2" dado that will house the head and footboards. For a decorative effect, I routed three grooved lines on the faces of the legs that are visible, and painted the lines black. Once the paint dried a light sanding removed any paint outside the lines.

The panel between the legs consists of a top curved rail, nine slats, and a bottom rail. Cut the two curved top rails a little longer; later you'll trim these to fit. I cut the top rails with a band saw; you could also use a jigsaw. Sand the inner and outer part of the curve with a drum or spindle sander to eliminate saw marks and any undulations in the curve. Next, cut the slats for the frames. Layout the location of each against the top and bottom rails, ensuring that the widest two are on the outside.

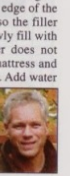
Align the curved top rail against the legs. Clamp if necessary, and mark on each slat the profile of the top rail, and the position of the slats on the bottom rail. Use the bandsaw to cut the profile at the top of the slats. Check the slats against the top rail and, as necessary, sand the top of each slat to get a perfect fit. Mark where the top rail extends past the outside slats and trim so it is flush with the sides. Clamp and glue the slats to the top and bottom rails using biscuits and glue (alternately use dowels or mortises and tenons). Ensure that each slat is 90° to the rails. When the glue is dry, rout 1/2" tenons to fit into the dadoes of the legs. Ensure that the ends of the curved top rail meet just below the chamfered top part of the leg. Glue the panel to the legs. Finally, add metal bed rail fasteners on the inside of the head and footboards.



Cut and sand the two side rails. Chamfer the top edges so when getting in and out of the bed there is a softer edge. Rabbet a groove along the inside bottom of both rails to accept the plywood base. This ensures that it will not be seen when set up. Cut off about 3" of one corner (of the plywood base) at 45° for the heater cable. To finish the bed I used a clear water-based polyurethane.

Set-Up

Do a trial set-up, because once you have filled the mattress with water it is impossible to move the bed without draining most of the water. Place the support box a couple of feet from each wall. Put the plywood base on top, and centre it on the box. Secure with a few screws so the plywood does not move. Attach the side rails to either head or footboard and position the rails over the base so the dadoed side of the rails rest on the plywood base. Attach the head or footboard at the other end, and do any final positioning of the bed. Install the heater according to the manufacturer's instructions and position the thermostat at an accessible and convenient location, usually on the side rail close to the headboard. Add the liner according to instructions, around the inside edge of the frame. Position the mattress so the filler port is at the foot end and slowly fill with water, ensuring that the liner does not come off. Burp air from the mattress and top up with water as necessary. Add water conditioner and adjust the heat comfort level. Kick off your shoes, and enjoy.



DAVID VOTH
dvoth@rogers.com

Steady Rest

To achieve the very best results in your turning, vibration must be kept to a minimum. Vibration is problematic for any turning, but it is particularly problematic when turning long spindles, or hollowing out deep vessels. To reduce vibration, you can build a support to hold the work you are turning.

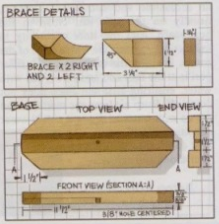
A steady rest is just such a support. It is an excellent accessory for reducing stock vibration.

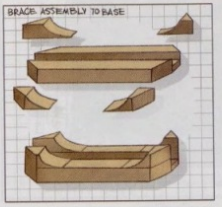
Extend the wheels all the way out, and you can support the outside of a vessel as large as 11" in diameter. Turn the top wheel to face in the opposite direction, and you can support a spindle as small as 1/4" diameter.

There are several steady rests available commercially, but I like to make my own.

Begin by making the three sliders. Cut them to finished size from a piece of maple (or similar hardwood). Put them aside for later use. Next, make two identical rings (see illustration), using good quality plywood, Baltic birch or 'medium density overlay'.

Mark the entire layout on one piece of 3/4" x 20" x 17" material. Make sure you include the 1" cut-out for the slider slot on your layout piece (for later reference). Fasten this to a second piece of plywood using two-sided tape.





MATERIALS LIST

2	**Plywood**	3/4" x 20" x 17"
3	**Maple (or other hardwood)**	1" x 3/4" x 10"
1	**Base**	3/4" x 11 1/2" x 4 1/2"
4	**Base braces**	3/4" x 1 1/2" x 3 1/4"
1	**Pinch bracket**	Sized to fit your lathe

HARDWARE LIST

3	**Wing screws**	1 1/2" x 1/4" 20 tpi
6	**T-nuts**	1/4" 20 tpi
6	**Flat washers**	1/4"
3	**Hex nuts**	1/4" 20 tpi
3	**Hex head bolts**	1 3/4" x 1/4" 20 tpi
1	**Hex bolt with nut**	Sized for your lathe bed

Note

This design is for a 12" lathe. For a different sized lathe make the inner radius 1/2 the lathe capacity (i.e. 5" for a 10" lathe). Add 2" to that for the outside radius. Adjust the width of the base and the length of the sliders to suit.

Cut the outside profile of both rings at the same time. Drill an access hole near the inside layout line, and remove the center portion with a jigsaw.

On the layout piece only, cut out each of the three 1" slider slots to the inside of the line. Assemble the three pieces with the sliders, and place on top of the second ring. Check the fit.

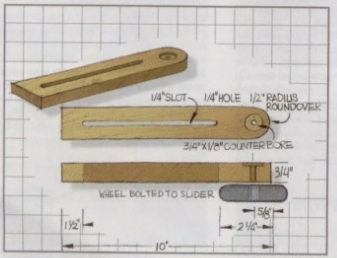
Use a belt sander, and sand the sides of the 1" slots to the line, checking the fit often. All the pieces should align with the sliders and the edges of the rings. Once you're satisfied with the fit, glue the three parts of ring 1 (the layout piece) to ring 2. Use the sliders to ensure proper spacing of the slider slot. Clamp the two rings together, remove the sliders and clean up any excess glue.

Once the glue has cured, sand all the edges smooth. Drill and counter bore the holes for the "T" nuts with a 3/4" x 1/8" counter bore bit. Use a router to mill the slots in the sliders. Drill and counter bore for the "T" nuts. Before milling the slot in the base, check the thickness of your plywood and size the slot to ensure a snug fit.

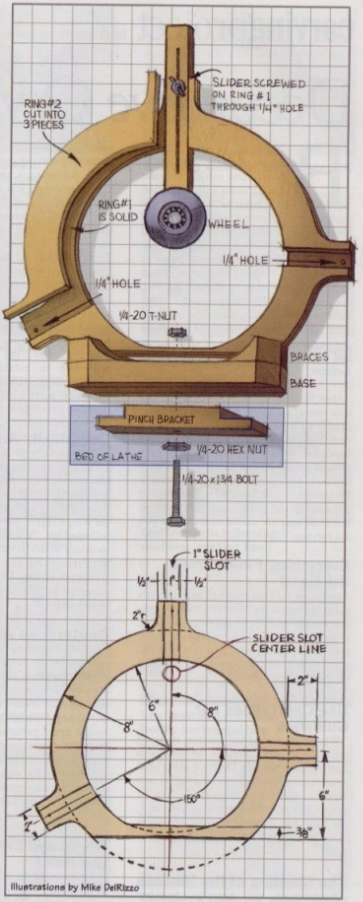
Mill the parts for the base and braces from the scrap removed from the rings. To make the arch on the bottom brace, cut the parts square, hold them in place, and mark the arch using the rings as a guide. Cut the arch with a bandsaw or jigsaw. You will have to size the lower 'pinch bracket' to suit your lathe. The wheels I used are from a set of inline skates that I picked up at a yard sale. If you buy them second hand make sure you check the bearings for play. If you prefer, you can purchase new wheels from a sports supply store.

Assemble the base and braces (as shown). To use the jig, bolt it to the lathe, adjust the top wheel first, then the back wheel so they just touch the work piece. Then, adjust the front wheel to exert only slight pressure on the work piece.

J.P. RAPATTONI
r_p_w_38@hotmail.com



Sliders



Steadyrest Exploded

By David Bruce Johnson

Decorative Owl

Because of its many round masses of feathers, an owl is an excellent subject to make using a wood with character. By "character" I mean a pronounced grain. Butternut is such a wood. It is easy to carve; has excellent colour; and has lovely grain (Editor's Note: for more information about the characteristics of Butternut see "Woods to Know" Issue #35). No matter how a pattern is applied, the results will be interesting and unique. Besides demonstrating the merits of "character", this project demonstrates two major carving practices; the use of centerlines, and how to join two complex curved surfaces.

Start by drawing your owl's front and side views on a block of butternut approximately 6" high and 3 1/2" square on the end. You can cut out your carving with a bandsaw. Nonetheless, since not every project you do will be this symmetrical, it is always good practice to use your gouges. By doing so, you discover how well your gouges are sharpened and you begin to learn the specific nature of the wood you are carving.

Everything Flows From the Head

For most carving projects like this, it's good to start at the head and work down. Because everything flows from the head, it's important to get it positioned right. By carving each side as a flat surface, a four-sided head is created that can then be rounded.

Use Centrelines For Guidance

Whenever a rounded surface is being created, it is important to establish centerlines as a guide. The back of the head is carved into one quarter of a ball in two stages – the left rear quadrant, then its mirror image on the right rear. Similarly, the front has symmetrical left and right sides that come to a point – almost a 90° angle.

The Meeting of the Masses

Establishing the junction between adjoining round masses is an interesting carving challenge. The following process applies wherever you want two masses to meet. To begin, working from one view (front or side), use a parting tool to outline one mass. Then, outline the adjoining mass from the opposing view. Continue increasing the depth of each outline and remove wood until you achieve a flat surface for each outline. Stop when the two outlines come together. Use the same procedure to establish the junction between every pair of adjoining surfaces – in this owl, there are lots of them.

Complexity Adds Interest

This carving is more complex and interesting because the wing feathers are also tapered to form the tail. Notice that the horizontal centerline marks the point where the leg feathers become wider than the wings. Again, the two-step approach is followed but…a word of caution...be sure to orient your carving so you can carve with the grain. You might need to turn it upside-down. Ultimately, you will establish all major masses with mostly square edges.

Centerlines Are a Must

Before rounding any of the squared masses, it is important to mark the centerlines as a guide. To preserve the correct shape, carve each mass away from its centerline toward the junction. As soon as you begin rounding the masses, you will reveal grain patterns. Every step in the 'rounding' process produces more grain pattern and every piece of wood is unique. Be prepared for wonderful surprises and, please, dare to modify the shape to take advantage of the beauty that the wood is offering.

Begin and End With the Head

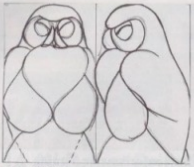
We started at the head and we will finish at the head. Most people make an owl's face too flat. An owl's face is angled back at approximately 45° from the center. Remember, carving is a subtractive process…you only remove wood. Consequently, every step in the process constitutes a refinement of the surface created in the preceding step.

Finishing Your Project

I'm not a big fan of sandpaper but this carving definitely benefits from a thorough sanding. When you're happy with the surface smoothness, apply your finish. I like tung oil on butternut, but there are lots of finishes that are very effective; boiled linseed oil, lacquer, and paste wax are all good alternatives. Butternut is such a cooperative wood, just about anything you do to it will only improve its look. As you can see, the piece of butternut used for this article provided lots of grain patterns.

In the next issue, the complex subject of 'relief' carving will be presented, in preparation for another practice project.

DAVID BRUCE JOHNSON
www.davidbrucejohnson.ca



Owl pattern

Round back of head to side-to-side centerline

Establish shoulder top (#9 gouge)

Round side of head (#5 gouge, face-down)

A four-sided head is the result

Curve the back of the head between centerlines (#9 gouge)

Round each rear quadrant of head (#2 gouge, face-down)

Carve the face area to a symmetrical point (#9 gouge)

Outline both adjoining masses (parting tool)

Remove wood until the outlines meet perpendicular to each other

Carve between wing and leg in front

Leg feathers are wider than wings below horizontal line

Taper the wing feathers to form the tail

Orient piece to carve with the grain

Remove a diamond shape under wing behind leg (#2 gouge)

Clean up the diamond (knife)

'Owl' is a collection of square masses ready for rounding

Draw centerlines as a guide for rounding

Round *away* from centerline to junction (#2 gouge)

Observe the grain patterns that appear with rounding

Locate the positions for the eyes

Indent the facial disk around the eyes (#9 gouge)

Establish the eye shape (#9 or #8 gouge)

Outline facial disk (parting tool)

Round the eyes (gouge face-down)

Create eyelid and recarve eyeball (knife)

Shape beak whisker (#7 gouge)

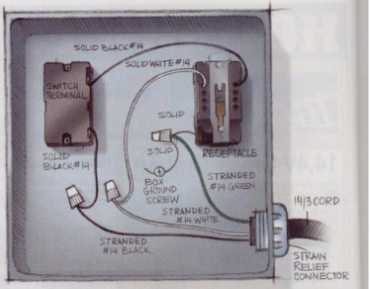
Round top of whiskers (#2 gouge face-down)

Create head/brow border (#9 gouge)

Sand smooth and finish

By Michael Kampen

Switch Box



Anything that makes your time spent in the shop safer and more enjoyable is worth looking into. Many shops are equipped with a router, mounted in some sort of a table. While this arrangement vastly increases the utility of the router, it can also place the on/off switch in an awkward position. If you use a shop vac or dust collector with your router table, it adds yet another switch. A popular modification is to build a switch box that turns your shop vac on when you turn your router on.

You can obtain the parts that you need to connect your router table to a shop vac at most building supply outlets, such as Home Hardware. Assembly is fairly straight forward. Purchase an adequate length of 14/3 electrical cord. I found that since my router table is portable, about 25' of cord is adequate. With that length, I can locate it anywhere in the shop and still have enough cord to pass it behind other equipment so that I don't risk tripping on it.

Begin by installing a male plug (also called a 'cord end') on one end of the electrical cord.

The other end will be connected to a receptacle box. There will be several pre-punched knock-outs in the receptacle box, and after considering your final mounting location, remove the appropriate one. Using a locknut, secure the strain relief connector to the box. Strip off approximately 8" of the cord insulation, and secure it in the strain relief connector.

Switch to turn on router and vac simultaneously

Most switches and receptacles are designed for use with solid wires, so use a piece of regular 14/2 electrical cable for these connections. Using a wire connector (also called a marrette), connect a short length of solid #14 black conductor to the stranded black wire. Then attach the other end of the solid wire to one of the screws on the switch terminal. From the other terminal on the switch, run a black wire to the ungrounded (hot) side of the receptacle. Most manufacturers indicate which terminal this is, either with a brass coloured screw, or some form of embossed writing.

Attach a short length of solid white wire to the stranded white wire and attach this to the neutral side of the receptacle, which typically has a silver coloured screw. If in doubt as to which screw to use, look at the front of the receptacle. The screw with the wide slot is neutral and is always on the left. The screw with the narrow slot is hot, and is on the right side. To assure proper grounding of this receptacle, cut two 6" pieces of bare copper and twist the two solid pieces together with a pair of pliers. Attach these to the stranded ground wire. Attach one of the solid ground wires to the ground screw in the box, and the other one to the ground screw on the receptacle.

At this point, mount the box in a convenient location. A pair of wood screws through the holes in the back of the box works best. You'll have to trim the plaster ears on the switch and receptacle to mount them to the cover plate. After mounting these to the cover plate, remove the appropriate knockouts and mount the cover plate to the box. As you push the wires into the box, make sure that they are not pinched and that the bare ground wire doesn't come into contact with any of the terminals on the switch and receptacle.

By moving the switch to a more accessible location, it will also be more prone to being accidentally turned on if it is bumped or snagged. Add an additional level of safety by attaching your collet wrench to the very end of the power cord of the router. That way, in order to use the wrench, you will need to unplug the router.

Some routers with speed control and electric braking use multi-pole on/off

MATERIALS LIST

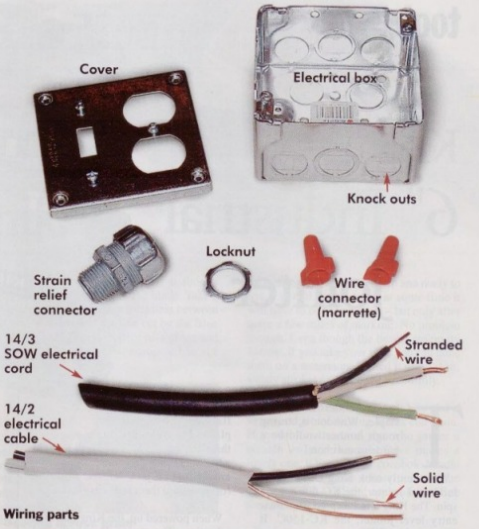
As required	14/3 SOW
3	conductor extension cord, heavy duty
1	Metal receptacle box (Iberville BC-52171K) 4 x 4 x 2 1/8
1	Metal switch/receptacle cover (Iberville BC-8367) 4 x 4 combination cover
1	Strain relief connector Thomas & Betts 2524
1	Switch Leviton 1101-CW
1	Receptacle Arrow Hart 5252
1	Male plug Hubbell HBL 5965VYCN

switches to control these advanced features. You may find that when you install a remote switch, these functions may be disabled. I use a Makita 3612BR and by using a remote switch, the electric brake is disabled. To check compatibility is to turn the (table mounted) router on while it is unplugged and then plug it into an outlet and observe its functions. Then unplug the router to observe the braking function. If in doubt, consult the manufacturer.

MICHAEL KAMPEN
ariu_dog@hotmail.com

Cord or cable?

Electrical 'cord' is referred to as SOW cord. The cord will have a flexible rubber jacket and stranded wire. Electrical 'cable' on the other hand, will have a ridgid plastic jacket and solid wires. This cable is also referred to as NMD cable. The wire in both cords and cables are properly referred to as 'conductors'. You'll want to be careful when removing the outer jacket; depending on the type of cord you buy, it may not be that thick and you could easily cut into the insulation covering the individual conductors. To provide mechanical strain relief, cord ends rely on the cord insulation in conjunction with internal ribs (which look like strands of twine); remove only the insulation required to maintain the integrity of this design.



Wiring parts

lettersto

CONT'D FROM PAGE 2

Hey folks,

Love your magazine and I thought I would share a photo of my kitchen "work in progress".

The pantry and hutch were built using the techniques which were brilliantly layed out in Danny Proulx's "Build Your own Kitchen Cabinets". I have a couple of his books and plan to build cabinets for our entire kitchen. I never met the man, but I certainly appreciate his contributions to my shop and home.

Ron K,
Grand Valley, ON

PS For those who would never throw out the smallest piece of wood: the doors, face frames and T&G door panels are all milled from recycled red pine paneling, which we removed from the walls of our house. The scraps go to kindling and the sawdust is used for mulch.

King 6" Industrial Jointer

The 6" jointer is a shop staple. Without it, truing rough lumber would be a burdensome chore.

We recently took King Canada's 6" Industrial Jointer, the KC-60FX for a spin. The King 6 is a step up from their entry level jointer, the KC-150C. It features a 1 1/2 HP motor (consuming 13.5 amps at 110 V and 6.8 amps at 220 V), three knife 2 3/8"cutterhead with a speed of 3600 RPM, a 7" by 45 3/4" cast iron bed, and 4" by 29" fence. The whole deal comes in at 275 lbs.

I was a bit apprehensive when I saw the "Made in China" marking on the boxes, previous experience being what it was. However, the instructions that accompany the jointer are reasonably well written, there were no missing parts, the fit and finish of the materials was good, and the assembly process was straightforward.

The jointer comes in two boxes, and unless you've got Popeye's arms you'll need a helping hand to hoist the jointer body onto the stand. On some jointers mounting and tensioning the v-belt can be a chore, but on the King it's pretty easy.

Once I had the King assembled and cleaned, I checked the in-feed and out-feed tables and fence for flatness. All three were dead flat and completely planar. I also checked the three cutterhead knives. Only a slight adjustment was required. Since the knives rest on jack screws, adjusting (or replacing) them is an easy task.

When powered up, the King had little vibration. The motor is smooth, and surprisingly quiet, even when jointing at its maximum width. I had no trouble jointing 6" wide, taking 1/16" cuts. The fence glides smoothly throughout its range of motion, and stays in position when the locking nut is tightened. There are positive stops at 45° and 90°. However, I would rather have a rack & pinion fence slide, which I find somewhat easier to use. I like this machine's design for adjusting the in-feed and out-feed tables by rotating hand wheels rather than by means of a rod and lever system. At least for me, it affords more precise height adjustments. Unfortunately the handles on the wheels are too small. The welded steel stand has a built-in 4" dust port, which is a nice feature.

With a street price of around $560, the King KC-60FX is good value in a small shop jointer.

CWM

www.kingcanada.com
1-800-361-4482 for local dealer.

To Dimension Lumber

The jointer is part of the shop triumvirate – table saw, planer, and jointer. These three machines work in unison, with the first, and most crucial operation being performed by the jointer. All lumber is uneven – there is bound to be some level of twisting, cupping, and warping. Before you can run your lumber through the planer you need to flatten one side (or 'face') and one edge. This is the function of the jointer. You guide the lumber along the jointer bed (the flat top) and over a set of cutter knives (the blades), applying uniform moderate downward pressure. To avoid tear out make sure you joint in the general direction of the grain and not against it. If you have highly figured lumber you can try jointing from either end of the board. It's a good idea to mark the grain direction on each piece of wood.

On the first pass with rough lumber you can remove more material (up to 1/8"); remove smaller amounts for successive cuts. If you buy milled lumber you may still need to flatten one side, but remove only 1/32" or so on each pass. Remember to place the cupped side down, keep the guard in place, and use a push block. Look at the face of the board after each pass; if you notice undue tear out, flip the board around and joint from the other end. At this stage you could go to the planer to true the second side, but I like to square one edge first. Set the jointer fence so it's 90° to the table and set the cutting depth to around 1/16". When edge jointing, apply steady pressure against the fence. It's a good idea to check the squarness of the jointer fence frequently. Now you can use the planer to dimension the other face. Once I have the two faces and one edge dimensioned, I let the lumber sit for a day to two so that it can stabilize. Then I trim the board to length and width, and finally joint the other edge.

Blue Spruce Marking Knife

The pencil is a very useful tool to have in the workshop. While it does a commendable job for rough marking and for making orientation and cutting guidelines, it is not the best choice when laying out precision cut lines for highly visible joints, such as dovetails, box joints, butterfly keys, and exposed tenons. For these kinds of joints you would do well to use a precision marking knife.

There are a number of marking knives on the market. The one that I have been using over the past several months is hand-made by Dave Jeske of Blue Spruce Toolworks.

The Blue Spruce marking knife is an exceptional tool. It's well designed and superbly made. The tool fits the hand like a high quality writing instrument and scores a precise, clean line with minimal effort. At 6 3/8" long and only .670" diameter, it fits easily into a shop apron. The nicely shaped handle is cocobolo. The business end of the knife is a spear shaped blade, .03" thick, 1/4" wide, and 1" long, held in place by two brass ferrules. The tip of the blade has a 65° angle, while the blade bevel is 30°.

The marking knife is very easy to use. It's bevelled on one side only to fit flat against a straight edge and can be used either right or left handed. I found it more efficient to tilt the knife so that it's cutting at about a 45° angle with the tip of the blade. Take a look at the difference in thickness between the pencil line and the line cut by the Blue Spruce (see photo). Notice how clean and crisp the knife line is, compared to the pencil line.

Scoring across grain

The marking knife cuts the wood fibers, providing a micro channel that your chisel or saw can register against. You can actually feel the chisel settle into the scored line made by the marking knife, and the resulting impression will be right on the mark. This same principle works the same way when you saw a scored line - the saw doesn't start the cut, the marking knife does; the saw follows the scored line. If you cut a lot of dovetails you'll really like the thin blade on the Blue Spruce. It'll fit easily between the tightest tails you can cut.

The Blue Spruce came sharp and ready to use. I would imagine that at some time it will have to be honed again – but only after quite a few miles of marking. No problem though. Even though the bevels are pretty narrow, if you take your time you can hone them on a waterstone. I tried it using slow, steady strokes and it honed beautifully.

The Blue Spruce marking knife did a very good job of scoring across end grain. However for those of you who prefer a scratch awl for this job, Dave makes a lovely one. It has a 4 1/4" cocobolo handle and a 2" blade. I like a finer point on the end of the awl; a judicial application of fine sandpaper did the trick.

Pricing is very reasonable on these tools: approx $49CDN for the small marking knife ($67CDN for a larger version); $43CDN for the awl, or $85CDN for both. There is no doubt that using finely crafted hand tools makes woodworking even more enjoyable than it already is. According to Jeske, Blue Spruce Toolworks was founded "to provide high quality hand tools to the discerning craftsman who appreciates using a finely crafted tool".

Right on the mark Dave!

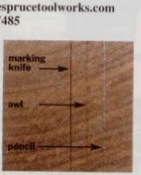
CWM

www.bluesprucetoolworks.com
503-631-7485

Marking knife and pencil lines

Chisel registers on scored line

Impression left by chisel



Scoring end grain

shoptested

HNT Gordon Block Plane

Terry Gordon has been making wood bodied hand planes since 1995. He offers an impressive range of 12 models, including jack planes, smoothing planes, shoulder planes, and rebate (rabbet) planes.

After using the Gordon Block Plane extensively over the past year I can confidently say that this has got to be one of the sweetest planes I've ever used. The plane is made of ironwood (also available in ebony and gidgee), which on a hardness scale is twice as hard as maple and 50% harder than jarrah. The interlocking grain structure of the wood makes it very stable.

The plane comes with a blade setting block (essentially a squared block of wood) and instructions. It's cut from a single piece of wood (it doesn't have the cheeks glued to the body as you find on many other wooden planes). The body has a contoured shape, and is exceptionally well finished; no sloppy workmanship here. The sole is virtually dead flat both across its width and length. Likewise, the throat plate is flat and smooth. Two solid brass abutment cheeks hold the wedge in place. The mouth is very narrow, which is what you want to produce silky thin shavings. The handle is a nicely turned knob, sized appropriately for the plane, while the hollow ground blade (heat treated to Rc 62-64) is hefty at 1/8" thick, and comes fully sharpened.

To set the blade correctly you simply place the plane body on the setting block, insert the plane iron (ensuring that the face of the iron rests squarely on the block), insert the wedge and holding it firmly, tap the iron home. To back up the iron you tap lightly on the plane body just in front of the throat.

The plane is about 7" long, 2 1/8" wide, 1 1/2" high and weighs 1 3/4 lbs. It fits very nicely in the hand. I think that on a plane like this you probably want to leave it adjusted for very fine cuts (and use your metal block plane for making coarser cuts).

Right out of the box I was able to produce whisper thin shavings. In fact I used the plane for almost a week before honing the blade.

I tried it out on a range of figured woods with great success; it cuts like a hot knife through butter. In fact, what makes this plane cut so well is the rather steep blade angle of 55°. You can also reverse the blade to get an 85° angle in case you need to use the plane as a cabinet scraper on wood with really unusual grain.

The plane is so well made that Gordon offers an unconditional guarantee. A mark of confidence on his part, and the ultimate offer of security for the buyer.

At around $130 CDN this is very good value in a block plane. It will last for decades, and is a real delight to use.

CWM

Sources: www.hntgordon.com
Highland Hardware:
www.tools-for-woodworking.com
1-888-500-4466

 By Laura Morris

Black Cherry

Illustration by Mike DelRizzo

Black Cherry (Prunus serotina)

Black Cherry is one of Canada's fruit bearing trees, renowned for its purplish-black, slightly bitter tasting fruit. This unique tree is part of the Rose Family and can often be seen in mixed forests, located within the provinces of Nova Scotia, New Brunswick, Southern Quebec, and Ontario. It's a modest size tree among the other hardwoods, and usually reaches an average height of about 80 feet and an average diameter of 24 inches. Unlike other cherry trees, the black cherry is a commercial lumber. However, the tree isn't as common as it once was and has become increasingly valuable. Expect to pay about $12 per board foot.

Uses

The wood is highly prized for cabinetry and furniture, as well as for paneling, flooring, turning, and carving. It is used to make specialized pieces such as tobacco pipes, musical instruments, and burial caskets. Cherry is often used in place of oak for contemporary Mission and Shaker style furniture.

Physical Properties

One of the most compelling features of black cherry is its signature reddish brown colour. While the sapwood is often a light, yellowish colour, the heartwood is a warm, reddish brown. With exposure to sunlight the wood will noticeably darken over time.

What also possesses great appeal is the grain pattern. It usually features a straight grain with a lustrous, satiny quality. This grain can also have eye-catching, curl or wavy streaks and it is common to see gum or resin pockets. The texture is uniform and the wood is quite dimensionally stable with medium density, strength, and bending properties. Its heartwood is reported to be very resistant to decay.

Working Characteristics

When working with black cherry, note that it machines well and causes average wear on tools. While planing, keep in mind that it is prone to burns. The wavy or curly grain variety also poses more of a challenge during the planing stage, so reduced cutting angles are recommended.

Black cherry sands and glues very well. Pre-drilling for screws is recommended. It has good steam bending properties, behaving much like beech and ash. A range of finishes can be used on this wood, but it's often not stained. The finished product is impressive and can be polished to a high luster. Black cherry is truly a favorite among many Canadian woodworkers.

LAURA MORRIS
www.lauramorris.ca

Black cherry

Curly cherry

Woodworking Characteristics

Radial shrinkage	3 %
Tangential shrinkage	7 %
Volumetric shrinkage	12 %
Weight	34 lbs/cubic foot
Crushing strength (max)	7,015 lbs/square inch

The Soul of Woodworking

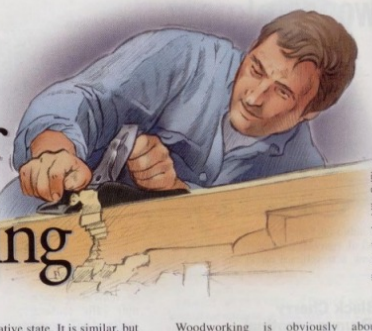


Illustration by Mike DelRizzo

When was the last time you thought about how much you truly enjoy woodworking?

I must admit the thought never crossed my mind until I actually stopped working with wood on a daily basis. After a while, it dawned on me that I was missing the enjoyment that I had been getting from woodworking, and I started pondering why it had been so enjoyable.

The more I thought about it, the closer I came to understanding my enjoyment, and the closer I got to understanding what I have come to know as 'the soul of woodworking'. This new appreciation has led me to discover some important benefits to woodworking.

Surprisingly, I discovered that one of the greatest benefits of working with wood comes from the way it requires me to think. You will probably agree; when you are working with wood, and the associated tools and machines, there is definitely a need to concentrate. Daydreaming, even for a second, can result in an accident, or at the very least, wasted materials.

Successful woodworking requires that I maintain a focused concentration on what I am doing, from the design right through to the finishing. The benefit of this focused concentration is that it excludes all other thoughts for that period of time. Instead of considering the weather, the leaking faucet, or whether hockey will ever return, I simply think about one thing: the project I am working on. This state or condition, where I am focusing my attention, can be called a meditative state. It is similar, but not exactly the same as, sitting crossed legged and chanting a single phrase. In essence, the results are the same.

When I do multiple repetitive tasks such as square up a face and edge on a joiner, or rip or crosscut numerous pieces on the table saw, I am actually benefitting physiologically from the process. As I focus my attention on the single task of the project, I actually allow my mind to relax. The relaxation occurs because the mind is only processing one item at a time, which takes a lot less energy than trying to multi-task. The relaxation is directly related to the length of time that I maintain the focused attention.

Woodworking does even more than just relax your mind. When the project turns out as well as hoped for, you have an immediate sense of satisfaction. This occurs as you work on a project, and experience it coming together as the parts are assembled.

Psychiatrists tell us that the happiest people are those who fulfill their job descriptions in the shortest space of time. Their best example is the hand ditch digger. With every swing of the pick or shovel full of dirt, he fulfills the job description. Clearly, there is a lot more to woodworking than digging ditches, but there are some similarities, in the level of satisfaction. This may be one of the reasons that turning is so popular; it provides an immediate benefit from your efforts. The need we all have for a sense of satisfaction in what we do may account for the resurgence of interest in woodworking.

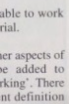
Woodworking is obviously about working with wood. As I think about it now, the quality I appreciate most is its beauty. Whether it's the colour, figure of the grain, or subtle texture, wood is a beautiful material. Its powerful beauty often leds to the simplest designs; the beauty of the wood is enough on its own.

Our interest is always renewed as wood is available in a myriad of different forms, including flitch matched veneers, quarter cut boards, and exotic turning blanks. The diversity of its beauty is endless. In addition to its beauty, wood is easy to work with, to join, and to construct assemblies into larger projects. Wood also accepts a variety of finishes that are as varied as the material itself.

As I searched to understand 'the soul of woodworking' I discovered three things:

- The act of working with wood is therapeutic
- The direct connection between our efforts and the finished project gives a strong sense of satisfaction and accomplishment
- We are blessed by being able to work with such a beautiful material.

I am sure there are many other aspects of woodworking that could be added to describe 'the soul of woodworking'. There is probably a slightly different definition for everyone who works with wood. If you have the time, I would love to hear your thoughts.



CLIVE B. SMITH
clive@idirect.ca