

Canadian Woodworking

OCTOBER/NOVEMBER 2004 Vol.7, No. 5

Hand Tool Cabinet

**Shop
Electricity**
Light Your Workspace

**Fireplace
Mantle**
Easy Elegance

Magic Wand
Kid's Love Them!

PLUS:
VICTORIAN FURNITURE
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TOOL REVIEWS



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EDITORS

PAUL FULCHER, LINDA FULCHER

ASSISTANT EDITOR

CARL DUGUAY

WRITERS

GARY DOVER, CARL DUGUAY, REA GIBSON,
GARNET HALL, DAVID BRUCE JOHNSON,
MICHAEL KAMPEN, GRAHAM MCCULLOCH,
LARRY MARSHALL, DANNY PROULX,
J.P. RAPATTONI, PAUL ROSS,
HIKMET C. SAKMAN, JIM SHAVER,
MICHEL THERIAULT, CHESTER VAN NESS,
HENDRIK VARJU

PROOF READER

ROBERT E. JOHNS

ADVERTISING

(519) 449-2444

GRAPHIC DESIGNER

JODY MARTIN

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

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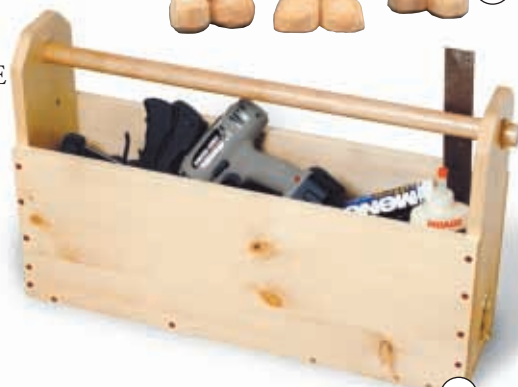
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Cover photo

RAY PILON
www.storm.ca/~rpilon
rpilon@storm.ca

LINDA FULCHER

I play an integral role in the making of any woodworking project for my family. I do all the planning and designing. In fulfilling my role, I try to keep in mind a very important principal. This principle applies when working with woodworkers, although the place I have found it most clearly outlined is on my garage mechanic's wall. It goes something like this: the lowest hourly rate is available when he does the work; a higher rate applies if I watch; and the highest rate of all, if I want to help.

Sigh. It turns out that I want to know how things go together. I want to know why something should be done a certain way. For instance, take the building of our deck recently.

While my role in the actual building was nil, I was dubbed the "thinker", that is, "Oh oh - Linda is thinking again!"

My quiet considerations could be compared to the wild chirping of the birds, suddenly coming to an abrupt halt. Everyone would look up! Those of you, who play this role in your woodworker's life, know the power your silence can have. Doubtlessly, you also know the responsibility. While you are quietly revising the plan (better materials, more stairs, spiral staircase etc. etc.), your changes mean more work, more materials, more money.

Your ponderings will undoubtedly result in a corresponding halt in work and a lot of chin rubbing. That is because your ideas will require execution. I had the good fortune of working with some woodworkers who would say, "Anything is possible." Fortunately, they were also great at helping me work out solutions that would match my budget.

These days, my silence is different... it represents me appreciating the new space we have, the chirping of the birds and, as you might have guessed, a quiet contentment with my new found knowledge of joists, risers, sonotubes and frost lines.



PAUL FULCHER

Well woodworkers, it's time to work your magic!

In this issue we are including an out-of-this-world project that is sure to help you with all of your other projects. Whether you are a beginner, intermediate or advanced woodworker, your work (and popularity) is bound to improve once you've made the project sent in by Larry Marshall. You see, Larry is more than just a woodworker, and his project is more than just a project.

Larry loves all things magical, so after enjoying such works as 'Harry Potter' and 'Lord of the Rings' he decided to make a little magic of his own. He went into his shop, closed the door and started working some of his magic. A few hours later Larry came out of his shop. But something was different. Somehow, by producing a few tapered rods, Larry was instantly hailed as 'the coolest dad in the neighbourhood'. How did he do it? Well, fortunately Larry is a magician who doesn't mind sharing his secrets. Turn to page 26 and see how you too can be catapulted to greatness (at least in the eyes of the neighbourhood kids).

Also included in this issue is a brand new series on electricity for your workshop. We receive a constant flow of questions regarding heating and lighting workshops, so we have put together a series that will help you with all of your shop concerns. On page 20 Michael Kampen starts us off with looking at some of your lighting options. Future issues will offer more info on heating your workspace. If you have any pressing questions, send them in and we will incorporate them into this series.

Until next time, I hope the projects presented in this issue inspire you to 'work your magic'.

Correction:

In our review of the DMT DuoSharp benchstone (April/May '04, Vol.7 No.2) we stated an acceptable surface tolerance of .005". While that is pretty flat, DMT guarantees a surface tolerance of .001".
www.dmtsharp.com

deareditors

Hello:

I just received my August/September '04 issue. Great job! I enjoyed Linda's ponderings on 'wicking'. It is an interesting word. I thought that you might like to know that before pressure treated was invented, farmers would put a freshly cut log in a pail of copper sulphate solution until it showed at the top.

R. Brown, Port Robinson, ON

Paul:

I really like your on-line eNewsletter. It's clean, fresh and loaded with goodies. Oh by the way, I totally agree with you about Simple Green (eNewsletter vol. 1, #1). I am a manager of a Sears Hardware

store, and Simple Green is our main cleaner. We have found it to be the only cleaner that will clean up after we've made a mess with our paint machine. Take care.
D. Dickinson, Canton, OH

Hi:

I am in the planning process of converting my garage into a part-time woodworking shop. My concern is dust collection. I believe that I must consider static electricity, but don't know the correct ducting material. What material should I consider? A second question, other than waxing cast tool tops, what preventative measures could be taken to guard against moisture? My garage will be used for

parking my car and will be heated when I need to do my woodworking. I live an hour north of Calgary, so our winters drop to -30 to -40°.

Thanks in advance, Gary

Gary,

Your questions comes at a good time. With this issue we start a six-part series on lighting and heating for your workshop. I figured that you wouldn't want to wait until we covered your concerns in that series, so I asked a couple of the guys here for their response to your questions. Here are their answers:

■ continued on page 41



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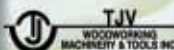
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Markham's aggressive marketing plan included expansion into the Pickering market. From their 3500-sq-ft satellite location, Dino's brother, Rick, Services the eastern region with a highly qualified staff and great selection.

Drop in and meet Dino, Joe and Rick and enjoy the friendly family atmosphere, take advantage of a great selection of fine tools and machinery and see what puts Markham Industrial and Trade Supplies Ltd. truly in a class of their own.



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Together, the three built a strong presence in their market by showing a great selection and offering above-average service to the woodworking community.

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circa1900 BY GARY DOVER



Lathing Hatchet

Broad Axe

Felling Axe

Felling, Splitting & Chopping

Grandpa's Tool Kit Part III

The view from Grandpa's wood shop was spectacular. It looked over the crescent shaped Bay of Malbaie and the long sand bridge, from which the picturesque fishing town of Barachois, Gaspé County proudly takes its name. Beyond the bay, a steely blue sky framed the boundless grandeur of the Atlantic Ocean. If this wasn't enough to stir the soul, in the distance you could clearly see the towering Percé Rock and the Beluga-shaped Bonaventure Island.

Two miles up the Coteau Road, leading into the heartland of the Gaspé Peninsula, was the south eastern extremity of Canada's magnificent Boreal Forest. Grandpa's "back woods" was the edge of an immense conifer forest occupying over 3.2 million square kilometres, or over 75% of Canada's total forest area.

Grandpa was well connected, but not in the modern sense. He and his family were integrated into the natural order of life: the ocean, the land and the forest. The beams and wood for his house came from Grandpa's back woods, allotment of 7 acres. Nature supplied almost everything for the good people of Barachois, for which it was respected. The largest trees, known as wolf trees, were carefully selected for harvesting to clear the forest canopy for the smaller trees to flourish.

In this seemingly limitless forest, Grandpa knew the names and characteristics of all of the Boreal trees: the conifers, such as the narrow-crowned pine, fir and spruce; and the broad leaf trees including the trembling aspen, white birch and willow. Within this abundant setting, the axe was king.

Tools for Survival

After thousands of years of use, axes and adzes were still the tools that allowed Grandpa to chop, split and hew wood. The woodsmen of his era had many types of axes, all impeccably ground and honed to a razor-sharp edge.

Grandpa's collection included an American pattern-felling axe; a double bitted or throwing axe; and his pride and joy, an ancient European-style goose wing axe.



Double bitted axe

Handles were fashioned using local ash. Each man had his own handle template, best suited to his own hand and strength. Grandpa liked the doe foot pattern and always had an extra axe ready, in case of breakage. A variety of saws were used in conjunction with axes to fell timber and cut it into manageable lengths. The two-man cross cut saw was used to fell large girth trees and the smaller buck saw was used to cut logs into more manageable sections.

Tools at Work

To square a log Grandpa snapped a charcoal line (like a chalk line) to define the two sides. He would get up on top of the log and with his double bitted axe chop or score to the charcoal line. He used the broad axe to square up the sides.

With the adze Grandpa worked backwards to cut off the bark and top dome. He would turn the log using Peavey hooks (moveable hooks on a long pole) and repeat the same procedure on the under side to produce a square beam with few tool marks.

Our forefathers split more wood with axes than they cut with saws. They split logs with wooden mauls (wedges) and large mallets known as beetles. Green or unseasoned pine, cedar and birch, were fairly easy to split. The result would be narrow pie shaped boards, suitable for use as clapboards. The split rail fence surrounding his farm was also made using mauls.



Goose Axe

Axe and Adze

Building frames were made from hemlock beams. The walls were solid square log construction using mortise and tenon, and dovetail joinery methods.

Once the framed structure was up, the joinery was pegged. Grandpa was then able to lay a shingled roof, constructed of riven or split lathes, and covered over with cedar shakes or shingles. The cladding for the exterior consisted of pine or fir clapboards pegged to the frame.

Adze

Grandpa also made the windows and the double gate-hinged doors. At almost every step the axe was used to complete the buildings. As it was difficult and expensive to buy square cut iron nails locally, all overlapping boards were attached to the frame using wooden trunnels (tree nails).

Froe

Grandpas, froe was a long, dull knife-like tool with a right angle handle. He used it with a wooden club for splitting shingles from a large block of cedar, cleaning up with a spoke shave.

He also used the froe to "rive" or split hardwood "billets", 2" square lengths of green or unseasoned birch, to produce laths for internal partitions and roofs.

Gutter Adze

Another tool Grandpa used was a gutter adze, a smaller, gouge-like version of the carpenter's adze. He used it to scoop out small hardwood trunks to fashion rain gutters, and to make hollowed-out water troughs for cattle and sheep.

Contributing to the Community

Grandpa's skills touched the lives of the people in the village from cradle to grave. He made rocking cradles and coffins, not surprisingly on short notice. During the winter, when it was impossible to dig graves, the parish priest would ask Grandpa to build the casket, and to collect and deliver the body to the church morgue, by horse and sleigh, to await the coming of spring. For the poor of the village Grandpa would perform this service without charge and, in lieu of a cloth shroud, would often provide birch bark and moss, put aside during busy summer days. This was, in many ways, a fitting end to a life spent on the edge of a great forest.

In the next article we will return to Grandpa's wood shop and take a more in-depth look at his work bench, devices used for gripping and holding stock, and measuring and laying-out tools, used to make wooden implements and furniture.



GARY DOVER
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Hand Tool Cabinet

This oak plywood cabinet not only organizes your tools, the acrylic panel doors make an attractive way to display them. Acrylic is safer than glass as it won't shatter when it breaks. You can also use plywood in place of the acrylic.

For this project you'll want to use a carbide-tipped, stacked dado blade. It will double the usefulness of your saw, enabling you to quickly and accurately cut dadoes, grooves, tenons, and rabbet joints.

Whatever your needs, this safe, accessible, and relatively dust free storage cabinet is just the thing for your shop.

Cut Sides Top and Bottom

Begin by cutting the sides (A) and top and bottom boards (B). Apply matching wood edge veneer to the front edge of each panel. I used pre-glued iron-on wood veneer tape. Trim the tape with a sharp knife, an edge trimmer, or a router and flush trim bit with a bearing guide.



Photo courtesy Danny Proulx

Drill Shelf Pin Holes

Drill two columns of holes in each side panel, about 2" in from each long edge and spaced about 1 1/2" apart. The hole diameter should match your choice of shelf pins. Start the holes from the top edge of each side panel and on each inside face, so that the wood veneered taped edges are facing in the same direction. You can drill the holes using the jig shown. I have a wood dowel rod on the bit to limit the hole depth. The jig is simply a flat piece of metal, with evenly spaced drilled holes, and stop supports at each end.

Cut Rabbet

Using a router or dado blade on your table saw, cut a 3/8" deep by 3/4" wide rabbet on the inside back face of each panel.

Cut Biscuit Slots

Cut slots for #20 biscuits 3" and 9" from the front edge of each panel. Glue and clamp the carcass together. If you don't have a biscuit joiner cut rabbets on the end of the two side panels, then glue and clamp the carcass together.

Secure Panel and Glue

Cut the back panel (C), and apply glue to the rabbets in the back of the carcass, and use screws or finishing nails to secure the panel in place.

Fill Rabbet Cuts

Glue small blocks into the rabbet cuts on the bottom of the cabinet. When dry, sand flush. They provide a flat surface for the veneer edge tape that covers the lower end cuts of the side boards.

Apply Wood Veneer Tape

Cut the shelves (D) and apply wood veneer tape to the front edge. While your iron is hot, put veneer tape on the bottom (visible) ends of each side board. The top ends of the side boards won't be seen so they don't need to be covered. As an option, you can use 1/4" acrylic for the shelving.

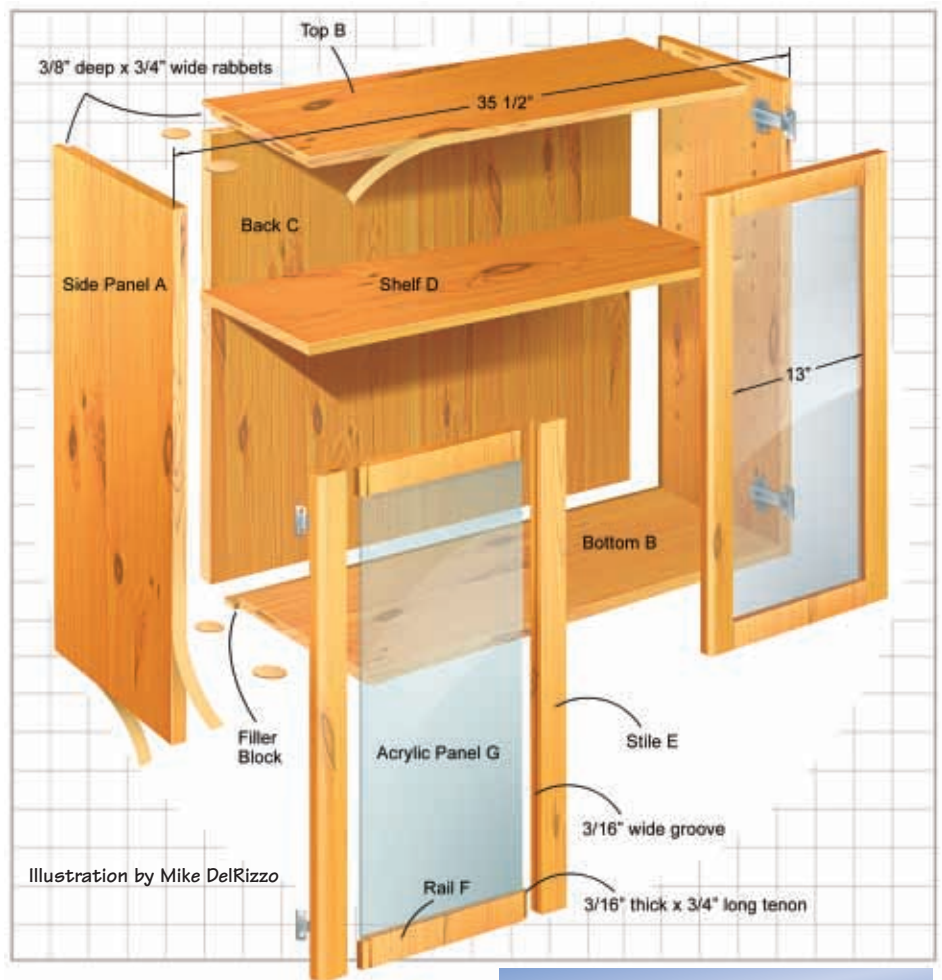
Cut Door Grooves and Tenons

The doors are 27" high and 17 1/2" wide. There are four stiles (E) and four rails (F), each 2 1/4" wide. Prepare all the door parts remembering that the 14 1/2" length of each rail includes material to cut 3/4" long tenons on each end. Cut a 3/4" deep by 3/16" wide groove on one long edge of each door piece. The groove will hold the rail tenons and a 1/8" acrylic center panel, as well as allowing 1/16" space so the panels won't be under pressure.

The tenons at both ends of the four rails are 3/16" thick by 3/4" long. Cut them by making multiple passes over a standard table saw blade or in one pass using a stacked dado blade.

Round Over Door Frame Edges

Glue and clamp one rail to the stiles. The other rail is a dry fit because it will be removed later to install the center panel. Using a 3/8" round over bit in your router soften the outside perimeter of each door



Apply wood edge veneer tape to the front of each panel



Cut a rabbet on the inside back face of each panel



Drill two columns of holes in each side panel for shelf pins



Cut biscuit slots at end of each panel

MATERIALS LIST

- 2 (A)** 3/4" T x 12" W x 27" L
Side Panels, Veneer Ply
- 2 (B)** 3/4" T x 12" W x 34" L
Top & Bottom, Veneer Ply
- 1 (C)** 3/4" T x 26 1/4" W x 34 3/4" L
Back, Veneer Ply
- 2 (D)** 3/4" T x 11 1/4" W x 33 15/16" L
Shelves, Veneer Ply
- 4 (E)** 3/4" T x 2 1/4" W x 27" L
Stiles, Hardwood
- 4 (F)** 3/4" T x 2 1/4" W x 14 1/2" L
Rails, Hardwood
- 2 (G)** 1/8" T x 14 1/2" H x 24" L
Panels, Acrylic

HARDWARE & SUPPLIES

Glue
Finishing Nails
#20 Biscuits
4 Hinges and Plates
Wood Veneer Edge Tape
2 Handles
5/8" Screws
Shelf Pins



Use finishing nails to secure panel so glue will properly set up



Fill the rabbet cuts with small blocks



Apply wood veneer tape to front edge of each shelf



Cut groove to hold rail tenons and acrylic centre panel



Cut tenon with multiple passes over a table saw blade or in one pass over a stacked dado blade



Use round over bit to soften outside perimeter of each door frame



Remove non-glued rail and install the acrylic panel in each door



Install two hinges on each door, at right angles to the door's edge



Clip hinge plate on hinges and install doors

frame. Next, apply a finish to the cabinet carcass and door frames. I used three coats of lacquer spray.

Install Acrylic Panel

When the finish has dried, remove the non-glued rail and install the acrylic panel in each door. Apply glue to the rail tenons and clamp the frames until the glue dries.

Install Hinges

Install two 100° - 120° hinges on each

door, in 35mm diameter hinge holes. Drill the hinge holes about 4" from each door end and 1/8" away from the door's edge, and secure the hinges with 5/8" screws.

Install Doors

Clip the hinge plate on the hinges and install the doors on the cabinet. Hold the door in the open position and insert a 1/8" spacer between the door and cabinet side panel edge. Drive 5/8" screws through the hinge plate holes into the cabinet side.

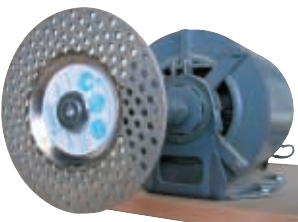
This will ensure that the doors are properly mounted and aligned.

You can alter the dimensions of this cabinet to suit your needs. You could also install a light to illuminate the cabinet interior.



DANNY PROULX
www.cabinetmaking.com
danny@cabinetmaking.com

shop**tested** BY CARL DUGUAY



Royce Sales has introduced a new abrasive product to Canada from Germany, the Kaindl Grinding Wheel.

The wheel is 4 3/8" diameter

with 1" of cutting surface on either side of the wheel. It has an arbor for mounting in a drill press, a power drill (with a 3/8" capacity) or on just about any spare motor. You can run the wheel at speeds of up to

5200 RPM, although I have found that it cuts just as aggressively at lower (1100 RPM) speeds.

Two things set the Kaindl apart from other grinding wheels on the market. First, all the cutting surfaces of the wheel - both of the cutting sides as well as the edge - are coated with 120 grit diamonds. Diamonds are incredibly durable and hard, enabling you to grind just about anything: plastic, wood, brass, iron and steel (as well as tungsten carbide).

Second, the wheel is perforated. What this means is that you can see much more

clearly where you are grinding and how much material you're removing. This is a real help when attempting to grind to close tolerances. The perforations also help minimize heat build-up.

I've used the Kaindl extensively over the past few weeks, and really like the product; it cuts very quickly and cleanly. Although at \$115, it is more expensive than other grinding wheels, it does offer better value, and will likely give years of service in most woodworking shops.

For more information:

www.sandpaper.ca 800-684-9262

Mortise & Tenon



Lay out mortise on stock



Drill out waste



Clean-up inside face



Lay out tenon on end of stock



Cut waste away from tenon

The mortise and tenon joint offers exceptional strength, resisting racking and twisting forces better than most other joints while providing an ample glue surface.

The basic joint includes a mortise cut into one piece, which accepts a tenon cut in another piece. It's used primarily in furniture construction and cabinet frames.

Variations include Haunched Tenons, Loose Tenons, Multiple Tenons, Through Wedged Tenon, Pegged Tenons, and Mitred Tenons.

The mortise and tenon is easier to make than most woodworkers realize. Although it requires a little planning, you can make it by hand, with power tools, or a combination of the two.

You need to use accurate measurements so that the pieces line up and fit snugly. Marking your layout lines with a line with a sharp pencil or layout knife helps. Make sure your stock is milled square. Cut the mortise first, and then cut the tenon slightly larger, paring it down and test fitting until you get the perfect joint.

Mortise & Tenon By Hand

The traditional way of making these joints uses hand tools. I also use a bandsaw and drill press to reduce production time.

Mark out the mortise on your stock, keeping the width about 1/3 the width of your stock.

Use a brad point or Forstner bit to drill out the waste. A depth stop keeps the depth consistent.

Next, use a broad chisel to clean-up the inside face of the mortise, and a smaller chisel to cut the ends square.

Using a marking gauge, such as the Tite-Mark Gauge, measure the mortise depth and transfer the measurements to the tenon stock, scribing layout lines on all four sides of the tenon. Ensure that the width and depth of the tenon will be close to, but no smaller than the mortise. This gives you some leeway for the perfect fit.

Remove waste from tenon with a handsaw, router, table saw, or bandsaw. Cut shy of the shoulder, cleaning up with a sharp chisel or file.

Tenon should now fit snugly into the mortise. You may need to pare a little more off. If the joint is too loose, it won't hold together, even

with gluing. Fix this by gluing a thin piece of wood or veneer on the tenon, let it dry, then re-fit the tenon.

Loose Tenons With A Router

The Loose Tenon is easy to make with a router. Instead of cutting both a mortise and a tenon, you cut mortises on both pieces of stock and join them together with a shop-made tenon, much like dowelling two pieces of stock together. This method gives you the same sturdy construction as a traditional mortise and tenon, but in less time.

You will need a jig to use with your router. My jig is home-made from Plexiglas; you could also make one out of wood, or you could buy one. The hole in my jig is sized to accommodate a 1/2" template guide bushing, and uses a 1/4" router bit to make a 1" by 1/4" mortise.



Shop-made jig



Routing with jig

Clamp your stock to the jig. With a plunge router and a 1/4" spiral up-cut bit, rout the mortise to the required depth. Play it safe and rout the mortise in two or three passes, increasing the bit depth by 1/4" each pass, rather than trying to do it all at once. Repeat on the matching stock, making sure that the pieces will line up when finished.

The mortises will have rounded edges, which is fine. Make the tenons from a piece of 1/4" by 1" stock about 12" long. Using your router with a 1/8" round over bit shape the edges. Glue and fit the loose tenon in place.



MICHEL THERIAULT
www.woodstoneproductions.com
mjtheriault@sympatico.ca

Tool Tote

This toolbox tote is easy to build and makes home repairs much easier, because all your tools are close at hand at the work site. When friends or family call on you for help, all you have to do is load up the tote and you're on your way - no running back and forth for another handful of tools.

The tote has a bottom-mounted tray to ensure easy access to hand tools. Simply unlatch the draw catches and the hand tool tray is released from the main box. The bottom section holds small tools; the top holds levels, carpenter and combination squares, and any other tools or supplies necessary for the job at hand.

I used pine for this box, but just about any solid wood or sheet material will do. Hardwood will be more resistant to bumps and dents. Because plywood does not expand and contract much the joints can be glued to really add strength to the tote.

Cut Sides and Ends

Cut the side (A) and end (B) panels to size. Cut 45° mitres on the tops of both ends, 1 1/2" in from each side edge. Clamp the end panels together and ease the sharp corners with a sander.

Form Dados

Cut a 3/4" x 3/8" deep dado 1/2" above the bottom edge of each end and side



Ease sharp corners with sander



Photo courtesy Danny Proulx

panel. Stop the dados 3/8" short of both ends. It is easiest to cut these with a table mounted router.

Drill Handle Holes

Clamp both panels together and drill 1 1/4" diameter holes centered on each end panel, 2" below the top edge. Use a piece of scrap lumber under the boards to prevent tear-out.

Assemble the Box

Install the bottom board (C) in the dados, but don't use glue so it can expand and contract without cracking. Assemble the tote box and clamp tightly when all the parts are aligned. Counterbore screw holes using a 3/8" bit, and secure with three 2" screws.



Form dados

Install the Handle

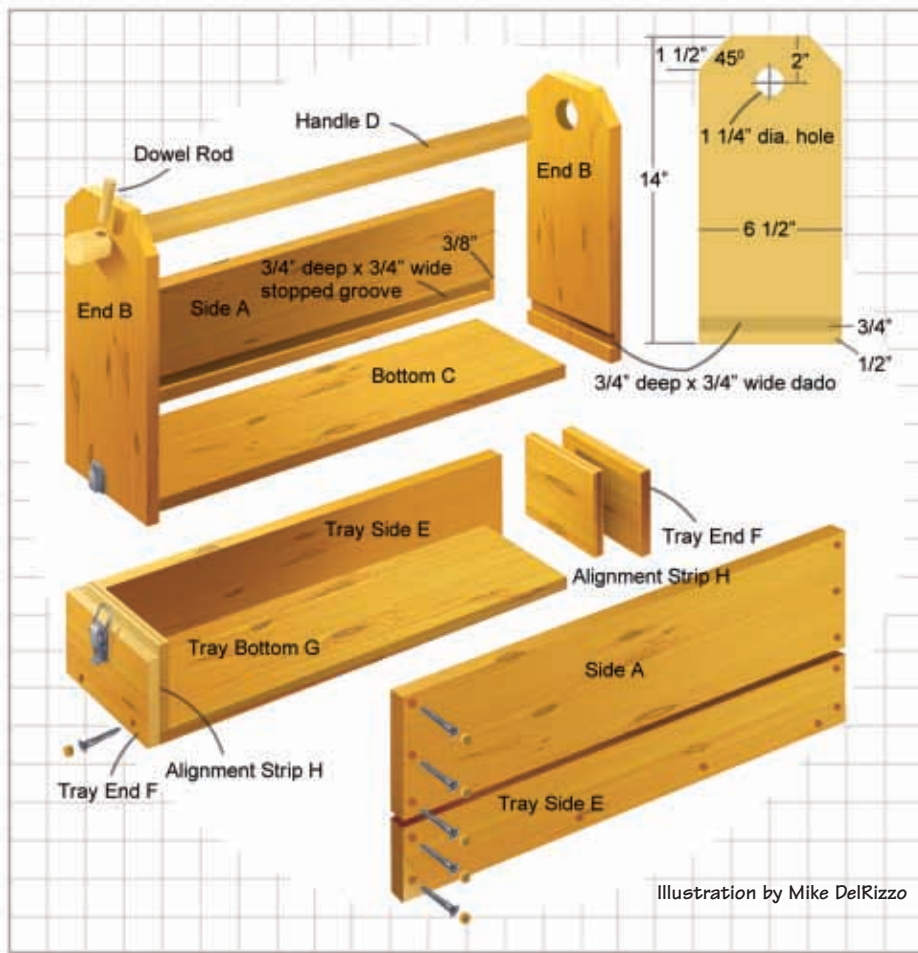
Cut a 1 1/4" hardwood dowel 30" long for the handle (D). Drill two 5/16" diameter holes through the rod, 3/4" on center from each end. Thread the dowel rod through the end boards and drive 2" x 5/16" dowel pins into the holes on the handle. Use a little glue on each dowel pin, being careful not to glue the dowel rod to the end boards.

Assemble the Tray

Cut two tray sides (E), two ends (F), and the bottom board (G) to size. Secure the sides and end boards to the bottom board. Use a little glue and 2" screws in counter-bored holes. Fill the holes with coloured wood plugs.



Drill handle holes



MATERIALS LIST

- 2 (A)** 3/4" T x 7 1/4" W x 28" L
Sides, Pine
- 2 (B)** 3/4" T x 6 1/2" W x 14" L
Ends, Pine
- 1 (C)** 3/4" T x 7 1/4" W x 27 1/4" L
Bottom, Pine
- 1 (D)** 1 1/4" Dia. x 30" L
Handle, Hardwood
- 2 (E)** 3/4" T x 3 1/2" W x 28" L
Tray Sides, Pine
- 2 (F)** 3/4" T x 3 1/2" W x 6 1/2" L
Tray Ends, Pine
- 1 (G)** 3/4" T x 6 1/2" H x 26 1/2" L
Tray Bottom, Pine
- 2 (H)** 1/2" T x 4" H x 6 1/2" L
Alignment Strips, Plywood

HARDWARE

Screws
Glue
5/16" Dowel Rod
2 Draw Catches



Assemble the box



Assemble the tray



Install catches



Install the handle



Install alignment strips



Install Alignment Strips

Cut two 1/2" x 4" pieces of plywood to form the alignment strips (H). Glue and nail the strips on each end board. These strips align the main box to the tray.

Install Catches

Install two draw catches, one on each end of the box, to secure the tray to the main box. Align the tongue on the top section of each catch with the bottom edge of the tote box. If the tongues are below the bottom of the end panel, they may scratch the floor when the tray is removed. Finally, apply a finish to the box. I used three coats of polyurethane.

You may have specific tool carrying needs, so change the size to suit your requirements. If you carry a lot of hand tools, the upper section can be downsized and the tray built deeper. Wood pegs could be added to one side of the box to wrap extension cords that are often needed on the job. Divider slots could also be installed in the upper section to keep your tools separated. The options are endless with this great little carrying box.



DANNY PROULX
www.cabinetmaking.com
danny@cabinetmaking.com



Faux Fireplace Mantle

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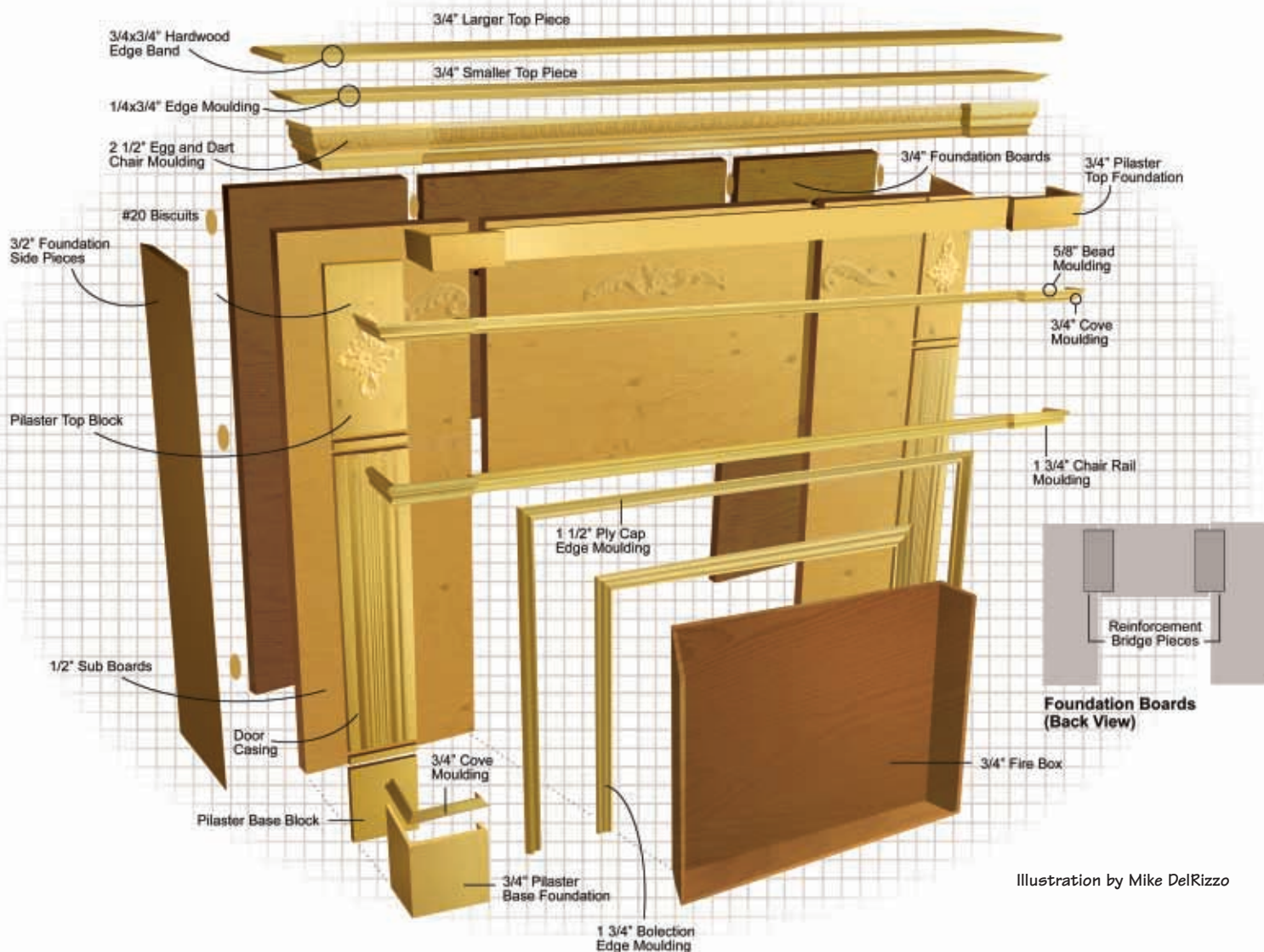


Illustration by Mike DelRizzo

As a young boy growing up in the 1960's, I remember every Christmas my younger brother would use crepe paper to convert mother's sewing machine into a fireplace. After all, Santa needed a point of entry, and we needed a place to hang our stockings.

Although that was a long time ago and the memories are somewhat vague, the feelings of warmth and comfort brought about by that imitation fireplace are still very vivid and treasured.

I was reminded about the warmth and comfort offered by a fireplace when an interior designer suggested that our living room needed a focal point. Initially, I thought that the perfect solution would be the standard chesterfield along the wall, with a picture above it. However, a faux fireplace was rather strongly suggested by my significant other.

With a bit of encouragement (and

recollections of my childhood) I started shopping around, and quickly found that prices were in the \$3,500-\$5,000 range.

I realized that like my brother, I could do it myself. After a lot of reading, I decided on a design consisting of a white mantle with a marble hearth. Once I envisioned what I wanted, I went about creating some drawings that would suit my living room's size and dimension.

The accompanying illustration shows you how the mantle goes together, and provides some general width dimensions for the one I built. You'll need to size the mantle to suite the dimensions of your room. The materials should be readily available at your local building store.

Foundation Board

Begin with a foundation board on which all the details and mouldings are attached. I built mine out of 3/4" plywood. I cut 45° bevels on the sides and face panel edges to conceal any open plywood edges. Then I

joined the panels with double #20 biscuits, although you could use dowels or screws. Next come the sub boards, which build up the face of the foundation board only. For these I used 1/2" plywood, attached to the foundation board with glue and brads.

Fire Box Mouldings

I wanted to create a recessed zone around the fire box and set it off against the mantle. For this I used 1 3/4" edge moulding for the firebox opening and 1 1/2" edge moulding for sub board edges.

Pilaster Moulding

For the pilasters I looked for a vertical detail that would add shadow and create a sense of depth. I selected a finely detailed piece of 6" wide, 3/4" thick door casing, and a 1 3/4" chair rail moulding for the waist trim. I gave the sides some detail by mitring the moulding along the sides at the wall. I cut the mitres by hand, as such small pieces are difficult if not dangerous on a powered mitre saw.

Pilaster Foot

For the pilaster feet I mitered three pieces of 3/4" plywood to create a 7" tall wrapped look, and 3/4" cove moulding to crown the top edge of the foot.

Mantle Trim

For the upper mantle I chose a 2 1/2" Egg and Dart chair moulding and a 5/8" bead moulding, attached across the upper mantle and along the sides.

For the top I used two pieces of 3/4" sheet plywood and 1 1/4" x 3/4" edge moulding to frame the smaller base panel against the top panel. I edge banded the top panel with 3/4" x 3/4" poplar and routed a 1/4" round over along both edges. I chose a set of 3/8" hardwood decorative appliques from Lee Valley.

I covered nail marks with wood filler and exposed plywood edges with drywall compound. I sanded and primed the mantle and applied three coats of a semi-gloss antique white paint.

Wall Brackets

2" x 4" studs secured to the wall serve to hold the mantle in place. After nailing the mantle to the studs I attached the top, and sealed the edges with white latex caulking.

Fire Box

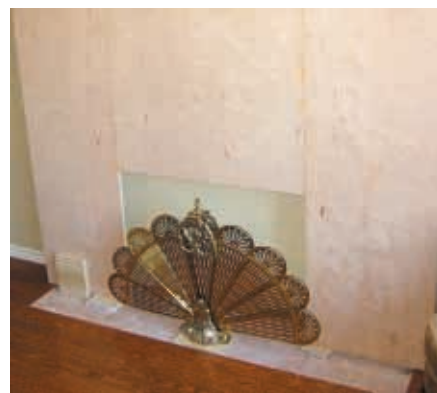
I built the fire box with 3/4" walnut plywood, cutting 45° dado mitres to fit the sides to the back. I finished it with orange shellac.

All in all I spent about \$480 for materials and estimate that it took me 25-30 hours to complete.

It's been a year since I completed this project and I am very happy with the results. The living room is more inviting than before and the mantle gives a warm feeling of comfort for all who sit in the room. My brother would be proud!



JIM SHAVER
jim.shaver@sympatico.ca



Foundation board



Fire box moulding



Pilaster mouldings



Mantle trim



Fire box



CORDLESS POWER NAILED.



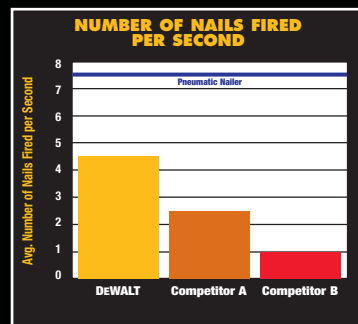
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Part IV Pricing Your Work

Pricing your work is one of the most difficult things to do, especially in the first year or two of operation. Every project is different. Once you have done a few projects you'll have a better sense of how long things take to complete. You will need to know how to estimate material consumption and to keep track of the cost of materials.

Ignorance is Not Bliss

Often, when I ask someone how long it has taken to complete a project, they respond, "I don't know, but a really long time". All they know is that they didn't earn any money on the project. They should know their hourly rate on that project. You can't improve your earnings without knowing the truth about how little you may be earning.

You can use your time and pricing records from one project to help you quote more realistically on the next project. Even with a custom piece that you have never built before, there are going to be similarities with other projects you have built. Even if you only have an idea of how long it will take you to build four table legs, or one drawer, it will be some help in quoting on a job.

Calculating Your Shop Rate

Before you start your business you should try to calculate your hourly shop rate as accurately as possible. Your projection will also have to consider realistic revenues and expenses for each month. The price of your work must reflect not just the cost of the materials and labour, but all overhead expenses over the time period you worked on the project. Start by predicting your total operating expenses per month and then add on the monthly salary you expect to draw. This gives you your total overhead per month. You can divide the overhead by the number of hours you expect to work in a month and that will give you an hourly rate. Add at least 10 percent for profit over and above your salary, which will allow you to invest in new equipment or take on other extra expenses in the future. This will give you the minimum hourly rate that you will need to maintain your business: your 'shop rate'.

Keep in mind that you might be willing to earn less than your minimum hourly rate for really large jobs that will keep you busy for weeks. Large jobs save you a lot of marketing time, such as following up on leads or quoting on jobs. On the other hand, smaller jobs, such as furniture repair, might yield higher than usual hourly rates. Like any business, you will have some kinds of work that yield higher profits than others. With a variety of jobs,

higher profits for one part of your business can cover losses for other parts, such as when you have quoted too low on a job.

Quoting on Projects

Your shop rate will help you determine a price to quote on any given project. This assumes, of course, that you can come up with a realistic number of hours that a project will take. Such estimation will be difficult to determine in the beginning, but you will get better at it as time goes by.

Here are some of the items you need to consider when coming up with a quoted price:

- 1) All materials, including mark-ups. Mark-ups are meant to cover your time and expertise in sourcing the materials, picking them up, sorting them and returning defective merchandise. You don't need to include your time for procuring materials if your mark-ups already cover your time.
- 2) Your time for the initial and any subsequent, client meetings, including travel time.
- 3) Your time for preparing the quote for the project.
- 4) Your time for drafting the contract.
- 5) Your time for designing the piece and drafting the plans.

6) Your time for building the piece, including sanding and assembly.

7) Your time for finishing, including any extra time for colour matching.

8) Your time for delivery and installation, including travel time.

Other than materials and mark-ups, everything else involves your time, which you multiply by your hourly shop rate. Remember that your shop rate already includes all of your overhead (including gas for your vehicle), plus your salary. After coming up with the final number, decide if an adjustment is necessary. If it's a large project you really want or need and you don't think you'll be hired at the price you calculated, you might decide to adjust the price downwards. On the other hand, you might adjust it upwards if you're already very busy and taking on the project will involve a lot of overtime, or if the project has some "unknowns" such as a very demanding design.



Illustrations by Mike DelRizzo

Tips

Here are some tips I can give you from my own experience.

1) In the early days of your business, you may never earn more than you expect, especially on custom work. This is a combination of two things: you're probably hungry for work; and you're probably going to underestimate the time commitment for most projects. You may try to impress a new client by under-pricing jobs. But remember that if you're learning new skills along the way, the unpaid time is your way of "paying for an education" in the real world.

2) Keep track of all your time on a project, including the time spent quoting, designing or just scratching your head. At the end of each project, compare what you really earned to your stated shop rate. In the beginning, you'll be disappointed because you won't come close to your shop rate. But your true hourly rate will increase over time. Mine started ridiculously low, but rose quickly over time. Building a good reputation takes years but pays off.

3) Sometimes you just plain goof up on your time predictions when quoting on a job. This is no reason to rush the job. Yes, you will lose money on that project. But every piece you deliver is an investment in your reputation and future. Even if the same client

won't be able to afford your prices five years later (as your shop rate increases), he or she can be an important reference in future. And you must build your portfolio somehow. This is called "paying your dues". It's like an initiation fee!

In Hendrik's next article, he will answer the question "What do customers want? He will also present ideas for good services, and let you in on what motivates people to hire you."

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Ship's Wheel

You may not have a ship to call your own, but follow this easy pattern and you will be able to display your dream ship's wheel. There are lots of lettering books that you can choose from, and it can be fun to think of what you would call your ship, when it comes in.

Wood Selection

Careful wood selection will help insure an attractive project. I use 3/4" stock for the project and 1/8" Baltic Birch plywood for lettering.

Transfer the Pattern

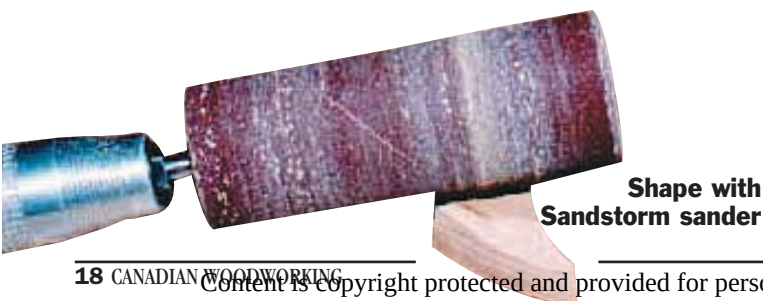
Transfer the pattern to the wood by: tracing the pattern onto the wood with carbon paper, making a template of the pattern and tracing onto thin plywood or plexi-glass, or by cutting out the pattern pieces and gluing them onto wood.

Cut out the Pieces

Make sure that your blade is square to the table and that you remain on the cut line. A #3 Hook Tooth blade leaves a smaller kerf and results in an improved fit.

Assemble and Check for Fit

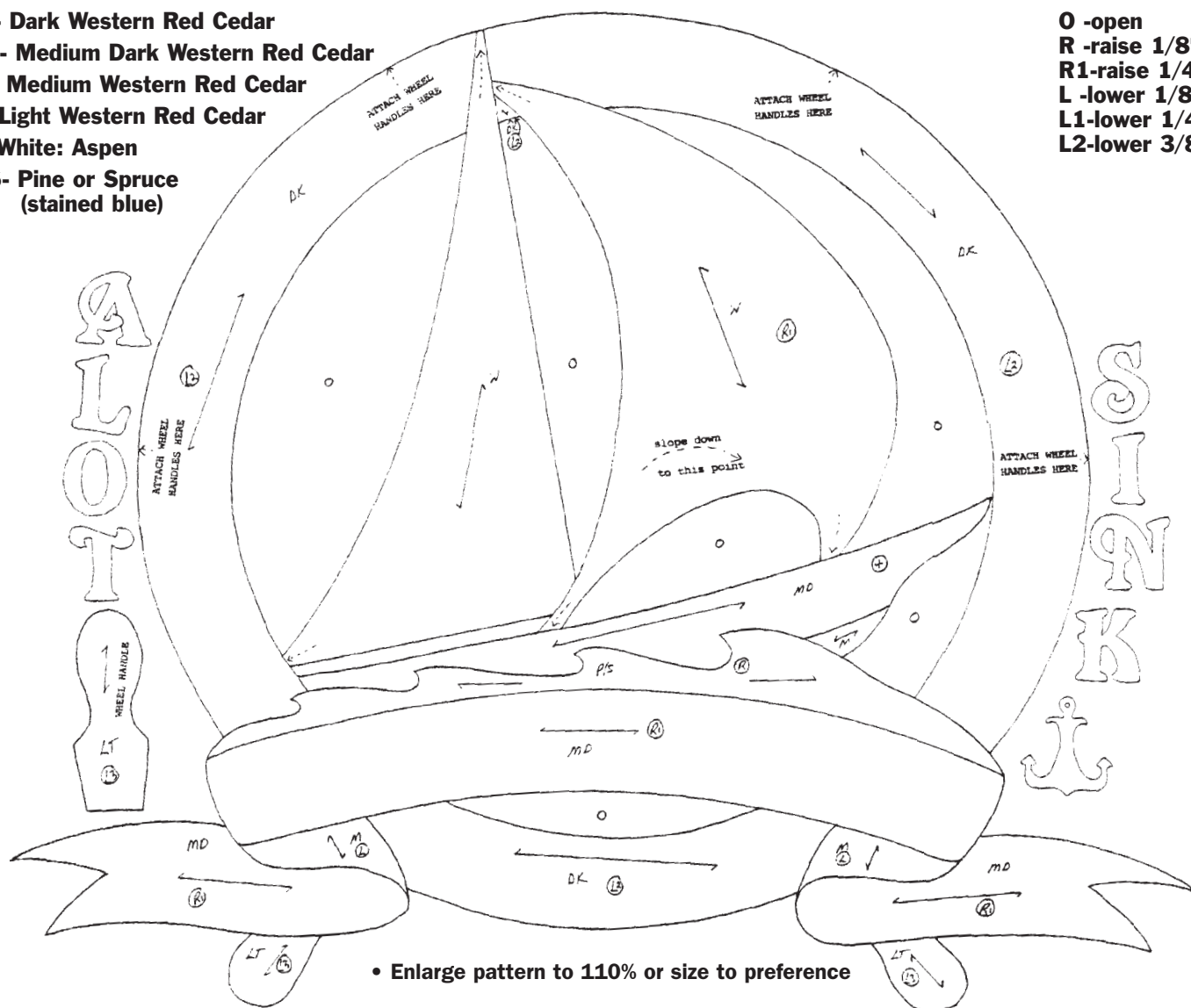
Try to keep within a saw kerf or 1/16". Raise or lower the pieces as the pattern, or your imagination, suggest. Reassemble the pieces and mark reference lines. These lines help with the shaping, as you will shape down to these lines.



**Shape with
Sandstorm sander**

DK- Dark Western Red Cedar
MD- Medium Dark Western Red Cedar
M - Medium Western Red Cedar
LT- Light Western Red Cedar
W - White: Aspen
P/S- Pine or Spruce
 (stained blue)

O -open
R -raise 1/8"
R1-raise 1/4"
L -lower 1/8"
L1-lower 1/4"
L2-lower 3/8"



Shape and Sand

Before you start to shape and sand, make sure that you: have your tools hooked up to a dust collector, have an air filtration device to remove the dust in the air, and are wearing a good quality dust mask.

Shape pieces so as to achieve a smooth transition from one level to the next. I do most of my initial shaping with a small pneumatic sander in a flex shaft and finish shaping with a Flex Sander. When the shaping is done, sand to 180 or 220 grit.

Glue the Pieces onto a Backing

Re-assemble the pieces onto your backing material. You can use 1/4" Baltic Birch, Oak, or Birch plywood or 1/8" painted MDF. Trace around the project, remove the pieces, and cut out the backing. Glue the pieces onto the backing with ordinary carpenter's glue. Lastly, round the edges of the backing.

Finish

Apply the finish of your choice. I put three coats on the front and one on the back, sanding between coats.



Shape and sand with Flex Sander



Sand with Star Twister

MATERIALS LIST

DK	2 BDFT
MD	1 BDFT
LT	1 DBFT
M	1 piece 4" x 6"
SP	1 piece 2" x 14"
W	1 BDFT

Backing Material

1 piece 1/4" x 21" x 21"
Plywood



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Shop Lighting

(L-R) Three rapid start tubes, high output tube and slim line tube

This is the first in a series of articles on electricity in the workshop, in which I will be looking at some of the common shop lighting and heating options.

While it is possible to work safely in a cold shop, it is impossible to do so in a dark shop. In order to make the best lighting choice for your situation, you need to take several factors into consideration: the size of the space you need to light, the height of your ceiling, your budget, personal preferences, and safety.

There are two main types of lighting: incandescent and discharge. Incandescent lighting is the type found in most homes. As electricity passes through a filament it creates some light and a lot of heat. In discharge lighting electricity passes through a ballast, which alters its voltage, and then passes through a gas filled tube. Fluorescent tubes, road lighting, and other high wattage applications use this technology.

Fluorescent Tubes

Fluorescent tubes come in several non-interchangeable types and sizes. High output tubes operate at low temperatures and are used extensively for sign lighting and outdoor fluorescent fixtures. Homeowners will be more familiar with rapid start tubes with two pins on each

end. These are available in three sizes: T12 (1 1/2" diameter), T8 (1" diameter), and T5 5/8" diameter). While the T12 is still most common, the T8 and T5 formats are suitable for fixtures requiring a slimmer profile. In addition to the reduced size, these smaller formats are more electrically efficient. They're preferred for under cabinet and valence lighting in areas where the fixture is not meant to be seen.

If your shop is cold, say below 50° F or 10° C, choose a low temperature ballast; otherwise you can use rapid start fluorescent fixtures.

Look at the end of a fluorescent tube. You will see two pins, and perpendicular to them on the metal shell will be two small bumps or divots. When the tube is properly seated in the holder, the divots should face directly forward. To maintain efficient light output, clean the tubes on a regular basis. When the tubes start to show dark spots or rings at the ends, discard them as they will shorten the life of the ballast.

In my shop, I use T8 34-watt fluorescents in a 96" fixture that uses four 48" tubes. The four-tube fixture has two ballasts with 14/3 wire running to each fixture. This allows me to switch on each ballast separately, and gives me two light levels to choose from.

Compact Fluorescent Bulbs

Compact fluorescent bulbs are becoming more popular. There are two types: self-contained, which replaces a regular incandescent bulb in a standard fixture; and a two or four pin type, which requires a fixture with a ballast.



Some fluorescent bulbs require fixtures with ballasts, others fit standard fixtures.

It is important to give thought to the location and method of mounting lighting fixtures, especially if you do not have high ceilings. If you have the headroom, mount your fixtures on chains rather than directly onto the ceiling. This will allow the fixture to move if you bump it while moving long stock in the shop.

If your shop is in a basement, mount the fixtures between the joists. Then cut an egg crate diffuser and mount it level with the bottom of the joist. Although this will cut down on some of the available light, it will provide additional protection from wayward lumber.

Emergency Lighting Unit

I put emergency lighting in my shop as a precaution if the power goes out. I selected a self-contained unit and mounted it to the same angle iron that my electric door opener hangs from. As soon as power to the outlet is interrupted, the emergency lights come on. A two-head 36 watt unit can be purchased at an electrical supply dealer for about \$85.

For more task lighting in a specific area, pendants are the perfect solution. Although you can buy these at a lighting store, I made mine, using lamp-making parts and large stainless steel mixing bowls. I hang them on fixture chains so they move when hit. Also, by locating hooks in various places I can easily move the light to where I need it. Use newer self-contained compact fluorescents in this type of fixture to help to reduce your electric bill.

Next issue Michael looks at heating your woodworking shop.

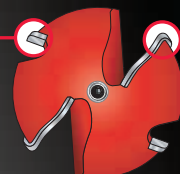
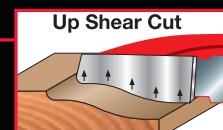
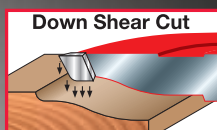


MICHAEL KAMPEN
aria_dog@hotmail.com



Self-contained emergency lighting unit

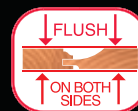
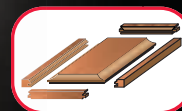
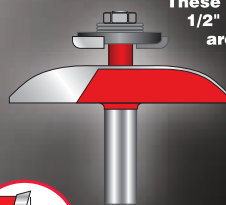
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2+2 by **freud**
PANEL BITS



Caricature Carving

Last issue we worked on tuning your knife. Now that you have a well-tuned knife, here is a great little project for you to practice using it.

This caricature is made from a 2" x 2" x 6" piece of basswood, but the pattern can be adjusted to fit any piece of wood. This is a photo-based project, without lengthy explanations. Under each of the photos, the required action(s) are described. Study the pictures carefully, as they each provide a lot of information.

Before getting started, here are some general points to keep in mind:

This project gives you practice for using the two-handed knife carving technique. However, there will be times when you can use a different technique.

Don't try to remove too much wood with one slice. Start at one end of the area that you're carving and work your way back in steps. This will help you avoid removing a large chip unexpectedly.

Anytime you are pushing your knife into the wood, be sure that the wood is resting

firmly on something stable (like your workbench).

Always be aware of where your knife will go if it slips off your carving, AND be aware of your "holding" hand's location.

Don't be afraid to experiment! This project is for demonstration purposes and is just one of innumerable variations possible. Have fun!



DAVID BRUCE JOHNSON
www.magma.ca/~davidbj



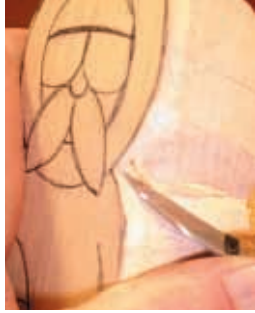
Copy pattern onto block



Use two-hand knife technique



Round the back of the head



Form the shoulder and bottom of hood



Round the back to marked centerlines



Carefully remove wood around tip of moustache



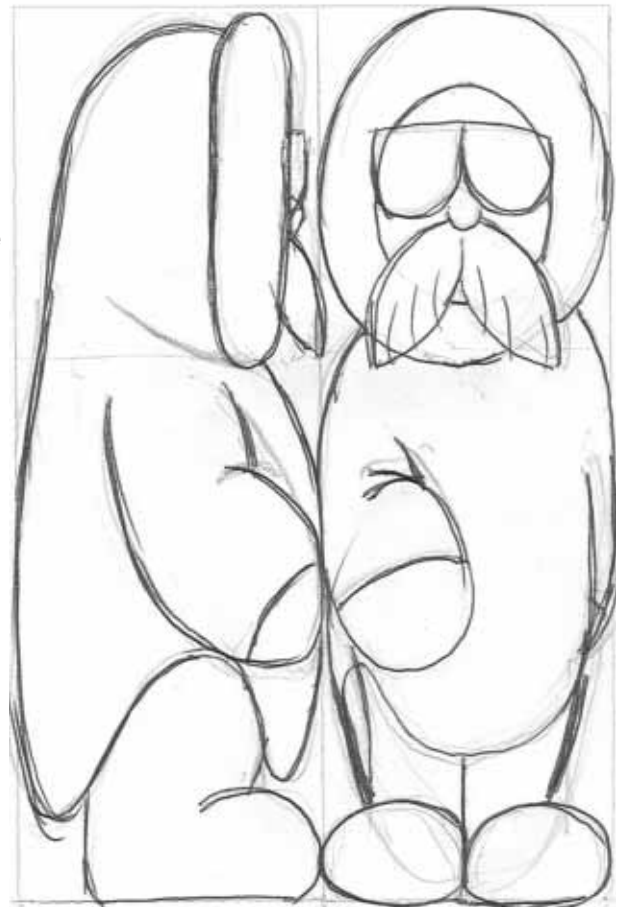
Round side from shoulder to above mukluk



Change direction to remove wood above muklукs.



Relieve the arms and taper the leg fronts



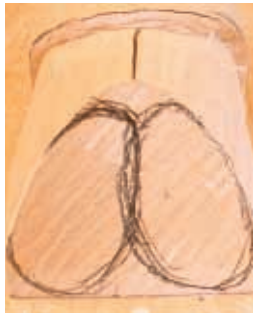
• Enlarge pattern to 125% or size to preference



Round arm and create mitten



Taper the back and redraw bottom of parka



Define the bottom of muklукs



Taper legs, establish bottom of parka and muklукs



Carve separation between back of legs



Complete rounding of legs and toes of muklукs



Finish rounding most of body, parka and muklукs



Raise features by carving hood back



Add detail by rounding features



Complete hood trim and back of head

GIFT IDEAS FROM

894PK

2-1/4 Peak HP Multi-Base Router Kit with GripVac™ Attachment

Featuring quick transitions between GripVac™ base (included) and plunge base (included) this 12 amp (10,000 - 23,000 RPM) router is a must for all woodworkers. Includes a multi-functional carrying case/ router pedestal with multiple bit and accessory storage; plus an interactive CDROM with step-by-step video instructions.

Suggested retail: \$399.00

324MAG

7-1/4" Quik-Change™ MAG-SAW™ Kit

This 7 1/4" Saw has it all! Starting with the Quik-Change™ keyless blade change feature which offers tool-less blade changes in seconds. The 15 amp, 5,800 rpm motor provides all the power you need. The Magnesium construction provides more durability and lighter weight at only 9.6 pounds. The saw comes equipped with Porter Cable's new carbide tipped Razor™ blade.

Suggested retail: \$179.00

333

5" Random-Orbital Sander

Designed to give a swirl-free finish, this random orbit sander also has a pad control feature to prevent pad spin-up when tool is lifted off work. A must for any shop!

Suggested retail: \$79.00

CFBN200A

Brad Nailer and Compressor Combo Kit

All-In-One-Kit! The unit combines a 6-gallon pancake compressor with an 18 gauge 3/4" to 2" brad nailer. Includes compressor, brad nailer, carrying case, pack of 1,000 brad nails, 1/4-inch male and female quick coupler plug, oil, 25-foot hose (300 PSI).

Suggested retail: \$299.00



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MS250 10" Compound Mitre Saw

Powered by a 13 amp motor, this 10-inch compound miter saw cuts 4-by-4 and 2-by-6 lumber easily at 90 degrees. The table pivots up to 47 degrees left and right and has positive stops at 0, 22-1/2, and 45 degrees for quick and accurate angle setting. The fence is pre-drilled for easy mounting of wooden auxiliary fences to support taller workpieces. A dust bag is also included for dust collection.

Suggested Retail: \$139.00

CL180WWK Woodworkers Six Pack

The Woodworker's Six Pack Kit features 18-volt a 1/2" drill/driver, a 1/3 sheet pad sander, a 5-1/2" circular saw, a jigsaw, an 18-Ga. Brad nailer and a flashlight. Your purchase includes a rugged blow molded case for easy storage, and a 2-year warranty.

Suggested Retail: \$349.00

TS220LS 10" Deluxe Table Saw with Stand

Lightweight and portable, this bench saw with stand has a large capacity with a small price tag. The 10-inch blade cuts stock up to three inches thick at 90 degrees and 2-1/2 inches at 45 degrees. Includes a 15 amp., 120V motor; rip fence, outfeed support extension, miter gage, see-thru blade guard with splitter and anti-kickback fingers, 10" carbide-tipped saw blade, stand and table insert.

Suggested retail: \$249.00

TP400LS 12 1/2" Portable Planer with Stand

A smooth finish at a very affordable price. This 12 1/2" planer with stand offers excellent results in a simple and reliable design. With the folding adjustable infeed and outfeed tables the unit is easy to carry and store. Includes planer, knife-setting gage, wrench, stand and instruction manual.

Suggested Retail: \$299.00

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Magic Wands

When I was a kid, books stimulated our imaginations and kept us entertained. We imagined ourselves solving mysteries with the Hardy Boys and we helped Tom Swift with his inventions.

Today's children have the wildly popular Harry Potter book series to stimulate their imagination. To solve their mysteries, they use a fanciful wooden device, the magic wand. I made one first for my daughter, and later, for some of her friends. These wands have made me a hero with the little magicians around here. I bet a few magic wands could do the same for you.

Wand-Making 101

This is a very simple spindle project and almost any lathe is up to the task. You can use a spindle gouge or a skew to do the cutting, and as I did, turn them on a mini lathe. I started with a 3/4" x 15" hardwood blank and gradually removed all the wood that didn't look like a magic wand. I finished the wand with several coats of shellac followed by polishing with fine shavings while the wand was still on the lathe. As I said, a simple project, but there are a few things worth considering when creating "student" magic wands.

I've provided basic dimensions that I follow when creating a wand. You don't have to follow these dimensions strictly; allow your creative juices to determine your wand shape. However, bear in mind that 'typical' handle dimensions don't work when you're fitting a small hand. While not critical, a handle that is too large makes it difficult to do the all-important

"swish and flick" so necessary in proper spell execution.

Another thing to consider is how your design will survive the ever-present destruction testing that kids do. My early wands had nice crisp edges on the finials - for a while. But the first time these wands were dropped on the sidewalk or bounced down a flight of stairs, the wand became chipped. I'm not sure if this affects its spell-casting ability or not, but it sure detracts from wand aesthetics.

Lastly, try to keep the end of the wand rounded and not too thin. I tend to taper the wands so that they maintain much of their thickness until around halfway along their taper. This just keeps a bit more meat on the bones, which seems to help when the wands are dropped.

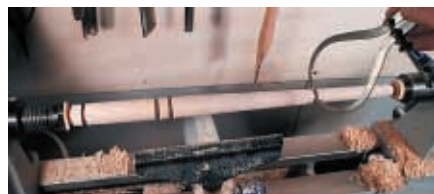
Besides, you need some space to insert the magic essence. If you're replicating Harry Potter's wand you need to find and insert the tail feather of a Phoenix. If it's just a utilitarian student wand you're after, unicorn hair may be easier to find. I think, however, that I'll leave you to your own devices for the magic insertion task. I can't give away all my secrets.



LARRY MARSHALL
www.woodnbits.com
larry@woodnbits.com



Mount hardwood block on lathe



Make depth cuts where diameter changes



Turn a rough-tapered spindle



Remove everything that doesn't look like a magic wand

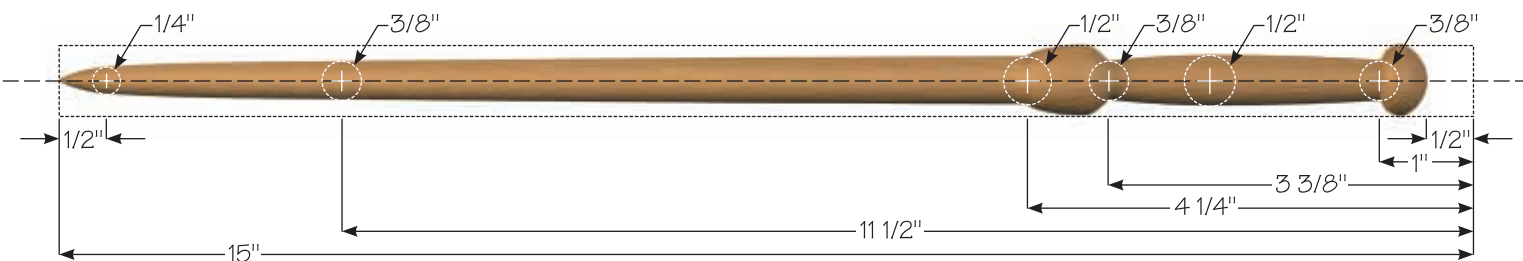


Illustration by Lee Gabel

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Ridgid Mitre Saw

The mitre saw is a productive workhorse in any woodworking environment; like a circular saw on steroids. Mounted on a spring loaded pivoting arm, it effortlessly delivers accurate flush, bevel, and compound cuts.

What I Liked

The saw took all of 15 minutes to assemble. Its cast aluminum base is well machined and all the parts fit together properly. The turntable moves smoothly, with no creep. I liked the smoothly operating blade guard that automatically moves out of the way as the blade nears its cut, a comfortable D-shaped trigger handle oriented perpendicular to the blade, easy to read laser etched steel mitre scale, and a quick release horizontal stock clamp.

Once assembled the blade alignment was near perfect. Adjustments are easy to do if you follow the accompanying instructions.

The turntable has eleven preset detent positions. The mitre lock engages the detents securely with no slop. Strangely, the 11.25° detent isn't marked, but there is one at 31.6° for cutting crown moulding.

The saw head tilts left for bevel cuts. The scale (mounted on the column of the saw) has a range from 0° to 45°. By moving a positive stop adjustment you can extend your bevel range to 48°.

The adjustable left fence is a generous 4 3/4" high by 13" long; the right fence is not as large. Both have a recessed surface on which you can place marks with a pencil for repetitive cuts.

Useful for transportation to and from the job site is a lockable top handle, and at only 34 pounds, this saw isn't a back breaker.

I found that this saw had adequate power for all cuts. Adjusting the cutting arm for bevel or compound cuts is done quickly, easily, and precisely. All the knobs on the saw are large and sturdy, which is a nice touch. Rather than a lock-out safety button, the Ridgid has a safety switch integrated into the handle, which you push with your thumb while simultaneously squeezing the trigger. It also has an electric brake. As with most mitre saws, the



Ridgid comes with a laser cutting guide; this one generates a single line and is non-adjustable.

Downside

There isn't a lot not to like about the Ridgid. The dust bag doesn't catch all the dust, but attaching a hose to a shop vac solves the problem. The accompanying 40 tooth carbide-toothed saw blade isn't high quality; the teeth are really small and won't last more than a couple of sharpenings. The bevel scale at the back of the saw doesn't have any preset detents.

Test Drive

I cut stock from 1/4" x 1/4" up to 3 3/4" x 4 7/8"; no stalling, burning, or loss of power - just quick clean cuts. With small stock it's best to put a scrap of plywood under the stock for support. After a few dozen cuts I did replace the blade with a CMT 80-tooth ATB blade; installation took under 5 min. The difference in smoothness of cuts was worth the blade change.

Making mitre cuts with the mitre saw is quicker and easier than with the table saw, and compound mitre cuts are way easier to do. I consistently go to the mitre saw to crosscut narrow stock (anything up to 6" wide), rather than the table saw.

On long boards (i.e. over 3') use some support, as the table extensions aren't that long (the total width of the mitre saw top is 24 1/2"). Bolt the saw to your worktable, as it has a tendency to jerk a bit when you switch it on or off. And of course wear appropriate ear protection as mitre saws generate a lot of noise.

I like the Ridgid quite a bit. For under \$300 you get a solidly built, precision cutting tool that should last for years. This makes it a sound investment decision. And it has an unbeatable 3 year guarantee, plus a 90 day return warranty. If you feel that you need something more robust, Ridgid also makes a nice 12" compound and sliding compound mitre saw.

10" Compound Mitre Saw with Exactline® Specifications:	
Model	MS1065LZ
Blade	10 inches
Amps/Volts	15/120
RMPs	550 (no load)
Arbor Size	5/8"
Weight	34 lbs
Electric Brake	Yes
Spindle Lock	Yes
Cut Capacity 90°	2" x 6" 4" x 4"
45°	2" x 4"
Bevel 90°	2" x 6"
Bevel 45°	2" x 6"
Mitre Range L & R	50°
Mitre Stops L & R	0°, 11.25°, 15°, 22.5°, 31.62°, 45°
Bevel Range L	48°
Pricing:	\$298 (Home Depot)



CARL DUGUAY
www.finewoodworking.ca
carl@canadianwoodworking.com

Whale Trap



Poor Willy the Whale is locked in a trap. The object of the puzzle is to free Willy.

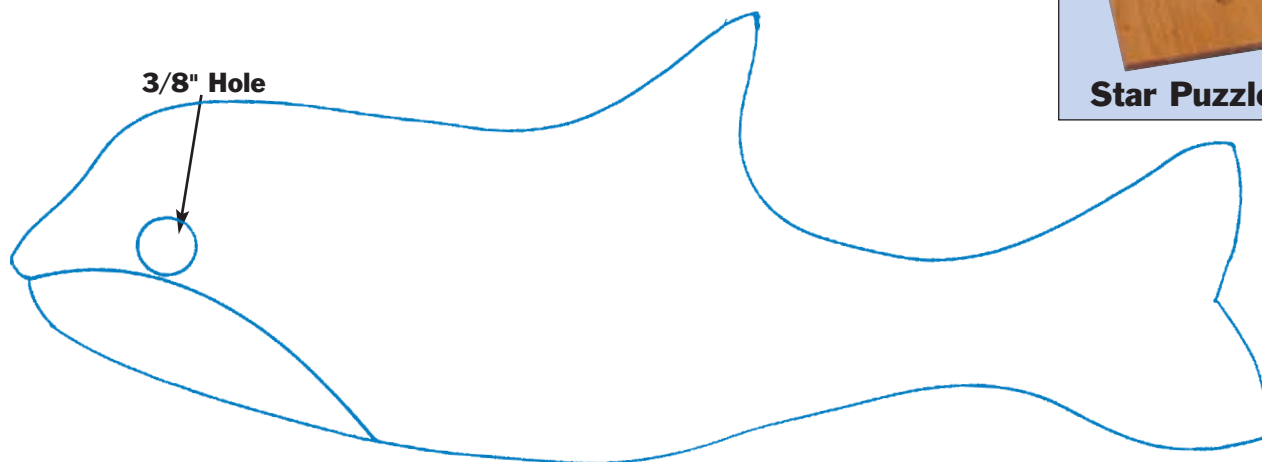
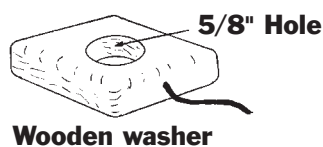
Willy's body is made of walnut and his underside is made of maple or pine.

The braided rope is fixed into the base and wooden washers by drilling, gluing, and tacking the ends into place.

The solution to this puzzle will appear in the next issue.

MATERIALS LIST

Base	3/4"x4"x4"
Post	1/2" Dowel 4" long
Post top	3/4"x3/4"
2 Wooden washers	1/2"x1 1/2"x1 1/2"
Willy	1/2"x2 1/2"x6 1/2"
	24" of 1/8"
	Braided rope



REA GIBSON
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Forrest Blades

Quality Blades for Serious Craftsmen

Dedicated woodworkers demand perfection. That's why so many of them choose Forrest saw blades.

Forrest quality is legendary. Our proprietary manufacturing process, hand straightening, and unique grade of C-4 micrograin carbide give you smooth, quiet cuts without splintering, scratching, or tearouts. In fact, independent tests rate our blades as #1 for rip cuts and crosscuts.

Forrest saw blades are simply the best that money can buy. They're made by the same family-owned business that's been producing and sharpening them for over 55 years. And they're backed by a 30-day money back guarantee. It's no wonder that serious woodworkers give them such high praise!

"Your blades are without question the best by miles, and I have tried them all."
Bob Jensen—Fridley, MN

"These are the finest blades I have ever owned and you should be proud of your quality product."

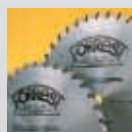
Patrick T. Hankard—South Windsor, CT

"[Forrest blades] cut true, with no vibration. I was a carpenter by trade for over 60 years and continue to be an active woodworker. So, I can say with confidence that Forrest blades are the best."

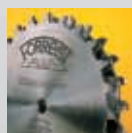
Carl Stude—Burbank, CA

The message is clear. If you're looking for quality, performance, and value, it pays to choose Forrest blades every time.

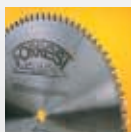
Our Most Popular Blades:



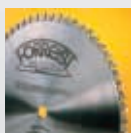
Woodworker II – This award-winning, all purpose blade is the finest of its type. It turns big jobs into easy-to-handle ones.



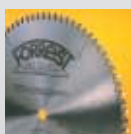
Dado-King – The world's finest multi-tooth dado set. It works effectively in all directions—with the grain or across it.



Chop Master – Produces perfect miters every time—with no bottom splinters. You get smooth edges on all types of wood.



Woodworker I – Great for table and radial saws. It trims and crosscuts all woods up to 2" and is ideal for plywood.



Duraline Hi A/T – Our best blade for birch and oak ply veneers. It also delivers a clean cut on melamine and vinyl over particle board.

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Victorian

The Victorian style was named for Queen Victoria, who reined in England from 1837 to 1901. While the Victoria style was influenced by earlier styles, its general characteristics remained the same.

The image of the Victorian style is one of wealth and social position, with an emphasis on elegance, colour, and ornate beauty. More than just furniture, it influenced fashion and home décor, fixtures, collectibles and artwork.



Photos courtesy Treasure Cove
www.antiquesinnewfoundland.com

During the early years of Queen Victoria's reign, the influence was from the middle ages, combined with Romanticism, to create Gothic Revival. At that time, furniture was mostly made from rosewood and oak, with arches, turnings, and trefoils, resembling a three leaflet plant.

After the early years, the influence of eighteenth century France created the Rococo revival. This period is the one most associated with the Victorian style. It had more graceful lines, cabriole legs, more carvings of plants, and a shift from rosewood and oak to rosewood and walnut.

Towards the end of the period, the Industrial Revolution and mass production technology affected the designs, which were adapted to mass production techniques, while keeping their general characteristics.

Style:
VICTORIAN

Timeline:
1840 - 1910

Key Design Elements:

- Gothic forms with heavy proportions
- Elaborately detailed ornamentation
- Carved motifs of flowers, leaves, and scrolls
- Cabriole legs
- Ball and claw - carved claw grasping a ball
- Upholstered seats and backs
- Dovetailed joints
- Oil finish (usually dark)

Typical Wood Types:
Walnut, Oak, and Rosewood



MICHEL THERIAULT
woodstoneproductions.com
mjtheriault@sympatico.ca

Bent Knife



Wooden hardware for furniture projects (such as knobs and pulls) can be purchased off the shelf, or you can make your own. If you have a lot of hardware to make, a mechanized process of sawing, routing, sanding, filing, and rasping makes sense. However, if you only need to make a few pieces, then hand carving those pieces is the way to go.

Having made door handles using both methods, I find that carving is a much cleaner and faster process.

To hand carve furniture hardware a lot of knives on the market are just not suitable. What you really need is a knife with a short, thin, and very sharp blade.

Mike Komick, of Preferred Edge, makes just such a knife, so when I needed hardware for some furniture I was building, I decided to try his medium bent knife.

The bent knife came fully sharpened and ready to go. First I made a few test cuts, then I gave it a couple of swipes on my leather strop with a daub of green honing compound. For bent blades like this one you only strop the bevel, not the flat side of

the blade. Sure enough, the blade was sharp enough to shave the hair off my arm.

The bent knife cuts equally well bevel side up or down. You'll have to experiment yourself with different ways of holding the knife, depending on the material you're cutting and the dexterity level of your hand. This knife allowed me to cut in very tight radiuses, of 3/8 of an inch or less. I was able to round over sharp edges in cocobolo, which generally I've done with a small file and a range of different grits of sandpaper wrapped around a small dowel.

The nice thing about cutting wood with a knife is that it burnishes the surface as it cuts, producing a clean, smooth, shiny surface. Sanding, on the other hand, dulls the surface.

The handle of this knife is made of yellow cedar. The blade is pinned to the handle and wrapped in place with black twine. The twine not only secures the blade, but provides an excellent 'no slip-grip' for your fingers.

The blade is made out of L6 tool steel with an RC57+ hardness rating.

The knife is almost 10" long but it's lightweight yellow cedar handle provides great leverage, balance, and ease of use. An exotic type of wood handle would have made this tool tiresome to use. The selection of yellow cedar is also appropriate considering the tool is made on the west coast of Canada. As a finishing touch, a laser engraved insignia of the Indian Thunderbird completes this tool's visual appeal.

Preferred Edge offers exceptional quality at a reasonable price. They make many types of knives in a variety of widths, lengths, and curves. They also offer double/single edge configurations, spokeshaves, and slicks. They even make custom knives. Knife prices range between \$37 and \$49 CDN.

Preferred Edge is based in Vancouver, BC. You can contact Mike Komick at 888-811-5551 or on the web at: www.preferrededge.ca.



Carved drawer pull



HIKMET C. SAKMAN
sakman@shaw.ca

Porter-Cable Circular Saw

The new Porter-Cable line of 7 1/4" MAG circular saws feature the 'Quick-Change' wrench-less blade change system. This means less tedious blade changing and no more searching for that elusive blade wrench. Choose from four models, (324, 325, 423, and 425), with optional electric brakes and left or right blade configurations. MAG saw housings are made of magnesium, which is lighter and stronger than aluminum. Powered by a 15 amp motor, the MAG design offers a cleaner site line for better accuracy and an extended lower blade guard lip allows 'no hang-up' mitre cutting. They feature a 0 to 50° mitre scale with a 45° positive stop; a 7 1/4", 20 tooth Framer Razor Blade, and an up front, moveable dust ejector to which you can attach a shop vacuum.



Ryobi Cordless Drill/Driver

Ryobi has made significant changes to several of its existing products. They boast new motors with tons of power, greater torque, and considerably more run time. The new 14 volt Model SA14402KF Cordless VSR Drill/Driver is a centre handle tool with a 3/8" keyless chuck and a metal rear sleeve. It features a 24 position torque adjustment ring that is die-cast for added durability; a two-speed gearbox that turns out 0-330 and 0-1100 RPMs, an electric brake, and two built-in levels. They come in 'kit' form, with two battery packs, a diagnostic one hour charger and a flashlight. The innovative Ryobi Mag Tray, a magnetic built-in tray to keep bits and screws handy, remains a feature on these new drills.

The Ryobi 18 volt Cordless VSR Drill/Driver Model SA1802SKF features a 1/2" keyless chuck with a metal rear sleeve; a 24 position die cast metal torque adjustment ring, resulting in a noticeable increase in torque, power, run time and durability, a two speed gearbox that turns at 0 - 350 and 0 - 1300 RPMs, electric brake, the Mag Tray, and two removable levels. Also available in a 'kit' that includes two battery packs and a diagnostic one hour charger. Like all Ryobi Tools, there is a 30-day no-risk satisfaction guarantee and a two year warranty.



Delta Compound Mitre Saw

The new Delta 12" Dual Bevel Compound Mitre Saw has a vertically mounted 15 amp motor, and is equipped with a 60 tooth, carbide blade that will cut through a 2"x10" or 7 3/4" crown moulding. Up front bevel controls make left or right hand bevels a snap.

They have positive stops at 0, 33.9, 45 and 48°, left and right. Mitre stops are set at 0, 15, 22.5, 31.62 and 45° in either direction. The flip-up adjustable crown moulding clamps allow precise cutting of mouldings in their actual position with no chance of a slip up. The saw comes with a patented base designed for bench or saw horse mounting; a large horizontally positioned easy-grip handle, simple spring-loaded back fences that are easily moved or removed, and an arbour lock that makes single wrench blade changing a breeze.



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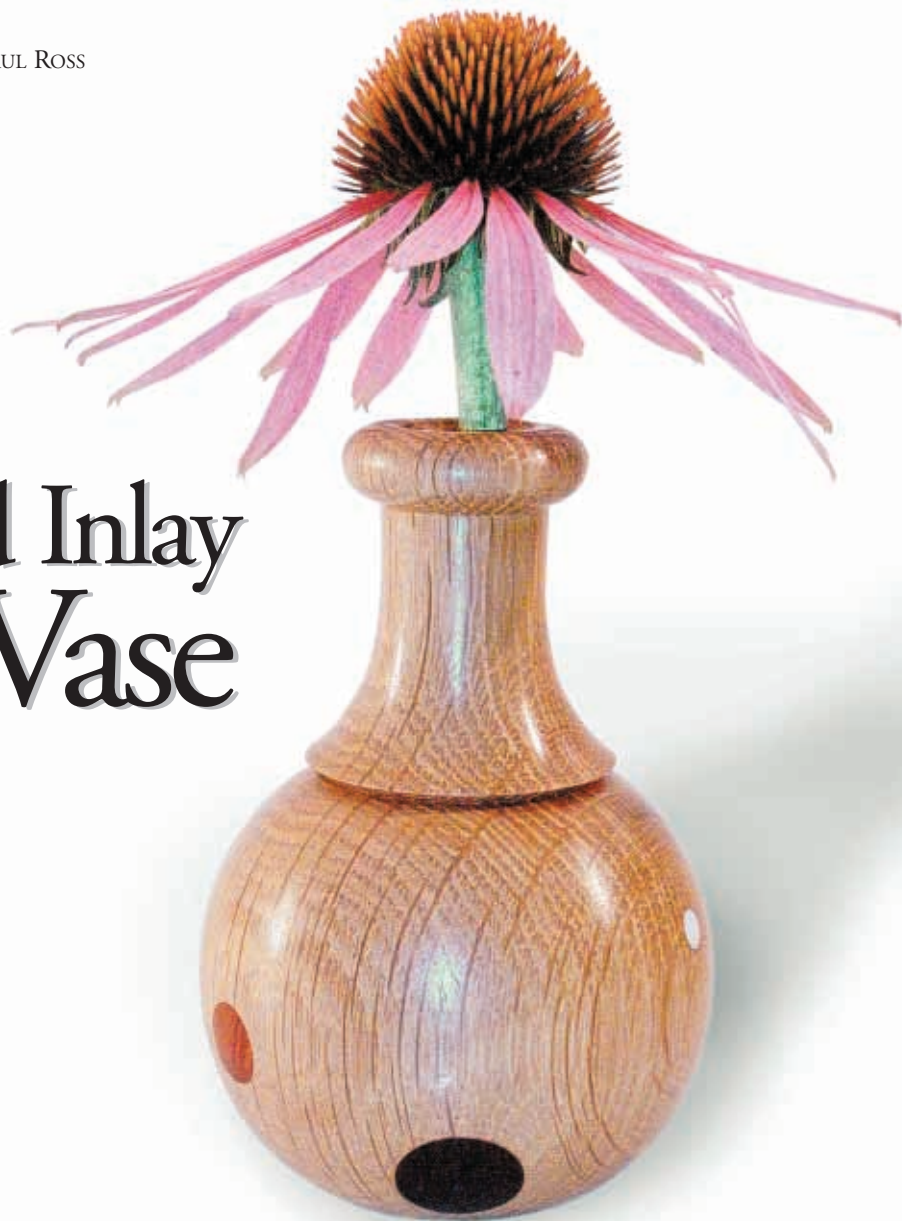
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Tri-Coloured Inlay Bud Vase

This vase, inlaid with three different types of material, makes this just a bit more challenging of a project. The choice of woods to inlay is up to you. It's a great way of using up some of those small cut off pieces that are just too nice to discard.

Turn the Cylinder

The main body of the vase is turned from a piece of oak, approximately 4" x 4" x 6". Rough out the cylinder between centers using a 1 1/4" roughing out gouge. When the piece is square, approach the wood with the flute of the gouge in an upward position. Take light cuts until you have removed the corners. Then turn the gouge on either side, with the flute trailing the cut. Doing so presents more metal to the

wood, which produces a smoother cut. When the corners of the wood are removed, you will have less resistance from the wood. Do the bulk of your shaping with the roughing out gouge. Use a 1/2" spindle gouge for finer work. Always cut downhill, or from large diameter to small.

Create the Spigot

Once you have a cylinder, square the ends off with a 1/8" parting tool. Then create a spigot with a 3/8" parting tool. The spigot enables a chuck to grab on to the bottom of the piece.

Drill Holes for Inlays

I used three different materials for the inlay: African Blackwood, Padauk, and Corian. I used two inlays of each material;

each set of material a different diameter. The Blackwood was 3/4"; Padauk was 1/2", and the Corian 1/4".

Make a swirling effect on the outside of the vase by drawing three horizontal lines, parallel to each other. Divide the circumference of the vase by 6 (i.e. the number of inlay pieces). I used the indexing head on my lathe to determine where the inlays were to be positioned. My indexing head has 48 positions. Dividing by 6, this gives 8 positions for the inlays. I drilled a 3/4" hole on the bottom line, on position 8 of the indexing head, to accommodate the Blackwood. Then I moved the indexing head 8 positions to number 16 and drilled a 1/2" hole on the next line for the Padauk. Next I moved the indexing head 8 positions to number 24 and drilled a 1/4" hole on the third line for



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LoneWolf



Turn the cylinder



Form the spigot



Drill holes for inlays



Drill hole for bud



Cut inlay pieces



Glue inlay into holes



Use tailstock for support



Make spigot for bud



Finish vase bottom

the Corian. Moving the indexing head another 8 positions to number 32, I moved back to the first line and drilled a 3/4" hole for the Blackwood. Again, I moved the indexing head 8 positions to number 40 and drilled a 1/2" hole for the Padauk. Finally, moving the indexing head another 8 positions to number 48, I drilled a 1/4" hole on the third line for the Corian. Drill your holes approximately 1/4" deep.

Drill Hole for the Bud

With that complete, take the piece from between the centers and place a Stronghold Chuck on the lathe. Use the tailstock to line up the piece 'dead' centre. Mount it in the chuck. With a Jacobs chuck and 1" saw tooth bit in the tailstock, drill out the hole for the bud vase.

Cut Inlay Pieces

The next step is to cut the inlay pieces

the diameter of the holes. Use a skew chisel, which gives a super fine cut, takes very little at a time, and makes the fit for the hole absolutely perfect.

Glue Inlay into Holes

Glue the pieces of material into the holes.

Use Tailstock for Support

After the glue has dried, cut the excess material off using a little handsaw. Mount the piece back into the chuck and use the tailstock for support. The cone centre or live centre will fit nicely into the 1" hole. Remember when you are cutting the inlay you will be cutting end grain; take light cuts with a sharp spindle gouge. There is 1/4" material in the inlay so there is the potential to slightly alter the shape of the body.

Once you have done the final shaping of the vase remove the tailstock and clean this end with the toe of a skew. Sand the piece and finish. Melamine is an ideal finish because it is water and heat resistant.

Make Spigot for Bud

Now we turn our attention to the bottom of the vase. Make a spigot that the bud vase is slipped onto. Use the tailstock for support and a 3/8" bowl gouge.

Finish Base Bottom

When the bottom is complete, remove the tailstock to finish the last little bit on the bottom. Sand and finish the bottom.



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Pickett Shelf

This project is easy to build and just as easy to modify with your own special touch. I used recycled 1" x 3" wood. The wood has a beautiful patina and is slightly distressed, which adds subtle character to this piece.

Prepare Your Stock

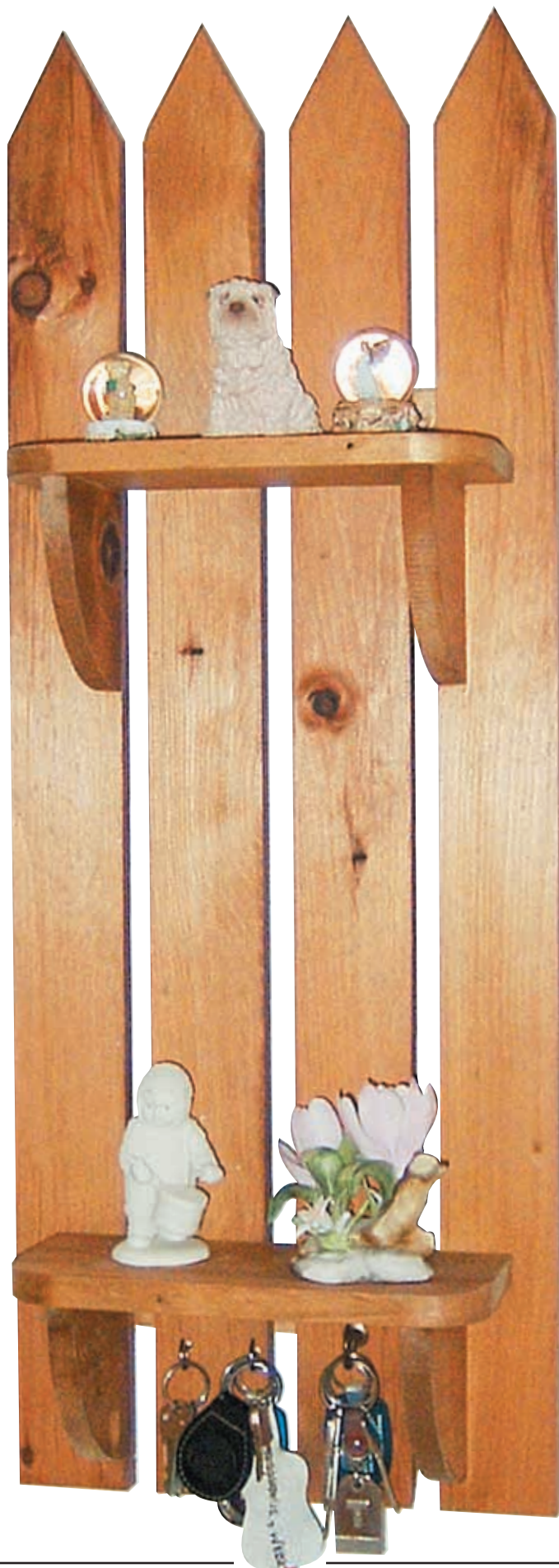
All the parts in this project are based on dimensional 1" x 3" inch pine, available at any lumber yard. You'll need three 6' pieces. If you use recycled lumber clean it first with a stiff bristle brush to remove dirt that may damage your cutting tools. Then sand to 120 grit. Wear a dust mask and safety glasses. If using new wood, you may want to do some light distressing at this point.

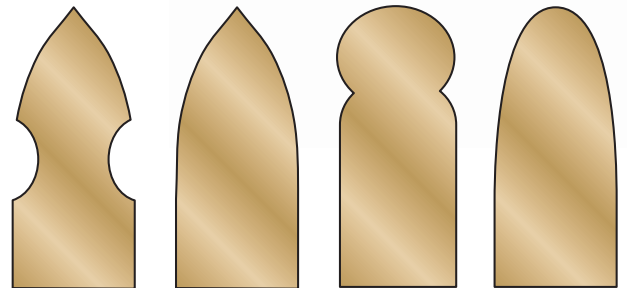
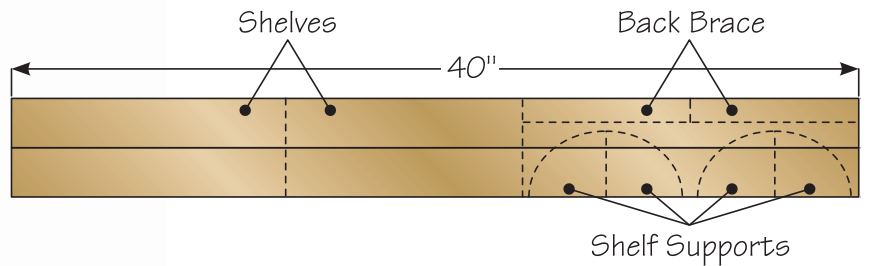
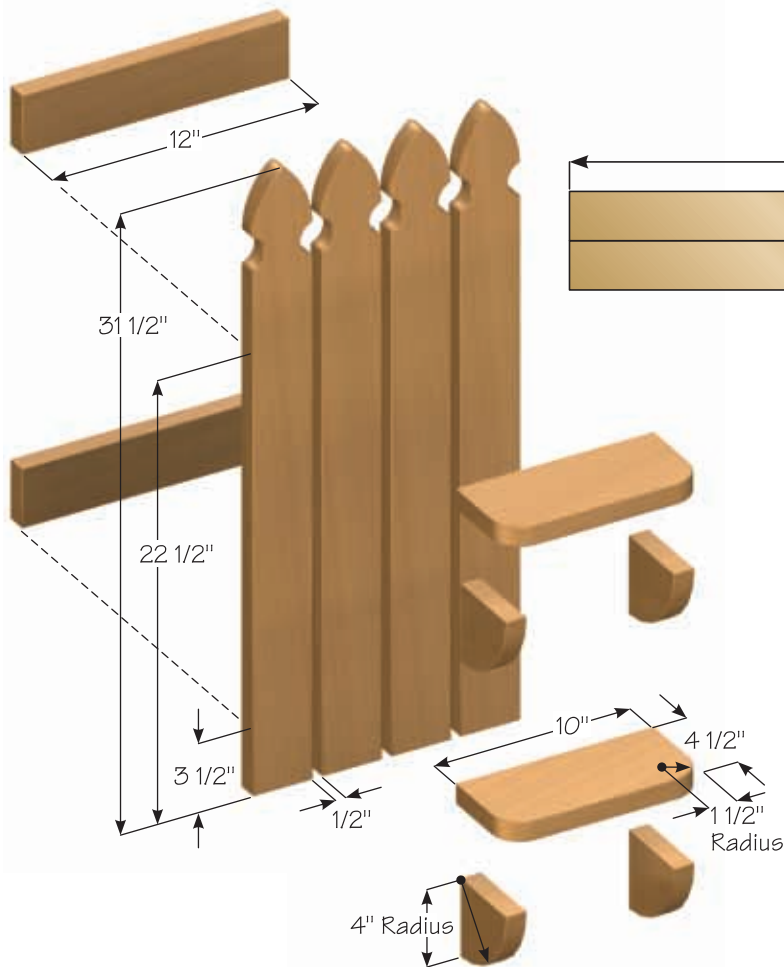
You will need four pickets that are 31 1/2" long. Cut two pickets from one of the 6' pieces, and one picket from each of the other two 6' pieces. You will have two 40" pieces left over; edge glue them together.

Shaping

Choose a shape for the slat tops from the samples provided, or design your own shape. Transfer the shape to a cardboard pattern, and then use that pattern to mark the shape on each slat. If you have a band saw, cut all four of the slats at the same time. Otherwise, cut them one at a time.

From the boards you glued up previously cut two shelves 4 1/2" x 10". Cut a 1 1/2" radius on the two front corners of each shelf. From the remaining piece, cut a 4" circle, and then cut two 4" radius semi-circles, then cut them in half. There will be enough wood left to cut two back supports 1" x 1/2" x 12" long.





Possible Picket End Shapes

Illustration by Lee Gabel

Assembly

Lay the pickets face down on your workbench, about 1/2" apart and square them at the bottom. Position one of the back supports 3 1/3" from the bottom and the other 22 1/2" from the bottom. With the supports flush to the outside of the pickets, glue and tack them in place.

Position the top shelf so it is centred on the front face of the pickets and the shelf's top is flush with the bottom of the upper back-support. Fasten it in place with glue and brads. Position the lower shelf so that the bottom of the shelf is flush with the top of the lower back-support. Fasten with glue and brads.

Make sure the grain in the shelf supports is running in the same direction. Position them so the inside edge is flush with the inside edge of the outer pickets. Glue and tack them from the back of the pickets and top of the shelves. Drill two 1/8" screw holes in the upper back-support between the slats to fasten the shelf to the wall. I finished the shelf with three coats of semi-gloss polyurethane.



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J.P. RAPATTONI
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Lacquer

I would hazard a guess that while most woodworkers have heard of lacquer, few have ever used it. No wonder, lacquer has typically been associated with commercial spray finishing. The big shops like lacquer because of its ease of application, ease of repair, super quick drying time, unsurpassed film clarity, and excellent versatility for color matching. Don't despair though; there are several brushing lacquers available for those of us without spraying facilities.

Things to Know

Before you rush out and buy a quart of lacquer you need to know a few things. First and foremost, lacquer contains a lot of thinner. The thinner is highly flammable, and very toxic to your health. In fact, when you open a can of lacquer the neighbours down the street will smell it. The same applies to lacquer thinner, which you'll need for cleaning your brushes. This means that you'll need to use a good quality organic vapour respirator and work in a well ventilated room. If your shop is in the home, wait until your significant other is out of the house for the day before you begin lacquering, and start early in the morning - it takes hours before the odours

dissipate. Second, lacquer dries very quickly. As soon as it comes in contact with air it begins to dry, so you need to work quickly, which can be a bit of a hassle if you're finishing a large project. It dries so fast you can't re-brush the same area, or else you'll muck up the surface. Third, lacquer is not an overly resistant finish. It fits somewhere between shellac and varnish when it comes to heat, wear, and solvent resistance, and is somewhat better than shellac in water resistance. Importantly, it is well below shellac and varnish in water vapour resistance.

Likeable Lacquer

What's to say in favour of lacquer? Well, it dries so fast that dust isn't a problem. As

it's an evaporative film finish it cures from the bottom up, so you can apply subsequent coats over previous coats that haven't dried, without any problem. You don't have to sand between coats, as the solvent in the new coat will partially dissolve the previous coat to fuse the layers together.



Laying It On

Finally, lacquer rubs out beautifully (we'll cover rubbing out finishes in a later article).

For the best lacquer finish you'll need to use a good quality bristle brush. Stir the contents (it appears milky in the can, but dries clear). Apply a liberal coat without over brushing. If you notice that you miss a spot don't go back over it. The next coat will cover it. Wait two or three hours, then apply another coat. You can sand between coats with extra fine sandpaper if you have noticeable brush marks. Apply at least three coats for optimal protection and durability.

I've used both Watco and Deft brands, and haven't noticed any difference between the two brands. The product comes in the usual glossy, semi-gloss, and satin sheens. Both also offer lacquer in spray cans, but I've never had much success with them; too many runs - but then, I'm clumsy, so you may have better success. If you plan to rub out the finish, let it cure at least one week before doing so. Lacquer doesn't impart a yellow appearance to light woods as much as varnish does.

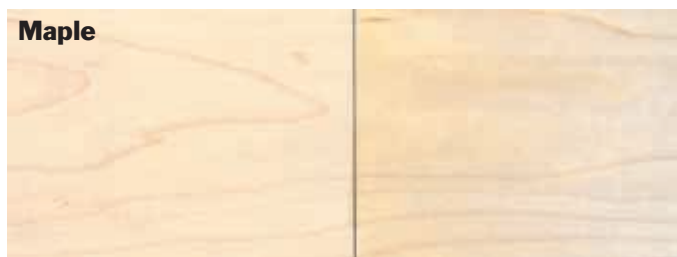
In his next article Carl covers water based finishes, revealing that they offer a lot of the characteristics of lacquer, but without the hassles.



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Hand Sanders

Over the years power hand sander designs have been refined to include at least some form of dust collection. The first sanders were simple pad sanders that vibrated or oscillated and they had no means of dust collection, other than sweeping or vacuuming up afterwards. Today, however, you can get a variety of sanders with some form of dust pick-up.

Random Orbit Sander

Small random orbit disc sanders are very popular. The one shown uses a through-the-pad dust collection system. It is powered by an internal fan which pulls the dust through the ports in the sanding pad and blows it into a small bucket located on the rear of the machine, under the handle. The sanding discs are held in place by a hook-and-loop fastening system and the holes in the paper must line up with the holes in the pad. The small bucket has several very fine mesh screened openings to allow air to flow through, but traps the dust. With this type of collection you must clean the screens in the bucket to ensure that the system will function efficiently. Through-the-pad systems only work well when the disc fully covers the piece being sanded. As soon as the edge of the disc protrudes past the edge of the work piece, the internal fan cannot handle the extra air-flow and fails to capture all the dust particles. Unfortunately, there is no easy method to modify this model of sander so

they are best used in conjunction with a down-draft sanding table.

Other models and brands of sanders utilize bags, and porous cup filters to collect the dust. The major drawbacks with these types of machines are the limited capacity of the dust bucket, and the fact that you have to dump the bucket when it gets full. Such dumping is not only time consuming, but it exposes you to the dust that you have collected. Some of the newer models come with a vacuum hose adapter.

Belt Sander

Generally, collecting dust from belt sanders with built in dust collection works well, but only if you are diligent in keeping the bag and the dust passageways clean. The design of the belt sander allows for dust collection from along the rear of the belt. Just like the disc sander, this fan cannot capture all the dust once the rear of the sander extends past the piece of wood being sanded. The dust that is captured is removed from the collection bag by un-zipping it and shaking it into the garbage. Similar to the random orbit disc sander, this is time consuming and exposes you to the dust already collected. My belt sander was easy to adapt to my vacuum because the dust port for the bag was almost exactly the same size as the inside diameter of my vacuum's hose.



Vacuum with Finer Filter

The additional suction of a vacuum will greatly assist in the removal of dust from a sander. There are drawbacks to this collection system, but they can be minimized. First, the length and weight of the hose could restrict the flexibility and range of the sander's operation. Second, any time you use a vacuum cleaner to suck up dust you will want to put a finer filter in it. I use a washable cloth bag in my vacuum. The cloth bag filters down to 3-5 microns, whereas most standard vacuum filters are 25-30 microns at best. Finer cartridge type filters are available at most stores that sell large vacuums. Third, any time that you move dust down a plastic hose you will generate static electricity. Therefore, if you don't want to get shocks, you may want to run bare copper wire inside the hose and ground it at the vacuum cleaner end.



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■ continued from page 2

Regarding static electricity, Chester responds:

You are correct, home owners with workshops do need to take precautions to avoid static-electricity from plastic piping. The permanent piping that I use is galvanized steel "smoke pipe". It comes in 36" lengths, and has a longitudinal snap lock seam. It is the easiest and least expensive method to ensure that static won't be a problem. I use 3" - 6" plastic flex hose in installations, but I run bare copper wire through it if the machine that it's connected to creates fine dust.

Regarding waxing cast tool tops, Carl responds:

I would skip waxing machine tops, as the wax will rub off onto your stock pretty quickly. Most shops I know use surface sealant and lubricant like TopCote. It is easy to apply and very effective. If you use your equipment a lot, re-spray more frequently. If high humidity is a problem use a de-humidifier; I use one in my shop and it helps quite a bit. To know how much moisture is in your shop you can use a temperature/humidity gauge.

Hello Folks:

I have just re-newed my subscription on-line for 3 yrs. You have a great

magazine. I enjoy every issue. If I could offer a suggestion though, I'd like to see cutting illustrations included in the plans. Thanks. John V., AB
PS I am attaching a photo of a project that I completed from the Feb/Mar '04 issue.

John,

Thanks for your kind words and suggestion. Thanks also for your photo of the children's table and chair set that you have completed. Great job! Your idea of cutting illustrations is a good one. We have included a cutting illustration in the pickett fence shelf project in this issue, and will do more of that in future issues. I appreciate that you took the time to offer your suggestion.

Paul



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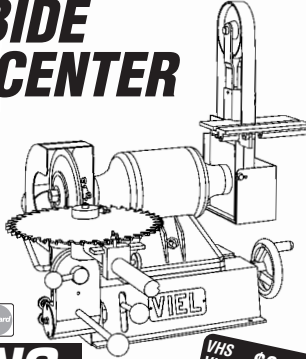
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