

OREGON WOOD WORKS

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ALL ABOUT ROUTERS

BY BOB OSWALD

As mentioned last month, this issue of the newsletter is dedicated completely to routers. This introduction to routers has hardly scratched the surface of this amazing and versatile machine. I have a whole new appreciation for its power. There were no outside contributions from my request, so you're going to get an earful of the editors opinions. All the articles have been made a bit brief to save space and try to share as many ideas as possible. Additional detail is available. Visit your local library for a many books full of tips. I spent a few hours

sitting cross legged on the floor, enjoying the fruits of a long forgotten resource.

Router applications span a wide range – edge decoration, trimming, mortise, dovetail and box joinery, dado, splines, drilling. The list is much larger than I ever realized. All of the tools in your shop, cleverly applied, can serve many purposes. But in preparing this newsletter, I have come to believe that the router is the most flexible and universal in the duties it can perform. In this newsletter you will see a router used in many ways.

- Router – I Want To Round An Edge
- Drill press – see Shelf Hole Guide
- Planer – April , Working w/Large Slabs
- Mortiser – Mortise Jig
- Jointer – Flush Trim Magic
- Bench mounted – Another Router Table
- Add gadgets – bits, feather boards, bit holders, template guides, dovetail fixtures.

OUR NEXT MEETING—JUNE 15, 2005

Steve Gass of the Sawstop in Wilsonville will talk about table saw maintenance, tune up and of course his new table saw, his own invention. There will be a demonstration that we will likely never see again. In addition, Jeff Hilber will give a short talk on the 2x4 design contest. including some examples of past contest winners. We all hope to see more interest in that contest.

Parking is limited. Sawstop is providing a shuttle van to transport people from a church parking lot that is 4/10 of a mile from Sawstop — a 10 minute walk if you like.

I205 SOUTH:

Take the STAFFORD RD. exit
 Turn RIGHT onto SW STAFFORD RD. 1.2 miles
 Turn LEFT onto SW NEWLAND RD. 0.3 miles
 End at 23215 SW Newland Rd, Wilsonville, OR, 97070

I205 North:

Take the STAFFORD RD. exit
 Turn LEFT onto SW STAFFORD RD.
 Turn RIGHT onto SW NEWLAND RD.
 End at 23215 SW Newland Rd, Wilsonville, OR 97070

See the Guild web site for a map.

Sawstop
 22409 S.W. Newland Road
 Wilsonville
 503-638-6201

- Networking begins at 6:30 pm; program begins at 7:00 -
 - Don't forget to bring a chair or two! -

SUBMIT AN ARTICLE!

Do you enjoy reading the articles in our newsletter? Then consider becoming one of our contributing writers. If you're a woodworker, you've got a lot of great ideas and expertise to share. You don't have to be a great writer; we can help you get your ideas down on paper. If you'd like to share your ideas contact Bob Oswald at 503-985-7137 or bobnan@teleport.com

*I'm delighted to have it
as an asset*

*... less prone to dumb
mistakes*

WELCOME NEW MEMBERS

Judy Clow, Joe Cornett, Jack Frost, David Jeske, Robert Kimes, David Sillars, Myles Standridge, Mike Jurkiewicz, Chris Langlois

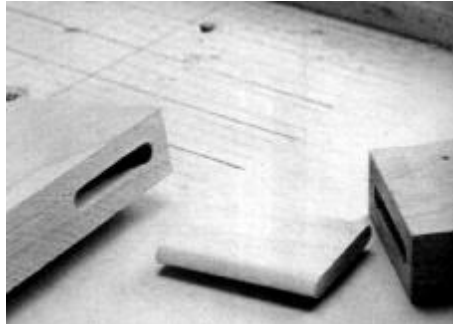
Don't hesitate to say Hi at the next meeting!

FLOATING TENNON JOINTS

BY BOB OSWALD

Also known as a loose tenon joint. The mortise-and-tenon is a good joint because it provides relatively large areas of flat grained gluing surface. I have long overlooked some of the traditional joinery techniques because I'm intimidated by them. Mortise and tenon was one of the most favorite of the ignored. I was always put off by having to bore out a mortise hole and square it decently with a chisel. And cutting the tenon to be located and fit properly is a bit of a challenge. I know this is my own failing, but it's real non-the-less. Then I came across an article at the library about floating tenons. A floating tenon is like a biscuit joint or a spline joint in that you make identical cuts on the two receiving members and put a common tie-element between them.

The beauty of the floating tenon is that the mortise holes can be cut with a router and the ends left rounded. And even better, the tenon becomes a flat, rectangular piece of stock that can easily be trimmed to fit snugly using a planer. It should not require force to make it fit. After it's planed to thickness and width, it's simple to radius the edges with a roundover bit in the router. Awesome, I think. This joinery can be used in tables, fastening the apron to legs. In cabinets for



rail and stile connection. Well, anywhere that a normal mortise & tenon would be used. Perhaps the masters in our midst would have observation about whether this is weaker, stronger, easier or not so pure. I'll share any feedback I receive. I'm delighted to have it as an asset in my bag of skills. See accompanying article on a simple router mortise fixture you can build.

One advantage of loose-tenon joints is that parts no longer need to be sized to include an integral tenon. That not only saves expensive cabinet wood, but also makes the sizing of pieces more straightforward. It makes you less prone to dumb mistakes.

Done this way, the joint is uniquely suited to one-of-a-kind, limited-production furniture or high-end cabinetry. The mortises are quickly and accurately cut with a slot mortiser. The tenons are easily mass-produced out of scrap or inexpensive wood in whatever size you need.

Making up a batch of tenon stock is straightforward. Rip a length of rough stock to the rough width. Resaw to just over the desired thickness and then surface to final thickness. Joint one edge. Rip to accurate width. Round all four corners on the router table.

Router Mortising Fixture —Due to space constraints, this article will be published next month. A simple fixture that completes the floating tenon perfectly

WE HAVE A NEW SHOW!

BY GEORGE DUBOIS

The 6th annual Village of Willamette Arts Festival will be held September 17-18, 2005, in historic old-town Willamette, in West Linn, Oregon! Mark your calendar and we'll see you then! We are looking for 6 people to participate in this event. The cost is \$75.00 per person.

This should be a very good venue with a very good potential for increased sales and new customers in a very affluent part of the Portland area.

The Salem Art Festival

We are looking for volunteers and exhibitors for this event. This year we will also inaugurate a "Children's Workshop" for kids to build birdhouses. The event will take place in July 15, 6, & 17, 2005. at Bush Park in Salem. There are over 100,000 people who attend this Festival. Mark your calendars and come to this event.

Call George DuBois for info 503-365-7636

FROM THE PRESIDENT

BY JOHN DUBAY



Our first ever Intra-Guild woodworking show at a monthly meeting last week made a fine display of talent and skillmanship. The space provided by Hardwood Industries at their new facility gave

every participant room for each person's work as well as making it easy for viewers to walk around, look underneath, and feel the finishes. Participants self designated their classification as beginner, intermediate or professional, and each class had their own side of the room for display. The Meetings Committee gathered a blue ribbon panel of judges from some of our sponsors and woodworking schools, some artisans in their own right. First, second and honorable mention prizes were awarded in each of the three skill categories with the first annual George DuBois award for the Best in Show, ten prizes in all.

There should have been more. Each piece entered represented many hours in the shop, somewhat fewer at the drawing board, and a lot of "head-time", including no doubt some sleepless night time, for planning and puzzling out the best way to make something to be proud of.. Decisions must be made. "Good enough to stop now or should I keep on to try to make it better?" Turning chunks of wood into beautiful and functional

WOODWORK takes effort and the best techniques we can muster. All that effort and honest attention to doing the best work one can deserves an award. So, in my book each entry in the show deserves a salute of respect and admiration for showing the rest of us how much you've accomplished.

The twin measures of evaluating woodworking focus on design on one hand and execution on the other. Creativity and workmanship. Some rank design as paramount and the most important, while others most admire the woodworking abilities of craftsmen/women when judging the merits of woodworking. No doubt, both play a part in putting a value on a particular piece, and the pieces in the Guild show had examples of the best of both elements. But which was which? Perhaps we should have awards for craftsmanship alone as well as design alone. Why not have an award for best use of wood grain, color, and pattern? An award for meticulous joinery, or a stunning finish that relies on technique rather than chemistry? How about one for the best reproduction of a classic but difficult woodworking style or type? Such criteria and others like them would reflect the goals most woodworkers strive for in the shop rather than what gallery shoppers admire. We could do this. After all, it's our show.

"... each entry deserves a salute of respect and admiration"

BIRDHOUSES !!!

A hearty thank you to the people who made birdhouse kits. Only 3 of the 23 offered arrived. Perhaps I didn't make it clear when and where to deliver them. Please bring

your kit to the next guild meeting in Wilsonville. If you can't make it to the meeting, give me (Bob Oswald) a call and I'll be happy to try to pick them up. 503-985-7137. They are needed for the Salem Art Festival July 15. Time is near!!

Urgent call for birdhouses. There is only one more meeting before the show.

ROUTER BIT HOLDER

There are any number of ways to store your router bits. I made this simple holder in an hour. The shelves are about 2 inches wide, screwed on through the back. The angle is about 20 degrees so that the bits can be extracted without hitting the shelf above. The holes are 1/4 & 1/2 and are spaced in varying sizes to accommodate large round over bits as well as quantities of straight flute bits, etc. It's hanging on 2 screw hooks to make it

easy to take down and modify or move it..



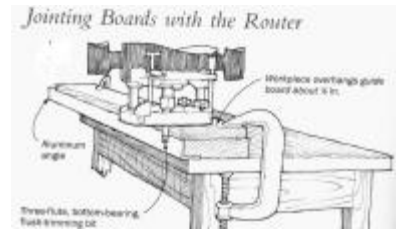
FLUSH TRIM MAGIC

The flush trim router bit comes with either a top or a bottom bearing.



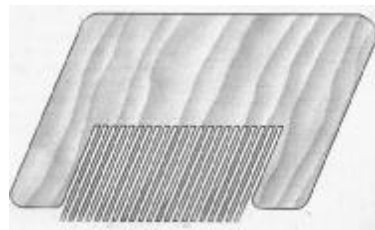
To use it, the bearing rides against a known edge of a template and the cutting edge trims the work to precisely match the template. The template can be a straight edge defined by a piece of angle iron or a counter top. Or it can be a curved edge such as a complex curve of a scalloped table top. The

photo below shows how to use the router as a jointer. The template is on the bottom, so you use a bottom bearing bit. Substitute the angle iron for a curved piece of 1/4" hardboard template to tune up the cut from a bandsaw.



FEATHERBOARDS

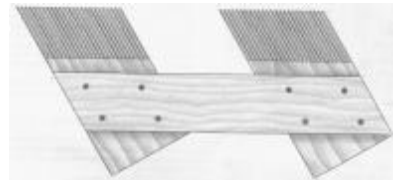
They're everywhere, commercial or hand made. So this short, picture based article is about a couple of unique variations I discovered recently. First is a featherboard with



thumbs, and how it is used to clamp to a fence where there is not

enough height to clamp it in the traditional way.

The other is a tandem featherboard. Two single ones fastened together with a board. It cuts the number of clamps in half and is fast and easy to apply.



The two systems are shown in use on a router table, providing all the hold down power you'll need.



I guess all of you are expert woodworkers.

I LEARNED ABOUT WOODWORKING FROM THAT:

BY BOB OSWALD

Guess what! I didn't learn anything this month! Well, ok, I learned that to keep peace in the family and be able to enjoy one of my favorite pastimes, I need to clean up once in a while. I've bought a number of new things, unpacked them, and piled all the boxes and packing material outside the base-

ment door. It came to my attention that I should haul this stuff off to recycling. And I guess all of you are expert woodworkers. No one ever sends me a learning experience to share. I won't publish your name if you so request. I just can't believe I'm the only one who makes mistakes.

NOT JUST ANOTHER ROUTER TABLE

BY BOB OSWALD

A table mounted router gives you the incredible stability of not having to wield the router motor itself. You've read dozens of articles about all of the best router tables in the world. Following is my evolution over a number of years. It's very functional and I'm delighted with it.

- It started with the top, a Rockler router table on sale several years ago. Nice miter slot, hard surface, one router base plate with leveling screws. Over the next several days I designed and built a simple base. The first one had shelves instead of drawers and no pegboard.
- The sawdust bin is easy to clean out – this was an important feature of the first base and it has not changed since. Two swing open doors allow easy access to vacuum the inside. They also provide very fast access to depth adjust or lift out the router to change bits. My primary router is a 1/4" Bosch with a screw adjust for height.
- Power switch – located under the table on the right side for quick access in a place where your hands will never be near the moving parts, especially in an emergency shutoff situation. The router is plugged into an outlet box inside the cabinet, controlled by the switch. There is no risk of accidentally activating the router when I reach under to adjust router height. I use the same approach on my radial arm saw. I think it's perfect.
- 4 drawers, two at 4 inches and two at 5 inches tall were added one weekend when I realized that I was wasting the space in the form of two shelves of clutter. See the March 2005 newsletter for the drawer inspiration. All the router supplies are there. I'm especially pleased with the drawer pulls. Full width at the top of each drawer, they are made from scrap 3/4 stock with a finger pull routed along the bottom edge. I mass produced about 30 feet and cut to length for several drawers I made that weekend. They look classy and were free.

- The Incra jig came along at a fall tool show in 2004. This is certainly the decadent way to make dovetail and box joints and I was dazzled 3 years in a row by the salesman at the show. My apologies to the hand cut dovetail advocates. In reality I have not yet made any such joints, but where this fixture really shines is as an incredible precision fence. Zero it against the bit of the moment, which takes only 5 seconds and I can dial in a the router cut in 5 more seconds, literally. Absolutely no more measuring, no more test cuts. It is dead on to a thousandth every time, all the time. If I never make a box or dovetail joint I would spend that money in a second for this precision fence system.
- The pegboard tool rack was added recently; always digging in the drawers for

*... easy to
clean ...never near the
moving parts ... no
more test cuts..*



the collet wrenches and misplacing the basic shop tools, combo-square, chisels, odds and ends. Pegboard screwed through a spacer block top and bottom made this so perfectly handy. I even put the tools that go there back when I'm finished with them. There is another rack extending around the back side

TINY TIP: Mix a little baking soda with water to make a paste. The mildly abrasive nature is good for cleaning router bits and blades. Scrub, wipe off, dry and buff.

“Features... generally add to the price, so shop as high as you want to go”

BEGINNERS CORNER:

I WANT TO ROUND AN EDGE

I want to put a rounded edge on a plaque I'm building. I know I need a router. There are so many. Which do I buy? What else do I need?

This is an excellent scenario for the first time woodworker. First of all, of all the tools in the shop, the router is probably the most versatile. A saw of some kind is the most essential but the router can substitute for a drill press, a jointer, a dado blade, mortise chisel, and more. For this project, the two items you need are a router and a round-over bit.

Routers basically fall into two types standard and plunge. Standard is most common. The plunge router allows the router motor to sit above the work and at the right time, it is pushed down into the work. Typically they cost more but can be well worth the price.

Which router to buy

Routers come in dozens of models in many brands—Bosch, Makita, Porter Cable, Delta, Dewalt and more. The brands and models are distinguished from each other by a number of features. Features are typically convenience items, some more important than others. They generally add to the price, so shop your way as high as you want to go. It's best to talk to a sales person, read magazines or go with what you're familiar with. The discussion of features that follow will hopefully help you in the decision making process. Router features include:

- Fixed vs plunge base. Fixed is the most common but if you can get an add on plunge base, it's a great bonus. Plunge base allows you to start the router over the work and when ready, push the bit into the work. But it takes a little extra coordination.
- Depth adjustment – the most useful feature in being able to easily and accurately set the cutting depth.. Without a good system, it's a tedious and inaccurate process to get the depth set properly.
- Pistol grip or knobs on the base – pistol grip is nicer for extended use, a lot of cutting or where you need more accurate control. Buy it if it's a bargain.
- Trigger switch or slide switch – trigger on the handle is very convenient for higher production cutting and for safety.

- Dual collet – this gives you the freedom to buy some specialty bits that may only come with a 1/2 “ shank.
- Speed control – very nice if you plan to use larger bits for projects like edging cabinet doors. The larger bits need to run slower.
- Soft start – nice, especially when hand held or with large diameter bits. It reduces the jerk at startup.
- Dual wrenches vs locking rotor – either one works. The dual wrench where one grabs the shaft is easier to locate than rotating the shaft until the lock is engaged.

If you are going to remain at the hobby level for a long time, a small 1/4” router will serve you well. If you are going to cut a lot of larger pieces, furniture and cabinets, you would be better to have a more powerful 1/2” one as your only router.

What else do you want to do

In making your choice, you want to consider future applications to the extent that you can. I have a Bosch 1617EVS 2-1/4-Horsepower Variable-Speed Router. I like it and only mention it here to give you a starting point. It has electronic variable speed and a nice depth adjustment. Dual collet wrenches and both 1/4” and 1/2” collets are standard. I bought a package that also included a plunge base and carrying case. Use this one to trade off the features it has against others you review.

Choosing the bit

So you've selected the router; now you need a bit. A round over bit will make a smooth radius corner where the round comes out flush with the flat. If you want a fancier look, a little step at the edge and at the surface as shown in the picture is done with a beading bit. Typically you can achieve the result with one bit by changing the diameter of the bearing, which is available in kits of several sizes. This bit comes in different radius cuts, from 1/8 to larger than 1/2”.

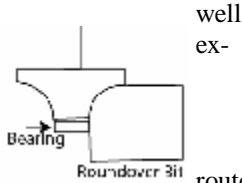
When adjusted properly the bit will cut a rounded edge on the board, both on the end grain and on the straight grain sides. The bit will be available with a 1/4” or 1/2” shank. If you already have a router, you would buy the

BEGINNERS CORNER (CON'T):

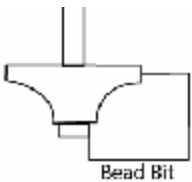
shank size to match. It's the fashion today to use 1/2" bits. They are sturdier, less vibration and have more cutting power when driven by a capable router. I strongly recommend carbide bits. They last many times longer and their extra price is justified by their extended life.

Adjusting the bit

With the bit firmly clamped into the router collet, adjust the depth of cut. With the correct bearing on the bit, the side cut depth will



already be set. To set the vertical height, set the router on the board and adjust the height so the bit is as close to flush as you can. Make a test cut on a scrap of wood and fine tune it. I usually set the



depth a tiny bit shallower than flush so there is no ridge that has to be sanded out. You will never notice the round over being slightly less than perfectly aligned.

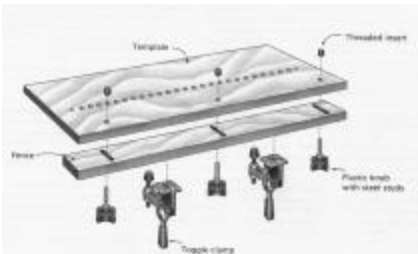
Making the cut

Tearout is a significant issue when cutting across the end grain. There are two ways I approach it. One, cut both side grain edges first. Then when you cut the end grain there is a smaller chance of tearout because the break out point has been relieved. It still happens. Two, cut both side grain edges as above. Cut one end grain and stop a little before you reach the end. Then sneak around the corner and place your work against the bit on the side grain, close to the corner and "climb cut" to the corner and around onto the end grain. Be very careful as a climb cut makes the router want to grab the work. Hold the work very tight and make light cuts.

"Tearout is a significant issue when cutting across the end grain."

SHELF HOLE GUIDE

This is an outstanding application for a plunge router! I've only made a shelf system once but I'm planning a major bookcase project one day. I finally found a set of plans that, modified to my purpose, have a style I have been seeking for a long time for my paperback book collection. And I'm so pleased to see this adjustable hole guide ... because ... last time I used a drill press and indexing pin. It worked but the shelves do rock a tiny bit. With this system you will have perfectly placed holes. It took me a while to digest this fixture, but now I see that it's quite easy to make and even easier to use. I have condensed this article a lot, so if it doesn't make sense and you want help, call me. The whole fixture looks like the

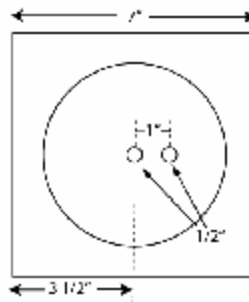


exploded picture. The bookcase holes are drilled with a plunge

router using a custom built base and this template.

Making the Base plate

There are 2 half-inch holes, one for the bit and one that will have a 1/2" dowel pin glued into it. The only trick is getting the dowel hole as close to 1" and parallel to the edge of the base that will eventually guide against the fixture fence. See the base plate diagram.



Cut the base plate blank from 1/2" stock, a little oversize for your router base size. Be sure to have one straight, clean edge that will become the guiding edge when

used with the template. Remove your router base plate and roughly center it over the blank. Attach your router edge guide and align it with the base plate clean edge. Transfer the router mounting holes, drill and countersink them. Install a 1/2" bit and attach the base plate to your router. Plunge-bore the bit opening with the 1/2" bit.

Put a reference mark 1" to the side of the

"With this system you will have perfectly placed holes."

SHELF HOLE GUIDE (CON'T)

router. Remove the base plate and bond it with carpet tape to a large scrap, clamped to the workbench. Using the edge

guide, align the router to the mark make earlier. This will drill the dowel pin hole (and router hole) parallel to the edge guide. Plunge bore the second hole.

Glue the a 1/2" dowel pin into the offset hole. Be sure it protrudes out the bottom.

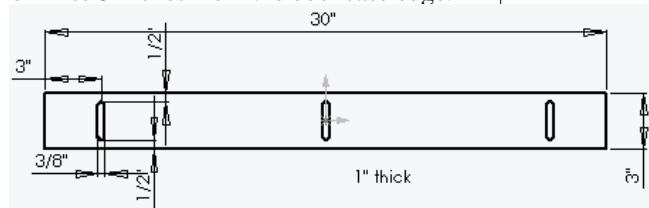
Making the Template

It's pretty easy since you have your new custom router base to work with. Cut the template blank 12x32 out of 3/4" plywood. Using the template drawing, scribe a line down the center of the hole patter. NOTE: The two end holes are 1/4". Plunge bore the first 1/2" hole. A clear plastic base plate with crosshairs on it can make this alignment much easier.

bore the next (and last) hole with the new bit. To bore the hole on the other end, you have to move the fence. Depending on the precision centering of your router on the base plate. Both 1/4" holes must be perfectly aligned to the centerline.

Making the fence.

Cut the fence from 1" stock to the dimensions in the drawing. You can use 1/2" plywood glued laminated together. Use the router with a 3/8" bit to cut the slots. The slots are 2" long, so they can be positioned from 1 to 3 inches from the bookcase edge.

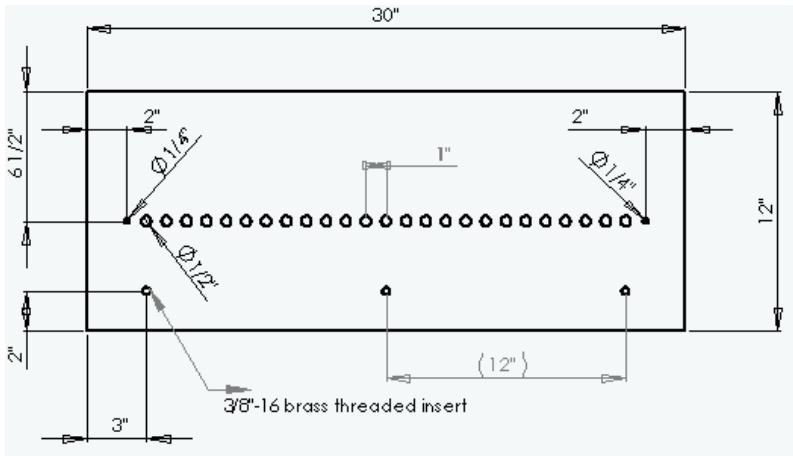


Attach toggle clamps available at some of our sponsors. Be sure to use a type with a lock nut. When this is clamped to your workpiece, you do not want it to shift during use.

“...you do not want it to shift during use”

Using the Template

Set the fence parallel to the line of holes. Use a 1/4" pin in each end to align the fence against. Securely tighten the knobs that hold the fence.



Then clamp your work to the bench. Install the template on top of it and clamp from below. If you are drilling holes in both sides, you can flip it over and drill the second side. Just be sure to start the first hole from the same end of your work on each side.

With your new base plate installed, insert the pin into the first hole. Clamp the fence in place against the base plate and parallel to the centerline. to bore the rest of the holes. Plunge bore the second hole and continue on down the line until all of the 1/2" holes are drilled.

Bore the end holes. Install a 1/4" bit. Plunge

ROUTER TABLE (CON'T):

- which stores feather boards, plunge base, fence accessories and a spare 1/2" router shown sitting on the top in this photo.
- Table extension – was added on the back to provide the platform for the Inca fixture. At first it was an unwieldy, large, in-the-way thing that collected clutter. It's become a useful staging area for a multi-part router project. However, you do have to keep it clean..
- Porter Cable 1/2" router – picked up on sale last year. What a moose, but what a workhorse. Nothing sophisticated about it, except that is easy to dial in the height and it has power. It's heavy, but table mounted it is wonderful. Incidentally, the Bosch came with a plunge base so when I have a freehand project to do, I pop it out and stick it in the plunge base.

- The vacuum attaches to the Inca. Previously it was the typical funnel pickup clamped behind the bit. Worked well then and works well now. I'm a converted believer in dust collection systems. With my central on off switch (April 2005 newsletter) I always use it. Expect a future article about why you should not be without a dust collector.
- And of course, notice the bit shelf hanging on the wall nearby. I used to ramble through the drawers and boxes looking for the right bit. I can't believe how much time I have wasted putting off fixing basic organization problems in the shop. And I'll bet many of you do too.

The router is still the least used tool in my shop. I love it and am just coming to understand its capabilities. But I do have a home for it that I enjoy.

...how much time I have wasted putting off fixing basic organization problems in the shop.

CLASSIFIED ADS

I'm a sculptor who's been collecting and sculpting some nice black walnut. It's slabbed, sawn or re-sawn & air drying on stick through recent years. My shop is getting way full of chunks & slabs that will take me many years to use up. Some of this stuff is pretty massive. My last tree acquisition has caused me to think about packrat/storage/space issues.

Marty Oppenheimer/WoodScapes
 Tel: 541-308-0007 1996 6th St.
 Hood River, OR 97031
martyop@charter.net

Wholesale Burl -call Tim Shipp



Sweet Home, Oregon 541-367-3495

*****Upcoming Guild Seminars*****

Build a Box with Bill Bolstad – Jefferson, OR – June 11, 9:00am to 4:00pm

You've probably seen Bill Bolstad's beautiful boxes at shows and area galleries, such as The Real Mother Goose. Join us at his production shop and gain insight into Bill's production methods and specialty tools, such as his CNC router. Each participant will build a box to take home and finish. There will be a \$20 materials fee in addition to tuition. Register with John Sharp at jsharp_112@hotmail.com or the guild webpage.

Guild of Oregon Woodworkers

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Portland, OR 97213-0744

Phone: 503-391-7890
Email: jlidubay@comcast.com

We're on the Web!

www.guildoforegonwoodworkers.com

The Guild of Oregon Woodworkers is a group of professional and amateur woodworkers like you, committed to developing our craftsmanship and woodworking business skills. The Guild offers many benefits for members, including

- *monthly educational meetings*
- *monthly newsletter*
- *mentoring program to help members develop their skills in specific areas*
- *discounts*
- *woodworking shows*
- *network of business partners (the key to our development as members and as a Guild, providing additional learning opportunities)*
- *and a network of support.*

For information on how you can become a member, contact Guild President John DuBay at 503-391-7890 or join on the Guild website

GUILD OF OREGON WOODWORKERS

P.O. Box 13744, Portland, OR 97213-0744

CLASSES, SEMINARS, DEMOS, AND SUCH....

Northwest Woodworking Studio 503-284-1644, www.northwestwoodworking.com

Rockler Woodworking 503-672-7266, www.rockler.com

Oregon College of Art and Craft 503-297-5544, www.ocac.com

Woodcraft 503-684-1428, www.woodcraft.com

Woodcrafters 503-231-0226, 212 NE 6th Avenue, Portland

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