

LEGACY  
**Ornamental Milling**  
MAGAZINE

\$6.00

[www.legacywoodworking.com](http://www.legacywoodworking.com)

VOLUME FOUR



*Harry Tippetts creates this beautiful columned desk using his Legacy Ornamental Mill!*

800-279-4570

*Legacy  
Woodworking  
Machinery*

*a division of  
Phantom Engineering, Inc.*



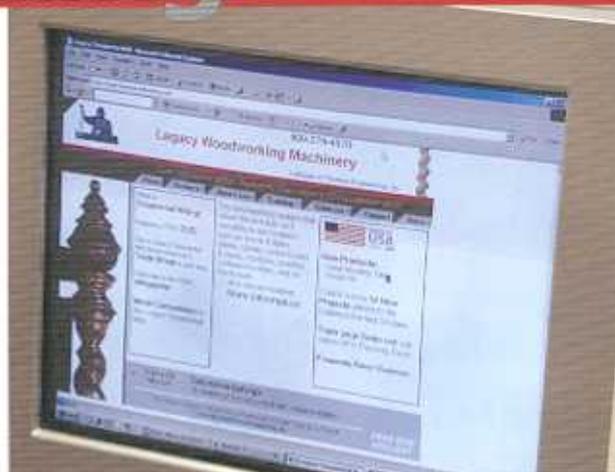
**See the new  
Molding Table  
Page 14**

*See Anatomy of  
a Desk - pg 6.  
to see which details  
were created using  
the Legacy  
Tool Review  
Micro Fence - pg 16*

## New Legacy Woodworking Machinery Website

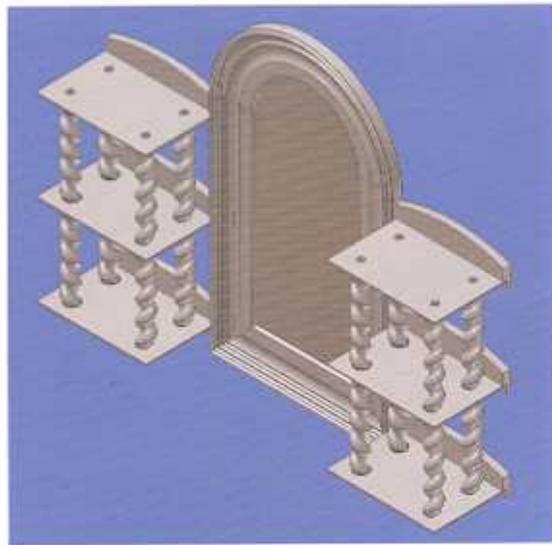
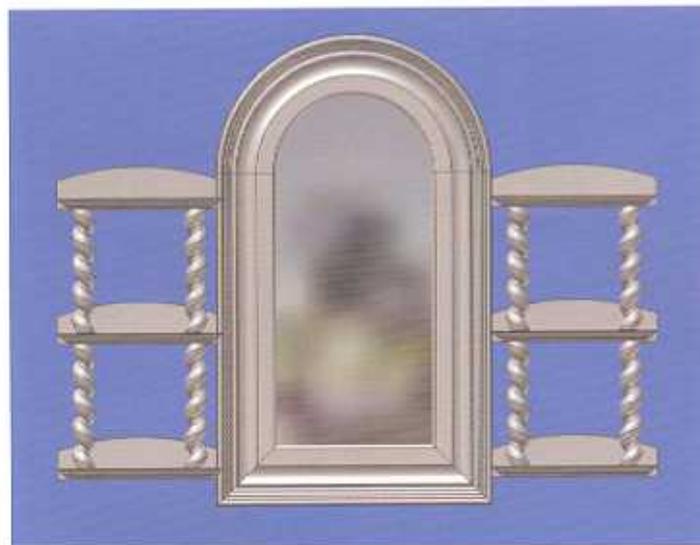
[www.legacywoodworking.com](http://www.legacywoodworking.com)

has been redesigned for easier use and faster page loads. This new site is database driven and currently features a gallery of 120 projects, models and specifications, new products, training information, trade show schedule, and more.



**E-mail Updates** On a regular basis you can be notified by e-mail of current happenings at Legacy Woodworking Machinery. These e-mails will feature items such as the latest tips & tricks, project updates, and special product promotions. Sign up for these updates at: [www.legacywoodworking.com/email.cfm](http://www.legacywoodworking.com/email.cfm). If you have a spam blocker program it may be necessary for you to enable your e-mail program to receive items from Legacy. To bypass the spam blocker, simply insert: [e-mail@legacywoodworking.com](mailto:e-mail@legacywoodworking.com) into the address book of your e-mail program.

Everyone who signs up for the e-mail updates before July 1, 2004 will receive a complimentary project plan (pdf format) of the curio shelf shown below. This project features left and right-hand barley twist columns, as well as an arched mirror frame which is also created on the Legacy.



**Tracking Shipments** Customers can now track UPS shipments directly from the Legacy website. To track a shipment simply select the "Track Shipment" button on the Legacy homepage, or type in [www.legacywoodworking.com/tracking.cfm](http://www.legacywoodworking.com/tracking.cfm) on your browser. You will be asked to type in your customer ID number (in most cases your individual phone number), or your order number. This number should be given to you by the Legacy sales rep at the time you place your order. If there is no tracking information available, it simply means that the order has not shipped.

**Legacy Ornamental Milling Magazine** Reprints of past issues can be purchased individually for \$6.00. Call 800-279-4570 to order.

**Price Increase** After May 28, 2004 the current pricing will be changed to reflect the rising costs of steel and aluminum. If you or someone you know is interested in purchasing product, now is a good time. Metal prices have been steadily increasing and it doesn't look like that will let up any time soon. Purchases made after May 28th will reflect a 5-10% increase.

[www.legacywoodworking.com](http://www.legacywoodworking.com)

FEATURED WOODWORKER

Legacy Builder:

Harry Tippetts  
Hobble Creek Canyon, UT

Featured Project:

Column Desk



**I**n 1977 Harry Tippetts went to work for a now successful local cabinet making company. Though the company was a one man operation at the time, working mostly on cabinets and antique repairs, Harry learned his craft well and became a lover of beautiful woodwork. In 1994, Harry rented shop space near *Legacy Woodworking Machinery's* original headquarters. One day, out of curiosity, Harry visited our facility to see what we were doing. He observed the manufacturing and the operation of our ornamental mill and the rest, as they say, is history.

Harry's original purchase was a Model 1500 that had the capacity to mill eleven inch round stock 83 inches long. He had recently acquired a contract to build large fluted columns for a rather "plush" home in the area. Although the milling of the columns to satisfy his column contract was Harry's primary motivation, he could also see how the *Legacy* could seriously help him add to his overall repertoire of woodworking designs.

*"I had a cabinet business of my own for 5 years and I found out that one of the real barrier's in creating artistic woodworking was performing radius type work - anything with curvatures - anything that deviates from the basic parallel and perpendicular designs. Nothing beats this machine for doing this type of ornamental work. The curvature design problem would be difficult for me to address without the Legacy Ornamental Mill."*

When asked what feature of the Legacy he found most appealing, Harry replied: *"Oh boy, that's a hard question to answer. Right now, coming off this desk project that I just completed for one of my customers, my favorite feature is the ability to take crown moldings and profiles around corners. The desk I just finished is about seven and a half feet long, and four feet wide. I was intrigued with the prospect of building it, of being able to run crown moldings around its radii and to create all radius type corners. My favorite feature will probably change with my next project, which I won't detail at this time, but right now, that's the feature I enjoy most about the mill."*

The desk is extremely nice. The client paid Harry an additional \$1000 bonus when the piece was delivered. Harry is definitely making a name for himself in the custom woodworking business.

***"I know this is not the least expensive piece of equipment to buy, but I wouldn't be very excited about going to work everyday if I didn't have a Legacy in my shop."***



*Harry Tippetts used the Legacy design kit to create moldings on his round columns - to match with existing moldings from his supplier. The dentil moulding - both curved and flat - were also created on the Legacy.*

*I left the cabinet business because I see furniture as artwork – more than just a piece for utility. The fact that building furniture gives me a way to express my artistic abilities really motivates me to excel in this field. I hope to develop, over time, new and different pieces that are aesthetically pleasing. I would sincerely like to thank the people at Legacy for their help and professionalism in answering questions and solving problems.*

*“After I delivered the desk, my client’s wife said to me, “I wish it was home in my living room so that I could just sit and look at it”. - That makes it all worth it to me; that is what it’s all about.”*

When asked what he would tell a friend who was looking into purchasing a Legacy Ornamental Mill, Harry commented: *“Well, I would tell him not to do it! I want to keep the competition out of the marketplace! Honestly, the Legacy machine gives me the capability to do things I could not do otherwise. I’ve been in and out of the cabinet business and would not want to begin to be in the furniture business without this machine. It gives you the*



*As time permits Harry and his son Jeremy, are working on this dining room table with opposing spirals and a central hollow spiral.*

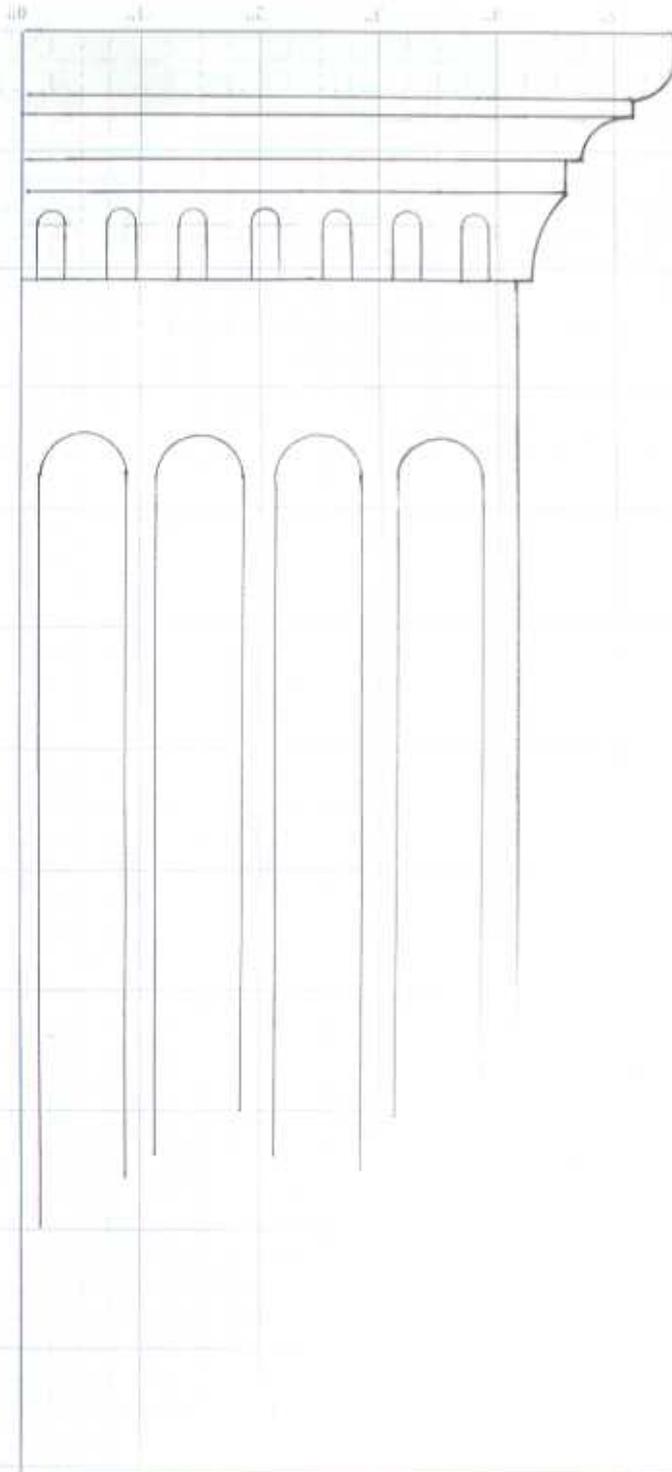
*One of the first items Harry used the Legacy for was to create these plinth blocks to turn the corners on this baseboard.*



*capability to do things you would otherwise have to do by hand. It is the most versatile piece of equipment in my shop. I know this is not the least expensive piece of equipment to buy, but I wouldn't be very excited about going to work everyday if I didn't have a Legacy in my shop."*

We at Legacy understand just how you feel, Harry. We would not be very excited about going to work everyday either if we didn't have customers who feel the way you do about our product. Thank you for your enthusiasm – it ignites ours.

*Harry Tippetts currently resides in Hobbie Creek Canyon, UT.*



***"If you want to change the limits of your woodworking, . . . You can't buy another tool or enough tools to do what this machine does."***



*Pilasters such as these are easily created using the new Pilaster Mounting Dogs shown on page 15.*

## Anatomy of a desk

Created from alder by Harry Tippetts, Hobble Creek Canyon, UT. The following details were created using the Legacy Ornamental Mill



### Dentil Molding -

Flat moulding created using a flat milling table and matched up with dentils created using the indexing head.

### Radiused Molding -

Used the Legacy design kit to match up existing moldings.



### Radiused Corner

### & Center Columns -

Milled round between centers

### Bun Feet -

Turned 2 different radius between centers using router bits to create shapes.

### Flutes -

Created using the indexing head.

TIPS & TRICKS

**Problem:** The spacing for dentil molding (and other indexed cuts, i.e. reeds & flutes, or button details) around the circumference of a column is based off of degrees. The spacing of dentils on flat moldings is based off of a measuring scale along the x-axis of the machine. How do you get the spacing to match up so that the dentil molding is the same as it turns the corner of the piece?

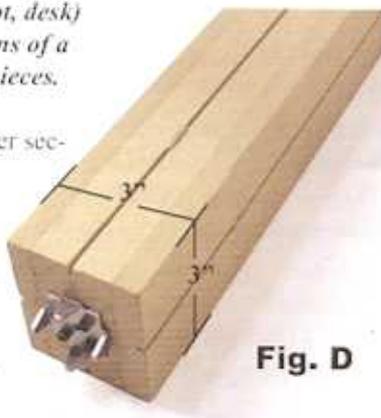
**Solution:** A good example of this is the columned desk (see Harry Tippetts article, page 3-5). When Harry made the desk he started by turning the columns and added the dentils using the 40 position indexing plate. This left each quarter section of column with 9 dentils each (Fig. A). Harry then created a makeshift measuring scale out of masking tape; this would allow him to achieve the same spacing on flat molding as he had on the columns.

Using a set of calipers to measure the spacing on the columns (Fig. B), he was able to transfer the spacing to masking tape placed over the x-axis scale of the Legacy (Fig. C). This makeshift scale was used to position the router into place, allowing the flat dentil molding to be created with the same spacing as the columns.



**Problem:** You have shown projects (wainscot, desk) which appear to have half or quarter sections of a round. Any tips for creating these types of pieces.

**Solution:** A jig is created to mount the quarter sections to (Fig. D & E). The secret to creating a successful jig is to have the hub mounted dead center on the box so that all of your parts are the same dimension. It may be necessary to mill the box square using the indexing head to equally space the sides. You can get around building your own jig by purchasing the pre-made pilaster mounting dogs (see *New Products*, Page 15).



**Problem:** How do you split round columns into quarters and insure that they come out even?

**Solution:** The best solution is to make a single column out of 4 separate pieces. Use double-sided tape (available from Craft Supplies at 800-551-8876 or [woodturnerscatalog.com](http://woodturnerscatalog.com)) and secure the pieces together (Fig. F). The critical part comes when mounting the hub on the end of the material (Fig. G). Because we want all 4 sections to be the same size, it will be important to mount the hub as close to the center of the parts as possible. Of course once the material is placed into the Legacy it will self-center around the hub and the parts will all be the same.

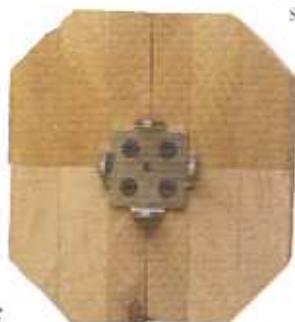


Fig. G

Fig. F

FEATURED WOODWORKER

Legacy Builder:  
Bill & Margaret White  
Grass Valley, CA

Featured Project:  
Gift & Craft Items

Bill is a mechanic, and has been for 35 years. He had never worked with wood prior to their purchase of the Legacy Ornamental Mill. In fact, he was never really interested in the art of working with wood other than to appreciate good woodworking skills when he saw them – Bill appreciates fine workmanship, no matter what field it is in. Margaret is an artist by trade and specializes in airbrush art. She delights in creating and exhibiting beautiful things. Bill and Margaret have combined their interests and are having the time of their lives with their Legacy. This is their story.

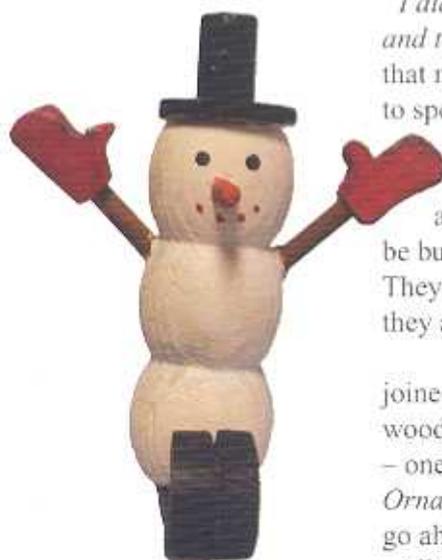


One day Bill's curiosity got the better of him and in 2001 he and Margaret went to a woodworking show with money in their pockets ready to purchase tools for their future "woodworking shop." As they wandered past the various exhibitions and displays in the conference center they came upon an unusually interesting machine called the Legacy Ornamental Mill. They watched the demonstration that was being presented by Legacy's professionals, were amazed at the various milling techniques that were being demonstrated, and even though they were novices realized the potential of the machine itself. Without further hesitation they pulled out their money and bought a model 1000 Legacy Ornamental Mill on the spot.

When they got home they were as excited as children on Christmas morning and could hardly wait for the day their Legacy would arrive. They then went out and purchased from a local supplier a number of log poles ten inches in diameter and seven feet long so that they could start milling spirals right away. Bill was absolutely elated; "I didn't leave my shop until I was ankle deep in sawdust. I love to watch the chips fly and to watch the sculptured results as the router moves along the work piece." From that moment on Bill and Margaret have had one project or another "in the mill", so to speak.

As a "lucrative side business", Bill and Margaret have recently begun building Christmas ornaments for the Blue Shield Craft Fair in the fall. They mill and decorate (Margaret does the art work) round balls from which snowmen can be built, "pie" safes, "ferry" boxes – octagon boxes with ornamental ball and feet; etc. They also use the machine to enhance and glamorize other woodworking art projects that they are constantly creating.

As has often been the case with others, Bill and Margaret have joined the band of Legacy's unsolicited staunch supporters. At a recent woodworking show Bill noticed a man talking to Dane Calkins – one of Legacy's professionals – about the Legacy Ornamental Mill. Bill stepped right up and told the man to go ahead and buy not only the model 1500 but "...the works – all the tapes, instructions & materials too. It's well worth it." Bill and Margaret have taken advantage of the available training



**"For someone who has never been creative in his life, the Legacy has opened up a whole new world."**

The seasoned Legacy user will recognize these snowman bodies as the same shape as the rope molding bit.



*Above: A plant stand featuring four, 2-start barley twist legs.  
Bottom Right: One of the 8-sided ferry boxes showing off Margaret's side of the craft.*

videos and literature as well – they have viewed them and reviewed them over and over again.

In our interview with Bill he volunteered *"This machine is not super complicated. You can create something that can turn out really beautiful if you only try. I think that I could sell ten of the Legacy Ornamental Mills myself, if I was a distributor – the machine sells itself. We are always getting reactions like, 'Oh, Ahh . . . I wish I could have that.'"* Bill evidently knows what he is talking about. As one of his projects he recently made an ironwood putter for the owner of a local lumber company. Bill also stated during our interview with him that; *"This machine has really low maintenance. Its well built and you don't have to make a lot of adjustments all the time. Being a mechanic, I know it's hard to buy tools that work straight off without a lot of fiddling and adjusting. 'I talk to a lot of the old boys who know, or think they know, a lot about woodworking. They're always telling me that I had to use a lathe and gouge out pieces and to perform all kinds of complicated steps to be able to produce what we*

*produce. When I tell them, 'No I don't', they just look at me like I'm stupid."*

One day Bill had a conversation with one of the most noted woodworkers in his community. His friend asked Bill, "How did you do that?" Bill replied, "I put a router between my teeth and some wood between my legs and go at it." His woodworking friend laughed but still insisted on a sensible answer. When Bill tried to explain the workings of his Legacy to him he said his friend, "... looked at me like I was crazy".

A while back, Margaret and Bill decided to remodel their kitchen. The estimates that were coming in from various contractors ranged in the neighborhood of \$10,000 plus – much more than they could sensibly afford. Margaret was not satisfied with "just any old kitchen design"; she wanted something unique, something that reflected both of their personalities. The solution – have Bill use the Legacy to produce their desired decor.

*"Everything I've asked him to do, he's been able to do it with this machine. Without the Legacy he wouldn't be doing any woodworking at all. We have exposed a lot of people to the machine and no one has ever had anything negative to say about it. They all wonder 'how'd you do that.' For someone who has never been creative in his life, the Legacy has opened up a whole new world to Bill."* Margaret is keeping a scrapbook journal of all of the projects that they create – the pages are rapidly filling up.

When asked what they tell their friends who ask questions concerning their Legacy they stated, *"It is simple and safe to operate. The assembly and operating instructions that come with the machine are not difficult to understand. It is really unbelievable what you can do with this machine."*



*Bill & Margaret White live and produce creations of art in historic Grass Valley, California.*

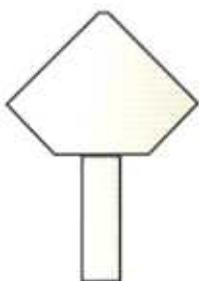


## Using a Bird's Mouth bit to create large diameter columns.

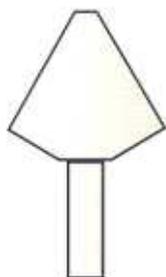
These bits allow you to easily glue-up 8-sided and 12-sided hollow columns. They create a nesting joint that is stronger and easier to glue up than the traditional miter joint. Material thickness can be up to 2" thick allowing for deep cut profiles such as turnings, fluting, and spiraling.



8-sided -  
45° angle  
matched to  
a 90° angle



12-sided -  
30° & 60°  
matched to  
a 90° angle



A bird's mouth joint cuts on one edge of the material and receives the 90° edge of the adjacent board. Strap clamps are then used to hold the material together while the glue dries.



12-sided & 8-sided  
Bird Mouth Bits  
available for 4/4,  
6/4, and 8/4 stock  
from Magnate at  
800-827-2316



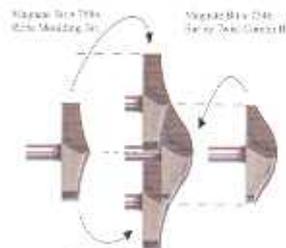
**ROUTER BIT PROFILE**



*Editors Note: In Volume 2 of Legacy Ornamental Milling Magazine we discussed how Brett Anderson (Anderson Mantel & Cabinet - Springville, UT) created a 2-start barley twist on 10" diameter columns (right). To achieve a large bead on such a large diameter column required the use of 2 router bits (each 3" diameter) to form a 6" diameter barley twist.*

*Created by Brett Anderson*

*Unfortunately the columns had not been installed by press time so we could not show off the final project. Pictured above are the finished columns installed in the Larson home, Alpine, UT.*



*Columns such as these can be glued up using the birds mouth bits featured on the previous page.*

**Now shipping the Legacy Model 2000 - 11" column machine up to 13" diameter - see [www.legacywoodworking.com](http://www.legacywoodworking.com) for details.**

TECHNIQUE

**Editors Note:** In the last issue (Volume 3) of Legacy Ornamental Milling Magazine, one of our featured woodworkers was Cal Wylie of Rexburg, ID. Cal had used the Legacy on his first job as a new professional woodworker to create a circular staircase (pictured below). Perhaps what is most impressive about Cal's project is the fact that it is not "ornamental" at all. Cal discovered for himself the power of the Legacy for creating construction details, i.e. mortises and dadoses. This issue we follow-up with the technical aspects of Cal's staircase.

**Center Column:**  
 - 6" diameter.  
 - Mortises milled on each side.  
 - Mortises were then milled 27° and 9 1/2" apart along the entire length of the column.  
 - These mortises receive the stair treads which were milled with an arc on the one end using the rotary indexing table (circle cutting center can also be used).



The center column was milled round on the Legacy, using a 1 1/4" surface planing or bottom cleaning bit, to a final diameter of 6". Using the 40 position index head, Cal locked the workpiece into place to keep the material from moving, and milled 2 mortises at exactly 180° from each other.



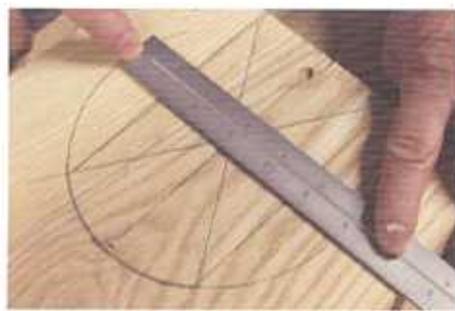
These mortises were milled 1 1/4" deep and 1 1/4" wide.



The piece was then indexed 3 positions (using the 40 position indexing head this equals 27°, or 9° for each hole) and the router was placed 9 1/2" down the length of the piece, where 2 more mortises were milled at 180°.



TECHNIQUE



The stair treads were created 1 1/4" thick x 36" in length. They were cut to 8 1/2" wide on one end and 13 1/4" on the opposite end. The end which measures 8 1/2" wide was notched out to slide into the mortises on the center column. ▲



This notch was made using a 1/2" upcut spiral bit, and measures 3 1/2" wide x 6" long at its deepest radius. ➤



Cal used the rotary table to round out the inside edge so that it would butt up against the column. We elected to mill a dadoe from one mortise to the other, so as to hide the inside edge of the tread. This would mean that the notch could be created using a band saw or jig saw and alleviate the need for a flush fit. ▼



The outside edge of the tread was trimmed out on the rotary indexing table to create a smooth arc, accentuating the circular feel of a spiral staircase. ➤



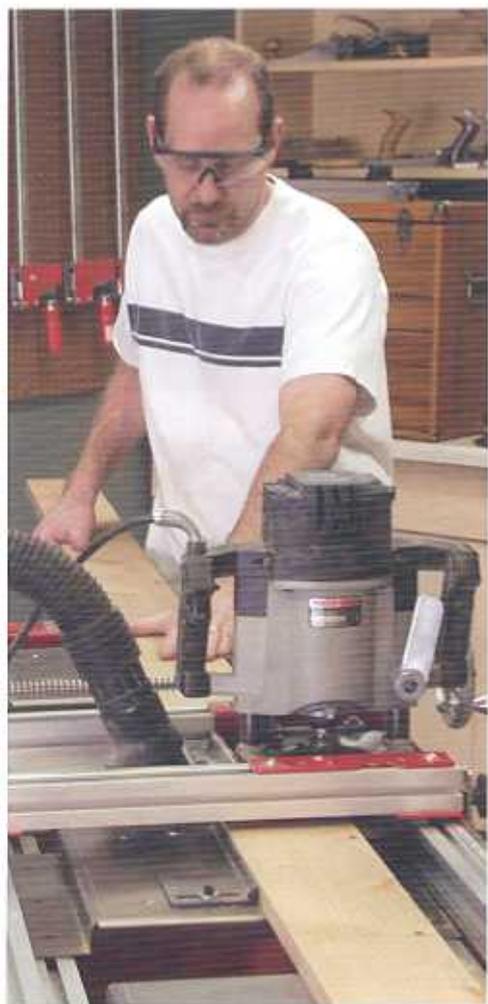
NEW PRODUCTS

## Molding Table

A nice alternative to a shaper, you can now use your Legacy to create custom moldings of any length by feeding your stock underneath the router. Table can even be used to duplicate moldings and casings which are hard to find or no longer available. Works well with the Legacy Design kit

\$129<sup>00</sup>

2 - Infeed/outfeed tables (12" wide).  
2 - Support tables (4" wide).  
Adjustable fence up to 7 1/2" wide.  
Adjustable depth up to 3 1/2" thick.



End view of a 4 1/2" wide molding. Created using 3 router bits; - 1" classic plunge, - 2" core box, and a - 1 1/4" bottom cleaning bit.

These moldings can be milled to whatever lengths are required, - up to 7 1/2" wide and 3 1/2" thick.

NEW PRODUCTS

## Mobility Kit

Easily move your Legacy around the shop with these high quality double-locking casters. Available after June 15, 2004

**\$6500**  
models 1200 & 1000

Two mounting plates for use on model 1000EX & 1500EX series - add \$45.



## Pilaster Mounting Dogs

Available in 5 sizes, 2 per set:

- 2" x 2"
- 2 1/2" x 2 1/2"
- 3" x 3"
- 3 1/2" x 3 1/2"
- 4" x 4"

**\$1200 set**

All 5 sets for \$50



**Fig. A**

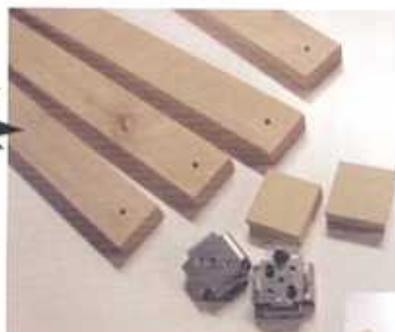
These mounts have been designed specifically for use when milling pilasters or quarter sections of columns (see *Tips & Tricks*, page 7). Instead of building a jig to mount the stock to - you simply mount your quarter sections to the mounting dogs - one on each end.

The mounting hub (Fig. A) mounts to the dog and holds the workpiece into the drive center of the headstock as the parts are milled.

Pilasters, such as the ones pictured on the wainscot to the left are easily created using the pilaster mounting dogs.



Created by Tracy Anderson

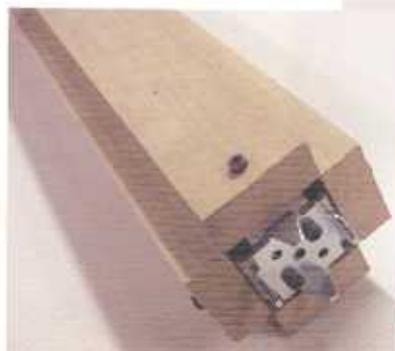


The 4 pieces with holes drilled on the ends. Two square blocks can be cut as support pieces in the center.

Square blocks are inserted as support pieces in the center.



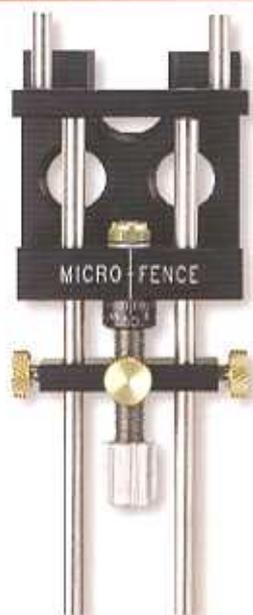
Material is mounted to the hubs.



The material mounted between centers and milled to 4 round pilasters.



TOOL REVIEW



When I first saw the *Micro Fence* I was extremely impressed with the quality and precision of the tool, but I didn't realize how useful it really was. I had seen it demonstrated at the woodworking shows as Richard Wedler quickly milled grooves for inlay work that fit perfectly. I was especially impressed with how simple it was to dial the edge guide to mill a groove holding tolerances of 1/1000" (.001"). Most people think this is over kill in woodworking, but when you see a piece of furniture with perfect joints, where the surfaces are so tight and smooth that you have to run your fingers over it, you suddenly realize that the more accurate your tools the better your work.

I had seen the *Micro Fence* at every tradeshow for at least seven years when I finally decided I had to have one, I purchased just about everything and started using it immediately. It is one of the best tools in my shop. I have used it for everything from joinery to installing box hinges to milling perfect circles. Why I waited seven years I'll never know. When I think back on all of the things I used to do by hand that the *Micro Fence* does perfectly in just seconds I want to kick myself for waiting so long.

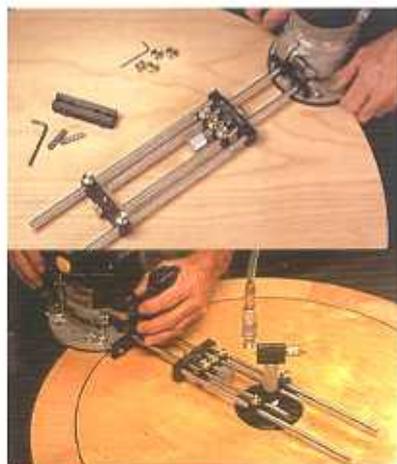
The tool is extremely easy to use, and the accuracy is unbelievable; what's more, I've never even read the instructions. You can check it out for yourself at [www.microfence.com](http://www.microfence.com) or call 1-800-480-6427.

Tracy Anderson  
*Legacy Woodworking Machinery*



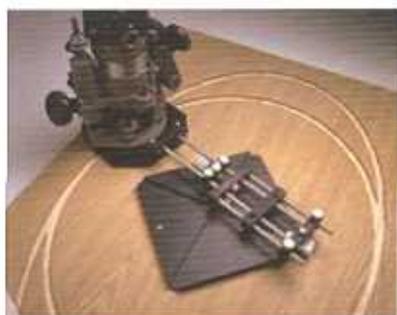
## Router Edge-Guide

Easily mounts on your router to guide the cutter parallel to a straight or curved edge. With patented micrometer-adjusted measuring capability that maximizes woodworking accuracy and efficiency, the *Micro Fence* interfaces with over 60 models of routers, including laminate trimmers.



## Circle Jig

Available as an accessory to the Edge-Guide, or as a separate and complete tool. The Circle Jig pivots from a stainless steel trammel pin and allows easy, precise and repeatable circle cutting from 6-48 inches in diameter (longer guide shafts are available for diameters up to 12'). For work requirements in which a pilot hole is unacceptable, a Vacuum Center Assembly is available for diameters ranging between 16" to 48".



## Ellipse Jig

Depending on the package purchased (Standard & Large) you can create ellipses from as small as 15" in the minor axis to over 10' in the major axis. You'll find this ellipse jig offers unprecedented control with quick and repeatable setups, and flawless seams when joining curved components. Pre-drilled for hold down screws, or double-sided tape or Vacuum Kit can be used to avoid surface holes. Requires the *Micro Fence* Circle Jig.

The only limitation is your imagination!



Created by Dane Calkins

## IDEA CORNER

**Bit #706**

cut at 5"  
to create  
chamfer.

3 1/2"

**Bit #3935**

cut at 5 3/4"

**Bit #7563**

cut at 8"

Curved section  
created  
following a  
pattern using:

**Bit #2011**  
or **#S7621**

## Looking for a weekend project?



*Truthfully, this project may take a little more than a weekend to complete, but you should easily be able to finish the table legs (created entirely on the Legacy) in just a few hours.*

*The rest of the project is moldings and casework (mostly 3/4" ply).*

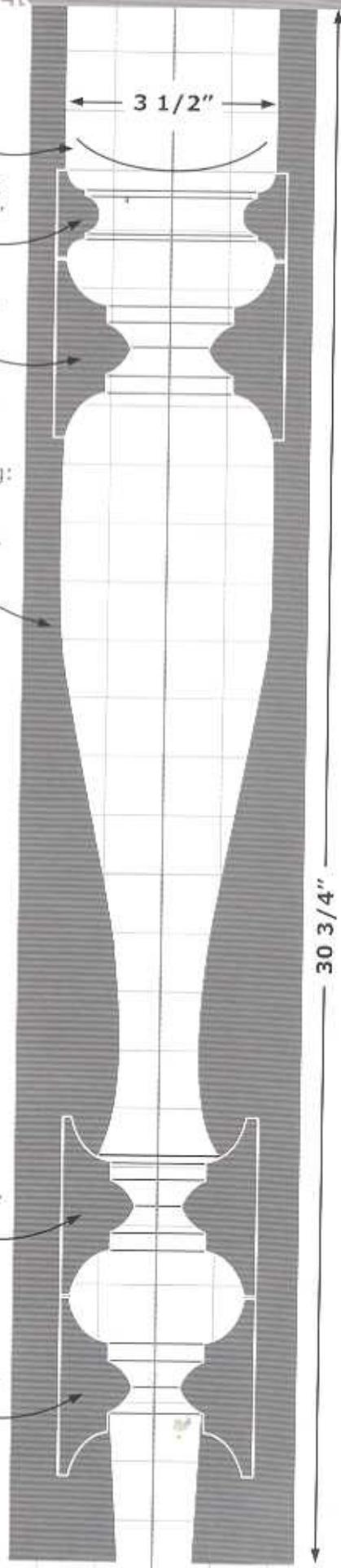
**Bit # 7563**

cut at 24 1/2"

**Bit # 7563**

cut at 27 1/2"

30 3/4"





The only limitation is your imagination!

VISIT OUR  
WEBSITE!

www.legacywoodworking.com

**Gallery  
of Legacy  
Users**

*You'll see:  
pool cues, hollow  
spirals, log beds,  
furniture,  
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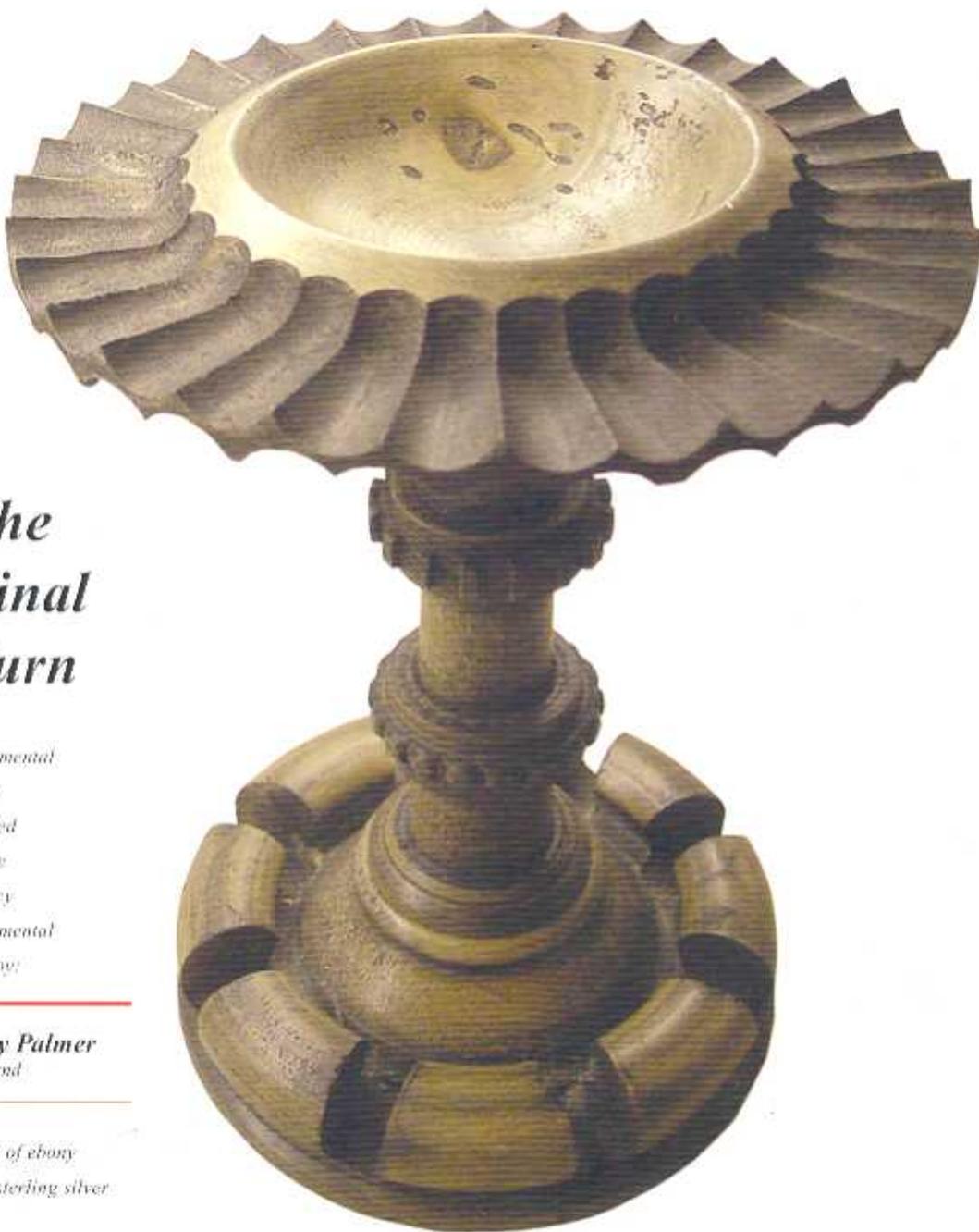
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