Spiral Layout and Indexing Jig

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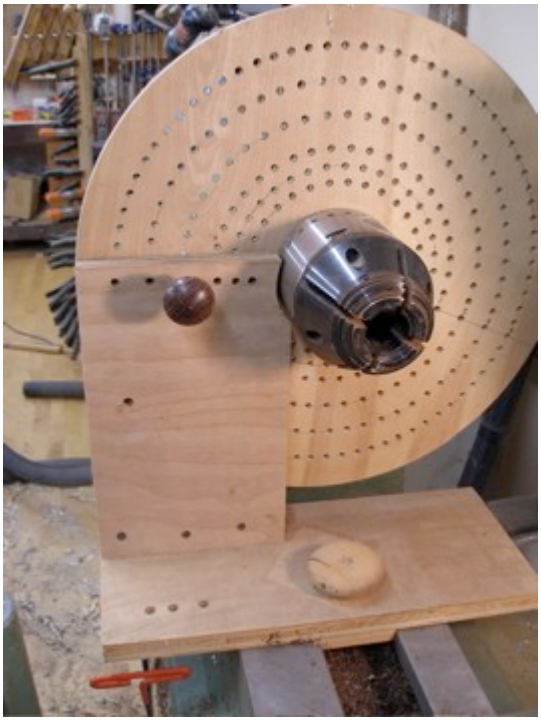
After posting a picture of “Lobelia”, several people asked how I laid out the carving. I start by deciding how many spirals the piece is to have. If it is an even number, or one that I can use the indexing on my lathe to lay out, I'll use that. If it is more, I can possibly use the indexing jig I show further down in this document. For “Lobelia” I needed 13, and 21 spirals which did not work with either the lathe or the jig. My solution for this is simple. Spin the lathe and draw a circumference somewhere on the vessel, Use a flexible ruler to measure the circumference and divide this by the number of spirals (13 or 21). Using the same ruler, mark out tick marks along the diameter. I try to get this reasonably precise, but little errors don't matter much. I then use the fixture shown at right to mark vertical lines on the vessel. I had this table made for me by a welder. He welded a 1” bar to a piece of plate steel and attempted to get it exactly perpendicular to to the plate (and die pretty well). I use this with a carriage that I made for a laminate router for routing grooves and patterns in turned pieces. This table works very well to get quick, accurate vertical lines drawn. I set the table so that a pencil laid flat marks at dead center. If its not, the lines will actually mark a bit of a spiral depending on how far off center it is (I have actually used this affect for more interesting layouts). The table gives me the advantage of getting accurate lines. Using just a tool rest that does not conform to the turned piece is tougher and less accurate. The further away from the tool rest, the less certain I am that I can keep a pencil parallel to the lathe bed to give an accurate vertical, the table makes it a snap.

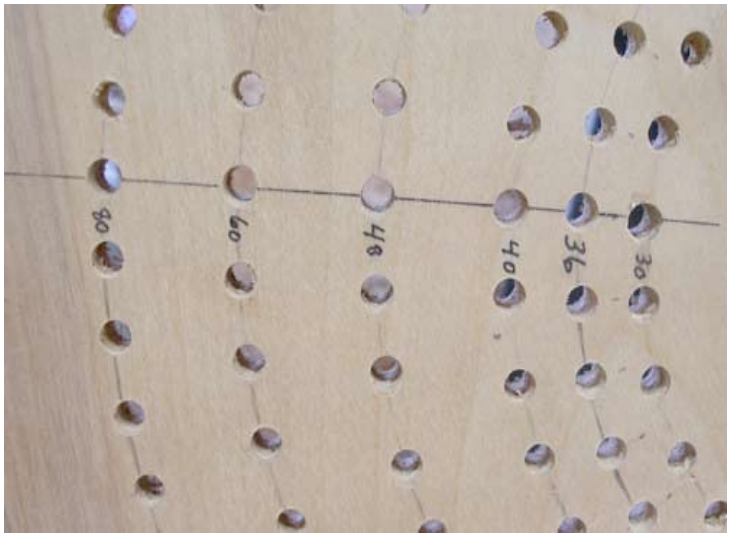
Once I have verticals laid out, I then draw one spiral on the piece. I do this by hand and eye. I have tried various templates, french curves, flexible rulers to do this, but find that I get a better result without aids. Once one curve is drawn, I then put the piece back on the lathe and mark out horizontal circumferential lines. You can do a random grid, or a grid with even spacing, but I have found that the most useful way is to draw a circumference everywhere that the spiral crosses a vertical line as shown at right. I did this as a demo on a roughed vessel which I'm not really sure what it will end up being, so I just drew a couple of lines to help visualize how I do this. At this point, you now have a grid and one spiral. I then just draw the next spiral using intersection points as a guide. If you've done all this, now the vessel is covered with lines and can get fairly confusing. This gets even worse if you are laying out 2 spirals going different directions. My way of dealing with this is to use colored marker over the spiral marks. I use permanent markers of different colors because I have found that pencil lines will slowly be erased by handling the piece while carving. I am not concerned about the permanent marker because it

is all carved away. Now for a piece like Lobelia, I erase all the vertical and horizontal lines so I won't get confused while laying out the spirals in the opposite direction. The number of spirals on Lobelia was 13 in one direction and 21 in the other. The vertical lines used to lay out one set of spirals will not work with the other set so I use a good eraser to take them off. Now I start over laying out the verticals, draw the new spiral and lay out the horizontals and complete the rest of the spirals. Once that is done, and the new set of spirals is inked in, you wind up with a grid. At this point I pencil in what I want to carve filling in some of the grid. I will sometimes draw the whole thing out, others I will get a good feel for what I want by partially filling in the grid, then just start carving. Once into the rhythm of carving, you get a good feel for what each leaf (or what have you) needs to look like, and how it fits into the grid, so drawing it is not really necessary. The top and bottom of the spirals may seem to be a problem, but you will figure this out once the grid is drawn. I usually draw a circumference where I want the carving to end, and draw the grid up to it. I don't have a picture of one of my completed drawn grids, but I think this will help anyone who wants to tackle a piece lid this.

Indexing Jig

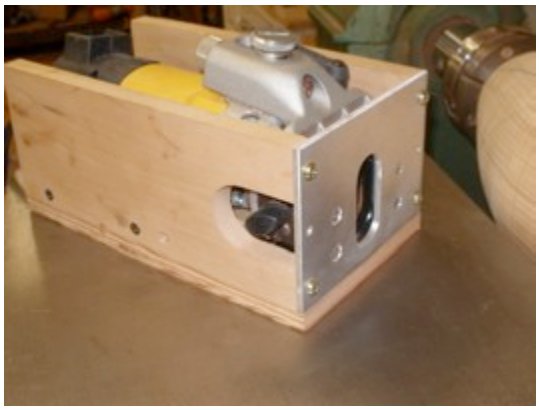
Since I teased you with hints and parts of my indexing jig I thought you might be interested in the whole setup. I wanted more indexing than the 24 holes built into my Woodfast headstock. I got the inspiration for this jig from Bill Johnston on the Kestrel Creek website. I used his ideas and modified them to my needs, so I don't take credit for the idea. I have an Axminster chuck (which I love) and the plywood disc bolts to the back of it precisely. I laid out the holes in the disc using protractor and rulers. I used a jig on the drill press to rotate the disc around the centerpoint and drill each hole marked out. I have quite a few options of various increments using the jig and the indexing on the lathe. A close-up of the disc show the number of increments available to me.





I show on the next page a couple pictures of a router carriage that I made to use with the table shown above. I guide the router using a fence clamped to the table in front of the carriage. I used one of the stock router baseplates that came with the router which enables me to vary the angle of the router with

respect to the carriage and table. It also allows me to vary the depth of cut. I made the front of the carriage from a piece of aluminum.



email me at mfoster@vermontel.net if you have any questions that this did not answer.

Mike