

Jigs & Fixtures

by James N. Duxbury

1. Tool Holders Vertical tool racks and holders mounted to the wall work well if you only have one lathe or if space is limited. Many times it would be nice to have an organized tool case of some kind to do demonstrations or workshops. In either case, when turning you may have to switch back and forth from tool to tool many times a minute so having tools in an organized, fixed location is not only a convenience but a real time saver. Detailed plans, material list, and step by step instructions on how to build my version of a portable tool case can be seen in Woodturning Design Magazine, Issue #21, Spring 2009, on Page 22, Traveling Tool Tote."



2. Sharpening Systems Nobody can use a dull turning tool, wood chisel, table saw, kitchen knife, or other cutting instrument. Your tools must be sharp! Lathe tools can be sharpened free hand but I have found that for most turners it is easier and uses much less tool if a jig of sorts is used. One of the best and most economical sharpening systems has been designed and demonstrated by Dr. Kingsbury Heiple, a member and past president of North Coast Woodturners in Ohio. Plans and detailed instructions can be seen by doing a web search for "King Heiple Sharpening Jig."

3. Chuck Templates Lathe chucks have removable jaws to incorporate many different sized objects. They can compress over a tenon or expand into a recess. Often when turning an object, the size of the tenon or recess required has to be quickly known. Detailed plans, material list, and step-by-step instructions on how to build my version of Color-Coded Chuck Templates can be seen in Woodturning Design Magazine, Issue #24, Winter 2010, on Page 76.



4. Turning Hollow Forms Many hollow forms are staved type construction. Staves are strips of wood with specific angles cut on both long sides, glued up to form a cylinder. The angles cut have to be very exact and the Beall Tilt Box makes a digital angle gauge that reads out to a thousandth of an inch. These cuts are perfect and form a cylinder with very tight glue joints. Also Wixey Angle Gauge works well also but uses expensive watch type batteries.

Turning a cylinder can present a real problem because there is a hollow center and it's not easy to mount centered on the lathe. If you take two discs slightly larger in diameter than the cylinder and about 2" thick, they can be sandwiched together and turned between centers. Then by chamfering 45 degrees on each piece where they touch each other, two cones are formed. These cones can be left in place, separated by moving the tail stock, putting the cylinder between the cones, and tightening.

5. Pen Press Once a pen blank is turned, the hardware has to be pressed into place. The purchased pen press is another gadget, costs about \$40.00 or more, takes up space, and is not easy to use. By turning two morse tapers to fit your lathe, the lathe can become a very controllable press that adjusts easily and costs almost nothing. Total materials consist of a piece of hardwood $V^* \times \frac{1}{2} \times 7$ " long. Details can be seen in Woodturning Design Magazine, Issue * 15, Fall 2007, on Page 28 and an improvement which adds a small piece of Corrian to one piece is covered in the Fall 2008, Issue #19.



6. Offset Turning Offset turning can be done on short pieces with just the chuck alone but it is advisable to use the tailstock whenever possible just to be safe. By removing two opposite jaws in a four jaw chuck, a rectangular block can be held between them. This allows you to move the piece up and down, forming turned surfaces parallel to the axis, crank shaft style.



Turning unparallel to the axis can be done by clamping the piece in all four jaws but sprung off center. In both cases a strobe light held close by can be helpful by actually stopping the action. This shows your cut and eliminates turning the lathe on and off to see what is happening. **BE VERY CAREFUL**, When the action looks stopped much of the turning is spinning outside of the view.

7. Bandsaw Sled A sled for the handsaw can be made very economically, performs cuts not possible otherwise, and in a safe manner. The slot in the sled actually shows the cut the blade is going to make, so a block can be cut from corner to corner or a bowl could be cut even at an angle other than 90 degrees.

With the use of a locking stop, very small pieces can be cut rapidly and safely—if you need a lot of very small pieces, clamp your shop vac hose to the blade guard just above the cut and when done empty them out of the shop vac.

There is just no end to the fun!

However Remember

ACCIDENTS can happen with blinding suddenness, and respiratory problems develop over a period of years.

ALWAYS wear safety glasses, a full face shield, and a good quality dust respirator.

ALWAYS work sober, never under the influence of drugs or alcohol.

Work SAFELY!

