CENTRAL COAST WOODTURNERS

A Chapter of the American Association of Woodturners

President

George Paes

(805) 929-1423

gngpaes@

sbcglobal.net

Treasurer

Terrell Cohen

(805) 473-9045

ctcohen@pacbell.net

Librarian

Don Barr

(805) 226-8252

donaldebarr@

earthlink.net

Newsletter

John Long

(805) 543-0969

cdory2_2@sbcglobal.net

Chapter Meetings

9 AM 3rd Saturday

of each month

Oct 18th

Nov 15th

Dec 20th

Web site:

http://www.centralcoastwoodturners.com/

Bill Kandler
Web Master489-5309

bkandler@verisof.com

September 20, 2008

Announcements:

Welcome back to Gordon Rowland!

George reported that the "Sawdust Session, Sept 6 at George's shop was VERY GOOD! We need ideas and topics for future sessions, please contact George!

Those members not affiliated with **AAW** should consider the benefits…A good quarterly magazine, Support for the annual Symposium, support for our local chapter, a great resource for information, quality demonstrators, etc. Check out: www.woodturner.org

The annual Craft show at the **Santa Barbara Botanical Garden** will be held Nov 22-23. This is a juried show and the application deadline is Oct 15. Contact: 805-682-4726 x113 or gmilliken@sbbg.org

CERF…the Craft Emergency Relief Fund is supporting fellow craftsmen in the wake of Ike, Gustav and other disasters.
Go to: www.craftemergency.org for further information.

President George expressed his disappointment with the sparse turnout for the California Contours Show by our chapter…7/54 members submitting entries. As a Host Chapter, we could have done better!

Bob Gandy, We miss you and wish you well as you deal with your illness.

Central City Tools, Santa Maria is having a **woodworking** show Oct 25-26. There will be an all day class on Saturday and morning and afternoon classes on Sunday. These classes have a fee. One of the Sunday classes is about the use of the Band saw. Call **614-9111** for details.

****PICNIC – Oct 5 @** Nipomo Community Park, 12 noon…[off Tefft St.], eat around 1pm. Bring your own table service, a side dish or salad or dessert and your own beverage. Steak and Salmon provided by the Chapter. Site is the Pine Picnic area [first right turn in the park].

Bill Hrnjak handed out copies of his article on Chucks and the Wood Lathe. He then discussed the critical importance of sizing the wood tenon to the size of your chuck jaws. This is best explained in the article. See the attachment at the end of this newsletter.

Bill Kandler announced the **First Segmented Woodturning Symposium** at The Marc Adam's School of Woodworking, November 14 – 16, 2008. see: www.segmentedwoodturners.org

Challenge project: Weed Pot

Bill Badland: An interesting change, a Sea Urchin shell as the body of a Mahogany weed pot finished with Deft.

Joe Mansfield: A pair of contrasting segmented weed pots, one from Roasted Birch with Maple veneer and the other Maple with Roasted Birch veneer.

Don Barr: Using some Locust limb wood from the firewood pile, he worked with the grain showing both heartwood and sapwood in his weed pots. These were finished with tung oil.

Bill Winchell: Spalted Oak from the woodpile and a piece of English Walnut for two weed pots. Both finished with wipe-on poly. He raised the question on how to fill grain using multiple coats of sanding sealer. This turned into quite a discussion. Ken Ray suggested only one coat of sealer. Bill Hrnjak suggested that the grain was part of the wood; only fill the grain for painting. [my recollection of the exchange]. It was suggested that sanding sealer darkened wood the least of surface treatments.

Bill Peterson: The Beal Buffing System was used on Bill's Wenge weed pot to give a nice surface treatment. It gives a nice smooth finish.

George Paes: The only "Rustic" weed pot on the table, a Chinese Elm (punky) turned with a very rough surface and no finish. George was going to burn it, but Gert labeled it "Rustic".

Show and Tell

Bill Peterson: He turned a new base for a Maple "funnel bowl". It was quite a nice recovery. Another salvage operation involved an end grain bowl with two splits in the sidewall. These were filled with turquoise inlace.

Bill Badland: A scrap of Colorwood turned into a nice bracelet. This Maple lidded container was colored with a red fabric dye and topped with a dark wood finial.

George Paes: Following the style of Eli Avisera, George rough-turned a lidded container and cut four vertical V grooves in the body, glued in laminated inserts, and finished the piece. The results were very nice including the exposed inserts on the inner walls.

Terry Cohen: Two Redwood bowls with wipe-on poly finish. Terry described the problems with trying to sand the surfaces and retain a smooth surface. The contrasting soft and hard portions of the Redwood make this task difficult.

Gordon Rowland: A simple, elegant, traditional form of a bowl from Mahogany with a lacquer finish as a gift to one of the transplant Doctors. I, (Editor), am still struggling to achieve the uniformity of wall thickness that Gordon has achieved on this piece! Nice work!

Rick Haseman: Two small Cindy Drozda style vessels with tall finials, finished with wipe-on poly. Rick noted that if he didn't shake the finish container, he had trouble with it drying properly. His large beer stein is finished with the West System epoxy material. He says it required sanding between coats to eliminate bubbles in order to obtain a smooth surface.

Bill Hrnjak: His first segment-stacked lamination vessel/urn using Maple and Pau Ferro. The finish was tung oil. The round insert was petrified wood. Looking good!

NOTE: Everett Eiselen has entered his **"Circle Bowl"** in the **California Contours Show** at the **SLO Art Center**….and it's for sale! Start saving your pennies.

NEXT MEETING:

9:00 am, Saturday, October 18th, Odd Fellows Hall at 520 Dana St.
San Luis Obispo

Challenge project:
Rolling Pin

Chucks and the Wood Lathe

By Bill Hrnjak

You have a brand new shiny chuck for your wood lathe. Now all your problems are solved and you can turn those gallery class pieces you've admired for so long. Sorry, it is not quite that simple. A whole new set of possibilities as well as a whole new set of problems are going to start you on a learning experience. Maybe we can make that a more pleasant task by clarifying some of the basics and explaining the geometry of various chucks and their uses.

Do you really need a chuck to be a good woodturner? Probably not. I have seen some incredible work from turners who snicker at the thought of using anything other than faceplates and shop-made fixtures to hold work. Most woodturners seem as fascinated with acquiring "gadgets" for the lathe as with turning itself. This "gathering of the tools" does lead to increased confidence and usually encourages the turner to spend more time on the lathe, the best learning device of all.

In this article, I will attempt to avoid recommending any particular brand of chuck. The number on the market and the level of quality available make the choices mostly an economic decision for each person.

The first chuck that most turners have is a JACOBS CHUCK. This is also called a drill chuck and is commonly used in the tailstock for drilling operations. This is a three jaw scroll chuck. The jaws move simultaneously, and center automatically. Common sizes are up to 1/2" with larger sizes to 1" available. This type of chuck can be used in the headstock to hold round or hexagonal work and should be equipped with a draw-bolt for safety. This chuck's main limitations are size and a required tenon.

The next common chuck is really a modified faceplate, the SCREW CHUCK. Many face plates are center drilled to allow insertion of a single screw, speeding attachment and simplifying centering. Modern screw chucks have a much improved screw, incredible holding power, and work can be removed and replaced quickly. Limitations are again size and a centered screw hole.

The next common chucks come from the metalworking trade. The 3 JAW SCROLL CHUCK is a large version of the Jacobs chuck, 3 jaws that move simultaneously and automatically center round or hexagonal stock. The 4 JAW SCROLL CHUCK is also fairly common, but more expensive. The four jaws automatically center and allow the holding of both round and square (perfectly square) stock. The 4 JAW INDEPENDENT CHUCK has jaws that are not linked and are individually adjusted. This would be used to create multi-axis or multi-centered objects.

The other metalworking holding tool is a system of collets. They are by far the most precise; however, they are not normally available to fit the small spindles of most common wood lathes and are most useful for small diameter production work.

In the last few years we have seen a large array of 4 JAW SCROLL CHUCKS made expressly for woodturning. All the chucks share the same qualities, automatic centering, curved and/or dovetailed jaws expressly for wood, a large assortment of accessory (after market) jaws and attachments and replaceable inserts to allow mounting on most modern wood lathes. Two distinct styles exist, those using "tommy bars" and those using a key to operate the jaws. The key operated chucks are heavier, longer overall giving more clearance between the headstock and the turning; however, this added length also accentuates any runout in the main shaft.

The most common misconception is that any chuck can safely and accurately hold any tenon (external grip) or any rabbet (internal grip). This is incorrect. Look at the jaws of your chuck. They are machined to one and only one diameter or radius. The smaller chucks are approximately 1-7/8" inside diameter and 2-1/4" outside diameter when the jaws form a true circle. The closer the tenon or the rabbet is to these dimensions, the more accurately the jaws will seat. The amount of actual jaw contact will also increase, giving maximum holding power and reducing the likelihood of knocking the work off the chuck.

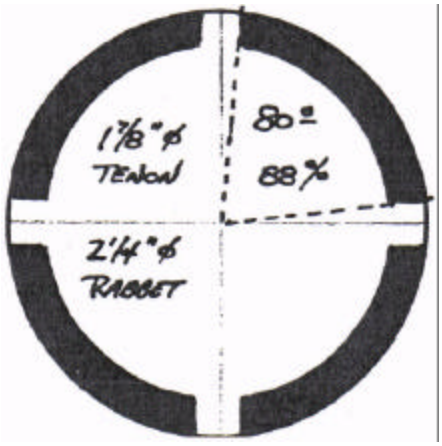
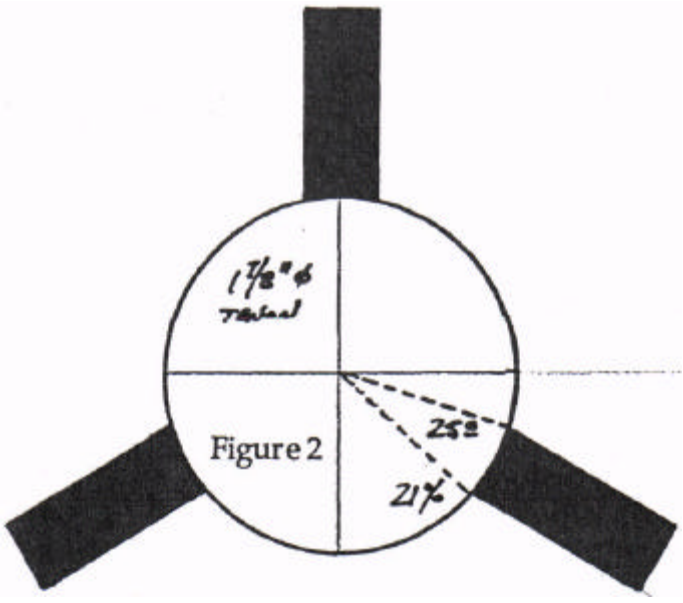


Figure 1

The diagram on the left, figure 1, shows the ideal diameters for a set of jaws measured internally and externally. The jaws form a perfect circle at these dimensions and give maximum contact with the work. No special math was used to determine this; drawing the angle of contact and measuring with a pro tractor was all that was required. Since there is 80 degrees in contact with each jaw, 4 jaws yield a total surface contact of 320 degrees or approximately 88%. Slight variation, either direction, will still provide exceptional contact.



The diagram on the left, figure 2, shows the same size tenon being held in a 3 jaw metal working scroll chuck. The shape of the jaws is an average of all of the chucks I measured. The angle of jaw contact is only 25 degrees, times 3 jaws for a total area of 75 degrees or about 21%. This number will increase greatly on a smaller Hiampfpr Knf rlp/^-pacp rapidly as diameter is increased. The added danger here, especially as work diameters increase, is the projection of jaws beyond the chuck body.

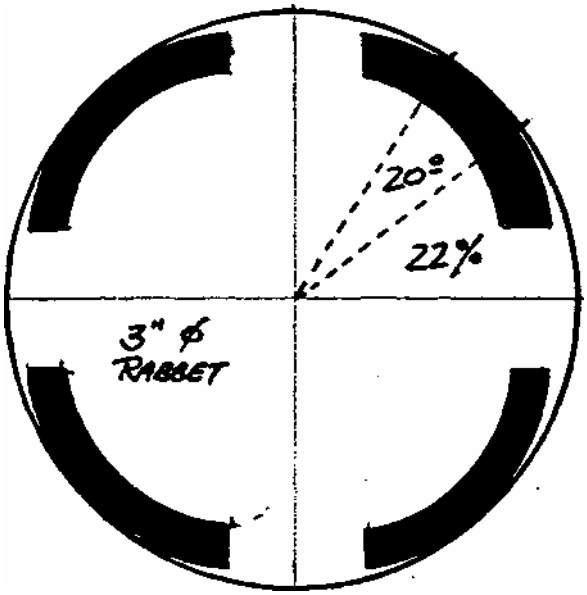


Figure 3

The diagram on the left, figure 3, shows a 3" diameter rabbet as it would look being held by the standard 2-1/4" jaws. The drawing shows about 20 degrees of arc in contact with the rabbet, times four jaws, yielding approximately 22% total contact. The other problem that occurs here is the possibility of splitting the work being held. The wedge-like action of the jaws as they expand is difficult to control or to predict. Orientation of the grain is important, but it may be impossible to find a "good" position to insure that the work does not slip or split. The solution to this problem is to use the next larger set of jaws for this chuck.

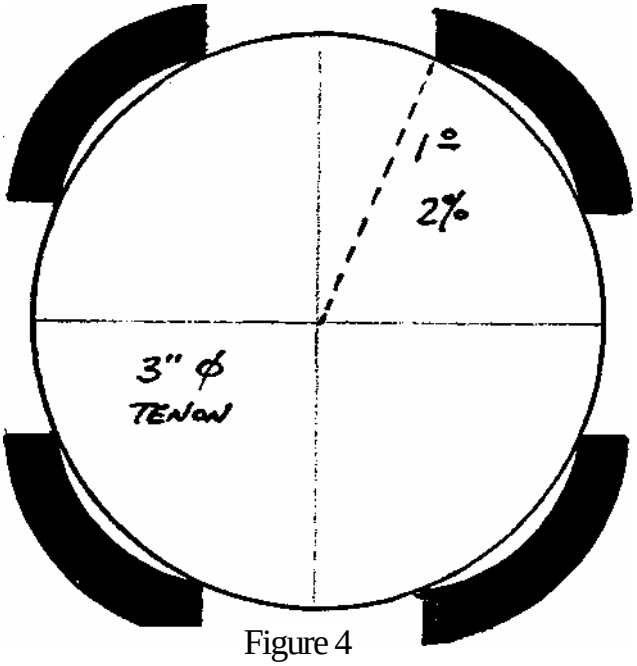


Figure 4

The diagram on the left, figure 4, shows a 3" diameter tenon as it would look being held by the standard 2-1/4" jaws. The drawing shows only the sharp tips of the jaws engaging the work. The generous figure of 1 degree of contact per tip, times 8, yields a surface contact of approximately 2%. This example must also be judged by the wood being held. Soft materials would be crushed by the points of the jaws; harder woods may not. However, either material will most likely not be centered or run true on the chuck.

The hardness of the material being held in the chuck is an important consideration. Do not underestimate the power and leverage in either the lever or key operated scroll chuck. Soft materials can be crushed completely out of round in the compression mode and split easily in the expansion mode. Be gentle, use only enough pressure to insure the work will stay in place.

Another point is the alignment and installation of the jaws. READ, AND THEN OCCASIONALLY RE-READ THE OWNERS MANUAL to insure you are installing the jaws properly and getting maximum accuracy from the chuck. I know, the first thing you threw away was the instruction manual! Call the manufacturer for a new one.

In addition to the diameter of the tenon or rabbet, their shape and depth or length is also very important to safety and accuracy. Each chuck manufacturer describes the optimum dimensions in their literature and some even provide diagrams. Once the geometry is understood, it is fairly easy to know what is proper for the jaws you are using. The intent is to have maximum possible contact between the chuck jaws and the work being held and matching profiles between the chuck jaws and the workpiece. The following diagrams illustrate common errors and proper solutions.

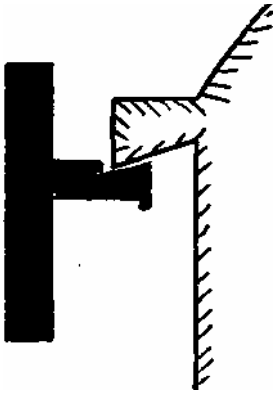


Figure 5

The diagram on the left, figure 5, shows a rabbet used for internal holding. The rabbet is TOO DEEP. The top of the jaws are not able to press against the bottom of the rabbet. This will allow the work to pivot on the jaws. The outside shape of the work is also a poor choice and minimal force is required to split the base of the work. The actual angle of the dovetail on the jaw varies by maker. The dovetail shape improves the hold; however, follow the manufacturer's recommendations for each set of jaws.

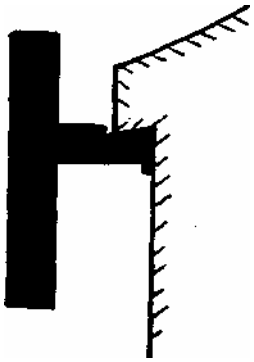


Figure 6

The diagram on the left, figure 6, shows a rabbet used for internal holding. This rabbet is CORRECT and very secure. The outside faces of all four jaws are in contact with the inside of the rabbet. The tops of all four jaws are in contact with the bottom of the rabbet. The inside of the rabbet is dovetailed at the proper angle to match the sides of the jaws. There is maximum and solid contact between all surfaces of the chuck and the rabbet machined into the work. There is sufficient material beyond the rabbet to minimize the possibility of splitting the base.

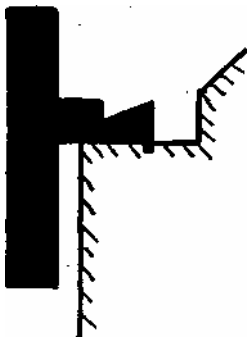


Figure7

The diagram on the left, figure 7, shows a tenon used for external holding. This tenon is TOO LONG. The top of the jaws are not able to press against the bottom of the work being held. This will allow the work to pivot in the jaws. The extra length will also allow excessive side pressure on the tenon itself will most likely fracture sending the work flying off the chuck. Notice that the tenon is straight sided, to match the internal profile of the jaws, and not dovetailed for this chuck.

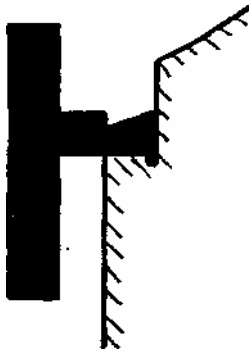


Figure 8

The diagram on the left, figure 8, shows a tenon used for external holding. This tenon is CORRECT and very secure. The inside faces of all four jaws are in contact with the outside of the tenon. The tops of all four jaws are in contact with the bases of the workpiece. The outside of the tenon is a straight sided cylinder. There is maximum and solid surface contact between all surfaces of the chuck jaws and the work being held. This is an extremely strong and accurate method of holding even very large objects for turning.

To recap, a chuck is only as helpful and accurate as you make it. Treat it like any other quality tool you own and it will expand the abilities of your lathe. Read and then RE-READ the owner's manual and instructions. Keep the jaws and the back plate clean and lubricated. Keep the spindle of your lathe and the seating area or shoulder of the spindle clean and free from rust and debris. Study the actual shape of your jaws and machine a rabbet or tenon to match this shape. Remember to use the proper size jaws for the proper size work. Remember that maximum contact ensures accuracy, promotes safety, reduces accidents and mistakes, and increases pleasure and productivity.

Work happy, work safely and above all enjoy yourself at the lathe.