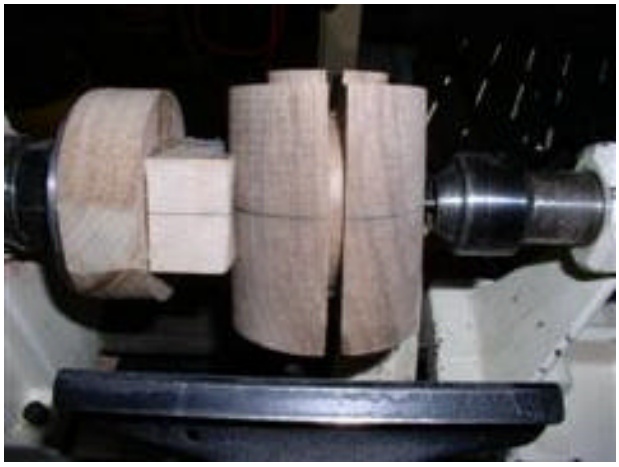
Making spheres: Jim O'Connor

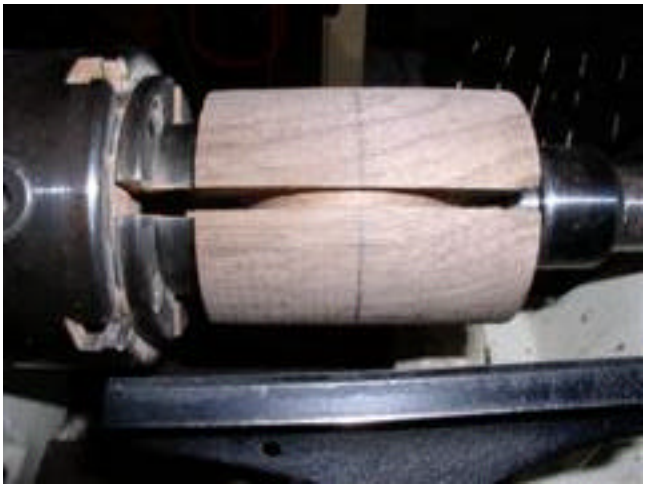
I have taken courses from Stuart Batty and Christian Burchard and in both classes I learned how to make a round ball. Their methods are different and I have tried both methods and have been successful, but it always takes me too long and the ball I ended up with is much smaller than I had originally planned. The problem in both cases is that you have to be able to make a close resemblance to a ball at the start. I have come up with a way to get around this. I am essentially using the method I leaned in Stuart's class, but with some refinements. The other thing that I had trouble with was holding the ball in a cup type jam chuck and I have minimized this to only one size cup and used for a few light cuts and sanding.

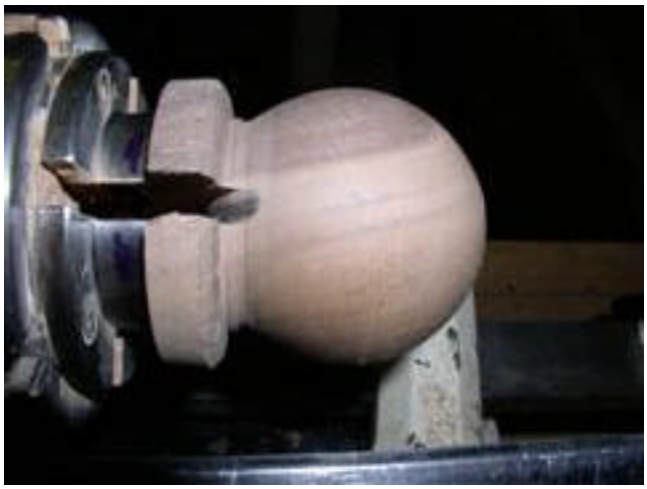
Start with a block of wood slightly longer than it is square and slightly larger than the size ball you desire. Turn to a cylinder and put a tenon on one end (this is why it is longer than it's square dimensions). Mark the center of the cylinder.



You can use a v-block as shown in the diagram for the head stock to hold the cylinder 90^{o} from between centers as shown or it is much easier to open the jaws on your chuck to simulate a v-block. The better centered the cylinder is the easier it is to get a good sphere, but it will work even if you are slightly off. The tail stock is necessary to hold the piece in the v-block. With a parting tool cut a circle in the center on the vertical cylinder. The groove must be deep enough so that you can see the ball inside the cylinder and that it is deeper than the point made by the tail stock. Color the groove with a pencil so that it will be visible in the next steps.

Mount the tenon in a chuck and I use the tail stock as much as possible even though it is not necessary. Now we will cut the ball out of the cylinder using a gouge or a bedan (negative rake scraper). You can be aggressive and cut about 75% of the ball as it is being held in the chuck.





When you get close, I would use the bedan tool because you have more control and you can get a better finish. When you get to the pencil line, you still have a flat on the ball. Now take small shavings to just remove the line. Next you need to turn the ball around and place it in a cup jam chuck. This is the only time you need a cup chuck.

They are easy to make. It has to be deep enough so the ball doesn't bottom out and it is good to have a little more than half the ball on the outside for sanding purposes. You can use the tail stock to finish most of what's left and only a little is necessary to finish without the tail stock. The cup is the correct size for sanding the finished ball.