

THIN STEM TURNING

By Alan Carter

They say you can never be too rich or too thin. Personally, I've never been either, but I can show you how to make goblet stems as skinny as a fashion model on a diet. All it takes is some straight grained wood, a little patience, and a few sharp tools. The thin shaft demonstrated here is about 1/16" in diameter with a slight taper to around 1/8". It's possible to make them even thinner, but you have to draw the line somewhere. The secret to success is leaving the mass of the wood at the headstock end as long as possible. Don't try to turn the entire stem down its entire length or it'll definitely break off and you'll be very sad.

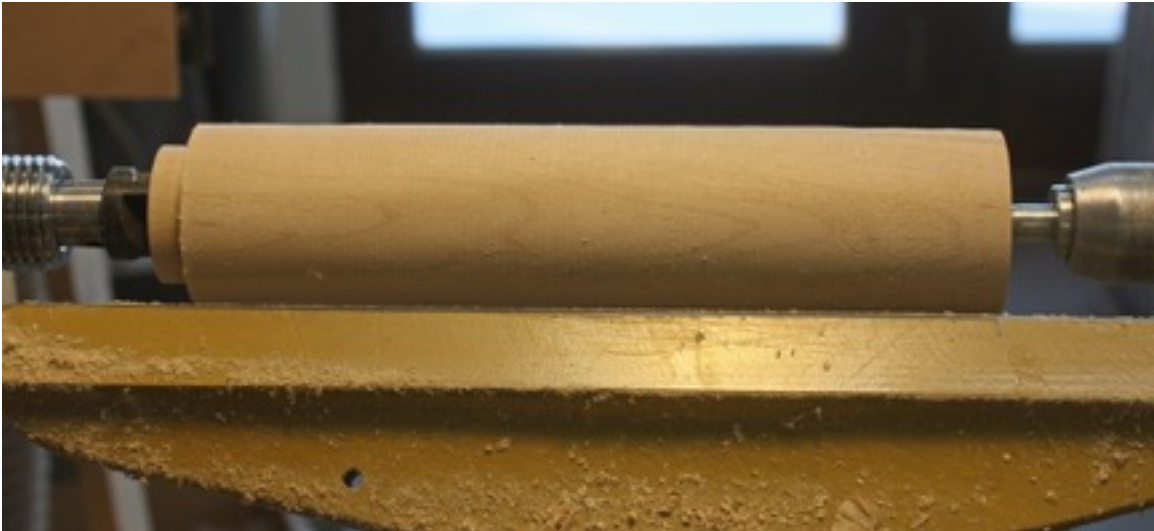
To begin, mount a 2"x2"x8" turning blank between centers. I prefer quarter sawn hard maple, but any straight, tight grained wood such as cherry, poplar, or walnut will work. Woods like oak or wenge may break more easily due to their open grain structure. You definitely don't want any wild figure or knots.



1. Blank mounted between centers

Turn the blank to a cylinder. It isn't necessary, but I like to make the sides straight and parallel as practice for the times I really want that kind of cut.

Turn a tenon on the end to fit a 4 jaw chuck. There are 3 important steps to turning a good tenon. 1- The shoulder should be perpendicular to the center line of the lathe so it sits flat and snug against the jaw faces. 2- The tenon should clear the base of the chuck and not bottom out. 3- The tenon diameter should be just slightly larger than the closed diameter of the chuck jaws. Adhering to these 3 principles will insure that the blank will be held as securely as possible.



2. Blank turned with a tenon at the headstock end

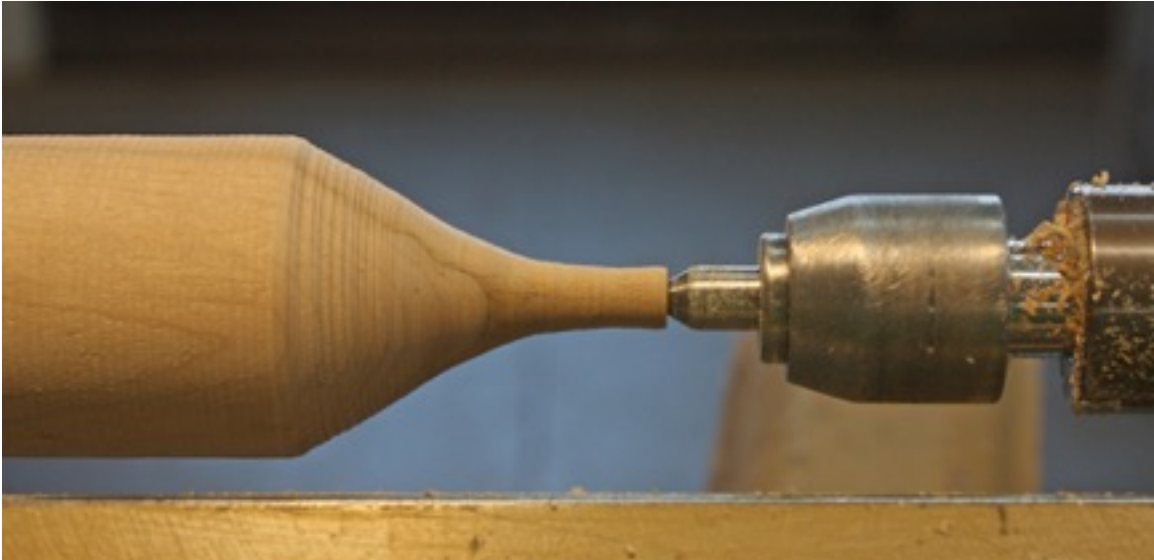
Note in this photo that there's no gap between the wood and the jaws and the jaws are almost completely closed.



3. blank mounted in 4 jaw chuck

Turn the tailstock end of the blank to a cylinder about $\frac{1}{2}$ " diameter and 1" long. The taper is just there to provide space to manipulate the tools. After this operation, the tailstock is removed and not used again, thus the importance of a well formed tenon. The tailstock can be brought up and just touch the hole in the

end as the stem gets longer and thinner to keep it from whipping. No pressure on the wood though.



4. initial turned cylinder in end of blank

Scoop out the end of the cylinder slightly and drill a 1/8" hole about 1/8" long in the end. The bottom of the goblet is curved so you want a slight recess in the stem to receive it. The goblet also has a short tenon on the base that fits in the hole you just drilled.



5. end of the cylinder scooped out and hole drilled

Now turn the cylinder down to the diameter of the small cup that will support the goblet. Make it around $3/16$ - $1/4$ " diameter or so. Turning the cylinder down after cutting in the scoop avoids tearout in the end of the smaller cylinder. Note that you're working on just the first $3/4$ " inch or so of the blank, keeping the full diameter of the cylinder all the way to the headstock.



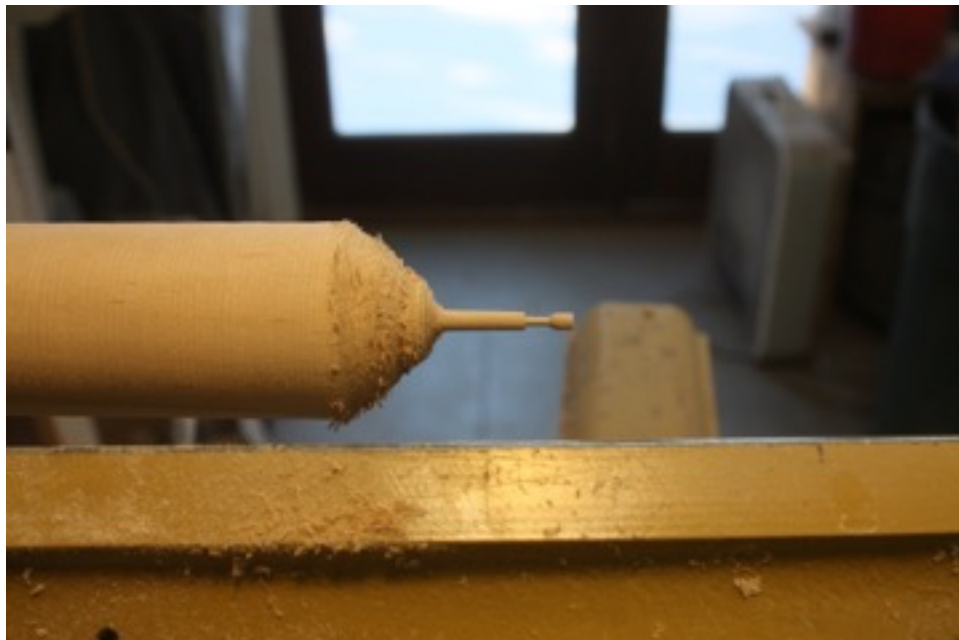
6. end of blank turned to diameter of small supporting cup

Shape the small cup and turn the cylinder down to its final diameter of around 1/16" or so. Make the stem no more than an inch long. For your first attempt, you may want to make the stem thicker and gradually make it thinner as you gain experience.



7. The cup and beginning of the stem turned

Turn down the next inch. Note that you make a thicker stem and then turn it to its final diameter. Don't try to turn the stem to its final diameter all at the same time in case the tool should slip and snap it off.

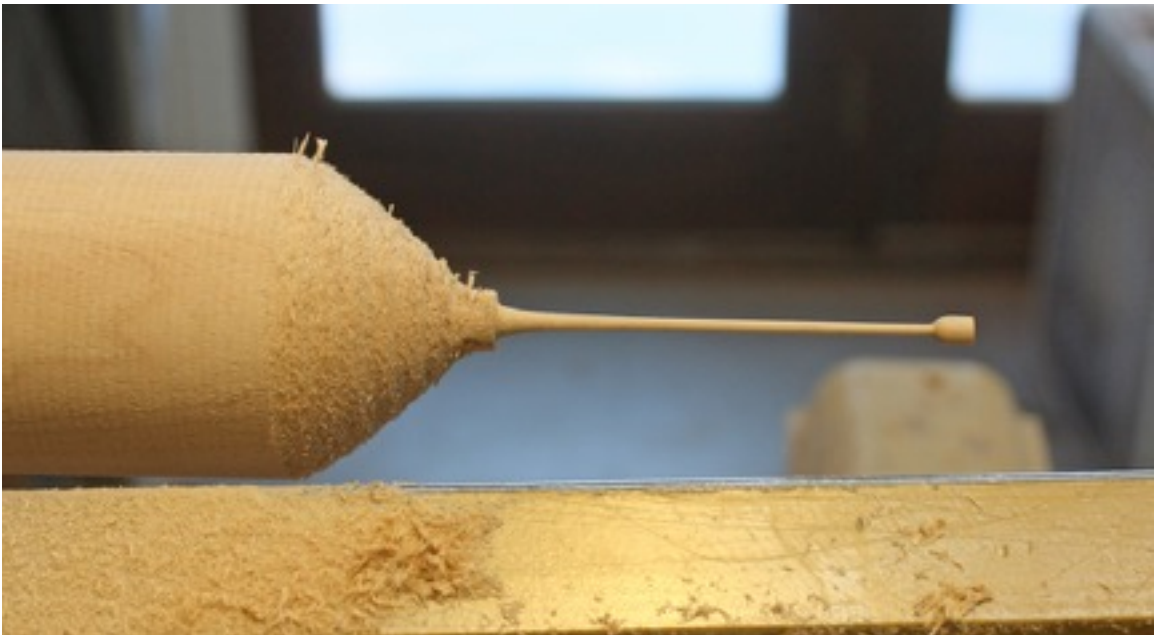


8. First inch started



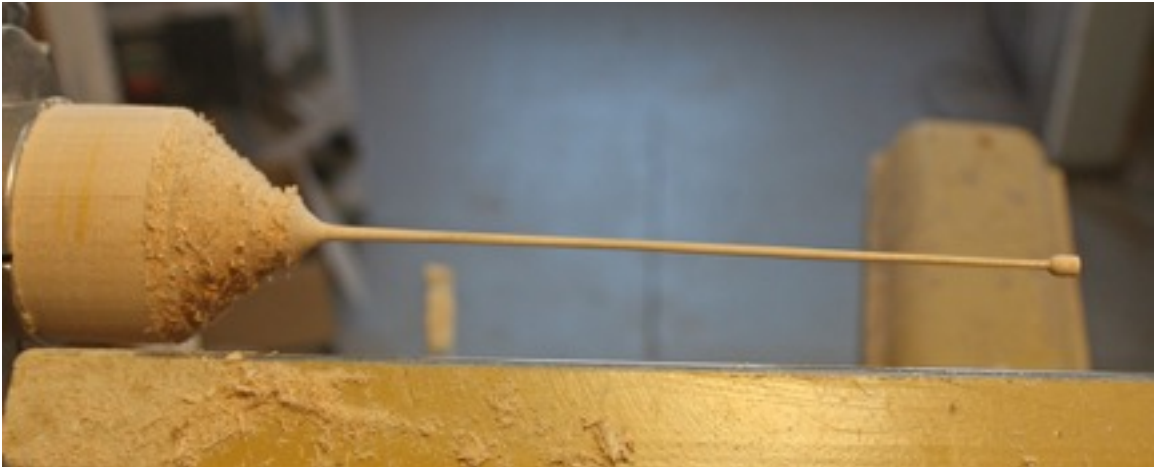
9. First inch mostly turned and sanded.

Turn the next inch of the stem in the same manner. Never turn more than an inch at a time. If you make it too long, it's liable to break.



9. The second inch turned and sanded

Continue working your way down the cylinder an inch at a time.



10. Stem ready to have base shaped.

Shape the base the way you wish. In this piece, I've made the base a simple cone shape.



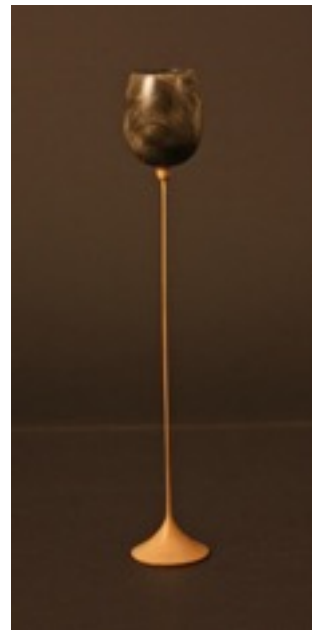
11. Base mostly turned to final shape

I like to put a small bevel on the underneath side of the base to create a small shadow line, but you can make it whatever design you want. Part it off and make the bottom of the base slightly concave so it'll always sit flat. It's easier to put the finish on the stems while they're still mounted in the lathe. Because the cup at the top of the stem is so small, you can make a jam chuck with a hole going all the way through and insert the stem to clean up the bottom.



12. Stem turned, sanded, given a few coats of friction polish, and ready to part off

13. Examples of thin stem turnings.





Examples of pieces with inverted stems up to 16" long

