

Laminated Candle Stick



Set of Three Laminated Candle Sticks

Introduction:

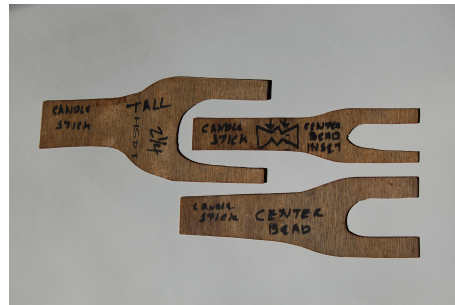
This handout is adapted from my article in the AAW Journal “*American woodturner*” Fall 2000 Vol. 15, No. 3 titled “*Turned Candlesticks*”. This is a fun project that introduces some of the principles involved in laminating and gluing up wood blanks for turning. As in most woodturning the design is not completely my own. I discovered this reality, when perusing through an old book on antiques. There I came across a set of candlesticks on a table that had a shape similar to mine, so much for originality. Although the candlesticks in the book were turned from a solid wood blank and were not laminated like mine. I must admit that I developed this design quite by accident and the look was spectacular, especially after I modified my first design a tad, by using 1/8” Purpleheart veneer instead of the 1/4” veneer that I used in my first set of Candlesticks. Feel free to use woods other than the ones I have chosen. The procedures in the following handout hold true for both laminated candlesticks and solid wood ones. Just leave out the section on how to glue up the blanks, if you wish to turn a candlestick from a solid wood blank. Instead of a rounded bead in the mid section of the candlesticks I used a V style bead. My thought was that a V type bead would better reflect the V shape of the long tapers of the candlestick. Truth be-known the real reason for the V type beads in the mid section, has to do with my lack of skill turning proper beads when I was first starting out as a wood turner. I also was attempting to do a variation of Rude Osolnik’s design. Make sure that you use a candle cup in the top of the candlesticks to minimize any fire hazard. Candlestick cups can be purchased through many of the woodturning catalogs or at hobby shops such as Michael’s. Purchase the inserts first that way you can modify the size of the hole in the top to fit your inserts. I took this design concept a few steps further by creating a table lamp with a base turned on a faceplate. Not being satisfied I continued exploring the possibilities and began turning floor lamps with a slightly modified design as the taller spindle required some changes in the diameters and of the spacing of the V bead. This may be my first artistic series of work. This is a fun project and full of opportunities to put your own spin on the design.

Materials:

2 Pieces of Purpleheart, Cheery or Walnut Veneer 1/8" x 2 1/2" x 24" per candlestick
3 Pieces Highly Figured Maple 3/4" x 2 1/2" x 24" per candle stick
1 1/4" x 7/8" Plug to plug bottom candlestick bottom (Purpleheart or Walnut)
Titebond Original Carpenters Glue
Lead Shot or some other material to add weight to the Candlesticks
1 Brass Candle Insert
Thick CA Glue/Super Glue
Zinssers' Sanding Sealer Finish
Mohawk Aerosol Gloss Lacquer or equivalent
Optional Laminate or other thin material for making gages
1 1/4" Spindle Roughing Gouge
3/8" Spindle Gouge
1/4" Parting Tool
3/4" Skew
1/16" Parting Tool Optional



*Growth Ring Orientation
Candlestick Style Lamp glue up
Middle Section for Candlestick would
be a solid piece of wood*



Sample gages made from Formica

Procedure:

1. I start by selecting an interesting maple board which I plane to a 3/4" thickness and rip to 2 1/2" in width. I then rip the Purpleheart (which I purchase in 1/8" by 3" by 24" blanks) to the same width. I dry fit the pieces, alternating maple and Purpleheart, to ensure that the most interesting maple figure is facing the outside of the candlestick. When using quilted or tiger maple, I try to line up the quilts in all three pieces of maple. When I glue up the blanks I make sure that the two outside pieces are glued with the cup facing in (see figure #1). The cup is in the opposite direction of the growth rings.

2. The next step is to glue up the blank. I have found that Titebond Original Carpenters glue tends not to leave a ridge at the glue joint (sometimes referred to as glue creep) as the wood expands and contracts, making for a smoother finished product. I spread the glue on the boards with one of those fake credit cards that arrive in my junk mail. They tend to make excellent glue spreaders especially the plastic ones. I then clamp the parts and set them aside for 1 to 2 hours. After the glue has had time to harden a bit I scrape it off before it dries completely thus making it difficult to scrape off. While the glue is setting I make my gauges. Using plastic laminate scrap or other thin material, I cut them in the shape of a sling shot. I make the following gauges: top 1 1/2", bottom 2 1/4", center bead 1 1/4", and center bead inset 15/16". The gauges are used as a rough guide, so the final dimensions are not critical.

3. Once the glue has had time to set the next step is to square the ends and cut the blanks to size. You may want to cut the blanks a little longer than the finished height to compensate for the final trim cut on the lathe. I have found the following heights to be aesthetically pleasing: 7 1/2" – 8", 10" – 10 1/2" and 12". When I make a set of three candlesticks, I set the height as I turn them so that the tops of the two smaller candlesticks stop at the center bead of the next tallest candlestick.

4. I use a center finding jig to mark the centers of both the top and bottom of the blanks. I mount a 7/8" Forstner bit in the drill press and drill a 3/4" to 1" deep hole in the top, being careful to center the hole between the layers of Purpleheart. I then drill the hole in the bottom for the lead shot. In the past I have done this after I finished the candlestick. But it now makes more sense to me to drill the hole for the lead shot now and plug it, thereby leaving me a solid surface to mount the blank on the lathe using my 7/8" Steb center or whatever center you choose to use. See step 10 for helpful hints on adding the lead shot. The lead shot hole is drilled to the full depth allowed by the Forstner bit or the drill press.

5. I mount the blank on the lathe using a Steb center in the head stock and a revolving cone center in the tail stock. If you have not yet plugged the bottom hole you can mount the bottom end in the cone center and the top end on the 7/8" Steb center. The gauges are laid out nearby in top to bottom order. I turn the blank to a cone shape, keeping the diameter of the blank greater than 2 1/4" at the bottom and greater than 1 1/2" at the top. I use a 1 1/4" Spindle Roughing Gouge for this step. This gouge was the first turning tool that I purchased and I use it for everything from pens to chair legs. Use your gauges often for quick sizing checks. Once the rough cone shape is achieved, stop the lathe and measure down from the top 2" – 2 1/4" to mark the area for the center bead. I use a 1/4" parting tool to cut the rough depth for the bead. I part down the center twice the width of my 1/4" parting tool on both sides of the center mark to leave an area for the top of the V bead roughly 1/2" wide. Next using the center bead inset gauge, I part down on either side of the center cut to just shy of the gauge depth (see figure #2). You can

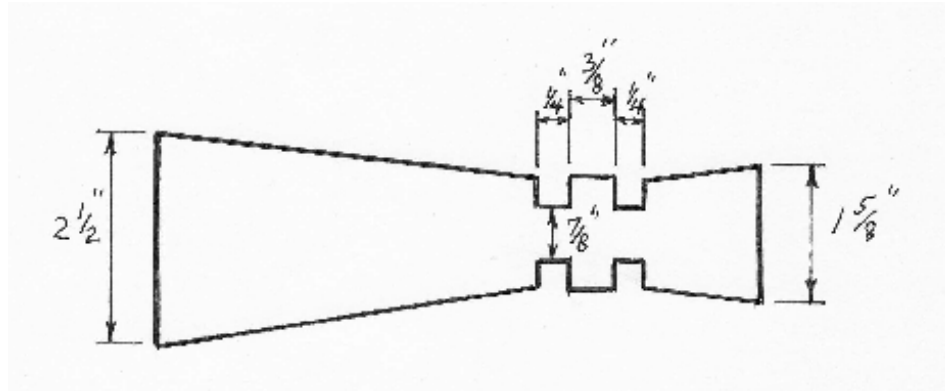


Diagram of candle stick roughed out with approximate dimensions

vary the final pattern of the candlestick by changing the depth of these cuts. Do not cut too wide a part, as the candlestick tapers to this inset.

6. Using a Spindle Roughing Gouge or Skew, I taper the top and bottom to the inset. As these are roughing cuts, I leave a little extra thickness at the top and bottom for the final finishing cuts. It is important to leave ample wood at the top to minimize the risk of splitting when the brass candle insert is inserted. I stop the lathe and view the pattern as it emerges. It may spark some ideas for adjusting the sizes and angles to change the pattern for future candlesticks. Once the candlestick is roughed out, it is time to cut the V bead. I start by drawing a line through the center of the part left for the bead. I use a 3/8" spindle gouge for this procedure. I cut the bead by sneaking up on it, taking a little bit of material with each cut, working from the outside of the bead back to the center and down to the center at the bottom of the cut. The goal is to have the angle of the bead the same on both sides. The lines of the top and bottom taper should appear to converge directly under the apex of the bead.

**Helpful Hint: When cutting a taper set your tool rest at the desired slope of the taper. This way you can use it as a guide. To check the taper for variations, stop the lathe, place a straight edge on the candlestick, and look for bumps or voids.*

7. The next step is to make the final cut. I like to use the my Spindle Roughing Gouge for this cut by using the flat side edge of the gouge in a planing cut similar to the planing cut that is done with the Skew's cutting edge at 45 degrees to the surface. The two types of cut are very similar but I find the Spindle Roughing Gouge is easier to use and that there is very little difference in the quality of the cut, especially if you are going to sand your work to a Gallery quality finish.

8. After I complete the finish cuts I cut a slight chamfered edge on the the top and bottom edges with a gouge, which gives the appearance that the candlestick is floating on the table. I leave enough flat area on the top for the brass insert. (Measure the outside diameter of the insert and mark the top edge of the candlestick just shy of this measurement.) The candlestick is now ready for sanding.

9. I start with 100 grit and go on up to 1500 grit. I try not to sand the bead until I get up to 180 grit so as not to round it over. After sanding with the first couple of grits, I stop the lathe occasionally and sand with the grain. There is nothing worse than looking at a nicely turned piece and spotting a sanding scratch. With the last couple of grits I sand the outside edge of the bead so that it is not razor sharp.

Note: If you have already inserted the lead shot skip step 10. I have found that if i turn the candlestick with the lead shot already installed and the hole plugged that I do not need to spend as much time sanding the bottom.

10. If you have not already done so, now is the time to fill the bottom hole with lead shot. Using a small paper cup or yogurt container, I pour some shot into the hole. I then pour in some thick CA glue, add a little more shot and then more glue, leaving enough room for the plug. I cut the plug from Purpleheart that was turned to the diameter of the hole, and then glue the plug in place. Once it dries I sand it with a 2" pad sander attached to a Sioux right angle drill, being careful not to sand the edge of the base. **I am careful to wash my hands after handling the lead shot, as it contains cyanide.**

11. For a finish I like to spray on one coat of Zinssers' Sanding Sealer Finish and then I spray on several coats of Mohawks' Gloss Lacquer. I may need to sand the finish before the last coat if the finish is not smooth or has collected some dust.

12. The final touch is to add the brass candle insert. Be careful at this stage because the insert may split the candle top. I sometimes file off the knobs on the insert to ensure that the fit is not too tight. Enjoy yourself while making these candlesticks and be sure to experiment with the design. It is those subtle changes that make all the difference.

