Multi Axis Candlestick - Rick Dobney

Cutting list and materials

Sycamore – 12” x 2.5” x 2.5”/ 320 x 65 x 65mm (The blank I purchased although described as 12” was nearer 13” in length).

Sycamore – 6” x 2” x 2” / 150 x 50 x 50mm (a smaller plinth would work better, maybe 5” x 1.5”), the plinth demonstrated looked a little heavy.

25mm brass candle cup

Turning Process

1. Mount the spindle blank between centres and rough to a cylinder

2. Turn a tenon on the headstock end to suit your chuck

3. Mount the spindle into the chuck, use the live centre to ensure running true and well seated in the chuck jaws

4. NB. The Axminster AT1416VS (my demo lathe) will allow a maximum of 290mm beyond the chuck allowing for the next stages

5. To turn the ‘plug’ used to locate the live centre in the cup end of the candlestick. Mark a line 290mm from the chuck jaws

6. Using a parting tool, size a section of the spindle to the right of the 290mm line to 25mm (or to the size of the candle holder if different) leaving a section to the right, aim for around 10mm at 25mm diameter and similar at the full spindle width

7. Part off the plug using a thin parting tool

8. Taking a very gentle cut with a spindle gouge, face off the end of the spindle

9. Use the long point of a skew mark a centre for a forstner bit

10. Use a 25mm forstner bit (same size as the candle cup / plug) held in a Jacobs chuck in the tail stock, drill slowly into the end of the spindle to a depth a little more than the depth of the cup. Note keep hold of the Jacobs chuck while drilling.

11. Again using a light touch, turn a slightly dished profile into the end of the spindle.

12. If necessary use the left wing of a spindle gouge to scrape the opening for the candle cup to adjust the fit.

13. Sand and finish the top of the candlestick

14. Test the fit of the plug, it should be a tight fit. If it is a loose fit then use a layer or two of paper to ensure a good fit.

15. Using the tool rest as a guide, draw a line down the full length of the spindle. Take the spindle off the lathe then draw a line from the end of the line just drawn across the centre point of the spindle.

16. Using an automatic centre punch or bradawl mark a point 10mm either side of the centre point along the line, these will be your centres of rotation

17. Turning and finishing principles
    a. Always finish on a high ☺. You will only get a crisp intersection between features if you finish on a high point of the candlestick, not in the bottom of a cove or V cut.

b. Getting a crisp intersection between one feature and the next is key. When moving from one offset feature to the next, mark the point on the first feature furthest away from the headstock with a pencil, this is your target line where your final cut will be made. If there is no clear differential then it'll be the point furthest away from the tool rest.

c. Sand each rotation on the lathe before moving on to the next offset position. Always sand through the grits, starting at the lowest necessary grit to remove any tooling marks. Maintain a flat presentation for the abrasive to make sure the crisp edges of the features are maintained

   Hopefully the above will become clearer as we progress and with practice….

18. Remount the spindle between centres and turn the cup section, a bead and the top face of the first offset feature.

19. Change the centre of rotation, there's no rules here, switch between offsets. Either centred on one end and off centre on the other, opposite offsets on either end. Using the offset on the tailstock end when at that end of the spindle will produce a more dramatic effect, likewise at the headstock end. Note if you offset the same on both ends you will get a cam shaft effect.

20. When you near the bottom of the spindle, return to centres and turn a foot and a 25mm tenon to fit into the candlestick base. Undercut the foot so it sits well on the base without leaving a gap.

21. Turning the base for the candlestick is fairly straight forward faceplate turning. Find the centre of the blank and drill a whole to suit your screw chuck.
    (Note this will eventually be the top of the base, the drilled hole will be increased to fit the tenon on the candlestick)

22. True up the blank edge and reduce the size as necessary if the blank is a little over sized.

23. Face the bottom and turn a recess to suit your chuck. Include a centre mark to allow the base to be reversed and the chucking point removed / disguised.

24. Take the base off the screw chuck and mount it on the chuck using the turned recess.

25. Using a 25mm forstner bit in a Jacobs chuck, use the tail stock to drill out the blank to suit the depth of the tenon on the spindle. Check the spindle fits the drilled hole. If it is tight it can be eased with the wing of a spindle gouge.

26. Turn a profile on the base, remember to make it in keeping with the style and character of the candlestick. As the candlestick is made of round / curved features, carry aspects of the shape into the base.

27. To reverse the base, either turn a 25mm tenon on a scrap of wood and mount the base on this. Alternatively if the top of the base is flat and wide enough, it can simply be held against a flat friction drive. In either case, bring up the tailstock to check alignment and secure the base before turning away the chucking point. If necessary remove from the lathe then carve and sand away any remaining stub of timber.

Finishing

Sanding should be done throughout the turning process as described above.

Finishing can be easier before assembling the parts.

You can then apply your chosen finish. My personal preference is for oil on a figured wood such as oak and cellulose sealer / buffed wax on a plain wood such as sycamore.

If you want to apply a cellulose sanding sealer and wax finish, this should be done after the piece is sanded between centres as part of the turning process. A couple of thinned coats of sealer which should be de-nibbed with fine abrasive or Nyweb. Personally I would buff the piece with a three mop buffing system after the turning is complete. Alternatively apply a paste wax and once cured buff off the lathe with a buffing wheel.

Alternatively use several coats of Danish or Finishing Oil after the turning and sanding process is completed, this can be buffed to a shine after the final coat using carnauba wax off the lathe.

Consider using colours, air brushing, gilt creams, etc. to enhance the piece but don't detract from the main feature of the piece….the off centre spindle work.

Use epoxy resin or strong wood adhesive to glue the spindle into the base.

Drill and screw the brass cup into the top of the candlestick.

Enjoy the project and please email photos to me…. rick@rickdobney.uk