

# Art Deco-style skeleton clock

Walter Hall takes time out to make a clock



**For as long as I can remember I have been fascinated by clocks and clockwork mechanisms. One of my earliest memories is of being taken to visit my mother's uncle Tom, who was a clockmaker. I must only have been about three or four years old as I have no recollection of great-uncle Tom himself, but the mental image of the sights and sounds of his workshop full of clocks in various states of repair, the shiny parts, the moving pendulums, the racks of tools and the ticking of myriad assorted clocks has stayed with me throughout my life.**

Being able to see the moving parts moving was therefore an important part of the design process for this clock project. Since I can't afford a Patek Philippe skeleton watch or an exquisitely made antique mantel clock, I decided to make a poor man's

version, and this was easily achieved with a readily available and inexpensive quartz insert mechanism.

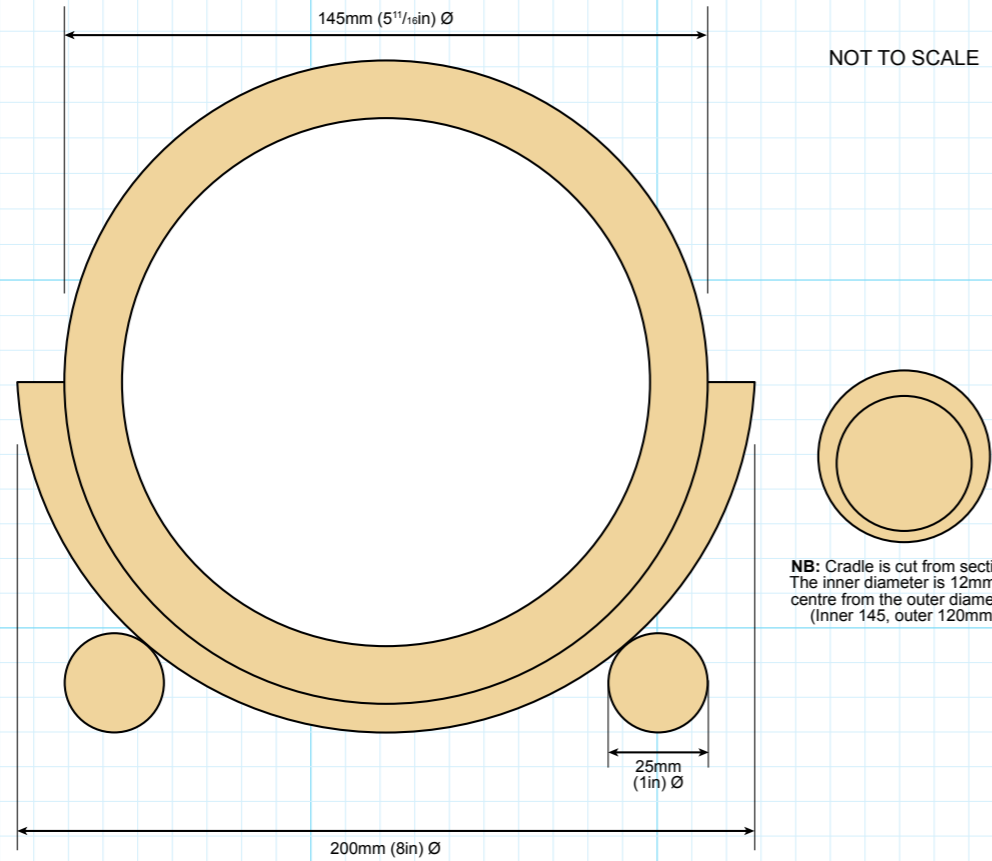
As for the rest of the design, that is a personal choice to get away from the standard 'cut out the middle and make it into a base' or 'stick it on a pedestal' versions that are the standard fare for this type of clock. Nothing wrong with those designs but I wanted something different. I like Art Deco design – it has a certain elegance that appeals to me, having been brought up in the 1950s and 1960s in times of brutalist concrete architecture and the near destruction of parts of city centres that would nowadays be given listed building status. Or perhaps I just watch too much *Poirot* – anyway, Art Deco influenced it was to be.

**TOOLS AND MATERIALS**

- Personal & respiratory protective equipment (PPE & RPE)
- Spindle roughing gouge
- Bowl gouge
- Beading and parting tool
- Thin parting tool
- Scroll chuck with Cole jaws (or Longworth chuck)
- Revolving tailstock centre
- Bobbin sander (or pillar drill with sanding drum)
- Disc or belt sander
- Dividers or compass
- Boring system (or similar homemade jig)
- Clamps
- Cordless drill

**MATERIALS**

- Oak (*Quercus robur*) bowl blank
- Walnut (*Juglans regia*) bowl blank
- Walnut spindle blank
- Wood glue
- Abrasives 120-300 grit
- Finish of choice
- 100mm skeleton clock insert



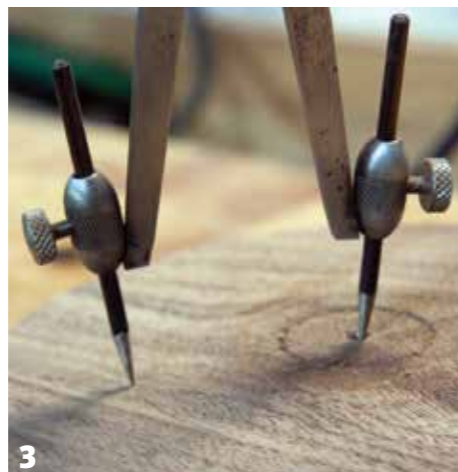
**1** Mount the walnut blank on the lathe. I find the most convenient way to do this is between centres rather than using a chuck or faceplate as it allows access to true up both sides of the blank. I used a large steb centre as the drive and supported the blank with a 60° revolving centre.



**2** True up both faces of the blank and turn it to your chosen external diameter. The centre is going to be cut away, so you don't need to true up more than the outer 40-50mm of each side. If you find it easier to work from the 'front' of the blank this holding method makes it easy to reverse, so you can work on either side.



**3** Once the blank is trued up, remove it from the lathe and mark the exact diameter required for the insert on both sides of the blank with dividers or compass. The size will vary from one manufacturer to another so check and measure carefully – there is very little margin for error.



**4** Re-mount the work on the lathe and carefully firm up your marked line with a thin parting tool. Reverse the blank and repeat on the other face. Double check measurements.



**5** Now sand the prepared areas of the blank through the grits to a finish as it will be difficult to re-mount the blank to do this at a later stage. A cordless drill with sanding pads will minimise radial or annular scratch marks. Do not apply a finish at this stage as it may inhibit the effectiveness of the wood glue later in the project.

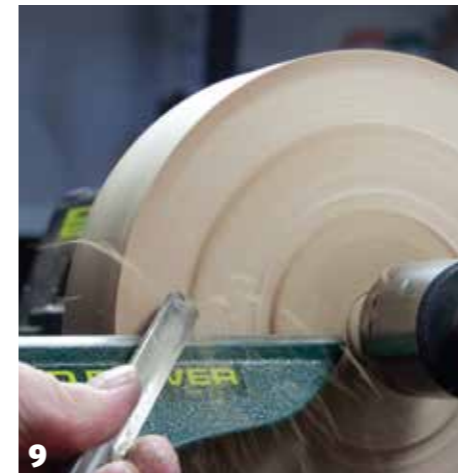
**6** Using the beading and parting tool start to cut away the waste from the centre of the blank. Once you get about halfway through, reverse the blank and work from the other side. This will prevent break-out at the back of the piece. Accuracy is important but erring on the side of too small is recoverable whereas too large is not.



**7** Because the waste is supported on both sides the cutaway section will remain captive on the lathe when you break through the centre. As you approach this stage, which you will be able to tell by the changing sound of the cutting tool, lightly hold the outside of the blank to prevent it from hitting the tool post or other parts of the lathe as it is released.

**8** Any waste remaining in the centre of the work can now be turned or sanded away using the methods shown at step 12, before checking the insert for fit. If it is too tight then remounting on Cole jaws will allow for minor adjustments.

**9** Now mount the oak blank on the lathe in the same way as for the walnut blank. True up, turn to the external diameter as per the drawing and sand through the grits to a finish as before.



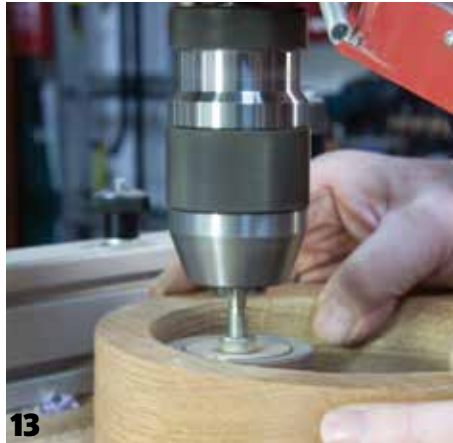
**10** Remove the blank from the lathe and mark up new centres. Carefully mark out the off-centre waste area from the new centres, taking care to match both faces exactly. The remaining section must fit the prepared walnut clock surround exactly, so measure from your work rather than trusting to stated measurements.

**11** Remount the blank on the new centres. Make sure everything is tightly secured and turn down the speed. The piece will now be significantly out of balance, so gradually turn up the speed until you reach a point at which you and the lathe are both comfortable. Take light cuts and work slowly. A midi lathe I am using for this project is nearing its capacity with a large blank this much out of balance



**12** When halfway through, reverse as for the smaller walnut blank and finish the cut from the back of the work. Any waste remaining can be removed by mounting on Cole jaws. Remember to mount using the cutout, not the outside of the now off-centre blank.

◀ **13** The fit between the outside of the walnut clock surround section and the outer part is critical, so carefully sand the inside to remove any traces of the waste or other irregularities. A bobbin sander would be ideal for this but a poor man's version can be made with a sanding drum and pillar drill.



**14** With the clock mechanism inserted and the surround fitted to the outer section, carefully mark the position for the part that will be removed. This should be on the centreline of the clock face.



**15** Cut to the lines on the bandsaw or by hand to create the cradle in which the clock surround will sit. Please note that my fingers are much further away from the bandsaw blade than it appears in the photograph. When bandsawing freehand always keep your fingers well clear of the blade.



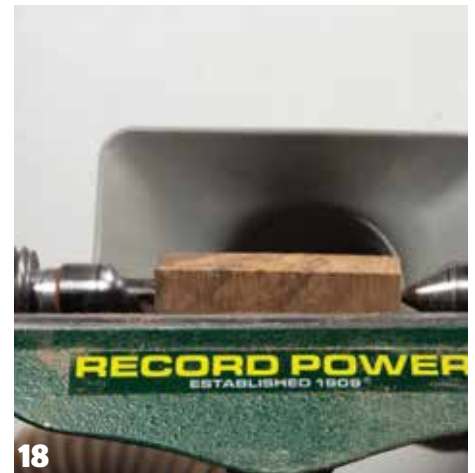
**16** True up the ends of the cradle section on a disc or belt sander. They can then be sanded through the grits by hand to a finish.



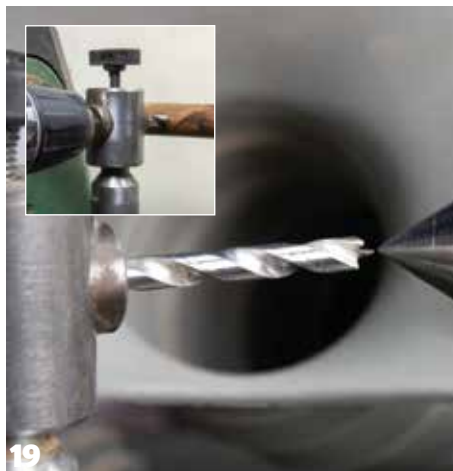
**17** The completed components can now be glued up and clamped, taking care to align the figure of the two pieces in the way that appears most attractive. I used my favourite Titebond adhesive, but any good wood glue will do. Leave the clamped work overnight to fully cure.



**18** The final part of the job is to make and fit the feet. You could turn these from a single walnut spindle blank but I used offcuts from two nicely figured pen blanks. First turn to a cylinder between centres.



**19** The feet are held in place with dowels. Drill the holes in the feet using a jig such as the Sorby precision boring system or, if your budget doesn't run to that, then a homemade jig would be easy enough to make. The key to accuracy is ensuring that the drill bit is accurately aligned on the centreline of the lathe.



**20** The holes in the body are also drilled using the same jig with the work mounted on a scroll chuck. Take care to mark the hole positions carefully. I used masking tape to avoid pencil marks on the finished work. Once the feet are glued in place using 6mm dowels cut to length the finish of your choice can be applied. I used Natur-Öl finishing oil from Drechseln und Mehr. ●

