PHOTOGRAPHS BY JAMES DUXBURY

Wooden chandelier

Inspired by Italian glassmakers, **Jim Duxbury** decided to make a chandelier from cherry and maple

It was with some apprehension that I took my first trip from North Carolina to Europe last spring. The plane trip was lengthy but soon after the arrival I was amazed by my surroundings and quickly immersed myself in the new environment – efficient trains, smaller stone roads, fast little cars, drivers that blow their horns at almost anything and the beauty of the countryside. It also didn't take long for me to discover the grandeur of the old architecture and quality of craftsmanship. These are things that you can't really fathom from pictures, they have to be experienced.

One of the highlights of the holiday was a short trip to the island of Murano, about one mile off the coast of Venice, where local glassmakers have been blowing glass and creating glass art objects for over a thousand years. Tens of thousands of unique glass pieces are on display in all shapes, sizes, colours and prices. The handcrafted designs of delicate glass chandeliers were beautiful and totally impressed me. Could that be my next challenge? A turned wooden chandelier? This would require precision turning, which is exactly the type of project that I enjoy.

In woodturning, two styles seem to emerge: artistic freestyle and precision. In 'artistic', one begins with a block of wood mounted on the lathe and a 'one-of-a-kind' piece is created. This process does not require measurements, instead the piece develops as the wood is turned away and the turner has the liberty to change shapes as desired. Mistakes, glitches and second tries are usually not a problem and are often a design opportunity. In 'precision turning' this is not an option. When the block is mounted in the lathe, the exact form of the finished piece is already known. In most cases a dimensioned drawing has been made and multiple pieces can be turned from it. Every piece must match, so should there be a defect in the wood or the turning of it, a new piece has to be made.

Although my signature pieces – custom wooden kaleidoscopes – are precision turnings, a chandelier constructed of wood would be my next big endeavour, and the advent of cool LED bulbs made it totally possible. The remainder of the holiday continued to open my eyes to the talents and craftsmanship of the ancient world, but my thoughts kept coming back to those chandeliers – those beautiful chandeliers! On the plane home I sketched out some designs and by the time we landed, most of the basic details of this new creation were already on paper. In this article, I will show you how to go about making your own version.

It is wise to procure the electrical components before going much further with the final plans. After shopping around for sockets, chains and all those small miscellaneous trim parts required to build this chandelier, I ended up purchasing a new but damaged fixture that was far beyond repair. It had all of the parts, they all matched – the perfect solution! The light bulbs used are 60W LED, full-sized screw in base, readily available from most DIY stores.

JIM DUXBURY

About the author: Jim is a woodturner and inventor who thinks and creates 'out of the box.' He makes a variety of items, including kaleidoscopes, wooden hats, pens, and even a working Foucault pendulum. More of his fine wooden objects and plans can be found on his website.

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CHANDELIER DIMENSIONS

INFORMATION

TIME TAKEN & COST

Time taken: 200 hours

Cost: £115

TOOLS & EQUIPMENT

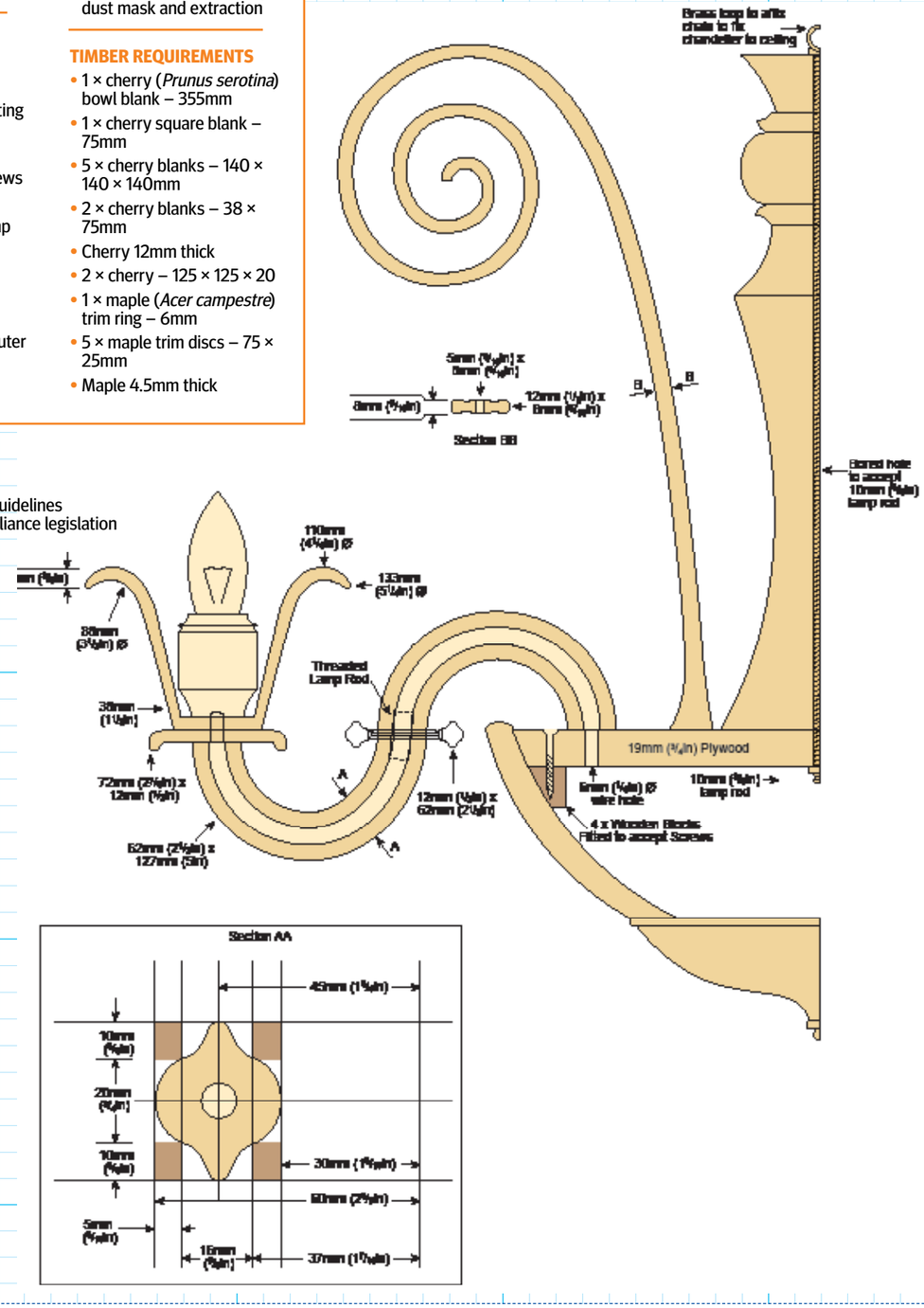
- 75mm faceplate
- Danish oil
- 20mm plywood mounting disk
- Bandsaw
- 4 × 38mm drywall screws
- Lamp wire
- Standard threaded lamp fixture rod
- Forstner bit
- Yellow glue
- Spray adhesive
- 3mm quarter-round router cutter
- Dremel tool
- 20 × 200mm plywood disk
- Epoxy cement
- PPE: facemask, respirator/ dust mask and extraction

TIMBER REQUIREMENTS

- 1 × cherry (*Prunus serotina*) bowl blank – 355mm
- 1 × cherry square blank – 75mm
- 5 × cherry blanks – 140 × 140 × 140mm
- 2 × cherry blanks – 38 × 75mm
- Cherry 12mm thick
- 2 × cherry – 125 × 125 × 20
- 1 × maple (*Acer campestre*) trim ring – 6mm
- 5 × maple trim discs – 75 × 25mm
- Maple 4.5mm thick

WARNING:

Please check your local guidelines regarding electrical compliance legislation



1 The bowl-shaped body is made from a cored out 355mm cherry (*Prunus serotina*) bowl blank. Mount on a 75mm faceplate and turn round. Then the 6mm maple (*Acer campestre*) trim disk and the lower cherry section of the body can be glued in place using the lathe for clamping pressure and alignment. Once the glue has cured, final turn the entire assembly and finish on the outside

2 While still mounted on the lathe, cut a 10mm recess in the top of the bowl-shaped body. Glue four mounting blocks in place to secure the plywood mounting disk that the upper fixture parts will later be fastened to

3 All of the pieces are shown here ready for assembly. The 20mm plywood mounting disk is rough cut on the bandsaw, slightly larger than the recess left in the bowl-shaped body. The disk is then mounted on a faceplate, turned to fit the recess and the bottom 10mm edge chamfered inwards to match the interior curvature of the body. All mounting holes are laid out for the five lamp arms and the large curls. Between the lamp arms, holes are located for the five sets of medium curls and the five sets of small curls. Between all of these, four mounting holes are located to secure this disk to the mounting blocks in the bowl-shaped body. Drill the lamp arm mountings for four 38mm drywall type screws with a 6mm round hole located between them for the lamp wire. One mounting hole for each curl is located and drilled for a similar screw and a 10mm hole drilled in the centre of the plywood disk for a standard threaded lamp fixture rod to pass through

4 Turn the column from a 75mm square blank of cherry, about 280mm long with a 10mm hole drilled through the centre for the fixture rod. The decorative top consists of two maple trim disks, 10 × 50mm diameter and two cherry pieces, 38 × 75mm turned between centres and drilled with 10mm holes for the fixture rod. Fluting was done with the aid of a home-made jig, lathe indexing, a flexible shaft rotary carver and a 8mm ball cutter

5 Turn the five lamp globes from 140 × 140 × 100mm cherry blanks. Turn each one round with a short tenon on one end to mount in a chuck

6 Perform one operation at a time on each lamp globe to ensure they match perfectly. Chucked up on the lathe, drill the centres of all five pieces with a Forstner bit large enough to accommodate the electrical sockets. Drill a 6mm hole all the way through the bottom for the wire. Turn the centre of the first lamp globe to the desired shape with the aid of a cardboard template. After all the interior surfaces have been turned to conform exactly to this template, form the outside surfaces by maintaining uniform wall thicknesses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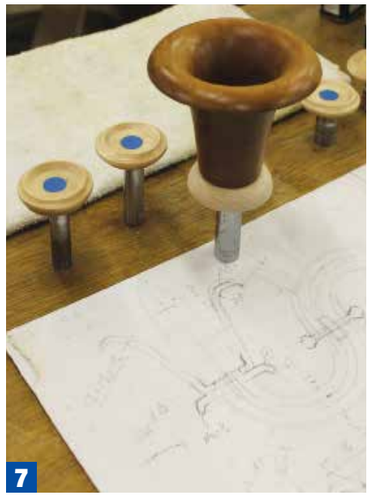
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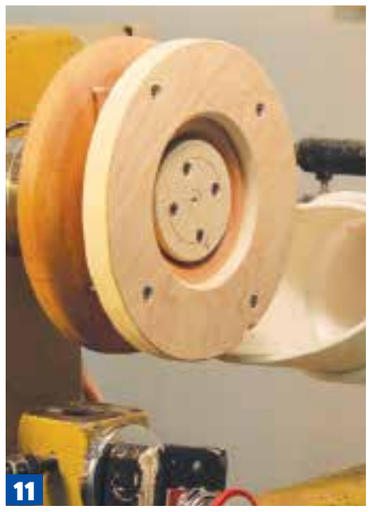
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7 Turn five 75 x 25mm maple trim disks and glue each one to the bottom of a lamp globe. Note the blue masking tape disks used to keep finish away from the glued areas

8 The five lamp support arms and 15 curls are made from laminated cherry/maple/cherry. This adds colour contrast while also improving strength. The curls are made from 12mm-thick cherry and 4.5mm maple pieces, laminated together. Make five copies of each size curl and glue these on to each of the laminated pieces with spray adhesive. Cut each piece out on a bandsaw, rough sand and round the sides over with a 3mm quarter-round router cutter. These curls can break with too much pressure, so use a Dremel tool in a fixed router base, clamped in a vice, to make a little table-type router

9 The five lamp arms are made from two pieces of 125 x 125 x 20mm cherry with a 4.5mm maple trim piece sandwiched between them. Bandsaw all pieces so they are 125mm round. Since the lamp arms require a hole in the centre for wire, at this stage, only glue one piece of cherry to the maple trim. When the glue has cured, screw one blank to a wooden faceplate and mount on the lathe with the maple side towards the tailstock. Turn the lathe by hand and pencil the centreline of the arm in. In this case, the arm is 120mm OD, 60mm ID, with a 115mm centreline. Cut the 3mm wire slot on both sides of the centreline and 6mm deep. Next, part out the centre 60mm piece leaving a 30mm wide ring for the arm. Turn a 30mm thick x 30mm wide cherry ring and glue to the maple surface to form the arm. Make sure that glue does not get into the centre wire slot

10 Turn a plug from a piece of scrap hardwood to about 20mm thick, 110mm diameter, tapered to 97mm. Mark the centre of the plug and four equally spaced screw holes on a 75mm diameter circle that needs to be drilled and countersunk. Mount each arm to a wooden disk on a faceplate using the tailstock to centre and hold the plug in place while screws are put in. From here, the outside surfaces and part of the centre can be turned

11 Make a bandsawn 20mm thick × 200mm diameter plywood diskwith a 120mm hole scrolled out in the centre. Four equally spaced screw holes, drilled and countersunk on a 150mm diameter circle, complete the ring which is used to clamp the partially turned arms. Mount the ring and tighten all the screws before removing the centre plug

12 Turn the exposed inside of the arm. Remove the arm and, using the plug for centring, remount and turn the remaining surface. When all five rings are complete, cut them in half to form the two 'U' shapes. Place a mark on each cut surface so they can be matched up later

13 Turn five maple trim washers, each with a 10mm hole in the centre. These washers trim the connection between the two reversed halves of the lamp arms. For strength, drill out the 6mm wire holes at the arm connection to 10mm diameter and about 12mm deep. This allows a 25mm length of threaded lamp rod to be incorporated into the joint. Use a structural grade of epoxy cement to make a very strong joint and complete each arm. Note: I made the clamping device from scrap wood, which uses a steel weight for pressure. An old piece of 6mm round cable threaded through the pieces guarantees alignment

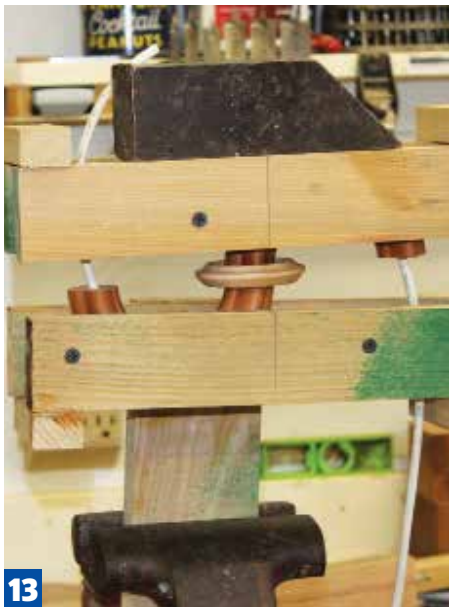
14 From here the bulb sockets are wired, mounted with small screws into the lamp globes and the globes glued to the maple trim rings with about 900mm of wire extending from them. Once the glue has cured, thread the wire through each lamp arm and each lamp globe with trim ring glued in place. Mount the completed lamp arms with two screws to the plywood mounting disk. Position each arm with a 25 × 50mm scrap piece clamped to the mounting disc, parallel and tangent to the lamp arm being installed. Then clamp a second 25 × 50mm scrap piece to the lamp arm and hold in place with two long screws

"Mount the completed lamp arms with two screws to the plywood mounting disk"

15 Mount the 15 curls with a dab of glue and one screw in each. The largest curls are located behind the lamp arms with the medium curls on the same diameter, centred between them, and the small curls in front of the medium ones

16 Cut a length of 10mm threaded lamp rod and pass through the decorative column, the two small maple trim disks, the two cherry top pieces and the plywood mounting disk, terminating with a washer and nut at the bottom. Screw a decorative chain hanger nut on the top; this will secure the column. Pass the main lamp wire down through the lamp rod and connect to each of the five lamp wires

17 Finally, mount the bowl-shaped body to the bottom of the plywood mounting disk with four screws to complete the chandelier, which is now ready to hang. My chandelier has a custom-made travel box and it has been appearing at numerous woodturning clubs and symposiums throughout the USA. I look forward to someday seeing it hanging in a room that will be enhanced by its true natural beauty ●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