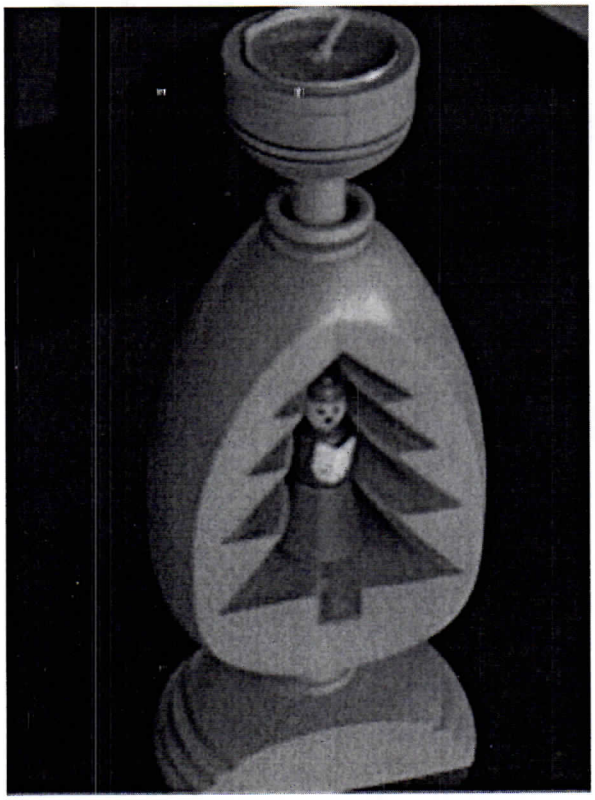
A project for Christmas

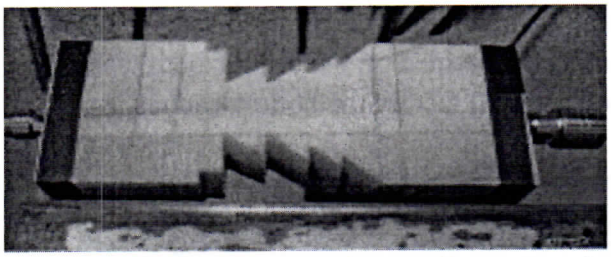
By Ian Salisbury

Candlestick with a Carol singer inside the Christmas tree

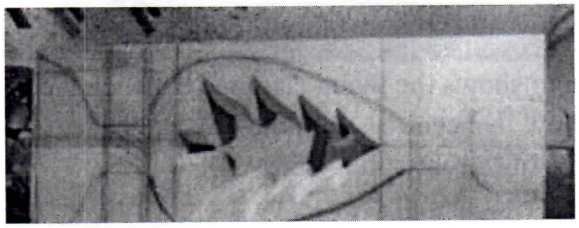
The method of construction, using the inside out turning technique.



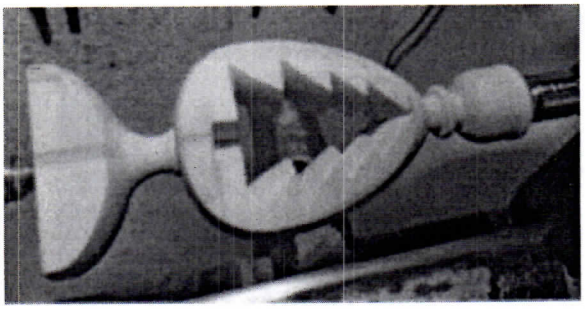
Two pieces of wood are glued together, and the inside is turned first on the outside of the wood, as shown in the photo.



Then the two pieces of wood are spilt apart and glued together on the reverse faces, as shown in the photo.



The outside is then turned to the finish shape.



The method of manufacture looks very complicated, but if you follow the method given, it is quite simple to make.

Materials required

A piece of fine grain wood, I used beech, the starting size of wood 53mm square X 610mm long.

Wood selection

The important things to look for in the wood are.

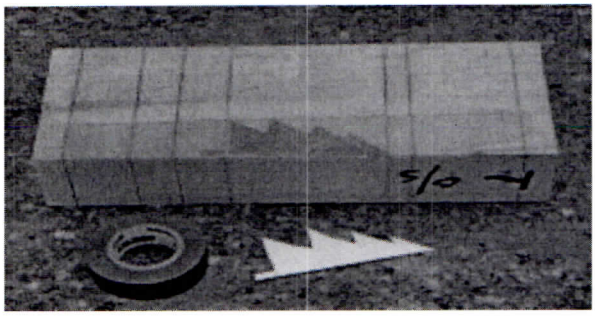
1/ A even grain along its length, as you can see from the photo of the final item, it is made of two pieces, these are glued together, to form the final assembly, when the two pieces are glued together, the grain in the wood should match each other.

2/ One of the sides of the wood should be straight and flat and of good finish. The wood is cut in half, these will be glued together.
Flat side will be glued together, to form the joint in middle of the candlestick, so any gaps will show as a black line or a gap, in the joint between the two pieces of wood, if the wood is flat to start with, this will save a lot of time planing the wood flat at a later stage.

Mark flat side of the wood in the middle of each piece, with the mark o/s indicating outside and the top of each piece with the letter T, so that when these pieces of wood are glued together with T at same end, the grain will run the same way.

The wood is cut into two equal lengths, and then the original ends cut off, giving two pieces of wood 280mm long, I found it better to remove the ends as they do some times have drying cracks and

contamination of wax put on for the drying process, ensure that the ends are flat and square.

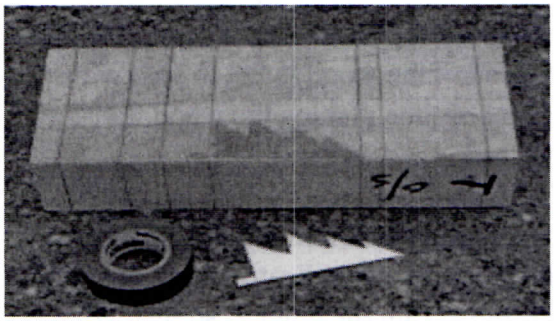


As you can see the two pieces of wood have been glued together with the outside faces marked o/s on the outside, and the T at the same end of each piece. It is important during the glueing operation to insure the faces are flat to each other.

Type of Glue

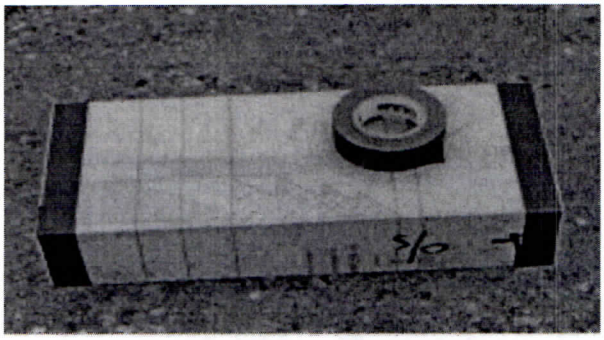
This glue joint is a temporary joint, as later on it has to be spilt apart, but it has to withstand a lot of force during the next turning process, you do not want to use a brittle hard glue, as this can fracture under the force of turning, I use a craft glue which similar to Evostick which is rubbery and will adsorb the turning stress, but can be split apart at latter stage, another way is to insert a piece of paper into the joint, so when split apart, the joint fails at the paper.

The two ends need to be flat with each other, so trim the two ends off, two leave the wood 265mm in length.

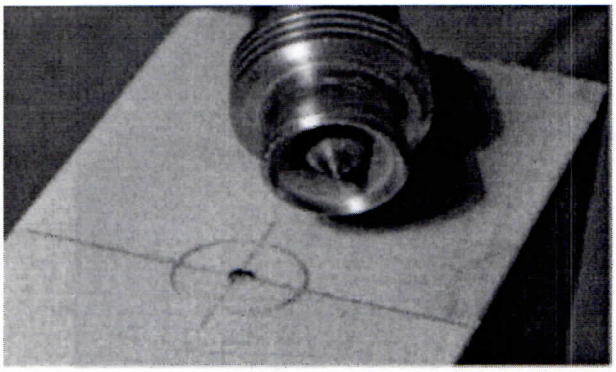


Remember the letter T is the top of the candlestick.

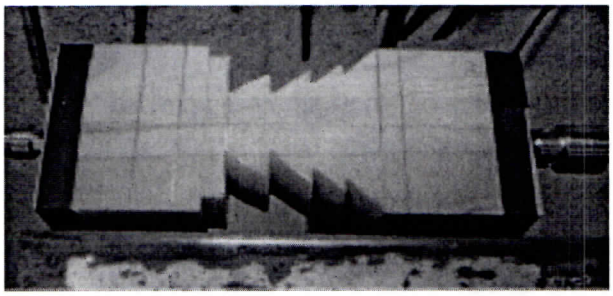
Mark off the height lines for the candlestick as shown on the drawing letters A to J, line J to be 5mm from end of wood, and the outline of the christmas tree. The orientation of the wood to the lathe is important the letter T should be at the tailstock end, this insures the outline of the tree is next to the tool rest, so that when to work is rotating you get a ghost image of the tree.
Using electricians PVC tape bind each end with 3 turns of tape, this is to hold the two pieces of wood together if the glue fails.



The wood assemble is now ready for turning, at each end mark the centre of the glue line, and make a small dimple hole.



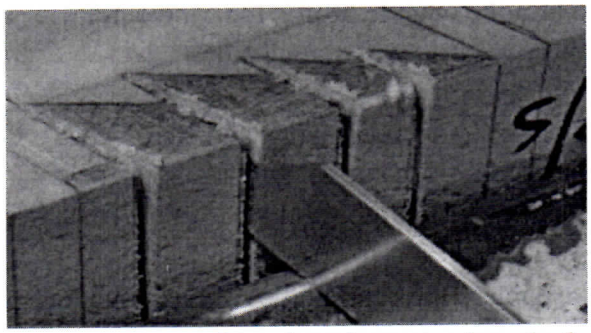
The use of the Hollow live centres at both the chuck and tailstock, this is important for safety, in the photo you can see the round circle which has been cut by the hollow centre in the wood end grain, this cut is into both pieces of wood, thereby clamping them within the centre, so as long as the pressure is maintained on the centres both pieces of wood are held fast by the hollow centres.



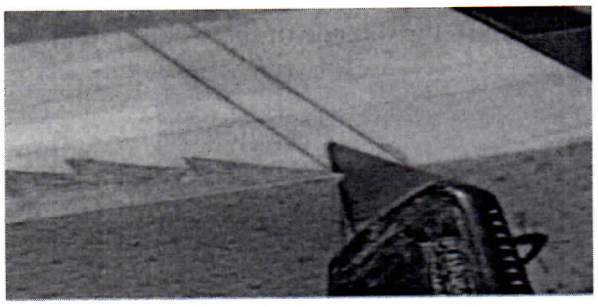
The photo shows the wood clamped between the two hollow live centres, with the finished cuts of the inside of the christmas tree.

Method of cutting the inside of the tree.

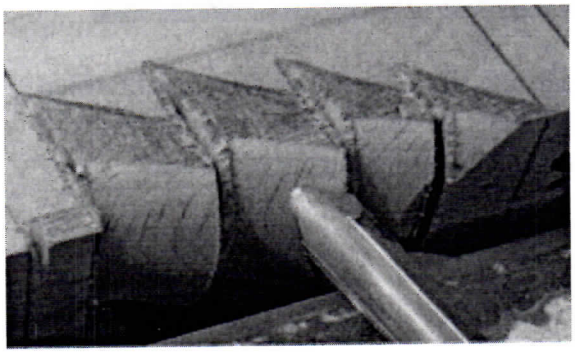
First using the thin parting off tool cut the straight cuts to form the bottom of the tree shapes. Rotation lathe speed about 600rpm.



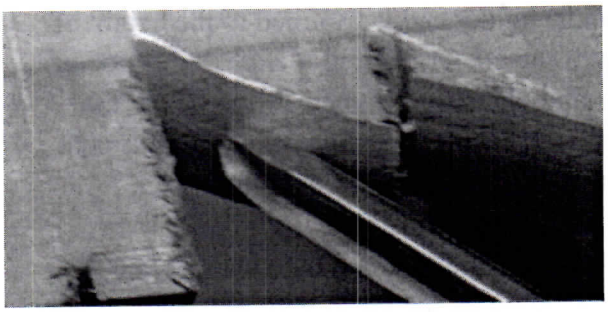
With a knife a cut into the edge at each end of the tree 8 cuts in all. This will insure that when removing the wood to form the tree, the wood does not split outside the tree profile, as these two faces are going to be glued together, if a split does occur this will give a gap in the joint.



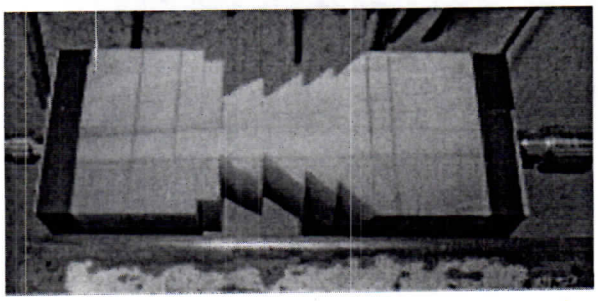
Using a gouge remove the wood to the outline of the tree.
The rotation speed of the lathe is about 1600rpm, if slower speed is used it is likely that gouge will bounce as it is cutting air, resulting in gouge moving into the air space, resulting in the next cut to the wood giving a rough finish on the next face to be cut.



To get into the point of the tree profile, a finger gauge is necessary.



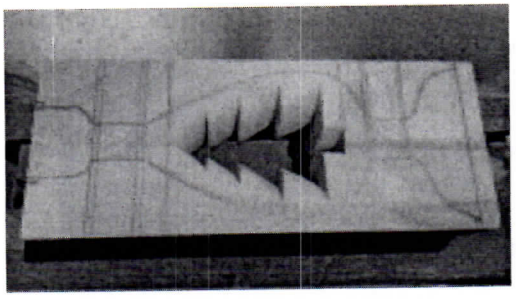
The final cut shape should be as shown in the photo, at this stage sand and finish, as it is difficult to do this in the final assembly.



The next stage is to separate the two pieces of wood on the glue line, this can be performed by using a wood chisel about 25mm wide, inserting it into the glue line at one end wood hitting it with a hammer, forcing the two pieces of wood apart.

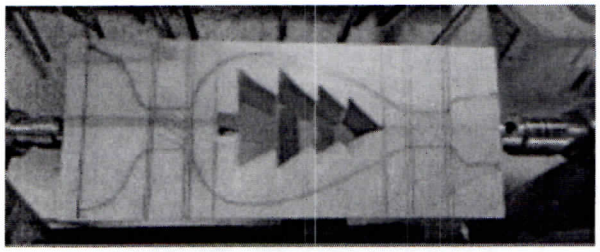
Next operation, the two faces of wood which have been marked O/S, inspect them to insure they are flat, this can be done by using the edge of a metal rule, and visually looking for a gap facing a strong light. If not flat, sand down till they are flat, we need to get a very good joint over the total surface, any gaps will show up in the final assembly.

Now glue the two pieces of wood together using a good strong type of glue, insuring the faces of the wood are flat, and the Christmas tree halves match up, draw the outline of the part on the wood as shown.

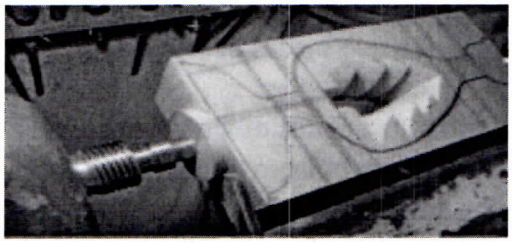


When the glue has set, trim both ends to get them flat with each other.
The candle holder end is trimmed to the height of the top of the holder marked A (right hand side of photo) and the base trimmed 10mm below the base line I, (see left hand side of photo), this is to allow a 10mm spigot to be cut at the base.

Mark the centre point along the glue line at each end, and mount on the lathe, with the candle holder end at the tailstock end.

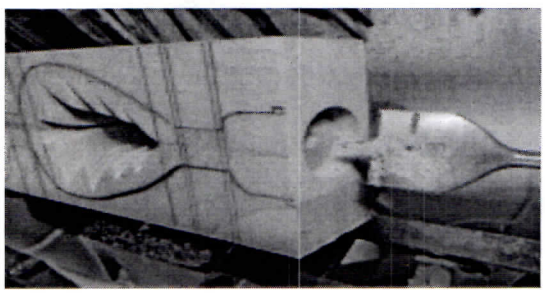


Next cut a Spigot on the base end to suit your chuck size, the maximum size will be 50mm diameter, as this is the size of the wood.



Remount the wood into the lathe using the chuck to hold the wood. Place the wood into the chuck with a loose fitting, engaged the tailstock with the hollow centre ensuring it fits original ring marks, and tighten the chuck up, this will ensure that the candlestick end runs true.

The next stage is to drill the hole for the candle, remove the hollow centre and replace it with a drill, in my case a 38mm to fit the candle size.

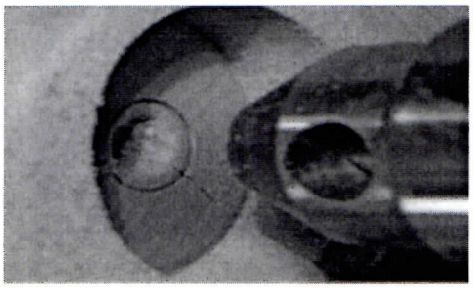


Drill the hole depth so that candle shows by 3mm above the wood edge.
Do not remove the wood from the chuck, as it is important that we re-register the hollow centre into the drilled hole, and cut a locating circle, so that when we turn the outside profile the candle holder, the hole is concentric with the outside.

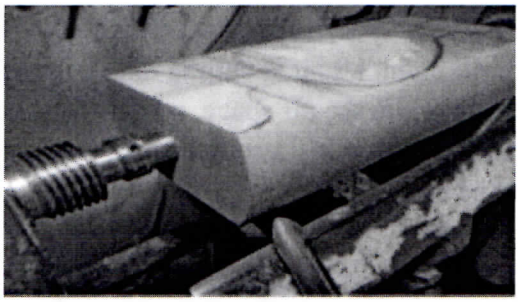
Remove the wood from the lathe, and cut off the spigot on the base, the cut being made at the base line I (see drawing).

On the base, mark the centre point of the glued line of the two pieces of wood, make small dimple hole.

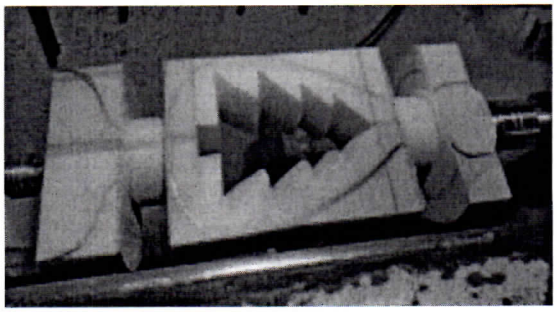
With hollow centres in the headstock and tailstock, remount wood on the lathe between centres, reline it with the previously made circle in the wood at the base of the hole for the candle, as shown in the photo.
Using a gouge turn the outside of the wood so that



the outside of the base end has a smooth curve.



With a parting off tool, remove the areas between the double lines as shown, this allows access for the gouge when cutting the curved areas.



Turn the candle end to the finished shape, cut and burn two black lines onto the candle holder, (see photo of final assembly).

Cut the stem leaving the centre part raised, see drawing for size as shown, this will become the lose ring, form a round shape on it

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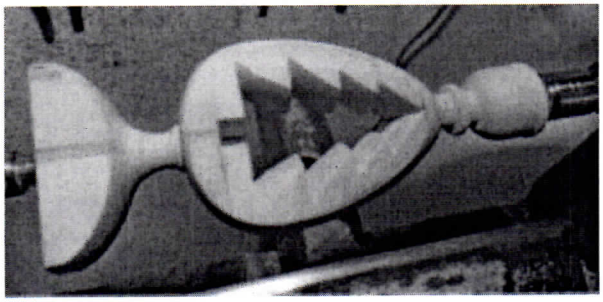
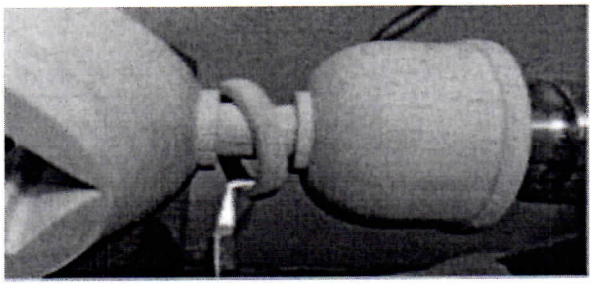
Now cut the part to the final shape, as shown on the drawing. (lathe rotating speed 1600rpm),



The next stage is to cut the ring at the top.

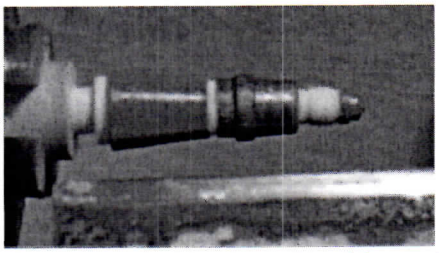


The cutting tool is made from a old Allen key ground to the shape shown in the photo.
The end of the cutting ring tool is ground square, and will have a cutting face on both sides, so that you can cut halfway through on one side, then turn the tool over and cut from other side, to do the final cut, separating the ring from the candlestick assembly.

With a parting off tool, reduce the stem of the candle holder under the ring, to a diameter of 7mm.
Sand the assemble and apply finish, I used Danish oil for the candlestick finish.

Making the carol singer

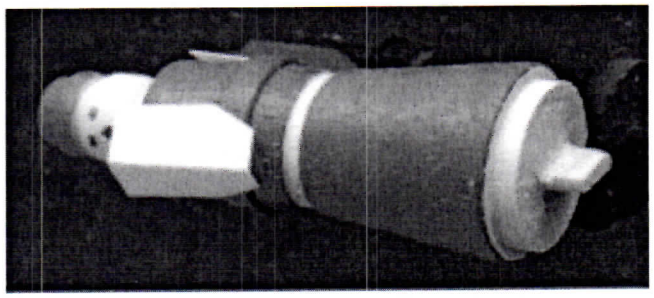
I used a piece of old wood curtain rod, turn to the dimensions on the drawing. Shape up the hat, face, skirt and arm ring.



While still on the lathe paint the skirt and hat red, the body blue, give the face a coat of sanding sealer, this fill the grain, so the when the ink is applied for the mouth and eyes it will not bleed along the grain.

Reduce the spigot next to the chuck to a diameter of 7mm, part off the body of the carol singer leaving a spigot of 5mm long.

Trim the width of the spigot on the base, as shown in the photo to fit the gap in the candlestick assembly.



With black ink pen, put in the mouth and eyes so that they are looking straight ahead, give a clear coat of resin.

Apply glue to the base of the carol singer and glue in place in the centre of the base of the Christmas tree.

Christmas tree with carol singer, made by inside out turning.
Drawing full size and all Dimensions in mm