

SKILLS & PROJECTS

Three-sided candleholders

ALL PHOTOGRAPHS BY PAUL NESBITT, UNLESS OTHERWISE STATED



Pair of three-sided candleholders

This elegant little project by **Paul Nesbitt** requires careful marking up and a steady hand, but is otherwise quite easy

I have always enjoyed trying to be different with my turnings and have always been fascinated by multi-centred work, so I to put my idea for the three-sided candleholder idea into practice. The process is quite simple and is suitable for beginners.

The most important task is the marking out, especially if you intend to make a pair. The difference between them is in the marking out: one is

marked clockwise and the other is marked anti-clockwise.

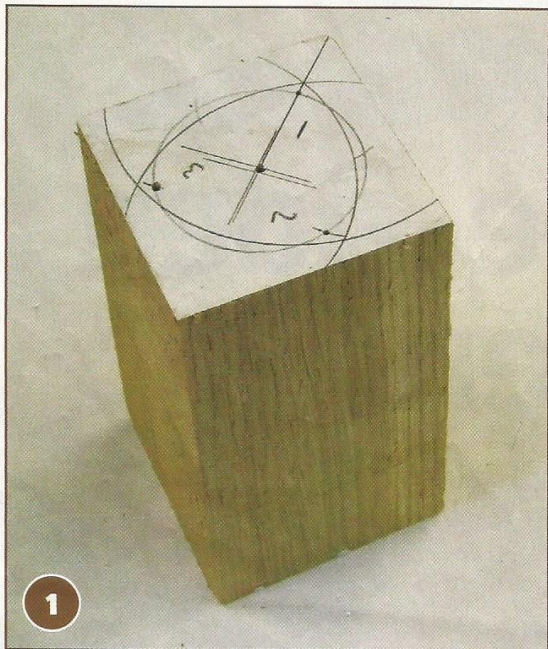
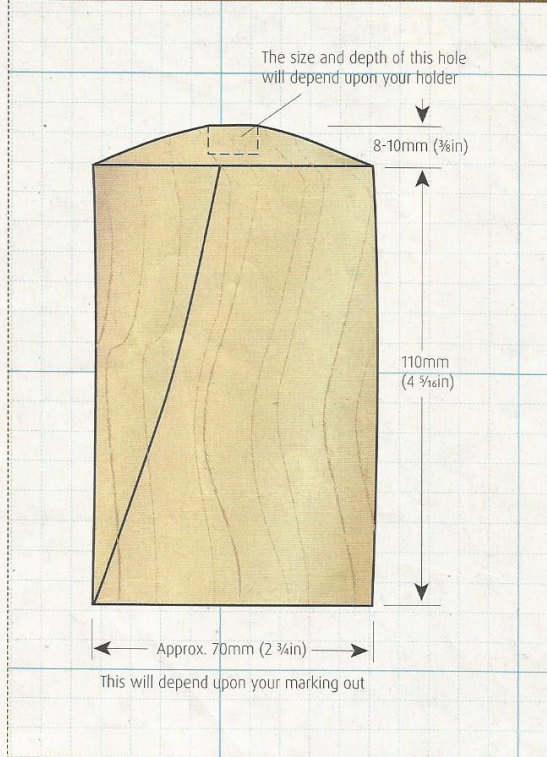
I know a lot of people are unsure when turning projects that are offset, but providing the work is secure and you take small, steady cuts there is nothing to it. As this article works with ghost images, if you place a piece of black card or something similar behind your work, the 'ghost' is easier to see against the dark background.



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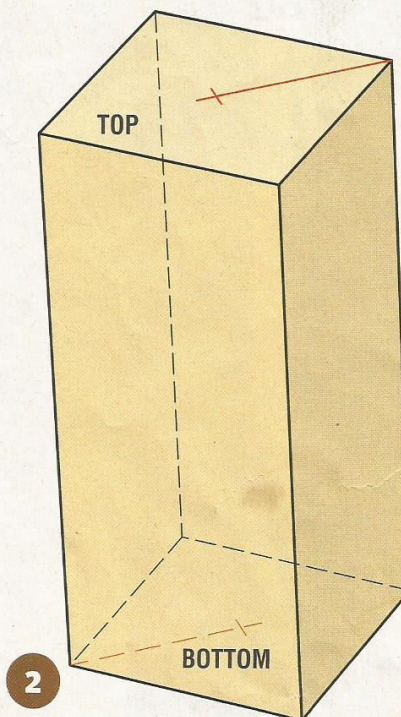
Three-sided candleholders

THREE-SIDED CANDLEHOLDER DIMENSIONS



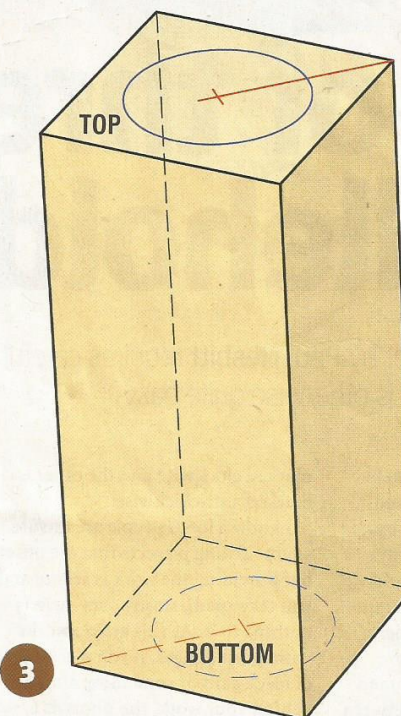
1

For this project you will need two square section blanks, 75 x 75 x 125 mm (3 x 3 x 5in). The quality of the initial marking up will determine the quality of the final product, especially if you plan to make a pair. Each end needs quite a bit of marking out and the marks need to be seen whilst the work is turning. I have found that sticking a piece of white paper on the ends gives a much clearer reading



Centre and punch each end and place the blank end down – diamond shape. Draw a line from the furthest corner to the centre. Turn the block upside down by turning the top away from you and repeat the same marking on the other end

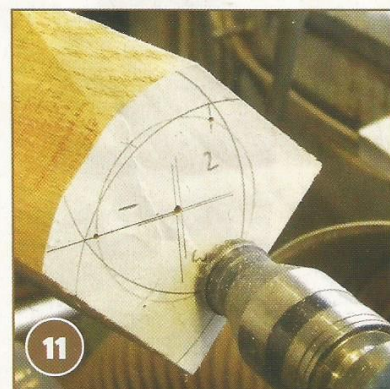
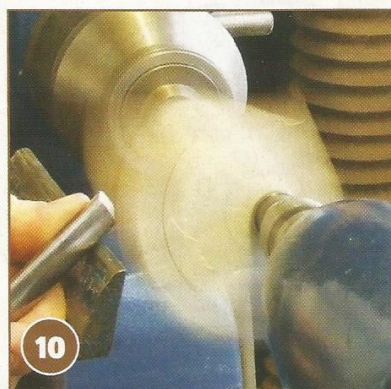
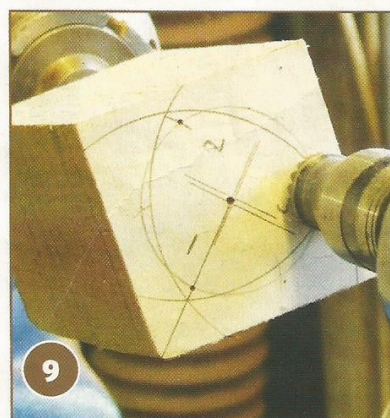
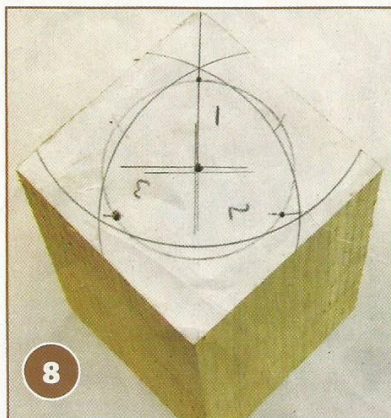
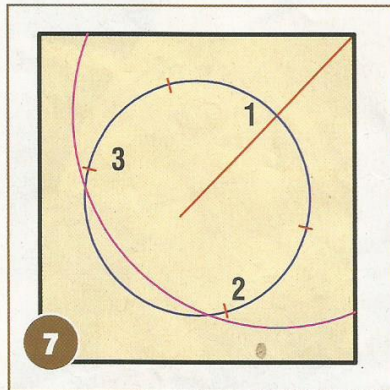
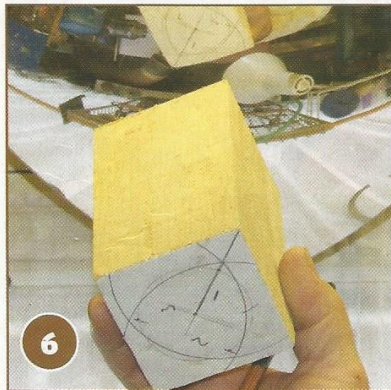
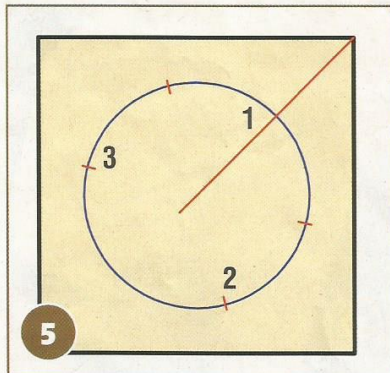
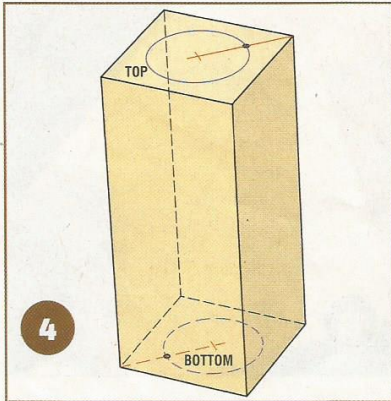
“Draw a circle on each end with a diameter just three-quarters the size of the square”



Draw a circle on each end with a diameter just three-quarters the size of the square. So, if the square is 75mm (3in), the diameter of the circle will be 55mm ($2 \frac{1}{4}$ in), and its radius will be 30mm ($1 \frac{1}{8}$ in)

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4 Choose the point where the circle on the top meets the diagonal and label it '1' inside the circle. Do the same on the bottom, making sure that the two points labelled '1' are near diagonally opposite corners. These are the first of the marking points and they need to be punched. There will eventually be three on each end of the block

5 On each circle add the numbers '2' and '3' evenly spaced (120° apart). Here is an easy way to do it: with your compasses set to the radius of the circle and the point of the compasses, on point '1' mark a small arc cutting the circle on either side of point '1'. Move the point of the compasses to one of these cuts and make another small arc – this makes point '2', and point '3' is drawn in the same way. Punch points '2' and '3' at both ends

6 Both ends of the wood must look exactly the same. In the photograph opposite you can see that the numbers are running clockwise, so the candlestick will have a left-hand twist. If they run anti-clockwise, the twist will be right-handed. Note: the numbers must run the SAME way on both ends; both clockwise or both anti-clockwise

7 With the point of the compasses in '1' draw an arc 3mm ($\frac{1}{8}$ in) inside the circle

8 The rest of the marking up is much simpler: just draw the arcs for the other five turning centres. The marking has to be done very carefully. From a safety aspect it is best to use a ring drive or a steb centre. A four-prong drive will not grip the wood adequately here

9 This is where the numbers come in: put '1' into the headstock drive and '3' into the tailstock. The numbers on each end should always add up to '4' (that is 1+3 or 2+2 or 3+1). As always, set the toolrest and test by hand that the work revolves freely. The toolrest needs to be parallel to the centre axis of the lathe at all times

10 Throughout the project, the wood will be seriously out of balance, so the lathe will usually have to be run slowly, at about 1000rpm

11 Gentle cuts should be taken at each end of the wood until the profile begins to take shape; all the major shaping will be done with a sharp spindle roughing gouge. The forefinger acts as a depth stop against the toolrest and the angle of the tool must not change as the cut proceeds from end to end. It will eventually come right down to the arc just above the centres marked '1' and '2'. If the material is not being removed, check that the toolrest is parallel to the lathe's axis and readjust your cuts

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12 The first cut is completed, as seen from the tailstock end. Quite a lot of material has been removed, but this is necessary to ensure a good final shape in the middle of the block. Stop just before you reach the marked line, ensuring there is an equal amount cut from each end

13 Mount the wood for the second cut. Point '2' goes at the headstock end and point 2 goes at the tailstock end. Remember: $2 + 2 = 4$. The cutting process is repeated for the second and third sides, using points '3' and '1' for the third side

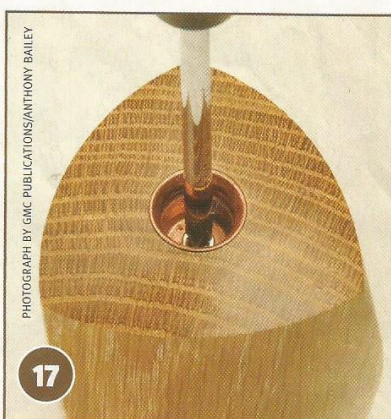
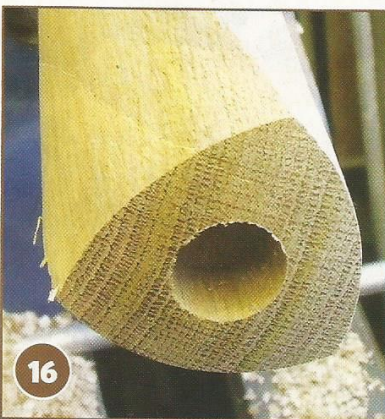
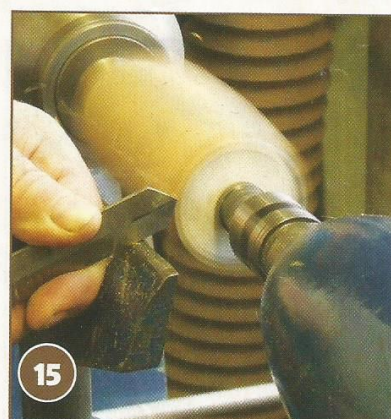
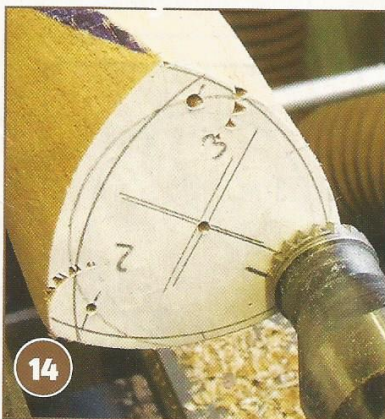
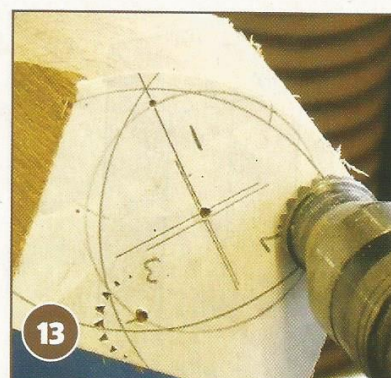
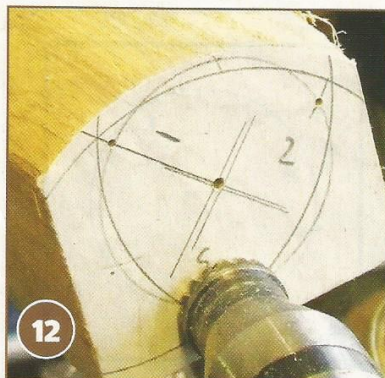
14 As the second and third sides are nearly finished, an eye-shaped area will appear. In the photograph this has been coloured in to make it clearer. You need to keep turning until this eye disappears. Place the work between centres in order to hand sand each side through the grades, but do not sand with the lathe running. Ensure that you do not round off the defined edges. Seal all the sides at this point. You could also polish them, but again, by hand

15 Cut a spigot at one end, then mount it into the jaws of your chuck for the final work. Slightly curve the top and this will remove the paper. Sand, seal and finish the top and hole. Part off carefully, as due to the three sides, this needs to be cut off flat, not concave. Finish the base as before

16 Drill a hole about 25mm (1in) deep and of a diameter to suit the candles you intend to use. A sawtooth bit mounted in a Jacobs chuck in the tailstock will do the job

17 Now, sand and polish. Candles should not be inserted into wood without there being a fire-proof lining in between. I have used a copper insert which is screwed into place

18 Here is a finished pair with opposite twists. Remember to mark your second piece of work with the numbers going anti-clockwise, for a right-handed twist •



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