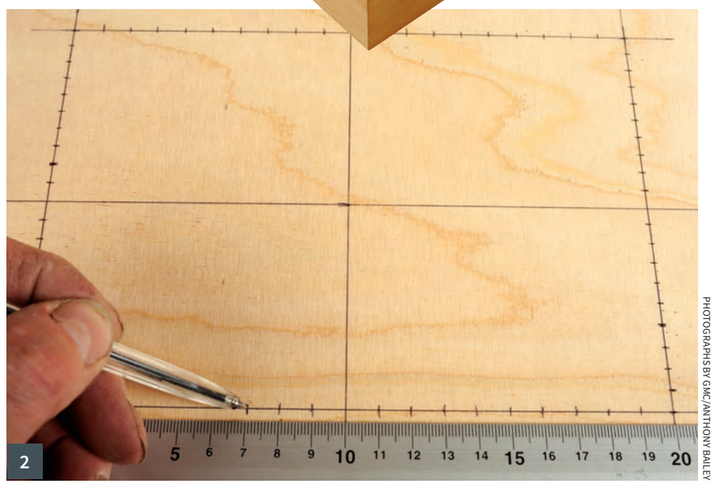
Routing shapes

Anthony Bailey uses some router tricks to build and decorate this little box

The router is still the most versatile power tool there is. Along with a vast range of cutters, jigs and gadgets – many of which you can make for yourself – it can help produce high-quality woodwork. One way your router can enhance your designs is by adding an inlay shape to an otherwise simple, functional wooden box like this one. Adding this kind of decorative detail is easier than you might think if you have the appropriate cutter kit available.



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THE JIG

1 The template could be any shape, such as a swan or a star, but I chose an ellipse because I like the shape. To set it out, draw a rectangle the same width and height as your ellipse.

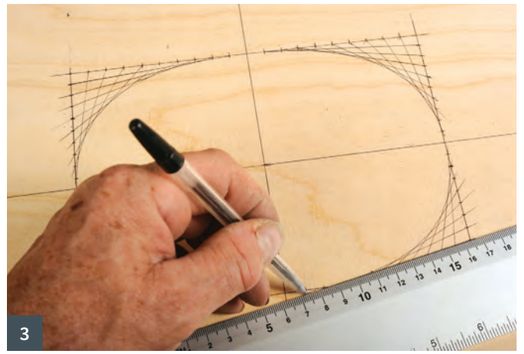
2 Divide each side of the rectangle into an equal number of divisions. I tend to use centimetre spacing for the long sides and reduce the width of each division on the short sides, keeping the number of divisions equal on both sides.

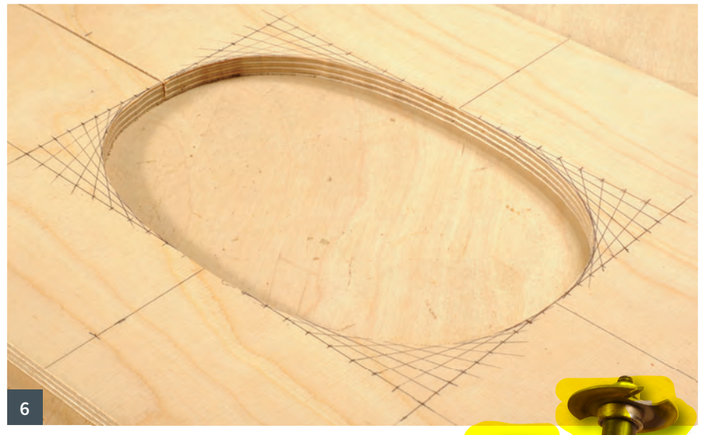
3 Use a ruler to draw lines from the first mark after the middle division across to the first mark on the adjoining space, and so on. Carry on round and you end up with something remarkably like an ellipse!

4 Smooth the line with your pen or pencil until it appears as a proper curve. Once this is done, bandsaw or scrollsaw very close to the line, doing so carefully to preserve the curve.

5 Use a fine rasp or woodfile to give an even, sweeping curve the router can follow.

6 The finished template: note the bandsaw blade escape kerf. With large guidebushes this kerf isn't a problem, however the tiny inlaying guidebush we are going to use will require the kerf to be filled with a slip of wood so the guidebush cannot drop into the kerf opening and create a bump in the ellipse.



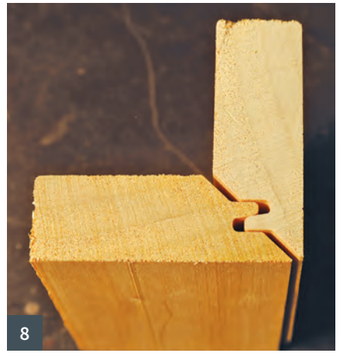


THE CUTTERS

The box corners were joined using an Oldham Viper small lock mitre cutter. All the rebates were made using a Trend rebate cutter, swapping bearings to obtain the correct rebate sizes. The solid carbide inlay cutter and guidebush are from Trend. A Wealden bottoming cutter, designed to clear large areas, finished off the waste removal. Lastly, a Wealden arbor with a thin slitting cutter is used to cut the box from the lid.

MAKING THE BOX

7 Decide on the size of box you wish to make. In my case I found a part board of parana pine so the dimensions of the board governed the box size for me. Thickness all stock and finish the sides and ends to size, but leave the top and bottom oversize at this stage. Mark the outside faces at each end so you know that the joints will be cut on the opposite face. **Note:** in the picture, the cutter is already mounted and a breakthrough fence added for vital support across the cutter gap in the fence.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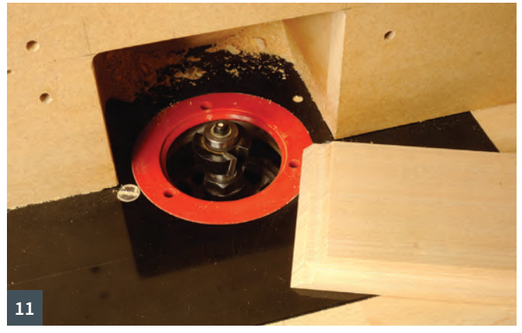
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8 You must make test cuts on waste wood to get the correct cutter height and fence depth settings for the mitre cutter. I made the test cuts with the grain, which caused problems later.

9 The front and back components are machined in the lying down position on the router table, with the finger profile section of the joint in the centre of the workpiece. Note the pushblock behind keeping the workpiece under control.

10 I realised that the box ends, which are machined in the vertical position, would drop into the cutter opening in the table. So I resorted to a sub bed – a piece of 6mm MDF. After I had raised up the cutter by a suitable amount, I swung the MDF sideways on to the running cutter so it fitted neatly around it, and then clamped the MDF in place. My test piece allowed me to set the cutter height.

11 Before assembly, a rebate for the top and bottom is run along all the long component edges.

12 The sides of the box are glued and assembled and clamped square with a board on top to ensure it is completely level. Once dry, clean any glue residue away.

13 The box top and bottom are rebated so they will sit flush in the sides. Readers will note I had a sudden change of heart and opted for a darker wood on the top so I could do a light inlay.

14 Glue and clamp the top and bottom in place and then fix the template in place with double-sided tape.

15 This tiny guidebush and cutter are for inlaying. The internal, or first cut, is done with a special collar in place which is just visible here. It is removed for shaping the inlay itself.


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16 The inlay cutter has cut the ellipse, with the guidebush following the template. Then the waste is removed with the Wealden bottoming cutter.

17 The inlay timber is planed to fit flush in the recess. The guidebush collar is removed and the router run around the template on the inlay timber – don't let the cutter wander.

18 A test fit revealed I needed to trim the inlay fractionally. A spoke shave proved equal to the task.

19 Once the inlay is a neat fit, apply an even layer of glue, press it home and clamp it in place with a board and paper insert.

20 A slitting cutter is used to separate the top from bottom neatly. In this case it didn't quite go through, which is safer as the box won't separate unexpectedly. A fine tooth handsaw completes the cut.

21 The box lid is rebated by sitting it over the cutter, taking care the bearing and machine screw holding it do not contact the underside of the lid. Place it centrally over the cutter before switching on and only feed into the cutter rotation.

22 Rebate the top edge of the box bottom so the lid slips on nicely. The corners of the upstand edge must be rounded with a chisel so it fits the rounded rebate in the lid. Sand the box exterior and apply a suitable finish!