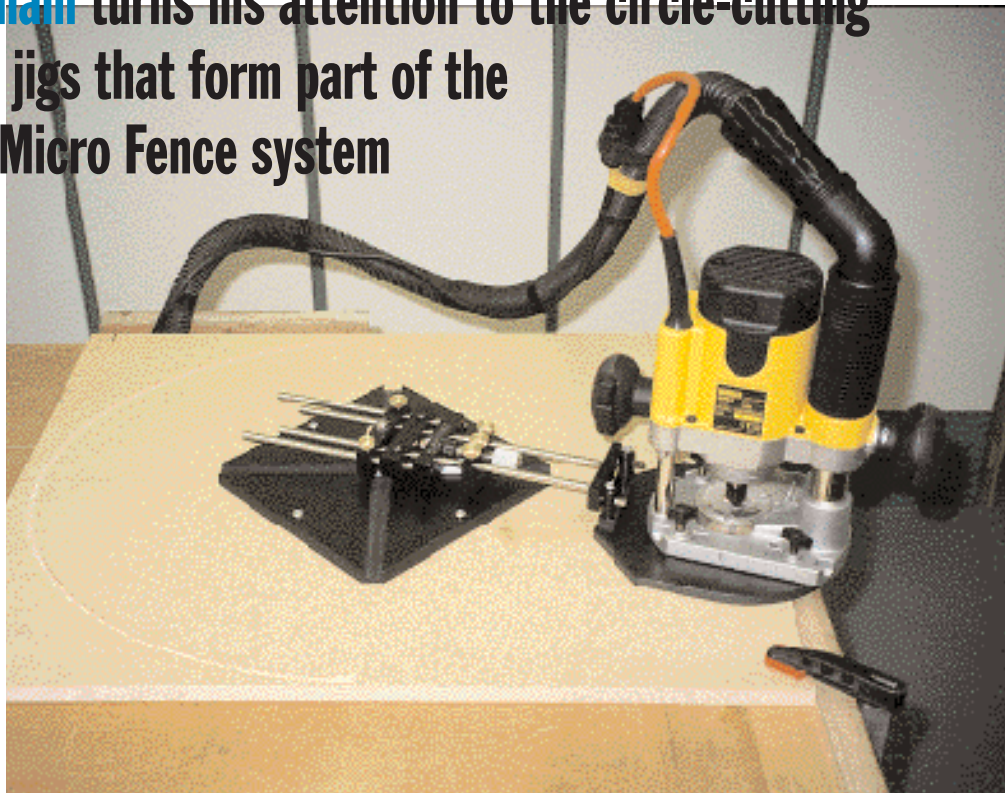


ROBERT INGHAM

## Robert Ingham turns his attention to the circle-cutting and ellipse jigs that form part of the acclaimed Micro Fence system

The circle has long held a fascination for me and has featured in my work a great deal. There are many ways in which it can be formed in wood but there is no doubt that with the router as the means of removing the excess material the possibilities are extensive. I have experimented with an assortment of home-made jigs that rotate the router around the circumference of the circle, using a pin of some kind as a pivot. From a simple plate that fixes to the base with a hole drilled in it for the pivot, to the more complex systems that involve adjustment of the pin position, the problem has always been one of precise adjustment.



# CURVILINEAR

## CIRCLE JIG

This challenge has been truly answered by the Micro Fence version of the Circle Jig. As with the Edge Guide, all the guess work has been eliminated by the inclusion of the micro dial adjuster. With the help of the clear operating instructions I set up the

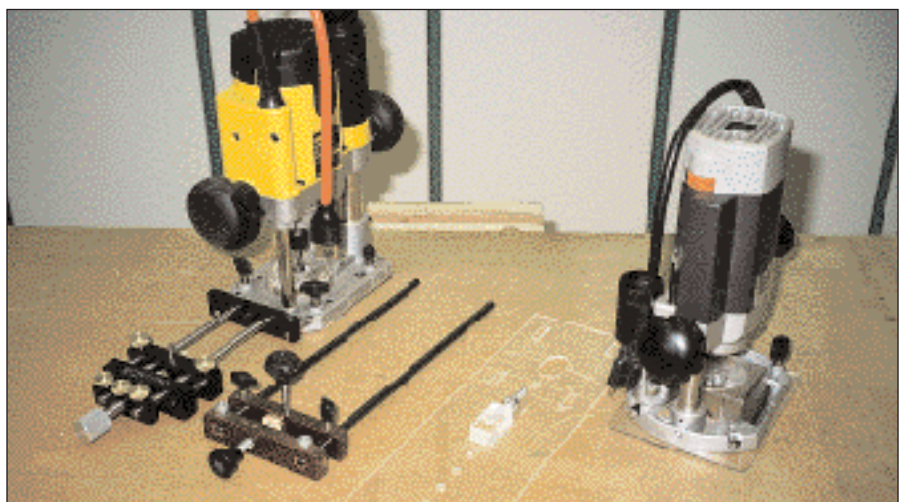
jig and attached it to my router. I could see very clearly that cutting a circle would be quite straightforward so I decided to miss out that experience and went to the next challenge, that of fitting two pieces together with a curved junction.

Some time ago I made a dressing table in

which the top consisted of a number of true curves that blended together to form a kidney-like shape (see **photo A**). It was made of veneered MDF which was lipped in a contrasting wood. The junctions between the lippings and the main area of the top were curved. I made a baseboard to



**A**  
The dressing table I made



The Micro Fence Circle Jig set up in a DeWalt router. My own circle jigs are made to fit my Elu

“It is simplicity personified and another example of the ingenuity of the inventor”

hold the components which enabled me to accurately position the pivot points and hold the pieces in place while routing away the waste material. The baseboard also enabled me to work right or left handed as the shape of the top was a mirror image on either side of a centre line.

Cutting the outer curve was quite simple, but moving the cutter to the position of the inside curves of the lipping was very much a question of trial and error, even though the circle jig I was using had a screw adjuster. The problems of the backlash that results from the relatively loose fit of a conventional machine screw and the lack of a graduated dial made the adjustment to the new position reliant on visual alignment. The skill of craftsmanship rather than that of engineering.

I had no such problem when I tested this facility with the Micro Fence Circle Jig. I chose to cut the outer curve first as this seemed to be the most convenient approach for my test attempt. The clear recommendations in the instruction booklet suggest cutting the inner curve first and in most practical applications this would be the right sequence.

The next thing to do is to measure the diameter of the cutter, which in my case was  $\frac{1}{4}$ in down-cut, spiral fluted. In metric this is equivalent to 6.3mm, not an easy dimension to measure unless you use dial callipers. To benefit from the accuracy of



**Cutting the outer radius with the Circle Jig**

the Micro Fence dial, a pair of dial callipers is essential.

To make the next cut the diameter had to be moved by 6.3mm. This wasn't a problem. I had zeroed the dial for the first cut, so six revolutions and three graduations moved it by precisely the diameter of the cutter. Now the second cut and hey presto the two curved edges mated perfectly. This is what I expected, but the reality of the experience was a revelation. To test the fit further I cramped the two pieces together and you could not see the joint line! It looked like one piece of MDF.

For the purpose of clarity in the second photograph I have coloured the edge of the outer curve to differentiate between the two pieces.

### GROOVING IN THE HOUSE

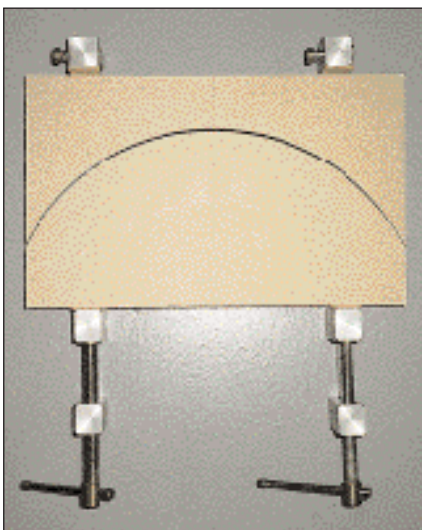
It is often necessary to cut a groove or housing in a situation where it is not



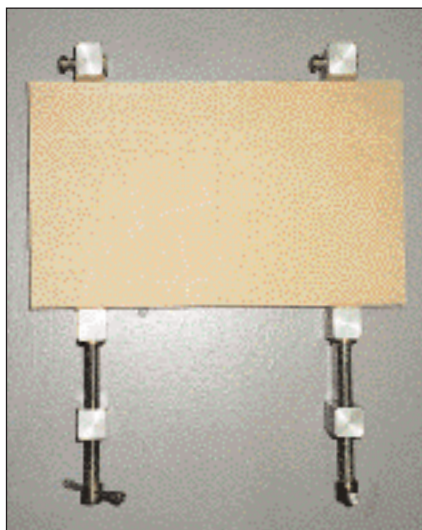
**Cutting the inner radius with the Circle Jig**

possible to use the router with a fence due to the distance of the cut from the edge of the component. The simple answer is to clamp a strip of wood down and use the edge in relation to the baseplate of the router or to use a guidebush against the edge. The biggest problem is that of holding the strip in place and making sure it is parallel to the previous cut. I had this challenge when fitting the horizontal frames to a tall chest of drawers.

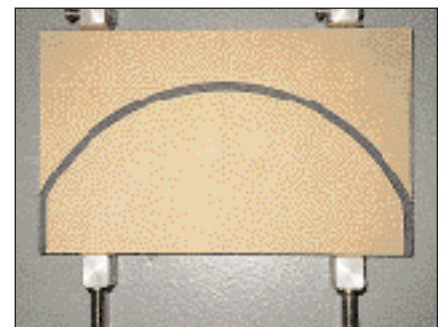
The housings for the frames that were positioned near the top and bottom of the carcass could be cut using a fence referenced from the top and bottom edges. Those housings that were beyond the reach of the fence-connecting rods had to be cut with a slotted jig and guidebush. I managed to do the job but it would have been so much simpler and far more accurate with the Micro Fence parallel cutting insertion fence that screws to the underside of the Circle Jig. It is simplicity personified and yet another example of the ingenuity of the inventor and the reliable control of the precise adjustment of the Micro Fence system.



**Inner and outer radius curves before applying pressure**



**Pressure applied – you cannot see the joint line**



**Coloured edge on inner radius curve to distinguish between the two components**

## ELLIPSE JIG

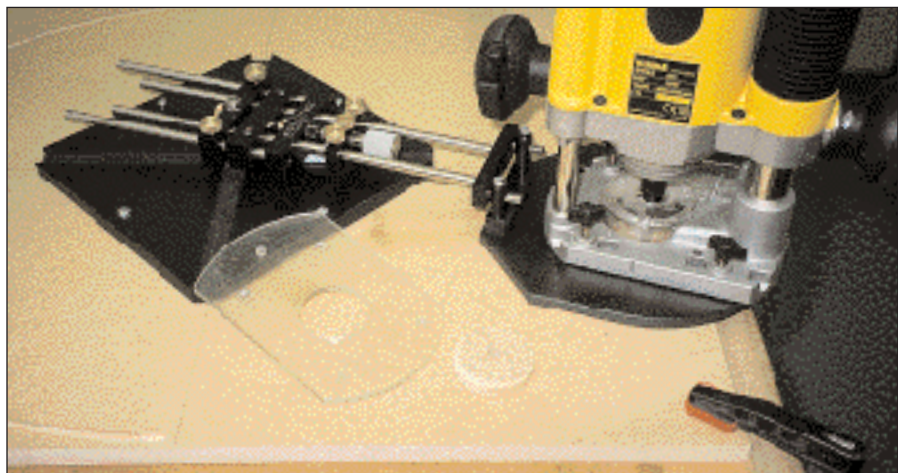
As a designer, I have never come to terms with the ellipse in the form of its aesthetic application to my work but deep in my design subconscious is a lack of understanding of the geometric principles and the problems in cutting this complex shape effectively. Having said that I feel as though I have come away from the psychologists couch with a load off my mind. I think this is all about to change now I have used the Micro Fence Ellipse Jig.

Not only is it a piece of brilliant engineering, it is presented in such a way as to dispel any misunderstanding of the geometric principles involved. This is essentially true of all the functions of the Micro Fence system. Rich Wedler sets out to explain as simply and as clearly as possible the problems that his jigs address and through the explanation how the tool works.

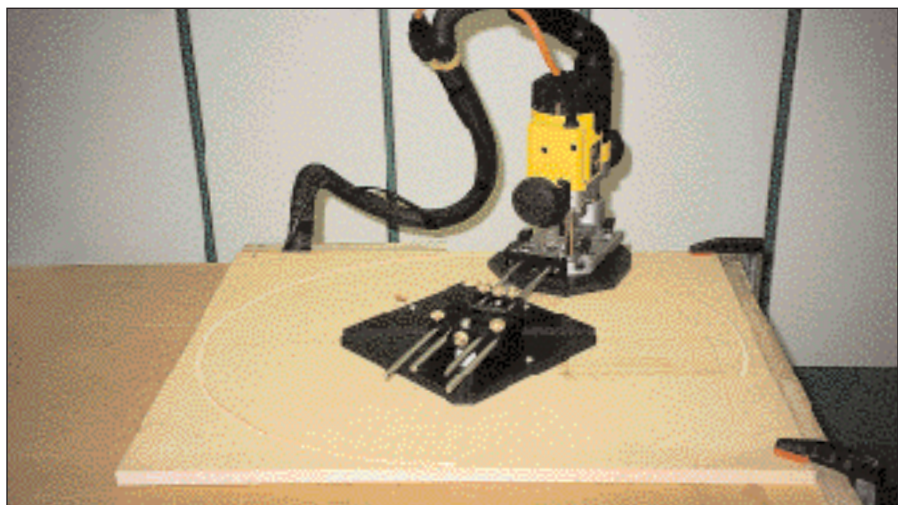
I assembled the components that comprise the jig with confidence and enjoyed the action of the movement as the router moved smoothly around the suggested shape. The central element is the Ellipse Axis Plate of which two sizes are available. For very large ellipses such as those big enough for a dining table, Dovetail Axis Tracks can be purchased which are screwed to a baseboard although the principle is the same. Dovetail profile tracks are machined across the diagonals of the plate into which sliding blocks run to provide the changing lengths between the major and minor axes. The standard circle jig is secured to the sliding blocks by a screw and a pin and the whole assembly is secured to the router with a Universal Router Base Plate from Trend.

As its name implies, the baseplate can be fitted to any router by transferring the hole positions of the baseplate screws supplied with your router to the one supplied with the Ellipse Jig. Care is required to centre the new baseplate onto the router. I fitted the plate to my DeWalt router for which I had already made a replacement – the hole in the supplied plate was too large for many of the processes I carried out. My replacement had a smaller centre hole and was made from thicker plastic. However the screw fixing holes, being drilled through thicker plastic made it easier to transfer their positions to the Ellipse Jig Universal Plate with the addition of a centring disc that I turned on my engineering lathe.

My approach might be seen to be rather over the top but I know that the baseplate and the router are perfectly aligned which gives me a great deal of satisfaction. If the screw fixing holes drift off centre and do not align with the corresponding holes in



**My method of installing the universal baseplate for the Ellipse Jig. My own clear perspex baseplate for my router**



**The Micro Fence Ellipse Jig in use**

the router base you could find yourself with a lot of fiddling to achieve a good fit!

The axis plate has to be fixed securely to the centre of the board from which the ellipse will be cut. It is necessary to mark two lines that represent the major and minor axes and then use the small reference indentations at the corners of the plate to centre it on the lines. The plate can then be held down securely with the screws supplied. I resisted the temptation to use double-sided tape to provide the hold down facility but this could be a possible alternative for small ellipses. The instruction booklet sensibly recommends fixing the baseplate on the underside of the component so that there is no problem with the screw holes damaging the show surface.

With everything in place and a final check on the tightness of all the locking screws, I switched on the router, plunged in the cutter and moved it in the direction of the oval perimeter of the ellipse. Smoothness personified – the action was a joy to experience. This jig is undoubtedly the most competent way of cutting ellipses and ovals with the certainty and control that it gives you.

ROUTER

## CONTACT DETAILS

For more information on the Micro Fence system, contact BriMarc Associates, 8 Ladbrooke Park, Millers Road, Warwick CV34 5AE  
Tel: 0845 330 9100  
Fax: 01926 491357  
Email: sales@brimarc.com

Example prices (ARP)  
Micro Fence.....£155 (inc VAT)  
Circle Jig.....£125 (inc VAT)  
Ellipse Jig.....£195 (inc VAT)

**NB:** The Micro Fence system consists of many components, some of which we have already tested. In order to gain a full and comprehensive understanding of the system, full details should be obtained from BriMarc prior to purchasing.

