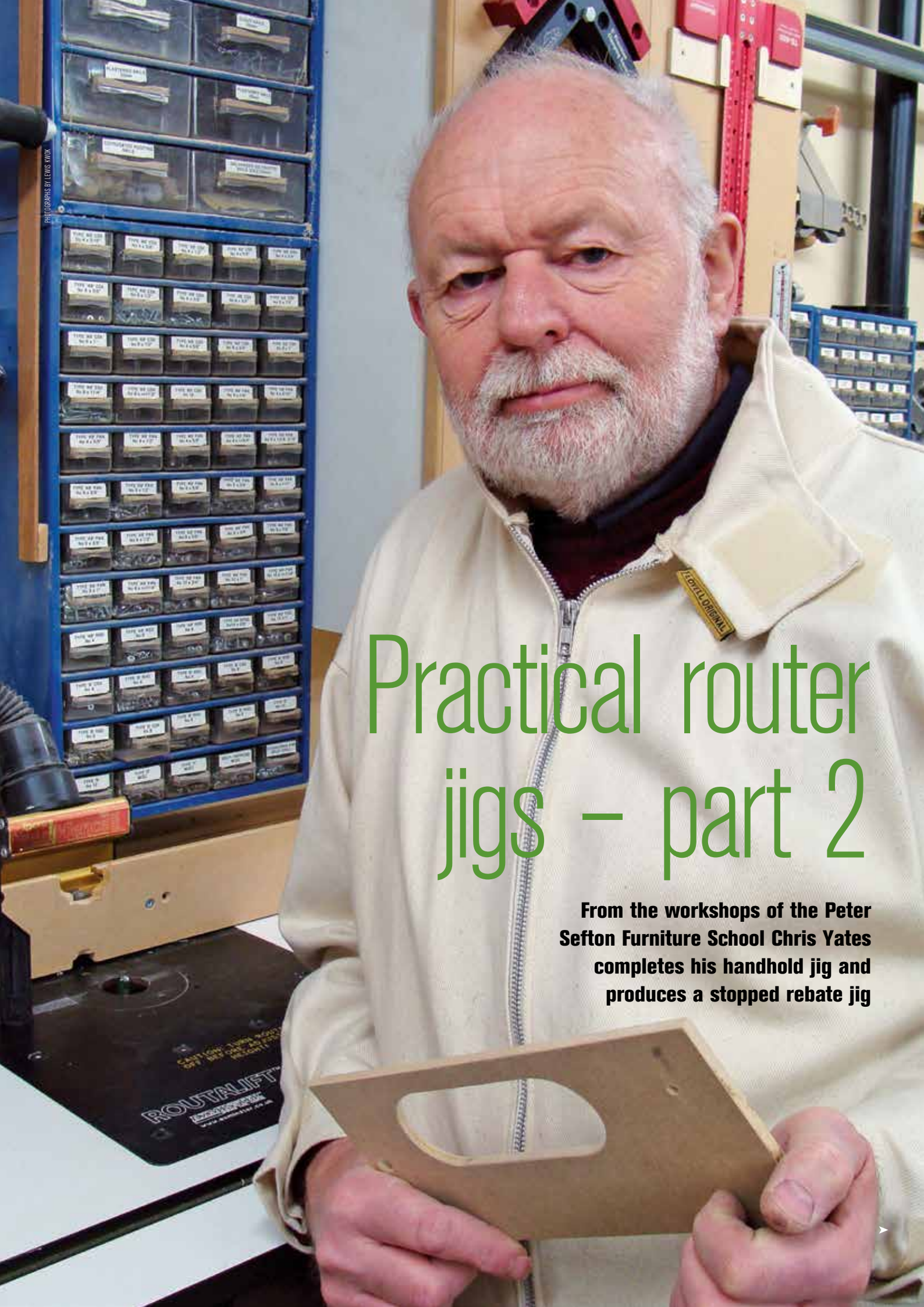


Practical router jigs – part 2

From the workshops of the Peter Sefton Furniture School Chris Yates completes his handhold jig and produces a stopped rebate jig



Production stage for the handhold jig

Once you have cut an acceptable working handhold jig, fit any guide battens to it and you are ready to go into production, following the same process previously described for cutting the working jig. The last step is to add information about guidebush and cutter sizes, etc. to the jig and mark on it the direction of rotation – clockwise for an internal cut with the router above the workpiece. You now have a useful jig that you can adjust to suit different projects, which will enable you to make professional-looking handhold cut-outs quickly and repeatably.

Before moving on to the second jig, let's recap some of the less obvious things to bear in mind when designing a jig. The temptation is always to start making the jig for the job immediately in hand. However, a little forethought about other applications of the jig might save a great deal of time and effort at a later date. This may not be so important when using the master jig approach as it should be relatively quick to make additional production jigs using the master, so that they can be tailored to particular projects. In other cases, however, think about the probable largest sizes of workpieces to be accommodated and any particular workpiece fixing requirements. If these can be accommodated in a single jig that is still fine to use on the immediate project, then you may have saved yourself time and effort in the future.

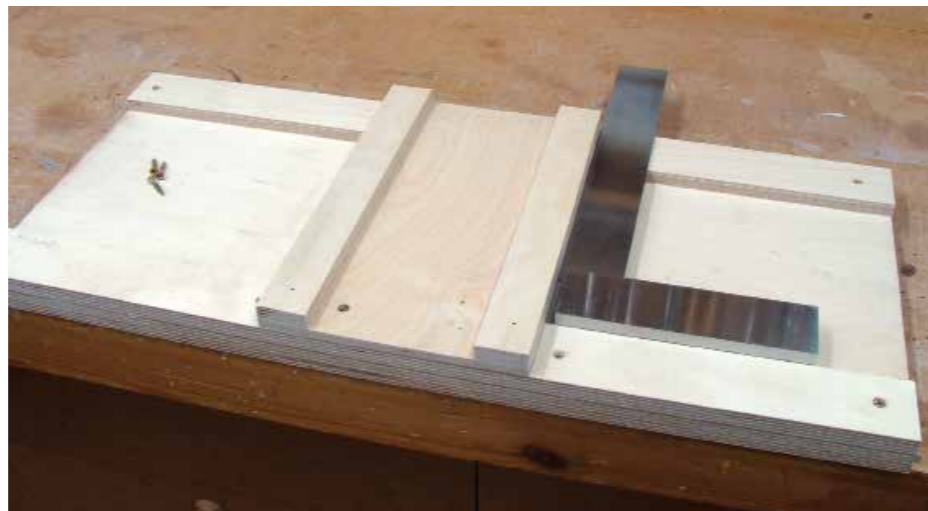
Lastly, where will you be using the jig? Will it always be used in your workshop where you have good facilities to mount it securely and to manage to navigate the router without it overbalancing? If not, think about how to address these additional challenges, perhaps by fixing additional supports to the jig base.

Stopped rebate jig

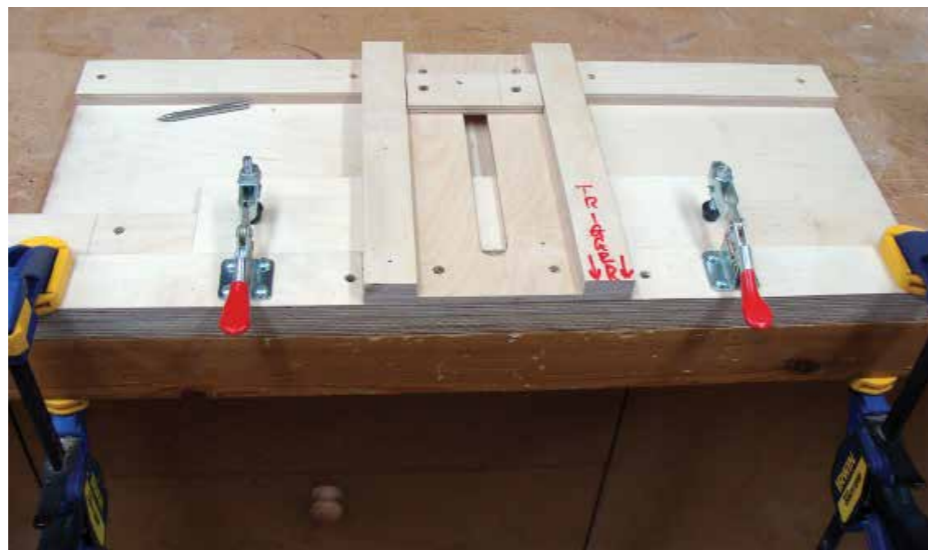
Our second example is one we use to cut stopped rebates on the routing course at Peter Sefton's Furniture School. Basically, it holds a workpiece against an end stop to position it accurately and then guides a router across it. Plunge depth and transverse stops are easily set and adjusted and it facilitates a job that would be a little tricky to do repeatedly and consistently by other means. This jig has been used repeatedly by students on our beginners/intermediate course and produces consistent results.

The transverse guide needs to be made to fit a particular model of router, but it requires only simple woodworking skills to make. Any router with a base that has parallel sides can be used; if your router is a different shape, simply fit a false base with parallel sides to the underside of the router.

As before, a little thought before we start to assemble the jig may save heartache in the future, so some consideration of key dimensions of workpieces in advance will be worthwhile. Bear in mind that you can use a big jig to cut small workpieces, but not the reverse, so I tend to err on the side of larger rather than smaller.



The rebate jig is very simple to make and the only thing requiring particular attention is that the router guide must be mounted square to the longitudinal fences. The jig took less than half an hour to make from offcuts



This photo shows the jig about to be used for the first time, with a workpiece mounted against an end stop, clamped using my favourite toggle clamps and with a stop mounted on the transverse router guide to limit the length of the rebate



... and we are in business!

This is one I prepared earlier...

The photos of the jig I made for this article show clearly how it is constructed and it is simple to make. You need to take reasonable care that the router you plan to use with the jig is a sliding fit between the transverse guiderails, but it is important that the guiderails are at 90° to the long sides of the jig – take care when fixing the router guide to the base to ensure that they really are square to one another. The size of the slot in the router guide is just a matter of convenience to enable you to see the workpiece and to accurately locate the rebate on the router centreline. You can produce this slot as the first cut in the jig, before using it on your workpieces; it needs

to be at least as wide as the largest diameter cutter you expect to use, although if things change, you can always enlarge it later. Note that the slot performs no guidance role, so you do not need to use bearing-guided cutters or guidebushes. You could use the slot with a guidebush, rather than the transverse router guide does not deflect downwards when cutting, as this will affect the depth of cut. Therefore I make a virtue of necessity and fit the guiderails, which also stiffen the transverse guide. However, it is your choice....

If you are using a new router, it may be

necessary to clean up the sides of the router base using a suitable abrasive paper wrapped around a wood block – this will remove any flash from the manufacturing casting process. If you find that there is any tendency for the router to stick rather than slide smoothly, make sure that the guiderails are straight and accurately located a constant distance apart. Gentle lubrication with a candle on the sides of the router base can help. After rubbing a candle along them, rub the surfaces with stiff backing paper, such as the reverse of abrasive paper; this will spread the candle wax thinly over the rubbing surfaces.

Positioning and clamping the workpiece

A useful aid for lots of routing setups is a pointed pin of the same diameter as the collet; this makes finding the centre of the cutter very simple and accurate and you can use it to mark the long faces on the jig to aid positioning of workpieces, as well as setting-up the end stop for the first workpiece. A friend turned mine for me and I have pointers in 1/4in, 8mm and 1/2in and I use

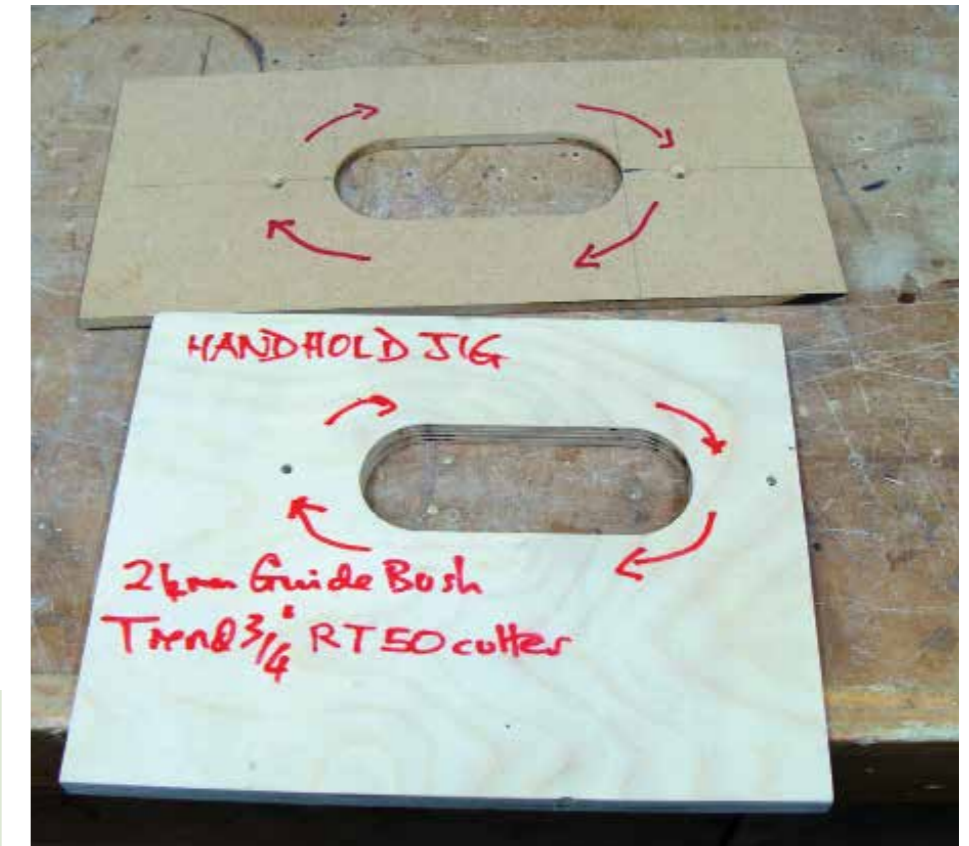
them all the time. Mark the centreline of the first rebate on the first workpiece and use the setup pin to accurately locate the workpiece under the router. Then decide how you are going to clamp the workpieces – they need to be fixed both longitudinally and transversely and either proprietary clamps or purpose-cut blocks and wedges or shop-made cam clamps can be used.

If you are cutting through rebates, off you go. However, if you want a stopped rebate, when everything else seems to be as it should be, use a wood block(s) screwed to the router guide to limit the transverse movement of the router; this enables either single or double stopped rebates to be made repeatedly and they can be repositioned at will.

Label the jigs

Once you are ready to use the jig, don't forget to mark on it which way round the router is intended to be used, as router bases are not often centred precisely on the collet centreline.

As always, be prepared to try the jig on some offcuts first, as this will help you to select the router cutter that gives you the best fit, as well as enabling you to adjust the depth of cut. Bear in mind that as one side of the cut will be made with the router cutter in the 'wrong' direction, you are likely to cut the rebate a tiny whisker wider than the cutter diameter. However, if you take gentle cuts and move the router steadily back and forth, this will limit the oversize cut. More on how to deal with this aspect in a future article....



Master and production jigs cut and labelled

Calculation of offsets using guidebushes

The offset of the cut edge from a guide edge is given by: $offset = \frac{1}{2}(G-D)$, where G = guidebush outer diameter; D = router cutter diameter.

For example, if you use a 24mm diameter guidebush and a 16mm diameter straight router cutter, the combination will produce a cut that is 4mm from the guide edge.

See various websites for online calculators; search for 'guidebush offset and formula'

Conclusion

The jigs described are both straightforward to aid relatively simple operations, which would nevertheless be more challenging and time consuming without the use of jigs. However, both jigs can be developed for more sophisticated tasks – for example, by changing the shapes or angles of the cuts.

You are limited only by your own imagination!

I hope that you feel able to design and make your own jigs for all manner of routing and other tasks. Jig making can be interesting in its own right. Indeed, one of my sons has said that he thinks I don't enjoy woodworking so much as working out how to do it! *F&C*