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the

# Router

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Tapestry frame

### TECHNICAL

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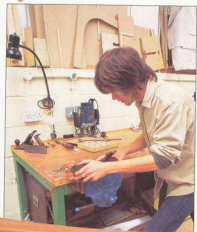


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Another helping of bits and pieces that might help you

## COOL LAVA

Flaming Hell! Those slippery customers at the WD40 'works' have come up with the latest red hot solution to mucky hands – a neat resealable sachet containing ten ready-to-use hand towels. Enriched with powerful cleansing agents and gentle on the skin, these so-called Lava towels are capable of removing oil, grease, paint and ground-in dirt. They can also be used to clean tools and equipment.

No water is required and they even leave a rather pleasant smell. If you think it sounds too good to be true, why not see for yourself and give them a try? They are bound to wipe the floor with the opposition!

The Lava heavy-duty hand cleaner towels can be found for around £2.50 for a pack of 10, and are available from all good DIY stores.



## THERE'S THE RUB

The McGill Abrasive Restorer is the latest offering from those nice people at Adkwik Industrial Supplies. In a nutshell, it cleans up clogged tired machine abrasives such as sanding belts and discs. Manufactured by Ken Tek Ltd of New South Wales, Australia, it claims to be recommended by the world's leading abrasive manufacturers.

The thin rubberised material is bonded in many layers to create the finished item. In use it is held firmly against the abrasive, preferably over a convex area, where it travels around a pulley. Kem Tek recommend it should be used before resins, glues, fillers and grinding dust are burnt onto the abrasive. To use their words "consistent and judicious use of the abrasive restorer will prolong the life of belts and discs".

The McGill Abrasive Restorer costs £14.00. For more information, contact Adkwik on 01223 412373.

## STUCK UP

Use your faithful Glue Boy and you need never get gummed up or dried glue pots and brushes again. The container is tilted on its back to easily fill up with glue and rest it down on its base, ready for use. The lid covers the brush as it rests in the lower section. The circular rim on the upper section is for stowing the lid when the Glue Boy is in use. Putting it on its base creates a vacuum inside so it can be filled higher than the brush section. A ring on the lower opening allows the brush (supplied) to stand upright in the correct depth of glue. Once the job is done, replace the lid over the brush. No drying out of either the glue nor brush is required!

The Glue Boy come in three sizes – 0.45l rrp £11, 0.9l rrp £17.55 and 1.5l rrp £19.70. These prices are inclusive of VAT.

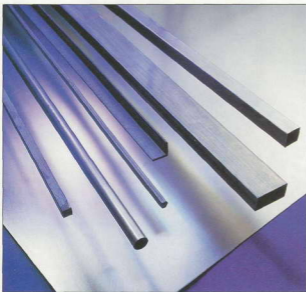
For more information contact Adkwik on 01223 412373.



● Contact Tim Jones with news and product information.

Items should be sent to Anthony c/o The Router, GMC Publications Ltd, 86 High Street, Lewes, East Sussex BN7 1XN or e-mail [timj@thegmcgroup.com](mailto:timj@thegmcgroup.com). Items should be sent at least 10 weeks prior to publication

## out in the workshop



## STEEL YOURSELF

Trying to choose just a few products from Hindley's colossal catalogue really tested my iron resolve! I got there in the end though and decided to go for a motley selection of steel tubes. These included mild steel flats, rounds, squares, free cutting hexagons, sheets and rectangles. They are mostly supplied in 5ft or 2m lengths, except the sheet round which is 1250 x 833mm.

The sizes and prices are too numerous to mention but two examples would be the brightly coloured 25 x 3mm flat tube, which is 5ft in length and costs £3.16 (inc VAT). Another, the black steel 10mm diameter round tube, is 2m long and costs £1.40 (inc VAT). Large sections obviously cost a lot more. One of the best bargains is a mixed 10kg of assorted flats and rounds for £10. These prices do not include carriage.

For more information or a catalogue, contact Hindley's on 0114 278 7828 or visit their website at: [www.hindleys.com](http://www.hindleys.com)

## PLASTIC FANTASTIC

There's more from Hindley's super selection. This time it's a small part of their extensive range of acrylics, supplied as clear round, sheet and fluorescent, which includes a mixed 'light gathering pack' and decorative rod in corrugated, hexagon, spiral, half round, bubble and triangular profiles. Then there is clear and opaque tube, fluorescent tube, acrylic block, piano hinge and handle profiles, not to mention solvents, cleaner and polish.

The prices vary depending on the stock chosen, but a 500mm length of 10mm dia. bubble rod costs £4.20 (inc VAT), while the acrylic piano hinge is £2.87 (inc VAT) for a 300mm length. There are a wide variety of other sizes and types. I think that's all perfectly clear! These prices do not include carriage.

For more information or a catalogue, contact Hindley's on 0114 278 7828 or visit their website at: [www.hindleys.com](http://www.hindleys.com)



We would like to hear from any readers who have found useful products that wouldn't normally get a mention, but are handy around the workshop.



# RUNNING REBATES

In the third article of his series on dovetails, Ron Fox focuses on setting up and cutting rebated drawers

Photos: GMC

In the two previous articles we have seen that although the basic dovetail jigs are limited in their capabilities, they perform these functions very well. One of the things they can do is cut rebated drawer fronts, where the front of the drawer overlaps the carcass at each side or possibly on all four edges. Not all owners' manuals, however, mention this.

There are two main types of rebated drawer - the flush offset and the full rebate. With the flush offset only the ends of the front are rebated; with the full

rebate all four sides are rebated. A variation on the full rebate is to omit the rebate on the bottom edge of the front.

**Photo 2** shows examples of a flush offset and a full rebate drawer.

With rebated dovetails even more than with flush dovetails, setting-up is all important and this article concentrates on this. Before embarking on a rebated drawer, you should be thoroughly at home with ordinary flush front dovetails. We will recap on the basics:

- The two boards are cut together,

with the drawer front in the horizontal position and the drawer side in the vertical position.

- The width of the boards should be chosen so that, as far as possible, the outer pin sockets are symmetrical and of an acceptable width.

- The depth of cut is crucial to the fit of the joint. You cannot adjust it to suit boards of different thickness.

The construction of a rebated drawer differs in several particulars from the flush dovetail and if you have not got an



Photo 2 Flush offset and full rebate drawer fronts. The full rebated front is not quite symmetrical



Photo 3 Useful work aids - two board-width pieces, a rebate board, rebated edge-guide gauge and a 24mm offset setting piece

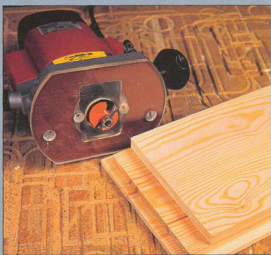


Photo 4 A rebated drawer front and the drawer side with width equal to the raised portion of the front, together with the router fitted with a bearing-guided rebate cutter

accurate depth gauge set to the required depth of cut, it pays off to cut a flush dovetail in order to establish the exact depth of cut before beginning your rebated drawer. While you are at it you can put fairly wide boards in the clamps – perhaps the full 300mm – and, once you have got the exact depth of cut, saw off the end of the tail board and keep it as a useful width and depth setting piece. Photo 3 shows such pieces made for the DeWalt and Trend jigs, along with several other useful work aids.

The main features of the rebated drawer front are as follows:

- The front and the sides are cut separately.
- The drawer front should be prepared with the appropriate width of rebate added to the original dimensions.
- With most jigs, the drawer front must overhang the front, when the pin sockets are being cut, by the width of the rebate. The exception is the Titan jig and its derivatives.

In the case of flush offset drawers, the

boards are cut separately but the only other requirement is that the drawer front must overhang the front of the jig. No repositioning of the stops is necessary.

There is no particular requirement for the width of the rebate, but two of the three jigs we shall be using (the DeWalt and the Trend) make provision for rebates of fixed size, both of which happen to be  $\frac{3}{16}$ in. There are two things to be aware of.

- Both the above jigs and the CMT rebate cutter I used are manufactured to Imperial dimensions. They are not 9.5mm or any other metric approximation.
- In this article I am concentrating on getting the dovetails right. If you wish to put a moulded edge on the front of your drawer, a small ovolo for example, you

will have to make your drawer front thick enough to cater for the rebate and the moulding.

We will begin with the DeWalt DE 6251 jig.

### DEWALT DE 6251

Begin by taking the dimensions of the aperture in the carcass that the drawer has to fit, and add the width of the rebate to all the sides that you intend to rebate. We will make a full rebate front. The jig provides for a  $\frac{3}{16}$ in rebate so we begin by

cutting this. There are many ways of cutting rebates. I used a bearing-guided rebate cutter, with a suitable diameter bearing, in a hand-held router. Care is necessary to avoid running round the corners if you are making a flush offset drawer.

This is less important with a full rebate front, as all four sides are rebated. The depth of the rebate is important. It must be just deep enough for the raised portion of the front to take the tails of the drawer sides. That is why we made the setting pieces shown in **photo 3**. For the DeWalt jig the required depth is 10-11mm ( $\frac{3}{8}$ - $\frac{1}{2}$ in). A millimetre too deep is not vital but a millimetre too shallow would allow the dovetail cutter to cut into the lip.

Having rebated the drawer front we prepare the drawer side to a width exactly equal to the width of the raised part of the drawer front.



**Photo 7** The Trend jig with edge guide No. 2 at left-hand end and normal No. 1 at right-hand end. The left-hand No. 1 is placed on the jig to show the difference in offsets between the two



**Photo 5** A rebated drawer front set horizontally in the DeWalt jig, with the rebate board clamped vertically to bring the raised portion of the front flush with the front of the jig, and the spacer washer mounted on the stop pin to offset the front



**Photo 6** A drawer side clamped vertically against the stop pin. A backing board horizontally behind it prevents breakout

**Photo 4** shows a rebated drawer front and drawer side, together with the router fitted with the rebate cutter. Note the false Perspex base on the router. This is one of many simple work aids that I use to improve my routing. The purpose of this one is to close down the aperture in the router base and overcome the tendency to tilt as the edges of the drawer front are rebated.

We have already noted that the drawer front and sides are cut separately. Taking

**“A millimetre too deep is not vital but a millimetre too shallow would allow the dovetail cutter to cut into the lip”**



the front first, we have to allow for the rebates all round it. This is done by off-setting the board towards the centre of the jig and bringing it forward so that the edge of the raised portion is lined up exactly with the front of the jig. The first offset is achieved by means of the spacer washer, a standard part of the DeWalt kit. This is placed on one of the locating pins on top of the jig – the left one if we are cutting the right-hand side of the drawer, and vice versa.

The forward displacement of  $\frac{1}{8}$ in (the width of the rebate) is easily achieved if we take a piece of board and cut a rebate  $\frac{1}{8}$ in deep in it. An example of such a board is shown in **photo 3**. It is clamped in the vertical position with the rebate against the front of the jig, and the drawer front brought forward against it. **Photo 5** shows the set-up.

With the drawer front clamped in the

jig in this 'double offset' position, the pin sockets are cut in the usual way, working from left to right. **Photo 5** shows the position for the right hand end of the drawer front - the left hand end would normally be cut at the right-hand end of the jig with the spacer washer placed over the right-hand stop pin.

The tails are cut in the usual way with the drawer side clamped vertically in the jig. A backing board is clamped in the horizontal position to prevent breakout. **Photo 6** shows the drawer side ready for cutting.

That basically is all there is to it. The additional requirements compared with the ordinary flush dovetail are the spacing washer to offset the rebated drawer front under the comb (if we are making a full rebate drawer), and the rebated board to enable the drawer front to be brought forward under the clamp until

the raised portion is exactly flush with the front of the jig.

### THE TREND DJ 300

The Trend jig needs a little more setting up. A separate set of edge guides, marked No. 2, is supplied for rebated drawer fronts and these have to be fitted in place of the standard No. 1 guides. **Photo 7** shows the jig with the left-hand No. 2 guide fitted. Shown next to it is the No. 1 guide. The difference in offsets is clearly seen.

The drawer front is prepared and a  $\frac{1}{8}$ in wide rebate cut round it. The rebate should be 11-12mm ( $\frac{1}{2}$ - $\frac{1}{4}$ in) deep, but it is essential to make a test cut to make sure that it is deep enough.

Two setting-up lines are drawn on the drawer front, each 3mm ( $\frac{1}{8}$ in) in from the edge of the raised portion of the long sides. One of these pieces is shown in

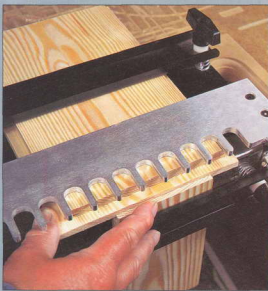


Photo 8 Setting edge guide No. 2 on the Trend jig



Photo 9 Left-hand edge guide being tightened against the edge of the drawer front

**"Care is necessary to avoid running round the corners if you are making a flush offset drawer"**

**photo 3.** The setting lines are used to position the edge guides. The edge guide is positioned loosely and slid to the left (for the left-hand end of the jig). The template is placed on the jig and the rebate board clamped in the vertical position. The drawer front is pushed forward until it butts against the rebate board and then slid sideways under the template until the setting line is aligned with the left edge of the second slot. It is then clamped. **Photo 8** shows this operation.

With the drawer front clamped, the template is removed and the edge guide slid up tight against the edge of the drawer front and tightened. **Photo 9** shows this.

The jig is now ready for cutting, but if your boards are not of optimum width it will be necessary to repeat the operation at the right hand end of the jig and cut the drawer front with the right-hand end at the left-hand end of the jig and vice versa.

You should not have to worry about the fore-and-after setting of the template. This is unchanged from the ordinary flush dovetail setting.

### THE TITAN

The following procedure applies to the Titan jig and its various versions, including the Axminster, Nu-Tool, etc. Because this jig has fully adjustable stops it is more versatile with regard to the width of the rebate and the size of the two end half-pins, but setting up takes a little more trouble.

such as the Ryobi RE 601 or Hitachi M 12V. In this case you would have to cut or grind back the top of the vertical stops until they came below the front of the jig and use the rebate board.

The prepared drawer front is placed under the template with another piece of board clamped vertically to bring it flush with the front of the jig. The drawer front is now slid left or right until the raised centre is symmetrical under the template. It is then clamped and the adjustable stop pushed up against it and tightened. **Photo 10** shows this operation.

Note that if centring the drawer front results in end pins that are too wide or too narrow, the setting up piece used with the Trend jig can be used. The setting line is aligned with the left edge of the third slot in the template. This will result in uneven end pins so the other end of the drawer front will have to be cut at the right hand end of the jig, after the appropriate setting up.

### THE SIDES

After setting the horizontal stop for the drawer front, the vertical stop (at the left hand end of the jig in our example) has to be offset to the right by an amount equal to the width of the rebate plus 12mm ( $\frac{1}{2}$ in). (The 12mm is the normal offset for this jig). Thus if we cut a 12mm ( $\frac{1}{2}$ in) rebate in the drawer front the vertical stop has to be set 24mm ( $1\frac{1}{2}$ in) to the right of the horizontal stop. A simple setting piece can be made. This is shown in **photo 3** and also in **photo 11** where the vertical stop bar is being set.

With this type of jig more than with the others, it pays to play around with different rebates and different stop settings until you thoroughly master the principles, after which it becomes easy.

**Ron Fox concludes his series on dovetails in The Router 42.**



**Photo 10** Setting up the Titan jig for the drawer front. The rebated front is flush with front of jig and centred under the template



**Photo 11** The vertical stop being set to an offset, equal to the width of the rebate plus 12mm. This example results in an offset of 24mm

### THE FRONT

The rebate can be of any width you choose. You then have a choice of how to control the depth of the pin sockets. You can make a rebate board to match the rebates in your drawer front and use it as with the other two jigs, or you can simply set the stop bar back by the width of the rebate. The latter is easier since the vertical stops are proud of the front of the jig. You might, however, have a problem with some of the routers with a very large base

**“...play around with different rebates and different stop settings until you thoroughly master the principles...”**

# THROUGH THE EYE OF A NEEDLE

Jack Chapman gives details of how to  
construct an ideal tapestry frame

Photos: GMC

This project is made for those of you with partners who are keen on needlework, more specifically cross-stitching, and it will give you the opportunity to earn 'Brownie Points' with little cost nor effort. Now what could be better than that?

More importantly, it is also an ideal project for someone just beginning to use the router and wanting to explore its possibilities. The mortice and tenon joint is used in the design. Those of you who have not cut mortice and tenons using a router will find details for the construction of a tenoning jig in *The Router* 39.

This project is not a work of art. Nor is it something that will show off your woodworking skills. It is intended to provide something that is functional and is subsequently well suited to its purpose – holding the tapestry which will become a work of art!

## THE PROBLEM

My wife enjoys making cross-stitch tapestries and, having watched her struggling to set up the frame she was using to hold the canvas, I knew there must be a better solution than the standard frame obtainable from the average craft shop. The requirement is quite simple – you need to be able to mount the canvas squarely, tension it evenly so that it is taut, and roll it both backwards and for-



wards so that you just expose the bit you are working on.

The standard frame uses a pair of dowel rods that are held in place in two end pieces by pinch screws and wing nuts.

A piece of linen is tacked along the length of the dowel which the canvas should be stitched to. This system is crude and adequate for small tapestries, but even so, it is difficult to maintain the correct tension. If the correct tension is not maintained, the finished tapestry is out of square and has to be corrected by wetting and gradually pulling back to square – a process best avoided.

Larger tapestries suffer most and need something better and this is what the design sets out to do.

## THE DESIGN

The design comprises a frame that is constructed using mortice and tenon joints at each corner. The two crosspieces, to which the canvas is attached, are carried in slots in the side members of the frame.

The upper crosspiece fits into a retaining slot while the slot for the lower one allows it to move up or down. This is located relative to the top crosspiece by two threaded rods which provide the tensioning mechanism. The canvas is held on the crosspieces by a thin slat, which is screwed on.

In operation the canvas is fixed to the crosspieces and wound onto them so that the working area is showing. The top crosspiece is put in place followed by the bottom one that is then positioned by the two threaded rods to tension the canvas.

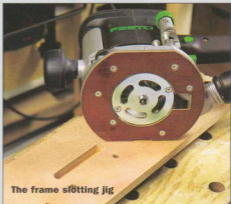
The dimensions shown in the drawing are not critical but if you change them, there are several things you have to bear in mind.

These are:

- The width of canvas that is likely to be used. Anything larger than the dimensions shown would need to be mounted on a stand as the frame would become unwieldy to handle.
- The length of tapestry that will be taken up by a quarter turn of the crosspiece relative to the distance between the two crosspieces and the length of adjustment on the two rods. This length varies with the amount of tapestry wound onto the crosspiece.
- The clearance between the frame and the crosspiece to allow the completed tapestry to be wound on.

Likewise the choice of wood is not critical other than it should be hardwood and the lighter in weight the better. I used oak, which was a little heavy, but I had odd lengths left over from another project and this was an ideal way to use them up.

**“More importantly, it is also an ideal project for someone just beginning to use the router and wanting to explore its possibilities.”**



## CUTTING THE TIMBER

First, machine the timber to size, 30mm (1 1/8in) x 20mm (3/4in) making sure it is square all round. Then cut the two side pieces (commonly referred to as the stiles) of the frame to length. It is important that this is done accurately since any inaccuracies will show in both the joints and the squareness of the frame. Care at this stage will be rewarded in the finished appearance.

## MAKING THE MORTICE

Next, mark out and cut the four mortices. There are many ways of cutting a mortice and the final choice will depend on the equipment you have available. Without doubt the easiest and best way is to use a dedicated chisel morticing machine but for those of you who do not make a living out of woodworking the cost has been prohibitive. Now prices are tumbling and Axminster have a morticer in their Perform range for under £100.

But there is no reason why you should not use your router for this task. It is not the easiest of operations and you need a jig to help you hold the router in the right position. There will be an article in an upcoming issue setting out the factors to consider when designing a jig together

with a suggested design for a mortice jig.

Not very long ago you would have cut the mortice by hand using a mortice chisel. Now you can use a pillar or power drill to partially make the mortice and then finish by hand with a chisel.

Drill a series of holes, using a bit the same diameter as the width of the mortice, in order to remove most of the waste. You must make sure that the holes are in line since they will guide the chisel that you use to square up the mortice. Using a wide chisel on the sides will help to keep the mortice neat – although nobody but yourself will see it.

But whatever method you use to cut the mortice the essential point is to make sure it is in the centre of the face of the stock and perpendicular to it. The width of the mortice is not so important – you will cut the tenon to fit.

There are now four more slots (or you could call them mortices) to be cut. The top pair is for the fixed crosspiece and the bottom pair allows the lower crosspiece to slide up and down. In the joint the mortice will not be seen but in this case it is exposed so the finish is more important and using the router is a top option. It will produce a clean finish on the bottom of the slot which is more than

can be said of the chisel morticer.

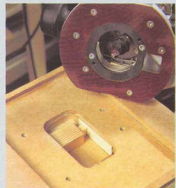
## MAKING A TEMPLATE

Now for the openings which provide entry for the tenons on the crosspieces into their corresponding slots. There are four to cut so it is worth making a simple template jig and using a guide bush on the router. You will find applications for this type of jig time and time again. All you need is a piece of timber 20mm (3/4in) x 40mm (1 1/2in) and 200mm (8in) long that is square all round, and a piece of 6mm MDF about 200mm (8in) x 150mm (6in). In the middle of one edge of the MDF cut a rectangle whose width is the thickness of the piece of timber (20mm) plus the width of the cut you require plus the distance between the outside of the cutter and the outside of the guide bush. The length of the rectangle is the length you want plus twice the distance between the outside of the cutter and the outside of the guide bush.

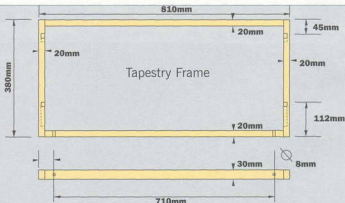
Now screw and glue the two pieces together making sure that the screws are well countersunk. Fit the bush and cutter to the router and rout out an opening in the timber using the cut rectangle as a guide. You now have markers for the start



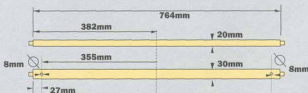
Making the template for frame slotting



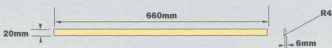
Using the tenon jig



Cross Piece x 2



Slats to hold tapestry x 2



and end of the cut you will make with the template. Position and clamp on the workpiece, then make the slot. A small guide bush works best and don't be too greedy with the depth of cut you make.

## CUTTING TENONS

There are four tenons to be cut for the frame and each crosspiece requires what is in effect a tenon at either end. You could cut the tenons using a saw but unless you are an expert you will make a better job using the router. A router mounted in a table makes it an easy job but it is equally as easy and effective with the router hand held in conjunction with a jig. A suitable jig was described in *The Router 39* and this is the method I used.

The critical dimension on the rails is the distance between the shoulders of the tenons. In the design this is 770mm (30in). The procedure for using the jig is as follows.

1. Take the dimension you require between the shoulders - 770mm (30in).
2. Add to it twice the measurement between the shoulder and the end of the tenon as cut in the jig. With my jig this is - 770mm + 100mm (2 x 50mm) = 870mm
3. Prepare the rails to this length.

4. Cut the tenons using light cuts as you approach a fit. Check the fit after each cut. The tenon should be snug but not over tight, leaving a small space for glue.
5. Adjust the length of the tenon to the depth required by the mortise. 14mm leaving 1mm for glue space.
6. Mark the tenon and the mortise. The fit that you have established is for this pair and might not be exactly the same for another pair.

If you cut the mortise using the router you will need to round over the edges of the tenon to obtain the fit – or you could square the end of the mortise.

While you have the jig out and the router set up, cut the tenons on the end of the crosspieces. These need to finish as a sliding fit in their respective slots.

## THE TENSIONING MECHANISM

The final task before gluing the frame together is to drill the holes for the threaded rod that serves as the tensioning mechanism. I used M8, which requires an 8mm ( $\frac{5}{16}$ in) hole to provide sufficient clearance. Mark out the position of the holes on the bottom frame rail and drill a pilot, say 2mm ( $\frac{1}{8}$ in). Clamp the bottom crosspiece centrally on the rail and, using the pilot holes, drill

pilots in the crosspiece.

The hole in the bottom rail is counter-bored on either side to accept washers that will spread the load of the two clamping nuts. I would have liked to recess both the nut and the washer on the outer side of the frame but the thickness of the rail prevented me from doing so. The counter-bore is best done with a Forstner type bit that gives a clean bottom to the cut.

Finally, drill the holes through with the 8mm ( $\frac{5}{16}$ in) bit being careful to avoid breakout.

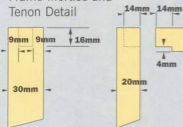
## FINAL STEPS

Now after a trial assembly and making sure that the frame is square and the cross-pieces fit into their respective positions the frame can be glued together.

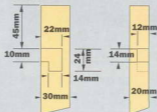
Machine to size – 660 x 20 x 4mm (26 x  $\frac{3}{8}$  x  $\frac{1}{4}$ in) – the two pieces that will be used to hold the tapestry in position and drill and counter-bore for the holding screws. You need about nine in each to enable the tapestry to be held evenly.

The frame is going to be handled so all the edges need to be rounded over to make it feel nice to the touch. You will be able to do most of this rounding over with a bearing guided round over cutter.

Frame Mortise and Tenon Detail



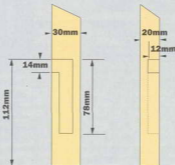
Upper Cross Piece Retainer Detail



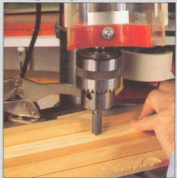
Frame Mortise and Tenon Detail



Lower Cross Piece Retainer Detail



Rounding the tenons with a Permagrit rasp



Both drillings and countersinks are done on the pillar drill

## USING THE FRAME

**“The proof in the pudding is that the tapestries have finished square and evenly tensioned — a very satisfactory outcome.”**

Before using the router give the frame a good clean up with abrasive paper. For a job like this I use a cutter with a 6mm (¼in) radius and a reduced depth of cut. It is not a bad idea to make a trial cut on a piece of scrap so that you can get the necessary adjustment of depth.

Remember to go anti-clockwise round the outside of the frame and clockwise inside the frame. When you are rounding over inside the frame you will have to be very careful in the region of the four slots since the bearing will not have a surface to work against. At this point it is best to stop and start again on the other side of the slot.

Don't forget that the two crosspieces will need to be rounded over as well.

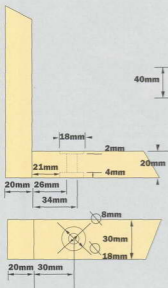
I fixed a nut on the bottom of each piece of threaded rod (cut to 95mm (4in)) using an epoxy adhesive. When the epoxy has set, assemble the two rods and the bottom crosspiece. You might need to ease the holes in the crosspiece to allow it to move freely on the rods. When you are satisfied that all is well a final clean-up with 120 and 240 grit paper followed by two coats of acrylic lacquer will provide a durable finish for the job.

Mount the tapestry on the two crosspieces behind the slats. I use 3 x 12mm screws through the tapestry. This has been done a number of times and the screws still bite. When they start to slip I will move to a 3 x 16mm screw and after that use the time-honoured practice of plugging the holes with the end of a matchstick and start over again.

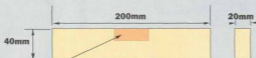
Wind the tapestry on the top crosspiece until the first row is in a position where you can work on it. Mount the crosspiece in its slots. Wind the remainder of the tapestry on the bottom crosspiece until the crosspiece can engage with its slots and slide back on the tensioning rods sufficiently enough to allow the knobs to engage with the thread. Screw down the knobs until the required level of tension is obtained. Turn the locking nuts up to the crosspiece and a final tightening of the two knobs will lock the position.

In print that all sounds complicated but in use it is very simple. The proof in the pudding is that the tapestries have finished square and evenly tensioned — a very satisfactory outcome.

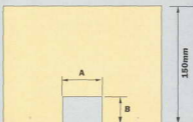
Drilling Detail for Tensioning Rod



Parts for Template



Slot cut after assembly will give start and finish marks when setting up the template to make a cut



Use 6mm MDF. The dimension 'A' is the length of cut you want plus twice the distance between the outside of the cutter and the outside of the guide bush. The dimension 'B' is the width of cut you want plus the distance between the outside of the cutter and the outside of the guide bush plus the thickness of the piece of timber which in this case is 20mm.



The frame tensioner



The second tapestry bar and slot

# THE WACKY



# WORLD OF WEALDEN

Anthony Bailey reviews a selection of cutters from  
the Wealden Tool Company

**T**he Wealden Tool Company is known for its quick reliable mail order service but above all, for manufacturing high quality cutters. The Wealden catalogue has quite a range of interesting and useful cutters, so here is a brief look at some of the more unusual of the current crop.

## TENON CUTTER

This is a non-bearing guided cutter best suited for tenoning work. It takes its design from the large blocks on tenoning machines. There are two forward inclined blades and two backwards inclined blades mounted in a solid turned steel body. Mass and multiple cutting action make this perfect for removing wood to shape both tenons and shoulders, using a mitre fence and backing piece (see **photo 1**).

## GROOVER

This is one of the larger groovers that Wealden manufacture. It mounts on a standard arbor which comes with four spacers of different width. The groover is of the three wing variety which gives balance and a decent finish with good waste removal. Wealden do a specific 'Frame Set' which creates large tongue and grooves for

creating large size panel framing, using some of this cutter range (see **photo 2**).

## PANEL RAISING

This panel raising cutter has rounded corners rather than the standard square ones. This frequently gives a more pleasing appearance, especially where a moulding has been used on the surrounding frame. In use, it is a case of working in two or more passes to the final depth and making the cross-grain cuts first. Providing you use it this way you should get a neat, trouble-free raised panel. A bearing set is available for curved panels (see **photo 3**).

## OVOLO ELLIPTICAL

This elliptical pattern has a pleasing sweep to it that will complement other traditional mouldings. It can stand in for a thumb-mould cutter in vertical mode on the router table. The bearing gives a flush cut at the long end of the profile but can be safely substituted for a smaller one to give a 'step' on the surface (see **photo 4**).

## BARLEY TWIST

Personally I'm not into my router-lathes although I'm sure many of our readers are. If you have a need for this pattern on

legs and the like, this could be for you. A clean sweep shape gives the necessary profile when correctly set up on the machine. Alternatively, you could use it as an edge mould (see **photo 5**).

## SPLINE/TAPER

Precision-machined at 5° for repeatable accuracy, this cutter can be plunged any number of times to full depth without marring the cut, as it tapers outwards at the shank end. Tapering of edges is also possible (see **photo 6**).

## DISH/PANEL

Available in a number of sizes from big to small, the dish/panel cutter offers the possibility of really clean-cut sweeps for creating either a panel mould or the standard round, dished shapes. In the latter mode you need to make a simple jig so the cutter and workpiece will not move at all. As a panel mould, it needs to be run in several passes to get the best result. A smaller size would be handy for creating pen tray or recesses in desk tops (see **photo 7**).

## FLUTING

Technically, this is a 'multi-reed'. It creates a very delicate effect, well suited to table





Photo 1 Tenon cutters – note the use of a through fence



Photo 4 Ovolo elliptical – flush cut & step cut



Photo 7 Dish/panel – smaller sizes used for a pen tray

edges and chair legs in a reproduction style. The table needs to be shallow enough for the cutter to protrude fully (see photo 8).

### PANEL DOOR PROFILE & SCRIBE

These two cutters, although capable of being disassembled into their various components, are designed to be used as a fixed, matched set. One advantage is that there is no more fiddling with various bits and pieces and losing thin copper shims into the guts of your router, or getting the assembly order wrong (see photo 9).

### ON TEST

Withstanding a few inconsistencies, overall these cutters performed admirably. The tenon cutters work very sweetly despite the colossal size of the larger one. Your stock needs to be truly square, as does the backing piece, to prevent any tendency to breakout.

The large groover cuts well, even at full depth, providing you make multiple passes. My table would not accept the panel raiser fully so I started with the fence forward and moved it back to get the full panel effect. The ovolo elliptical

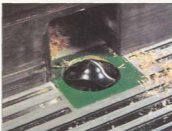


Photo 2 The groover – this cut is completed in several passes



Photo 5 Barley twist – works fine as an edge mould



Photo 8 Fluting – ideal for traditional work

cutter gives a good result with just slight sanding where the sweep of the curve meets the surface.

Only half the width of the barley twist profile can be safely used. It is, after all, intended for the router-lathe and not ideal for face work on the router table. The spline/taper can be used in the middle of stock providing you use plenty of passes. Tapered edge work needs to be done with a flush fence.

The dish/panel cutter has similarities to the barley twist cutter because when



Photo 3 Panel raiser – a clean result



Photo 6 Spline/taper – Note the use of the through fence for edge cut



Photo 9 Profile & scribe – easy to use

machining across the top of the cutter the work tends to wander and can even get chucked off the table if you aren't careful. Feeding from right or left makes little difference. The best way to use it is to employ hold downs that protect the operators fingers and make shallow passes.

The fluting cutter is an absolute delight to use although the shank length could be a fraction longer in the average table. The profile and scribe set behave efficiently and they should allow many panels to be created before wearing out.

### ROUTER THE VERDICT

While these are just a sample of a wide range of cutters, they are all very functional and perform well. I would advise getting the free catalogue which gives the entire range. As far as value for money is concerned, the prices seem pretty competitive and include delivery and VAT.

### FURTHER INFORMATION

Wealden Tool Company,  
31 Branbridges  
Industrial Estate  
East Peckham  
Kent TN12 5HF

Tel: 0800 3284183  
Fax: 0700 0564636  
website:  
[www.wealdentool.com](http://www.wealdentool.com)

# THE MIRROR MAN

John Parnell constructs a gothic-style swivel mirror

Photos: The author



The idea for the mirror came about because of the availability of hand-made bevel edged mirrors at a very nice price. While making up a framework for the mirror I decided to include both a stand and a built-in jewellery drawer to make the project really worthwhile. So here you have the result of evolution in action.

The frame has been kept as light as possible to retain a degree of elegance in the finished piece which is further enhanced by miniature routing on all appropriate edges. Many designs of this type tend to be much too chunky with

the actual mirror seeming to almost disappear into the woodwork. This sort of problem was deliberately avoided – I did not want a rustic look which is too often an excuse for primitive design and construction. I was going for the completed item in all its splendour.

## DETAILED DESIGN

I constructed the mirror frame from some pieces of mahogany salvaged from an old piece of furniture which had long since fallen to pieces. I made the base from 19mm (3/4in) thick panels of ash with figured walnut veneer from an old piano

case. The frame was finished with pine trim dyed to blend in with the overall wood colours. For a bit of style I decided to add a pair of brass finials, drawer knobs and feet, all of which were originally manufactured for clock makers. The mirror frame is supported on a length of brass tube which itself is supported by pillars on each side of the mirror.

## CONSTRUCTION STEPS

To build this project, the very first step is to buy your mirror, as its size will determine all the other dimensions. I used a bevel edged mirror which will be



Marking up the frame blanks for cutting



Cutting the jointing 'biscuits' from offcuts of the same wood as used for the frame



The first two frame joints mitred, biscuited and clamped to set

described in more detail later.

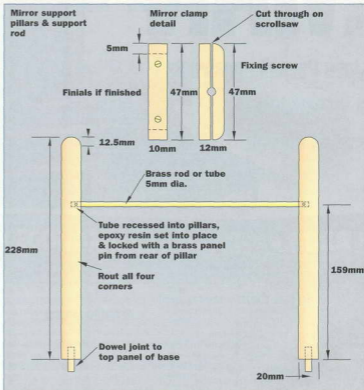
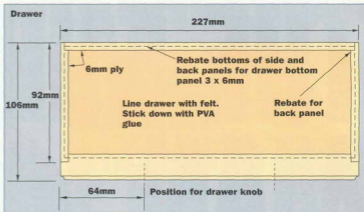
## THE FRAME

Make up the frame blank as shown in the drawing, but adjust the dimensions to suit your mirror. To avoid breakages from delicate short grain, the sections of wood are arranged so that the long grain is always used. Cut slots in the ends of each part of the blank either with a saw or a router and then cut out thin sections from the same type of wood as you use for the blank, to match the same dimensions as the slots just cut. These should fit the slots you have cut to act as biscuit joints. Using the same timber means that once the piece is completed, the joints will be unobtrusive.

Once you have cut out and glued up all the parts for the frame blank, wait for the glue to set completely so it has maximum possible mechanical strength for the next part of the construction. The simplest way to cut out the top frame shape is to use a scrollsaw. First, make the internal detail cutouts at the top and then move onto the main mirror shape cutout. With the internal cutouts completed, cut around the outside of the frame and carefully sand away any saw tear-out.

The next step is to rout a decorative edging to the front of the frame. The actual shape will depend on which router bits you have available but a mini-router with a table attachment is best for such fine and detailed work. Be sure to include the inside edges of the top detail to match the rest of the frame. Once you are happy with the decoration on the front of the frame, turn it over and rout out the recess for the mirror and backing sheet with a straight cutting bit in your router. Check how much depth of recess you require by measuring the thickness of the edge of the mirror and adding on enough for the backing sheet you intend to use.

Once completed, check that the mirror frame fits. Be sure to finish the frame - in this case I used wax - before fitting the mirror as this will avoid getting polish or varnish on its edges. Leave this to dry and get on with the next stage of the project.



Cutting the internal detail first on the scrollsaw



Routing the edge decoration on the Proxxon miniature router table



Fixing the brass support bar in place between the mirror support pillars

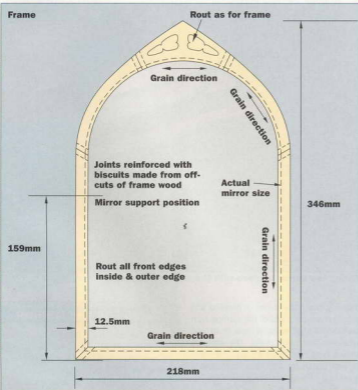
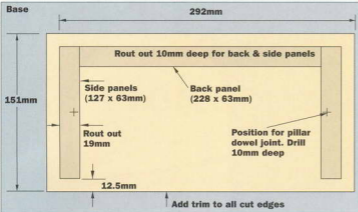
## THE PILLARS

The two mirror support pillars are tackled next. I used a couple of lengths of 19mm (3/4in) hardwood to match the frame wood colour. Cut these to length, making sure the cut is square so they will be perfectly perpendicular once installed. There are three holes to drill in each pillar and these are best done on a bench drill to ensure they are all at right angles to the work-piece. Drill holes into the bottom of each pillar to accept a dowel. This dowel joint will fix the pillars to the top of the base cabinet. The holes should be exactly half the length of the dowel in depth. Next, drill pilot holes in both the tops of the pillars, to take the brass finials if you wish to use them, and the sides, for the mirror supporting rod. These holes go half way through the pillar. With the holes drilled, round over the tops and rout a decorative edging to match the mirror frame on all four edges of each pillar.

With the pillars complete, measure the width of your mirror frame and add on about 1.5mm (1/16in) each side for clearance between the mirror and each pillar. Add on the depth of the hole in both pillars and this will give you the correct length to cut your support rod. With the support rod cut to length, secure it with epoxy resin and drill a pilot hole through the back of each pillar, through the brass support rod and into the wood on its other side. Tap in a brass panel pin to prevent any twisting of the support rod once it has set in position. Make sure you use a length of pin that won't go all the way through the pillar and come out in front. Now set this aside for the epoxy resin to set, making sure the pillars and rod are at perfect right angles.

## THE BASE

You can now turn your attention to the base with its jewellery drawer. The top, bottom and side panels for this, as well as the back panel and drawer front, were all cut from the same piece of walnut-veneered ash and are 19mm (3/4in) in thickness. While this thickness is not



Routing out the dados in the top and bottom panels for the base assembly



The base unit clamped to set the glue



Drilling the support pillars for the dowel joints to attach them to the base unit

needed for adequate mechanical strength it lends a good degree of stability to the finished mirror. The side and back panels are fitted into dados routed into the top and bottom panels and are then glued in place. After routing, square up the corners of the dados with a chisel to accept the square edges of the side panels. Clamp these to allow the glue to get a good hold and while this is happening, measure up for the drawer front.

The drawer front has a decorative edge, routed with an appropriate bit, and ebates to the rear to accept the 6mm (¼in) ply which makes up the sides, back and bottom. All three are rebated as shown in the drawing and then glued and pinned together, making sure everything is square. Once the glue has dried, line the drawer with felt to protect the jewellery from any wear on the ply used for their construction. If you cut the felt from a sheet with a craft knife, make sure you have a really sharp blade or your cut will drag.

With the base and drawer complete, drill the corresponding holes for the dowel joints which secure the mirror support pillars to the base. The next step is to glue the pillars into their places on top of the base unit, ensuring it is thoroughly dry before mounting the mirror.

## THE MIRROR CLAMPS

The final parts to be made up are the mirror clamps. These are made from the same wood as the mirror frame, as shown in the drawing. Once the holes for the support tube have been drilled, the bottom of each is sliced off on the scroll-saw and the width of the saw kerf will then make the holes a little elliptical in shape and slightly smaller when screwed down. This feature allows the clamps to grip the support tube tightly and the mirror to be swivelled into the desired position where it will then remain until altered deliberately.

The lower part of the clamp is glued into place on the mirror frame once the screw clearance holes have been drilled. Once the glue on the pillar joints has set



Fitting the mirror in place with the clamping brackets

properly, place the mirror in position and secure the back parts of the clamps with screws. All that remains now is to add whatever finish you prefer. The example shown here was given a couple of coats of wax polish by way of a finish and a good buff to bring out the grain in the figured walnut veneer.

## ITEMS FOR THE MIRROR

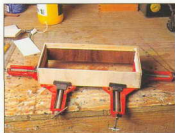
Mirror used from KD Mirrors, tel 01525 756192 for catalogue. Brass finials, feet and drawer knobs from Yorkshire Clock Builders, Tel 0114 2550786 for catalogue



Adding the trim to the cut edges of the veneered ash



Routing the detail on the drawer front edges



The drawer assembled and clamped to dry

# THE FUTURE'S ORANGE

The long awaited Triton Router Table has arrived. From the moment I heard the rumours of its existence, I knew I'd have to get my hands on it. I had continuously searched the company's website to no avail, but just as I had come to terms with the idea that it might be not forthcoming, there it was, in all its splendour, new and improved.

When it arrived I was keen to put it through its paces as quickly as possible but just as I was setting up I received a call from Triton UK who told me they had upgraded the pressure fingers, which meant I would have to hold my horses. Although I was initially disappointed, it was refreshing to learn that even though the table was in production, Triton hadn't rested on their laurels and were still thinking of ways that it could be improved. When the new pressure fingers arrived I couldn't see any difference between them and the originals although a really close check revealed that they were a little bit tighter, so well done Triton.

The new table fits the Triton series 2000 workcentre, Triton MK3 workcentre and the new Router Stand RSA 300 (The new Stand comes with a safety ON/OFF switch, adjustable leg height for uneven ground and onboard leg storage for portability.)

## SETTING UP

With most products these days we have to assemble them. The instructions that come with the table are very well laid out

Photo 1 **Extraction guard hold-downs and the sliding table clearly visible**

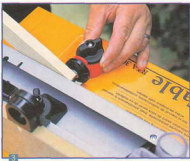
Photo 2 **Abrasive facings on the mitre fence make endgrain machining safe to do**

Photo 3 **The optional fence fine adjusters permit rebate setting as well**

Photo 4 **The fence brackets allow true 90° adjustment**

Photo 5 **The rigid and easily adjustable router mounting plate**

Photo 6 **Both sets of hold-downs in place**





## Phil Holloway takes a look at the new Triton router table

Photos: GMC

with a total of 12 pages explaining how to set up and use the machine. There are pictures as well as drawings taking you through all the stages of assembly in a step by step fashion. Firstly, you have to assemble the router plate, which is a big improvement on the old one, but I will get to that a bit later.

You then have a sliding table insert which is very handy for placing the pressure fingers where you want them and making sliding cuts. All the parts fitted very well together and didn't need any adjustment. All you have to do is put a good couple of hours to one side with a cup of tea, a Phillips screwdriver and a 10mm spanner.

So how do you review a table with so

many improvements other than going through them step by step?

### THE FENCE

Let's start with the fence, which has been vastly improved. The most impressive addition is the clear plastic guard. The most frustrating thing about the old guard was its size, or rather lack of it. The new improved guard is much larger and it's very easy to see what your cutter is up to and where the lines are. You can adjust it vertically and horizontally to suit the thickness of the wood.

There are also four adjustable braces, allowing you to square up the fence by simply loosening or tightening a screw. The fence faces are made of MDF and held to the main fence face with nuts and bolts, which can be cheaply replaced if need be. You also get two pressure fingers – one before the guard and one after. These can be vertically adjusted and twisted to any angle. They are made of a new type of plastic, which although very flexible, requires a lot of downward pressure to hold the wood in place.

The fence has one more neat little gadget that caught my eye – the micro adjusters. These fit behind the fence into the track that holds it in place, so in order to move the fence back, simply place the adjusters tightly up against them, half turn the wheel round and butt the fence up to it. If you had to rebate to match the thickness of a component (say a cabinet backing) you would use an offcut of that component to set the thickness, by setting and locking the fence flush with the router cutter, and then putting the micro adjusters in the table behind the fence. You would then place your offcut between the back flange of the fence and the micro adjusters and tighten them in position. Remove the offcut, move the fence back to the micro adjusters, and there you have it – an exact depth of the cabinet backing.

The table itself has scales in both metric and imperial measurements at both ends for reference, with a very good pinpoint marker on the fence. If you want to do a planning cut you now have four pieces of plastic, two of both 1 and 1.5mm. These get put behind one of the MDF fences, so if you were taking off

**"From the moment I heard the rumours of its existence, I knew I'd have to get my hands on it."**

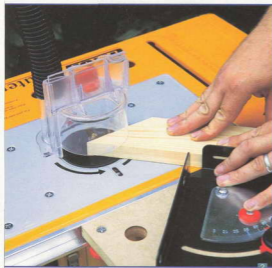


Photo 7 The biscuit jointer attachment fits on the sliding table, which locks in place

Photo 8 The biscuit cutter arbors – note the clip-in plastic height setting plate

Photo 9 The jigsaw plate and support arm with the adjustment hose



**"I think I'll be sticking with my older version of the model."**



1mm you would put the 1mm plastic packers behind the fence after the guard, so it was 1mm further out than the lead-in fence and, as you plane off the wood, the second fence would keep it straight. This means that you can plane an edge by 0.5, 1.0, 1.5 and 2.5mm. If you don't want to have the fence in place, say for planing an edge or free hand edge moulding, you can still have the front guard in place connected straight to the table. Don't forget the dust extractor though.

### SLIDING TABLE

Next we have the sliding table insert. This can be used as a fixed table and has six positions that you can put some more pressure fingers in to push the work hard up against the fence or as a sliding table.

The router table comes with a great little protractor which fits into the sliding table so you can now do cross-trenching up to 305mm (12in) wide. If you don't want the trench to go all the way to the end, put a block of MDF in the sliding channel which will stop the travel of the shelf side before it goes all the way through. If you wanted to do larger cross-trenching you will have to use your workcentre, where you can go up to 610mm (24in) wide. You can also do endgrain work using the protractor which can be set to any angle, enabling you to easily clean up those laminated endgrain cuts in the kitchen. I find this an excellent function.

### BASEPLATE

The baseplate that the router goes into has again been upgraded from the previous model and accepts most  $\frac{1}{4}$  and  $\frac{1}{2}$ in routers. With the new model you can put your router in the baseplate and take it back out for freehand work in a matter of seconds with the new quick-mount clamps. The best advantage of the new baseplate, however, is its thickness. The problem with the old version was that you were unable to fit cheap cutters as the shanks were too small. With the new model the plate is a lot closer to the table top eliminating this problem all together. I tried a few of mine and they all worked well.

### ACCOMPANYING KIT

You can also buy the new Triton biscuit jointer (BJA300) for fast and safe biscuit joints. When fitted to the router table you get fast, strong and invisible joints. It is ideal for right-angle joints, mitres, bevels and edge joinery. Once you have installed the biscuit jointer it only takes seconds to remove and refit it. They have improved the dust extraction by blocking off one end of the jointer so you get a better pull of dust through its body and you have a bigger dust port at the end so it will not get so blocked as before.

The depth adjustment is very quick and easy if you need to make shallower cuts, you only have to tighten two

screws. It also includes a TCT cutter for  $\frac{1}{4}$  and  $\frac{1}{2}$ in routers. This fits very nicely into the end of the jointer. If you have never tried biscuit jointing then this is a very good item to buy as it is very quick and precise and because you are routing on a flat surface, all your cuts will be the same height. If you had to put some biscuits into a long kitchen worktop, you still can by doing them freehand using the cutter that comes with it.

### THE VERDICT

All in all I have had great fun using this new table, and at only £99.00 (inc VAT) it can hardly be described as expensive. If you don't have a workcentre already you can buy the Router Table Stand for £115.00 (inc VAT). The new biscuit jointer is excellent if you don't already have one or are tired of constantly changing the baseplate, although I think I'll be sticking with my older version of the model. Happy routing.

### CONTACT DETAILS

Triton Workshop Systems Ltd  
Pontyngwindy Industrial Estate  
Caerphilly  
South Wales  
Tel: 0800 856 7600  
website:  
[www.triton.net.au/products/rt.html](http://www.triton.net.au/products/rt.html)





# SENSATIONAL SAWING

Chris Humphries takes a look at the Secanta saw from Elektra-Beckum

It has become a source of amusement amongst my friends and acquaintances that I am to make the leap from 'rough ol' chippy' to refined journalist, but here goes. The 'Secanta' saw has been given to me for evaluation, as my business is mainly conducted 'on site' as opposed to in the workshop.

That said, I increasingly find myself preparing as much as possible in my modest workshop/garage to minimise the disruption and chaos created when the 'Chris Humphries, Quality Interiors' bandwagon rolls into some lucky new customers life!

I couldn't help notice the curtains twitch as I struggled with the two enormous cardboard boxes that the Secanta and its carriage came in. I'm sure my neighbours think I'm doing a good line in

dodgy wide screen TV's!

I was relieved to find that once unpacked the Secanta table is remarkably light and manageable. The honeycomb magnesium machine housing has been very well thought out and after a little practice, the process of folding and unfolding the legs can be achieved without the loss of fingers! I would like to see however, somewhere to store the power cable, as once the cable clip is cut it takes on a life of its own.

The carriage must weigh almost as much as the saw, so while the quality of the build can't be questioned, from a safety point of view it would be nice to see some sort of lock to stop the carriage sliding while being transported.

Once unpacked and ready for action, the quality of build is obvious. I managed

to control my excitement long enough to browse through the operating instructions which were adequate, although I couldn't help thinking that one of those introductory video's would have been useful for such a complex and flexible bit of kit. Likewise the sliding carriage could pose a few problems to the uninitiated. Having spoken to the 'chaps' at Elektra Beckum I believe there is an explanatory video in the pipeline. I'm not sure if I have been issued with all the paperwork that would normally accompany a Secanta, but there doesn't seem to be any helpline numbers or accessories leaflet, which would be handy as in this day and age some tool shops don't appear to be too clever on the more complicated equipment. Don't be fooled by

Colin Eden-Eadon demonstrates the Secanta's lightweight, collapsible design



The fully adjustable fence and rotating table bed

the details in the advertising leaflet or on the website, the saw is available in 110V for the more discerning site operative.

## ON TEST

So let's get down to some serious timber mutilation! I started with some 50 x 75mm (2 x 3in) crosscutting using the pull saw facility that can cut 70 x 285mm (2 3/4 x 11 1/4in) maximum. The motor has a 'soft start' and combined with the silky action when pulling the saw, you become immediately aware that this is a serious piece of woodworking equipment. My confidence growing, I decided to try a similar manoeuvre this time inclining the blade and moving the table round to produce a compound mitre. After a small disagreement with a plastic flap that aides dust extraction, I managed to cut a perfect mitre.

At this point it occurred to me that it would have been nice to squeeze a slightly larger blade in this machine to enable 75mm (3in) material to be handled and have a positive 'notch' so the user is aware (without grovelling on the ground) when 90° is set. In so doing it would endear it to the roofing boys for those perlin and valley cuts. With the depth of the blade correctly set, I found it possible to rebate myself a door lining quickly and precisely, which saved me all that mucking about on site!

At this point I decided to try changing the blade which was made easier by folding the legs and sitting the saw on its side. Removing a metal plate to the side of the motor and hey presto. I think it's a bit mean to send me to the depths of my site box along with the sweet wrappers and old copies of *The Sun* to find a 10mm spanner and 6mm Allen key – surely 'Mr Beckum' could supply them with the saw?

As a straightforward saw bench, using the fence to convert stock timber down to your requirements, the Secanta again comes out well. Being careful not to push the timber too fast as the motor has overload protection resulting in the blade coming to an abrupt stop just as you are half way through a 4m length with the blade inclined. The trick is then to try and back the timber off keeping it horizontal so as not to put any strain on the blade, and restart the saw while whistling Dixie and juggling four flaming balls! I guess 1800W should be enough for most board applications but it does seem to struggle a little when slimming a piece of 100 x 50mm (4 x 2in) down the middle.

The table can be mounted on any one of three sides as can the normal fence. It takes a little time to set everything level using the adjustable legs but 'once bitten forever smitten' as they say in Germany!

The action is as smooth as the proverbial baby's... and enables effortless trimming of most flooring and panels. I particularly like the fence, which is substantial with plenty of adjustment allowing easy setting for repetition work. With the ability to change the angle of the saw blade, the angle the workpiece arrives at the blade and the option to use the pull action or feed the work to the blade, there are plenty of chances for the unwary to arrive at disaster, resulting in further depletion of the rain forest and, unless care is taken, a number of digits!

The main adjustment of the Secanta is via an all-in-one control unit that utilises a hand wheel, on/off switch and a system of locking levers. The whole unit lifts and slides when crosscutting. On the whole this system works quite well although when one's hands are of the extra large variety it can become a little fiddly. It's important to check the position of the locking levers prior to swinging the table or crosscutting, so nothing goes wrong. I question the wisdom of having the start and stop buttons moving with the slew table, as in an emergency situation it's always safer to be sure exactly where the stop button is without having to look.

## THE VERDICT

Having had the pleasure of the Secanta for a few weeks, one can't help being impressed with the quality and accuracy that can be achieved from its various functions. This upside down radial arm set-up is equally at home on site or in the workshop with a 100mm (4in) dust extraction port more suited to joinery applications, although an adaptor to 45 or 60mm (1 3/4 - 2 1/4in) is available (part 091 001 2649). For anyone involved in any type of on-site flooring, this is the machine to put on your wish list! Although larger than many of its competitors, the innovative design and finish makes it lighter and therefore I'm sure it will soon find its way on site with some of my more posour acquaintances!

## SPECIFICATIONS

Power input	1800W
Blade diameter	220mm
Blade speed	4500rpm
Cutting speed	51.8 m/sec
Max. depth of cut	70mm
Weight	32kg
Price	£1,175 (inc VAT)*
Contact	Elektra Beckum on 02380 732000

\*This is a list price only. If you shop around you will probably find a better deal

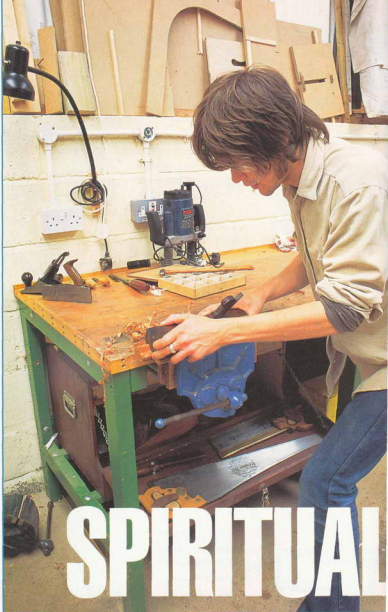
**Furniture-maker  
Russell Denman  
gives us the low-  
down on  
his workshop, a  
converted barn**

**M**y workshop is a barn – a converted and improved barn, but a barn nonetheless. This situation has both its advantages and disadvantages. On the plus side it means that I am surrounded by beautiful rolling Sussex countryside, a real treat in the summer. In the bleak months of winter, it's a different story and I have to endure gale force draughts and a humidity problem that is more than any self-respecting woodworker should have to cope with. If you add to this a nest of robins, a very large family of cheeky mice and helping the farmer with catching cows, it's a wonder there is any time for work.

**THE SET UP**

I moved into this workshop two years ago with an old friend whom I continue to share the space with. Prior to doing so I was working from my spare room. Fortunately my friend was in a similar situation so we decided to team-up and acquire something more suitable. When we moved into the barn we didn't quite know what to do with ourselves. The main thing I miss about my old set up is that I could pop in whenever I wanted to – even if it was in the middle of the night! The most important lesson I learned from having a workshop only slightly larger than a bench, was impeccable tidiness.

When we first moved in, only half the floor was concrete, the other half, dirt. This meant the first job was to put in a floor, essentially dividing the space in two. The concrete half was mainly for the storage of machinery and materials, while the new floor was for our benches. Our only source of heating is up by our benches. Being old romantics at heart, we had to have a proper woodburning stove, which we decided to make our-



**SPIRITUAL**

selves. I'm proud to announce that yes it is safe and it works pretty efficiently too.

**FOOD FOR THOUGHT**

As a general rule I try to complete as many tasks as possible with hand tools. This was originally borne out of necessity (ie: lack of cash) although I am certainly from the school who believes that work with hand tools gives the craftsman greater knowledge of the materials and the principles behind what he is trying to achieve.

I relate strongly to the view of the workshop as a spiritual place, expressed by the renowned Japanese woodworker, Toshio Odate. His work has done so much to educate the western woodwork-

ing community about the tools and work ethic of Japan. While I use very few Japanese tools at the moment, I see no reason why this careful and spiritual ethos cannot be applied to traditional Western tools and ways of working.

I also have a great deal of empathy with the uncompromising attitude of the furniture-maker, James Kernov. As far as I can determine, the reason he has invested so much energy during his career to making his own planes has more to do with inspiration than practicality. This is the attitude with which I have collected my own tool kit.

I'm lucky as I have spent very little money to obtain a collection of tools that serves most of my requirements. Some



have been kindly passed down to me by my father, and others. I have acquired most however at car boot sales, farm sales, flea markets and the like. This is not solely for reasons of economy.

When I find a selection of rusty steel and dusty dry wood at the bottom of a boot sale box, it doesn't take much to determine that it can be brought back to its former functioning glory. It is this whole process of finding a treasure and putting in the time and effort to bring the tool back to its original condition that gives me the greatest satisfaction. This gives the tool a personality which is conducive to mine. I see this as the same process as the Japanese Shokunin putting the finishing touches to his new

plane or chisel, or even James Krenov himself making his own planes.

### TOP TOOLS

All this however does not mean that I am simply an old traditionalist pottering away with nothing but arcane hand tools. I have found that using a majority of hand tools gives an intimacy with my work that can not be matched. If anything this has made me more aware of the procedures which can be accomplished more satisfactorily and with much less physical effort with the assistance of a little power and contemporary technology.

The most obvious example of this in my workshop is the large Startrite table saw. It takes a 12in blade for effortless



Traditional hand tools like this play a big part in the workshop

ripping of major stock, although it is usually fitted with a 10in multi-purpose TCT blade along with a 7in scoring blade. This can be raised from its dormant position to produce a perfect cross-grain cut on even the most delicate sheet material. Providing you fit a pretty decent dust extractor it doesn't cause too much harm to the lungs. This could be greatly improved with the addition of hood extraction. With its sliding table folding neatly, when not in use, and the all round solid quality I have come to expect from Startrite, it is a very versatile machine. So much so that I have forgotten what life was like without it.

Another essential power tool is the portable router. I say portable although it is more suitably described as stationary, best used inverted in the router table, because it is the colossal 2050 W Ryobi RE601E. Despite its bulk, it performs most jobs admirably, even some quite delicate procedures. The main problem I've encountered is aching arms and a sore back from moving its massive 6.2kg bulk around! Future investment in a lighter, more precision-based model will make portable jobs much more approachable and, at the same time, let the Ryobi get on with the jobs it is better suited, such as powering big cutters on the router-table.

The main task for which I find the router invaluable is the cutting of pre-determined shapes by following a template with the guide bush. It doesn't quite live up to the experience of doing the same job on a big Wadkin overhead pin router. However, to produce a controlled, even shape, especially when it comes to multiples that should be identical, I would be lost without the Ryobi.

The recent addition of an industrial specification pillar drill has helped my

**"Oh yes, and a spindle moulder, another router, as many rare hardwoods as I could ever possibly use..."**

work and widened the shop's capabilities more than I initially thought, having been encouraged to buy it by my father who fancied having my old small scale model. He has done me a big favour as I no longer need to worry about a 35mm cutter completely stopping the old drill's 1/4hp motor.

Worthy of a special mention are my bench grinder and disc sander. Nostalgia plays a part here as these were my first power tools and were given to me by my Dad who made them both from salvaged old ventilation system motors. Both are highly functional and still going strong, despite having been on the receiving end of prolonged and substantial use. I feel no need to replace them as many bought alternatives will certainly be of lesser quality when stood up to my father's workmanship.

I can't forget my latest addition which, by-and-large is the most basic lathe money can buy! As I'm not a major turner it has been quite adequate for all I have needed it for thus far. Being a well-made Record unit I'm sure it will take me quite some way along the learning curve before I need to upgrade it. I invested some time building it a good solid base.

## A PATH OF PROMISE

This is by no means the definitive workshop set up. I am a young furniture maker with my own ambitions for the future. This has been an overview of a workshop which enables me to accomplish a fair amount of what I want to achieve. The most glaring absences, which once acquired would be of most use to me, are a planner/thicknesser and a good quality bandsaw with plenty of power and throat depth. Oh yes, and a spindle moulder, another router, as many rare hardwoods as I could ever possibly use, a damp free and draught free workshop and... isn't it amazing how once you start a wish list you can't seem to stop!



**The mighty Ryobi alongside a selection of ageing, top quality cutters**



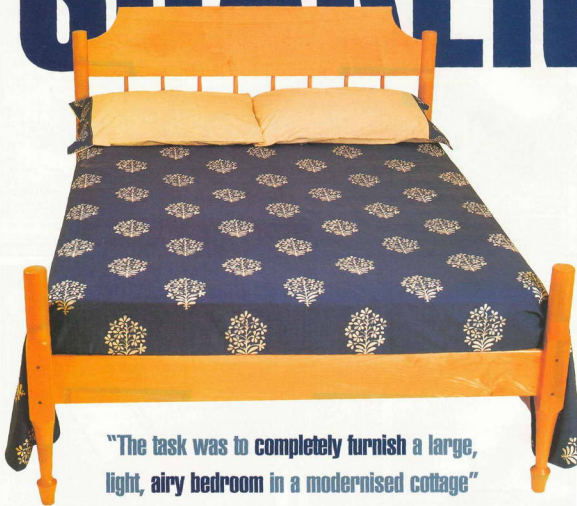
**The Startrite table saw fitted with a dust extractor**



**Above A simple but effective lathe**

**Left The industrial specification pillar drill has widened the workshop's capabilities**

# SHAKER



**“The task was to completely furnish a large, light, airy bedroom in a modernised cottage”**

**T**his bed is a standard double for a 1880 x 1370mm (74 x 54in) mattress. It can also be made as a single or kingsize. As mattresses are not necessarily of a standard size, it is wise to measure your's first, and build the bed around it.

## DESIGN

The task was to completely furnish a large, light, airy bedroom in a modernised cottage. My client preferred a simple uncluttered look and was quickly

impressed with some Shaker designs in Thomas Moser's excellent book, *How to Build Shaker Furniture*.

We found a bed design which could be modified to the necessary requirements and decided on the Shaker theme for the whole room. This bed consists of an internally sprung mattress on a slatted base. I established that the bed linen would be a fitted bottom sheet, with a duvet over. This way no clearance was required in the slatted recess for bulky blankets to be tucked in around the mat-

tress. The corners of the mattress were slightly rounded and would compress to accept the projecting corners of the squared centres of the legs. This tight fit would hold the mattress and sheet firmly in place.

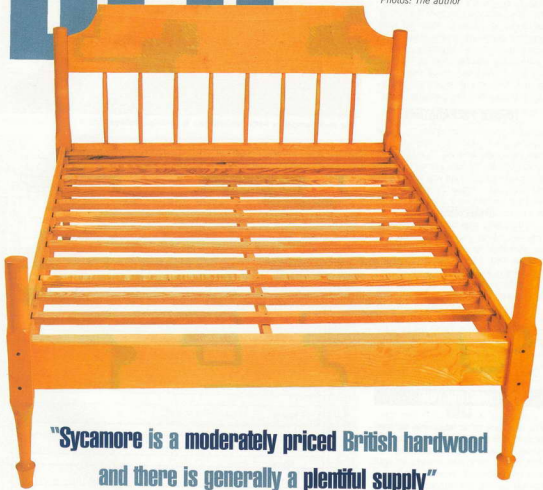
The head and foot are permanently jointed with glued mortice and tenons, while the side rails and slats are dry fitted and removable. This allows the bed to be handled in more manageable pieces.

The side rails have a deep tenon into the legs at each end, which is fixed from

## BED

Kevin Ley explains how  
he constructed a bed in  
Shaker style

Photos: The author



**"Sycamore is a moderately priced British hardwood  
and there is generally a plentiful supply"**

the inside with three countersunk screws. The slats are dropped into position between fixed spacers and, again, screwed into position on a bearer rail which is glued and screwed to the side rail. This is where power screwdrivers really come in handy. You can use lighter and springier slats by incorporating a centre-support rail directly under them.

#### TIMBER SELECTION

The timber selection was easy – my client had been impressed by an earlier

commission for a writing desk which she had seen on display in the Bowes Museum in Co. Durham. It was made in sycamore with fumed oak detail and she particularly liked the contrasting colour and the texture of the fumed oak.

Sycamore is a moderately priced British hardwood and there is generally a plentiful supply, although it is very important that it has been correctly felled and seasoned. Felling should only take place in winter, when the sap is down. Prior to kilning, the wood should be stood upright

(end reared), after being converted into boards. This is to prevent deep staining from the sap and penetrating sticker marks.

When buying timber, try to get a guarantee that the job has been done properly because the staining is an ugly, dirty, grey, which I have not found any satisfactory method of removing. Ironically, bleaching seems to turn it to an equally ugly green.

Sometimes there is only a light surface stain which comes off on the first pass

over the planer — thus it pays to test the wood with a small plane before buying.

Oak is fumed to a rich, dark, plain chocolate colour by leaving it in an atmosphere of ammonia. In this case there were only 16 dowel pegs to be fumed so they were made first, placed in a plastic box with a small quantity of ammonia 890 and left for 24 hours.

Sycamore reacts to the fuming process by going a greyish colour and I wanted to keep it as creamy white as possible. Therefore I ensured that once the fuming was done, all traces of ammonia were dispersed before any sycamore was cut.

Be careful with the ammonia — it has a particularly adverse effect on the eyes and any contact can cause permanent damage. Wear eye protection and, if possible, do the whole thing outside.

TIMBER PREPARATION

I bought the sycamore from my usual supplier, 25mm (1in) kiln-dried for the main parts, and air-dried 75 x 75mm (3 x 3in) posts for the legs. I bought the latter because no kiln dried was available at this thickness. I chose 25mm (1in) air-dried ash for the slats and bearers, due to its strength and springy quality.

All the pieces were cut out slightly over-size, and stacked in my wood store with its dehumidifier. Always put sticks between them. I left them there for a couple of weeks to settle. All the pieces were then dimensioned to their final thickness and stacked and sticked in the workshop.

My workshop is kept warm and dry with heaters and a dehumidifier so that conditioning takes place all the time the piece is being worked on. It is no use spending a lot of money on quality dry wood, and have it deteriorate in a cold, damp workshop.

CONSTRUCTION LESS

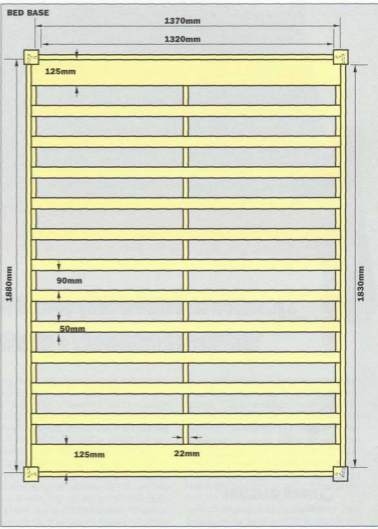
The legs were cut to length and the mortices cut with my old MOF 98 heavy duty router, while the legs were still square. The centres were then marked on each end and shaped on my lathe. The tops of the legs were turned round as close to the full 65mm (2 1/2in) diameter as possible.

I cut a profile in hardboard, and using pre-set sizing tools to get the reference diameters, shaped the bottoms of the legs. I don't do much turning, so I use all the help I can get to achieve an acceptable result!

Once the legs were shaped and sanded on the lathe the tops were slightly domed over, leaving a very small plug of wood where the centre was holding the top end of the leg onto the lathe. The leg was removed from the lathe and the plug was cut off, chiselled flush, and the top end finally hand sanded to a finish. Holes



The bed complete with bedclothes & bedside tables

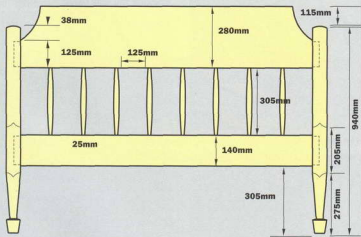




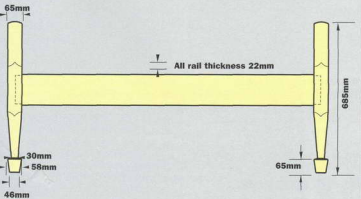


Close up of the head

## HEAD



## FOOT



were drilled for the decorative fumed-oak dowel pegs which were glued and tapped into position, and once dry, sanded flush.

## HEADBOARD

The top and bottom rails for the headboard were cut to size and tenons 22mm ( $\frac{7}{8}$ in) deep were made on the ends to fit the mortises in the legs. The shoulder on the top-rail tenon was undercut to fit over the curve of the leg. The top rail was shaped by cutting out a quadrant from each end. The top edge of this rail was rounded over to 6mm ( $\frac{1}{4}$ in) radius using a rounding-over cutter with a bearing guide. Holes were then drilled in both rails to take the eight tapered spindles.

These spindles were cut to length, centred on each end and turned to shape. Again I used pre-set sizing tools to ensure that both the centre and end diameter fitted the pre-drilled holes in the rails.

All the pieces were belt sanded to 150 grit and finished to 240 grit with a random orbital sander. *Titebond* glue was applied to the various joints and the headboard was clamped up, checked for square, and left to set.

## FOOTBOARD

The footboard rail was cut to size and tenons were formed on the ends using the router mounted in its table. The top of the rail was rounded over in the same way as the top rail of the headboard. All the pieces were sanded to a finish. The footboard was glued and clamped-up to the legs and left to set. A mortise was cut in the centre of the inside faces of the headboard's bottom rail and the footboard rail to take the ash centre-support rail for the slats.

## SIDE RAILS

The side rails were cut to length and a 50mm (2in) deep tenon was formed on each end. The top edge was rounded over to match the head and foot rails. The side rails were slotted in to the leg mortises and the frame was clamped up dry. It was all checked for square and the pilot holes for the fixing screws were drilled and countersunk on the inside of the legs. The screws were driven home and the clamps removed.

## SLATS

The 22mm ( $\frac{7}{8}$ in) ash slats were cut to length, 3mm ( $\frac{1}{8}$ in) short, allowing for clearance between the slat ends and the side rails – to avoid any movement in the bed causing squeaks! A bearer rail of 50 x 22mm (2 x  $\frac{7}{8}$ in) ash was glued and screwed to the inside of the bed frame, 50mm (2in) below the top of the rails, on the sides, head and foot, to screw the slats on to. This left a 29mm (1  $\frac{1}{8}$ in) recess below the top of the frame to the

**"The wax on the sycamore gave a silky, very 'touchy feely' surface — appropriate to bedroom furniture"**



**The bare essentials of the bed**

**Below The top corner, showing the slat fixing**

tops of the slats. This is where the mattress is dropped into. Loose spacers cut to fit between the slats and glued and pinned into position on the bearer rail. This is because the slats were fixed.

**FINISH**

Once the bed was complete and I was sure everything fitted properly, it was taken to pieces for finishing – thus relinquishing a large proportion of my workshop's limited floor space!

Most of the sanding had been completed during the construction so the pieces were finally checked over, marks and glue ooze removed, and the surfaces which would be visible, hand sanded down to 320 grit, prior to varnishing.

To maintain the pale creaminess of the sycamore, I chose a satin finish, water-based, acrylic floor varnish. I applied three coats with a paint pad, rubbing down with 320 grit between coats. The advantage of the acrylic finishes on pale woods is that they have a minimal initial 'yellowing' effect and prevent long term darkening by filtering out UV light.

Barford's Aqua Cote is my preferred water-based varnish. It dries quickly and it's possible to use up to four or five coats in a day. In a few days it cures to a very tough, durable surface. I also use the new matt finish extensively as it has a much lower sheen than the satin and is as tough and durable.

After the varnish had cured for a few days I cut it back with a Scotchbrite grey pad, applied a couple of coats of wax, and buffed it up to a nice sheen.



**The head corner and leg**



**The foot corner and leg**

The wax on the sycamore gave a silky, 'touchy feely' surface that I felt was very appropriate for bedroom furniture.

The floor of the bedroom was bare wood so I glued felt pads to the underside of the feet to enable the bed to slide without scuff marks.

**CONCLUSION**

The bed was assembled and positioned

**SUPPLIERS**

Aqua Cote acrylic varnish  
Barford's - 01277 622050  
Furniture buttons  
Lakeland Ltd - 01539 488100

**BOOKS**

*How to Build Shaker Furniture* - Thos Moser  
ISBN: 0-8069-8392-2  
GMC: 01273 488005  
*Kevin Ley's Furniture Projects* - Kevin Ley  
ISBN: 1-86108-185-5  
GMC: 01273 488005.

in my client's bedroom. I was a little nervous when I presented the finished piece to the client but fortunately, she thought it looked great. I was particularly pleased with the way it suited the room. As this was the first piece of this bedroom suite I had made, she was now very keen that I started on the bedside tables, utilising the same Shaker style. So, watch this space...



A nice result from this ogee and bead cutter



There are two ways to raise a panel, either with a vertical or flat safety pattern cutter



This classical profile looks good on English oak



The down-cut spiral is made of solid carbide



Finger joint cutting is quick and makes a strong joint



The second cut is done with the other component turned over



Adjustment shims are supplied with the T&G set

employed over a range of speeds in keeping with the cutter sizes. All the cutters tested cut cleanly with good chip removal, leaving an excellent surface finish.

I am never too sure about 'anti-stick' coatings. The resin always seems to build up on the ground cutting surface of the cutter where it is impossible to apply such coatings. Anyway, cleaning cutters after their use is neither a great nor time-consuming problem. It takes but a few minutes to remove any bearings, immerse the cutter in a suitable solvent, and give them a quick brush over followed by a light spray of oil.

I was a little surprised, bearing in mind their excellent overall quality, to find that none of the cutters had any specific instructions regarding their suitability for free hand or static use. To be fair this information was supplied in the catalogue although it would have been more helpful on the box. There was also no mention of their recommended maximum speeds and no specific setting up or adjustment data. For example, I only found the adjustment shims within the T&G cutter set when I stripped the cutter down to clean it after use.

I found the shank lengths just about adequate when used in conjunction with a table insert of 10mm ( $\frac{3}{8}$ in) thickness. This is a potential problem with most cutters and certainly not specific to the Viper range. ⚡



The rebater comes with a stack of bearings

## THE VERDICT

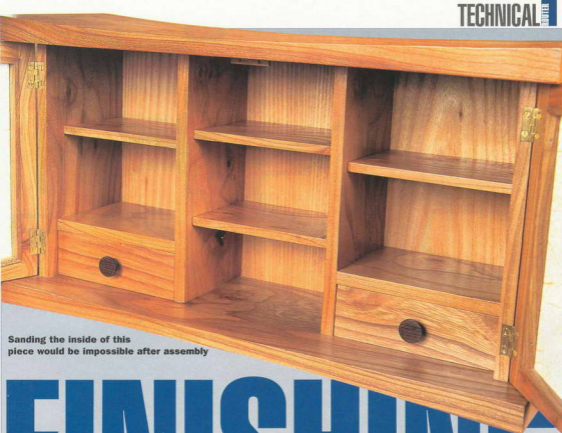
Overall, the Viper range of cutters were well constructed, did what was asked of them and performed admirably. From a value for money and performance perspective, this range is well worthy of serious consideration.

I would however like to see more 'user data' specific to each individual cutter supplied within the packaging. This is not only useful from a safety aspect but it would also enable users to get the best results from each cutter.

Finally, I noted that on the packaging non ferrous metal, plastic and aluminium were described as materials suitable for use. With that in mind, I'm off to see just how sharp these Viper cutters really are!

## PRODUCTS & PRICES

Cutter type	Profile no	Price
Down cut spiral, $\frac{1}{8}$ in dia.	24	£41.13
2 flute straight, 1in dia.	91	£16.45
Triple flute, $\frac{1}{8}$ in dia. laminate trimmer	144	£18.80
Classical form	295	£22.91
Tongue & groove	328	£46.21
Double roman ogee	414	£22.91
Multi-profile combination	438	£69.91
Ogee & bead	461	£34.08
Vertical raised panel	472	£34.96
Horizontal raised panel	479	£58.16
Finger joint	623	£76.38
Multi rebate kit	MR12	£34.66



Sanding the inside of this piece would be impossible after assembly

# FINISHING



Anthony Bailey continues his Mechanics of Making series taking a look at the art of applying a finish to a piece of work

An orbital and random orbital sander

**T**hey say that it all starts with the finish. I have looked at all the stages in the making process up to and including machining. Curiously, I have put this before 'Assembly' which comes in the next issue. You may well ask yourself why?

The answer is that failure to prepare and finish components at an early stage in the proceedings can give a disappointing outcome to say the least. That is not to say that you should be applying French polish, varnish or Danish oil before you put the job together, although this might be the case with intricate components.



This is rather an acknowledgement of the fact that filling, sanding, applying a finish, cutting back and polishing the final coats on the wood, are part of a logical sequence that assembly tends to interrupt. After all, if you are making a chest of drawers, the interior both of the chest and the drawers requires proper attention. You can't, for example, grab it straight off the planer, with glue stains and lumps of filler everywhere.

Internal surfaces must be brought to a finish before final assembly. This doesn't preclude dry fitting to check how it will go together, on the contrary. At this stage your components should be well machined with few defects present. There will be pencil marks and possibly knife marks on critical lines and you will be checking each part fits and is correctly marked to avoid wrong assembly. Now is the time to get out a sharp chisel and a dovetail saw in order to make fine hand adjustments that are not possible on a machine.

Pre-planning the whole construction helps to show the logical order of assembly. All internal surfaces should be sanded while disassembled, although external surfaces should generally be left. Choose good quality aluminium oxide papers available by the sheet or roll. Never use a grade coarser than 150 grit unless doing initial belt sanding, as this would indicate your work is not good enough to start with. Machine sanding is easier on separate components and is generally better than hand-sanding. Try to use the correct amount of glue, and make sure that any overspill is removed while wet. Otherwise you will have to chisel it off very carefully when dry.

Flat or wide, joined boards may need belt sanding with the grain. Sand to 80 grit if it is very uneven, although 120 grit is better and can be used on newly veneered boards with care (a sanding frame helps).

The next step is to move on to finer sanding using an orbital or random orbital sander. Although it's more expensive, the latter gives a superior result. Velcro abrasive discs make the changing of coarse grades quick and hassle free. Start with no coarser than 150 grit, preferably 220 grit or 240 – even 320 is a good grade for the fine finishing of veneers. Use circular or figure-of-eight motions to even out the sanding pattern left by the disc. In the case of a plain orbital sander this isn't necessary but you should keep the sander moving. Be prepared to throw away worn or gummed up abrasive as the latter can mark the surface. Only mouldings and small sections need hand-sanding, which is best done before they are cut to length to avoid rounding over the pre-cut ends.



**Above Hand-sanding an edge - there are times when machine sanding isn't possible**  
**Right A random orbital sander will give very good results**

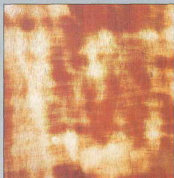


Don't sand joint areas as these need to fit tightly together. Once each sub-assembly or full assembly is together you can turn your attention to the outside. If you have exposed joints, belt sanding may be necessary to level the surfaces. This might be too difficult with a plane or trimming cutter in the router. Proceed as before, using a random or plain orbital sander. Any applied mouldings should be left off as they interfere with machine sanding. Use a protected surface to place your work on – carpet can be useful but it may hide dangers such as screws or hard lumps of glue. Underlay is much smoother and hazards are more apparent. A large piece could sit on a couple of smooth battens. Getting help to turn it over will also avoid damage.

On a complex piece such as a wine rack for example, where various small components fit together, full finishing may be necessary. This means taping over all joints to exact lines or to the shoulders on tenons, etc. These areas stay completely bare of polish or varnish and can still be glued together afterwards. Any applied moulding should be put on last. The mitres need to be accurate and the use of filler should be kept to a minimum. Be careful when sanding

mitred junctions of mouldings on an otherwise flat surface, as cross-grain scratches can easily occur. This becomes a serious problem if you intend staining the piece. The stain can do several things. It will absorb heavily into the endgrain, fail to absorb into plastic-type fillers or absorb differently to the surrounding wood and finally, show up any glue marks. This is where your earlier efforts in taking care pay off.

Whatever finish you apply, care is obviously needed. Use good quality applicators, such as brushes or French polishing rubbers that don't leave bits on the surface. Use 'friable' abrasives to flat off each coat. A friable abrasive breaks down and crumbles, so no deep persistent scratches occur. Proper finishing paper is coated with white coloured stearate wax powder that prevents the paper or particles of the sanded-off finish to stick to the surface of the work. The final top coats of any finish need to be with the grain and very evenly applied. Any further treatment should consist of nothing more than ultra fine 0000 wire-wool, a burnishing cream or a similar substance. At this stage abrasives have no part to play as even the finest grade will mark the surface.



Above **The effect of cross-grain scratching has been exaggerated but it shows just how bad it can look**

Left **A taped joint with dye on it**

**ROUGHED UP**

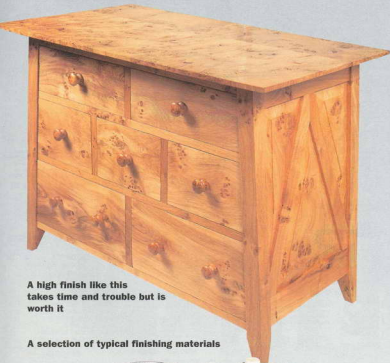
The science of abrasives is a complex and interesting one. Sadly, I lack the depth of knowledge to claim to be an expert. Nevertheless, I have done plenty of sanding in my time. The basic principle of abrasives is basically to rough something up to make it smooth again! Yes, it really is that simple if you think about it.

You start with a coarse abrasive and work through the grades, finer and finer until you get a surface that passes for finished. All the carefully graded but still irregular lumps of abrasive grit tear viciously at the surface of the wood and the combined scarification makes us believe that what we see and touch is actually smooth!

In the old days hand scrapers were used much more than they are now as well as materials such as shark skin with its naturally rough, abrasive surface. Antique furniture restorers sometimes use carefully cut pieces of glass as scrapers, on very hard short grained woods that can tear easily.

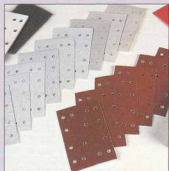
As a schoolboy I was in charge of the woodwork teacher's office/store, and what a treasure trove it was, containing everything that excited my interest as a would-be-woodworker. Among the pearl glue granules and all kinds of brass screws, there was some flint paper with its slightly greenish colour and softish nature, now no longer available. You can still obtain glass paper but it tends to be rather crumbly and not as relevant as modern aluminium oxide papers.

During my phase as a restorer I used quite a lot of garnet paper which is orange in colour and friable i.e. it crumbles after a while and thus avoids vicious lasting scratches. There is an abrasive for every situation and different ways of using it.



**A high finish like this takes time and trouble but is worth it**

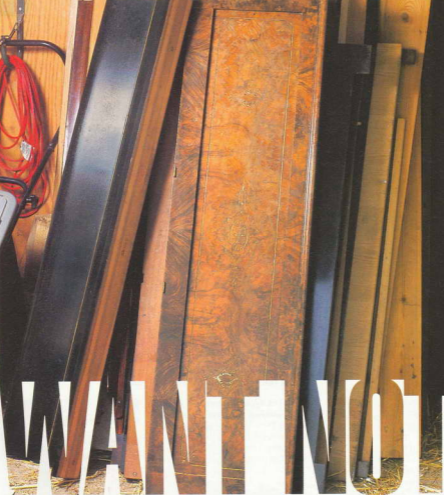
**A selection of typical finishing materials**



**A vast choice of abrasives is available for every task**

## WASTE NOT

A new delivery of old piano panels awaiting sorting and processing



## WASTE NOT

**W**ith the ever rising cost of decent hardwood it is not surprising that there is a good case to be made for recycling timber from whatever source may be available. Most wood from items such as old wardrobes and, particularly in my case, old piano cases and the like, can be successfully recovered and used in new projects. As well as being a free supply of timber, you are also doing your bit for the environment as it would otherwise be consigned to the scrapheap. It is a shame to lose such wood, especially when you consider that much of it is of an age where it is

**John Parnell  
reveals a few  
ingenious ways of  
obtaining first class  
timber for free**

*Photos: The author*

completely stable and was in all likelihood properly seasoned before its initial use. My own experience, which I don't mind sharing, is that there are two main sources of free timber.

#### FIRST SOURCE

The first source is my local piano dealer. He is pretty well obliged to take in old pianos in part exchange when selling new replacements to clients. Many of these old instruments have workings that are beyond repair and thus present a serious disposal problem. They can be removed to a landfill site of course, although this is

expensive both in terms of transport costs and tipping fees. The other option is to have an enormous bonfire, but this is not always legal nowadays. Either way, this is a terrible waste of wood and could well reduce the keen woodworker to tears!

There is, of course, a third option, which is to give all this lovely old wood to me! I'm fortunate in that I live near to one of my dealer friend's delivery and collection routes and he is only too happy to drop off a load when he is passing this way in return for a cup of tea and a chat. It may well be that dealers in your own area will be happy to give you this wood although you may well have to collect it yourself, which would be a small price to pay.

## DECONSTRUCTION TECHNIQUES

In the case of old pianos, deconstruction is relatively simple. All that is needed is a couple of screwdrivers. Little or no glue is used in the construction of piano cases as it interferes with the sound quality of the instrument. A couple of screws and a few felt washers are usually all that's used and both are quick and easy to remove on site.

I have a good supply of the various panels to hand and the core wood for many of these is ash, with more exotic timber used for veneers. Quite a few of the better pianos use mahogany or rosewood and I am looking forward to a delivery in the near future of some grand piano lids some 7ft in length and made from solid rosewood. Can you imagine what that would cost today?

## SECOND SOURCE

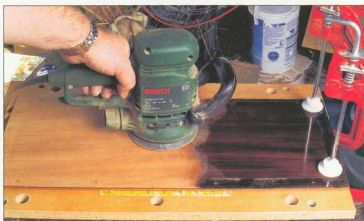
My other main source is another friend who operates a large scale house clearance business and regularly breaks up old wardrobes and sideboards that no one wants. He too has problems when it comes to disposing of this material. Not only is he required to pay high tipping fees, but he also has to have a licence to dump that is issued by his local council for which he has to pay a substantial annual fee! I'm sure you can begin to see the problem from a commercial point of view. Most dealers are not woodworkers, and to them the disposal of even exotic hardwoods is a logistical nightmare as well as a financial one. A quick trawl through your local Yellow Pages could well turn up a regular source of supply of some valuable raw materials.

## TREATING THE TIMBER

Once you have your wood to hand, dismantling and assessing it is the first step and then the clean up can begin. Most items of furniture considered undesirable nowadays are items such as wardrobes



Dismantling an upright piano front panel reveals  $\frac{1}{4}$ in thick sheets of mahogany



An orbital sander can make short work of removing the old varnish to reveal the warmth of the wood beneath

A typical marquetry panel recovered from the front of an upright piano



A cabinet for fine embroidery scissors is typical of the type of project that can be undertaken successfully with reclaimed wood





Laying out a set of cutting patterns on a recovered panel. The components will end up as an indoor plant stand



The completed plant stand in use

finished in the dark brown varnish much loved in the early years of the 20th century. This is a pity because underneath is usually some eminently re-usable oak panels, all fully seasoned and completely stable. A few minutes with an orbital sander (don't forget to wear a respirator) can reveal the grain pattern of some great oak boards which can then be re-used for many projects around the home.

I have also found many superb examples of marquetry panels lurking in piles of old piano panels. These are often of such high quality that it's worth framing them as decorative items in their own right. A clean up with methylated spirit and 0000 grade wire wool removes all the old grime and a subsequent re-polish with a couple of coats of finishing wax gives you a panel that can add decoration to an item for another century or more.

I tend to cut veneered panels in poor condition into stock sizes, set the table saw for a fine cut and then simply saw the veneer right off the underlying stock

material. There is no need to even remove it with a planer, sander or whatever.

There are probably many other sources of obtaining really good quality wood out there that I have not yet even explored. As I already have as much timber as I could possibly need, perhaps you ought to have a go and save some of the ever dwindling supply of good old trees from being lost forever. It's exceptionally cheap, environmentally friendly, easy to obtain and the wood recovered is often of excellent quality. What more can I say?



A pair of oak bookends. The wood came from the side panels of an old, dark brown wardrobe



An art deco style mirror frame scrollcut from a 1/2in panel recovered from a piano case

**"There are probably many other sources of supply of really good quality wood out there that I have not yet even explored."**

Jack Chapman adds the finishing touches to his internal sliding doors



# SLIDING DOORS PART II

The next step in this project is rounding over. Work out which sides need a glazing rebate and which need the round over treatment. I had cut the rebates and those for the interlocking folding doors, so I knew which sections to profile. I used a 6.5mm radius cutter to shape the inners of the rails and stiles, a 4mm radius cutter to emphasise the joint between neighbouring units of the folding doors, and an  $\frac{1}{4}$ in radius for all the remaining edges.

## HINGES

I opted for 4in brass hinges, positioned to

align with those already existing that were roughly 100mm (4in) down from the top, 200mm (8in) up from the bottom and in the centre. This avoids screwing into the tenon endgrain. The alignment of the hinges will need to be adjusted to make the finished door hang properly. I make my adjustments on the frame, not the door, so I can pre-mount the hinges squarely onto the door with the pin proud by the right amount.

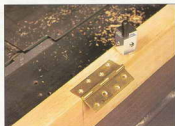
Making the recess for the hinge is a job for the router with a simple jig. You need a piece of timber 20mm ( $\frac{3}{4}$ in) in height, 40mm (1 $\frac{1}{2}$ in) in width, and 610mm



The 'stopped' roundover



The hinge jig in use



The hinge in place after squaring up the recess with the corner punch

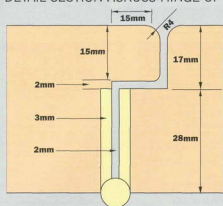


The neatly installed brass fittings

(24in) in length and square all round, with a piece of 6mm MDF about 130 x 305mm (5 $\frac{1}{4}$  x 12in). In the middle of one edge of the MDF, cut a rectangle with a width the same thickness of the piece of timber (20mm), plus the width of the cut you require, plus the distance between the cutter diameter and the outside of the guide bush. The length of the rectangle is the length required plus twice the distance between the cutter diameter and the outside of the guide bush.

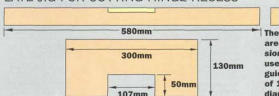
Screw and glue the two pieces together making sure the screws are well counter-sunk. Fit the bush and cutter to the router

## DETAIL SECTION ACROSS HINGE OF TWO SLIDING DOORS



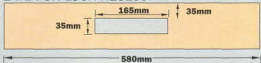
**"You need to resort to a mallet and chisel to cut the rebate for the plate"**

## TEMPLATE JIG FOR CUTTING HINGE RECESS

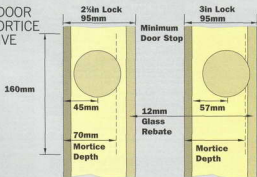


The templates are dimensioned to be used with a guide bearing of 12.7mm diameter and a router cutter of 12.7mm. This produces an offset of 2.5mm

## TEMPLATE FOR LOCK RECESS



## POSITION OF DOOR KNOB AND MORTISE DEPTH RELATIVE TO LOCK SIZE



and rout out an opening using the cut rectangle as a guide. These are markers for the start and end of the cut you make with the template. Mark a centreline to use for alignment. Position and clamp the jig on the workpiece to make the hinge recess. Square the corners and you get a perfectly positioned hinge every time.

Before the pilot holes for the hinge screws with a self-centring hinge. This is another little gadget that works but as I found out some time ago, the holes drilled in hinges are with no great precision. So having used a hinge as a template, it has to be marked so it can be assembled

in the same place.

## DOOR FURNITURE

The combined door lock and catch needs a mortise for the lock body and a recess for the faceplate. My client had a set of white painted wooden knobs, 40mm (1 1/2 in) in diameter, so I used a 2 1/2 in lock for the single door. I cut the mortise using my chisel morticer although you could use a router with a jig, which is something I shall explain in more detail in another issue. Cutting the recess for the faceplate of the lock needs a simple template and a router with a guide bush.

Since door knobs would compromise the folding of the set of doors, an alternative had to be found. My solution was a mortice lock combined with a Bales Catch and a pair of brass flush handles. The handles were slightly offset from one another to prevent interference from the mounting screws.

## GLAZING BARS

The design is for 6mm (1/4 in) laminated glass. The rebate for the glass is 18mm (3/4 in) deep and 12mm (1/2 in) wide so the glazing bar is 12mm (1/2 in) square in section if you want it flush with the frame. In fact it needs to be slightly less in one direction (about 0.5mm) to allow for the layer of clear silicon used to seat the glass. In order to maintain the rounded look I wanted a 6.5mm (1/4 in) roundover on the inner side of the glazing bar. The easiest way to make the bars is to machine a piece of timber 60mm (2 1/4 in) wide, to just under 12mm (1/2 in) thick and then to round over one edge with a 6.5mm radius cutter. Finally you can part off a 12mm (1/2 in) strip on the table saw. You can repeat the process of rounding and parting on the same piece of wood one more time.

Finally, the glazing bars need to be cut to size and mitred at each corner. I mark the relative positions of the bars in the door using different marks for each. There only needs to be a slight discrepancy in the dimension of the finished doors to destroy the fit of the mitred joints. The glazing bars are drilled to take the pins that will hold them in place. I use brass pins to avoid the possibility of rust stains.

## FINAL ASSEMBLY






























Although it is likely that the door will need to be planed on one side to make it close well, I still added a coat of primer. Next comes the moment of truth and the door is hung – a trial and error process. Once satisfied with the fit, the lock can be fitted and the holes can be made for the knob bar and lock keys. The exact centres depend on the type of lock but these will be given in the instructions. Fix the lock in place and mark the position of the catch and bolt as it strikes the door frame. This gives the position for the striking plate. You need to resort to a mallet and chisel to cut the rebate for the plate.
















Use clear silicon to seat the glass with just a thin bead all round. The glazing bars are fitted in their correct places and pinned. Protect the glass with a thin piece of card to avoid any risk of a scratch with the hammer. Recess the pinheads with a small nail punch and fill the holes with filler. All that remains is the fitting of the door knobs before passing the job onto the painter. Mission accomplished.

# SPECIFICATIONS

Manufacturer	Model	Wattage	6mm collet	1/4in collet	8mm collet	3/8in collet	12mm collet	1/2in collet
<b>AEG</b>	OFE710	710W	No	Yes	Yes	No	No	No
<b>Atlas Copco</b>	OFSE1000	1010W	No	Yes	No	No	No	Yes
	OFSE2000	2000W	No	Yes	No	No	No	Yes
<b>Black &amp; Decker</b>	KW800	710W	Yes	Yes	Yes	No	No	No
	KW800EK	800W	Yes	Yes	Yes	No	No	No
<b>Bosch</b>	GOF900ACE	900W	Option	Yes	Option	No	No	No
	GOF1300ACE	1300W	Option	Yes	Option	Option	Option	Yes
	GOF1600A	1600W	No	Yes	Option	Option	Option	Yes
	GOF1700ACE	1700W	No	Yes	Option	Option	Option	Yes
	POF400A	400W	Option	Yes	No	No	No	No
	POF500 A	500W	Option	Yes	Option	No	No	No
	POF600 ACE	600W	Option	Yes	Option	No	No	No
<b>DeWalt</b>	DW670	600W	Yes	Yes	Yes	No	No	No
	DW609	600W	No	Yes	Yes	No	No	No
	DW631K	600W	Yes	Yes	Yes	No	No	No
	DW613	800W	Option	Yes	Option	Option	Option	Option
	DW615	900W	No	Yes	Yes	No	No	No
	DW620	900W	Yes	Yes	No	No	No	No
	DW621K	1100W	Yes	Yes	Option	No	No	No
	DW629	1300W	No	Yes	No	No	Yes	No
	DW624	1600W	No	No	No	No	Yes	Yes
	DW625E/K	1850W	Option	Yes	Option	Option	Option	Yes
	DW627	2000W	N/A	N/A	N/A	N/A	N/A	N/A
<b>Draper Tools</b>	R850V	850W	Yes	Yes	No	No	No	No
	R1900V	1900W	Yes	Yes	Yes	No	Yes	Yes
<b>Flex Porter-Cable</b>	OFT 3121 VV	1710W	Option	Yes	Option	Option	Yes	Yes
<b>Festool</b>	1010 EB	1010W	Option	Option	Yes	No	No	No
	1010	720W	Option	Option	Yes	No	Yes	No
	OF2000 EI	2000W	Yes	Yes	No	Yes	Yes	Yes
	OF2000	1600W	Option	Yes	Yes	Option	Yes	Yes
<b>Freud</b>	FT 2000/E	1900W	No	Yes	No	No	No	Yes
	FT 1000 EK	1000W	No	Yes	No	No	No	No
<b>Hitachi</b>	M8	800W	No	Yes	No	No	No	No
	M8V	800W	No	Yes	No	No	No	No
	M12SA	1600W	No	Option	No	Option	No	Yes
	M12V	1850W	No	Yes	No	Option	No	Yes
	FM8	550W	No	Yes	No	No	No	No
<b>Holz Her</b>	2355	800W	No	Yes	No	No	No	No
	2356	1010W	No	Yes	No	No	No	No
<b>Kinzo</b>	25C45	700W	No	No	Yes	No	No	No
<b>Kress</b>	FM6955	950W	Yes	Yes	Yes	No	No	No
<b>Mafell</b>	L050 E	900W	Option	Yes	Option	No	No	No
	L065 E	1800W	Option	Option	Option	Option	Option	Yes
<b>Makita</b>	3620	860W	Option	Yes	Option	Yes	No	No
	3612C	1850W	Option	Yes	Option	Yes	Option	Yes
	3612	1650W	Option	Yes	Option	Yes	Option	Yes
	RP0910	900W	Option	Yes	Yes	Option	No	No
	RP1110C	1100W	Option	Yes	Yes	Option	No	No
<b>Metabo</b>	OFE 1229	1200W	Option	Yes	Option	No	No	No
	OFE 1812	1800W	Option	Option	Option	Option	Option	Yes
<b>Power Devil</b>	PDW 5027 W	850W	No	Yes	Yes	No	No	No
<b>Ryobi</b>	RE-601	2050W	Yes	Yes	Yes	Yes	No	Yes
	RE-155K	800W	No	Yes	Yes	No	No	No
	RE-120	570W	No	Yes	No	No	No	No
<b>Sparky</b>	X52E	500W	Option	Yes	Option	No	No	No
	X72CE	720W	Option	Yes	Option	No	No	No
<b>Trend</b>	T5E	850W	Option	Yes	Yes	Option	No	No
	T9E	1800W	Option	Yes	Option	Option	Option	Yes
<b>Virutex</b>	FR77C	850W	Option	Option	Yes	No	No	No
	FR78C	850W	Option	Option	Yes	No	No	No
	FR66F	1100W	Option	Option	Yes	No	No	No
<b>Woodcut</b>	WTC 1800E	1800W	Option	Option	Option	Option	Option	Yes

Max. plunge	RPM	Soft start	Voltage	Spindle lock	Dust extraction	Weight	Test	Price (VAT)
50mm (2in)	11,000 - 30,000	Yes	240V	No	Yes	2.9kg	TR10	£240
50mm (2in)	8,000 - 25,000	Yes	240V	Yes	No	2.7kg	TR24	£364
75mm (3in)	8,000 - 24,000	Yes	240V	Yes	Yes	5.2kg	TR3	£488
55mm (2 1/4in)	30,000	No	230V	Yes	Yes	3.8kg	NYT	£103
55mm (2 1/4in)	8,000 - 30,000	Yes	230V	Yes	Yes	4.0kg	NYT	£100
50mm (2in)	12,000 - 26,500	Yes	240/110V	Yes	Yes	3.5kg	TR1	£194
60mm (2 3/8in)	12,000 - 24,000	Yes	240V	Yes	Yes	4.8kg	TR31	£262
75mm (3in)	25,000	No	240/110V	Yes	Yes	5.7kg	TR2	£280
75mm (3in)	8,000 - 23,000	Yes	240/110V	Yes	Yes	5.8kg	TR31	£305
48mm (1 7/8in)	27,000	No	240V	No	Yes	1.7kg	TR31	£ 79
52mm (2in)	27,000	No	240V	No	Yes	2.3kg	TR31	£ 86
52mm (2in)	12,000 - 27,000	Yes	240V	No	Yes	2.3kg	TR31	£120
22mm (7/8in)	30,000	No	240/110V	No	Yes	1.9kg	TR30	£246
N/A	24,000	N/A	240/110V	No	N/A	3.3kg	TR30	£411
32mm (1 1/4in)	30,000	No	240/110V	Yes	Yes	2.8kg	TR30	£282
35mm (1 3/8in)	27,000	No	240/110V	Yes	Yes	2.8kg	TR1	£241
55mm (2 1/4in)	8,000 - 27,000	Yes	240/110V	Yes	Yes	2.9kg	TR30	£335
55mm (2 1/4in)	24,000	No	240/110V	Yes	Yes	3.1kg	TR24	£282
55mm (2 1/4in)	8,000 - 24,000	Yes	240/110V	Yes	Yes	3.1kg	TR1	£381
62mm (2 1/2in)	22,000	No	240/110V	Yes	Yes	3.1kg	TR30	£423
62mm (2 1/2in)	20,000	No	240/110V	Yes	Yes	5.1kg	TR30	£470
64mm (2 5/8in)	8,000 - 24,000	Yes	240/110V	Yes	Yes	5.1kg	TR3	£569
N/A	18,000	No	240/110V	Yes	Yes	7.3kg	NYT	£645
50mm (2in)	9,000 - 27,000	Yes	240V	Yes	Yes	2.7kg	TR26	£186
67mm (2 3/4in)	8,000 - 22,000	Yes	240V	Yes	Yes	5.8kg	TR26	£199
73mm (2 7/8in)	10,000 - 21,000	Yes	240V	No	Yes	7.8kg	TR5	£687
60mm (2 3/8in)	10,000 - 22,000	Yes	240V	Yes	Yes	2.7kg	TR33	£335
55mm (2 1/4in)	26,500	Yes	240V	Yes	Yes	2.7kg	NYT	£275
65mm (2 5/8in)	10,000 - 22,000	Yes	240V	Yes	Yes	3.1kg	TR33	£547
65mm (2 5/8in)	25,500	Yes	240V	Yes	Yes	3.1kg	NYT	£436
70mm (2 3/4in)	8,000 - 22,000	Yes	240/110V	Yes	Yes	5.9kg	TR2	£351
55mm (2 1/4in)	20,000 - 30,000	No	240/110V	Yes	Yes	3.5kg	NYT	£206
50mm (2in)	25,000	No	240/110V	Yes	No	2.7kg	TR32	£258
50mm (2in)	0 - 25,000	No	240/110V	No	No	2.8kg	TR32	£294
62mm (2 3/8in)	22,000	No	230/110V	Yes	No	5.2kg	TR32	£375
62mm (2 3/8in)	8,000 - 20,000	Yes	230/110V	Yes	No	5.3kg	TR32	£481
52mm (2 5/16in)	27,000	No	240V	No	No	2.3kg	TR32	£143
50mm (2in)	25,000	No	240/110V	Yes	No	2.7kg	TR24	£242
50mm (2in)	8,000 - 25,000	Yes	240/110V	Yes	No	2.7kg	TR24	£320
52mm (2 5/16in)	16,000 - 28,000	No	240V	No	No	2.7kg	TR31	£ 50
44mm (1 3/4in)	25,000	Yes	240/110V	Yes	Yes	2.7kg	TR23	£100
50mm (2in)	10,000 - 22,000	Yes	240/110V	Yes	Yes	2.7kg	TR10	£276
65mm (2 5/8in)	8,000 - 20,000	Yes	240V	Yes	Yes	5.5kg	TR4	£528
50mm (2in)	24,000	No	240/110V	No	No	2.4kg	TR10	£221
50mm (2in)	9,000 - 23,000	Yes	240/110V	Yes	Yes	6.0kg	NYT	£432
50mm (2in)	22,000	No	240/110V	Yes	Yes	5.8kg	NYT	£398
57mm (2 1/4in)	27,000	No	240/110V	Yes	Yes	3.3kg	TR31	£294
57mm (2 1/4in)	8,000 - 24,000	Yes	240/110V	Yes	Yes	3.4kg	TR31	£364
50mm (2in)	5,000 - 25,500	No	240/110V	Yes	Yes	3.4kg	TR1	£257
80mm (3 1/2in)	8,000 - 22,000	Yes	240/110V	Yes	Yes	5.1kg	TR3	£328
45mm (1 3/4in)	9,000 - 28,000	Yes	240V	Yes	Yes	3.7kg	TR31	£ 59
60mm (2 3/8in)	10,000 - 23,000	Yes	240/110V	Yes	Yes	6.2kg	TR2	£492
50mm (2in)	16,000 - 27,000	No	240/110V	Yes	Yes	3.0kg	TR24	£316
55mm (2 1/4in)	17,000 - 28,000	No	240V	Yes	Yes	2.2kg	TR10	£210
52mm (2 5/16in)	8,000 to 33,000	Yes	230V	No	Yes	2.2kg	TR10	£ 94
52mm (2 5/16in)	10,000 to 33,000	Yes	230V	No	Yes	2.2kg	NYT	£100
50mm (2in)	9,000 - 27,000	Yes	240V/110V	Yes	Yes	2.7kg	TR7	£175
75mm (3in)	8,000 - 22,000	Yes	240V/110V	Yes	Yes	5.2kg	TR9	£351
50mm (2in)	24,000	No	240/110V	Yes	Yes	3.2kg	TR24	£165
50mm (2in)	8,000 - 24,000	Yes	240V	Yes	Yes	3.2kg	TR15	£223
60mm (2 3/8in)	23,000	No	240V	Yes	Yes	3.7kg	TR15	£206
80mm (3 1/2in)	8,000-24,000	Yes	240V	Yes	Yes	5.1kg	TR6	£259

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Tim Jones, c/o The Router, 88 High Street, Lewes, East Sussex, BN7 1XN

## TOP TIP

### STAY STRAPPED

The dust hose strap is simply a piece of elastic that should be 30mm (1½in) in width and of a length to suit your height and workshop area. It holds dust hoses of 32mm (1¼in) and 41mm (1½in) outside diameter.

I chose a 600mm (24in) piece of elastic to suit a 2.6m (10ft 4in) ceiling and my height of 1.67m (62in). Velcro is used to fix off the dust hose and power cord. The top end of the strap is folded over 30mm (1½in).

This top section is fed over a cup hook fixed to the ceiling. Alternatively, a circular ring is encapsulated by the fold and can be used to connect to the cup hook or wires forming a grid pattern along the ceiling where you would be using the hose. To make a hose strap, simply follow these steps.

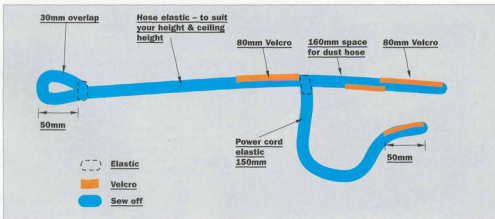
●Step One - Begin by folding over the top end of the elastic and sew after first inserting a circular ring IF REQUIRED.

●Step Two - Sew in the 80mm (3¼in) pieces of velcro for the hose holding section of the strap. Follow the measurements on the diagram for vacuum hoses of 32 (1¼in) and 41mm (1½in) outside diameters.

●Step Three - Sew in one end of the elastic which will hold the power cable. Sew in the two pieces of velcro, one to the end of the cable elastic and the other to the dust elastic as shown in the diagram.

**Peter Natoli,**

**New South Wales, Australia**

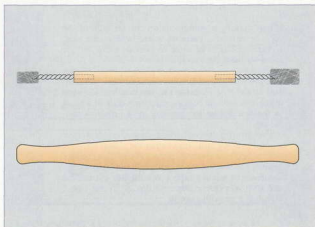


### BETTER BRUSHING

The little brass brushes used for cleaning router collets are worth having although their twisted wire handles are not very long, making them fiddly to use, especially if you are dealing with a collet in the router.

I have improved mine by mounting two sizes at opposite ends of a piece of dowel rod. I cut off the loop ends and secured the twisted wire in holes with epoxy glue. Of course, if you have a lathe you could use your own ideas for a better looking handle instead of the dowel rod.

**Ashley Cockburn,**  
Walsall, West Midlands

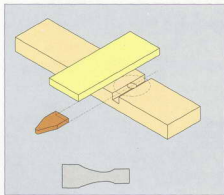
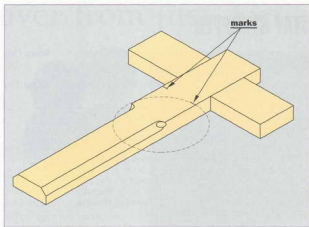




## SUSPENDED IN TIME

When cutting stopped chamfers that have to be a uniform distance from a joint or other point, I find it best to mark where the edge of the router base has to come, rather than trying to look through the router base to see when the cutter is there. I usually make a trial cut on the edge of a piece of scrap wood to obtain the precise distance.

**Derek Bennett,  
Ashford, Kent**



## GROOVING GAUGE

When grooving across wood it is usual to have a guide strip clamped on for the router base to move against. If the cutter is the same size as the intended groove width, you have to locate the guide strip to match the distance from the centre of the cutter to the edge of the base.

I have made the gauge shown as a better alternative to using a rule each time. Even if several passes have to be taken, the gauge can be used for each setting. If you have more than one router you could make a double-ended gauge, marked accordingly.

**Ellis P Ressado,  
Rhode Island, U.S.A.**

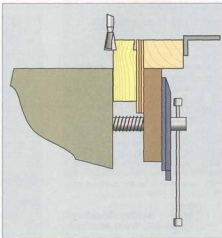
## FAR SIDE JIG

When making a router cut on the far side of the edge or end of a piece of wood held in the vice, something has to be done to provide extra surface for the router base to slide on.

I had been putting another piece of wood alongside the workpiece, but this needs careful lining-up and it did not increase the bearing surface very much. For such processes as cutting ends in a piece to make a dovetailed housing joint I made a simple jig.

The top is a strip of wood wide enough to give a good bearing and deeper than the router fence. It is attached to a piece of plywood to go in the vice against the workpiece. My jig is made longer than any piece of wood I expect to hold. For cutting the end of a workpiece that will not go in the vice, I attach the jig with cramps.

**Al Neri, Totnes, Devon**



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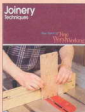
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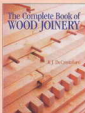
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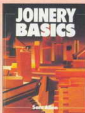
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