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# The Woodworker

November 2008

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& Woodturner

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# welcome



**T**he autumn chill is in the air, and it's time to retire to the workshop, padded shirt and fan-heater in tow, ready for another session of wood magic. If you're like me, you'll soon discard the padded shirt and turn the heater off once you get into the swing of things. You might even fling the door open before you pass out with heat exhaustion! Such is the life of the woodworker confined to a small space.



## A day in the country

Now you may think that we 'experts' don't have that problem, with our vast workshops and everything neatly in its place. Not a bit of it! This fact was brought home to Ben and me recently when we visited router guru Ron Fox to take the shot on the front cover. I've known Ron for a few years, but I'd never visited his workshop until now. We've all seen the photographs of parts of it in the many articles he has written for *The Woodworker* over the years, but it took a trip to his home in West Sussex to discover all his secrets!



You'll all be heartened to know that Ron's workshop is not that big at all – in fact it's really quite small. He has the same problems as the rest of us., which just goes to prove that space is not everything!

## More of the same

Ron's back in our Workshop section this month with the next part of his routing series. Mark Cass has taken time out to discuss the joys of batch production, and I'm continuing my new Understand... series with a look at the popular glues we use in the workshop.

There's plenty to get the creative juices going in the project section too, with Peter Dunsmore solving a book storage problem and Keith Smith making a quick and easy headboard for a single bed. Thread chasing is the subject of Alan Holtham's technical contribution to the Turning section.

## Competition time

Yes, it's that time again, the time when we give you the chance to win lots of free tools. We're launching this year's Woodworker of the Year competition in this issue. Sponsored by Einhell and Faithfull, there are over £4,500 worth of tools up for grabs by the lucky winners! Entry is free and there are more details and an entry form on page 30.

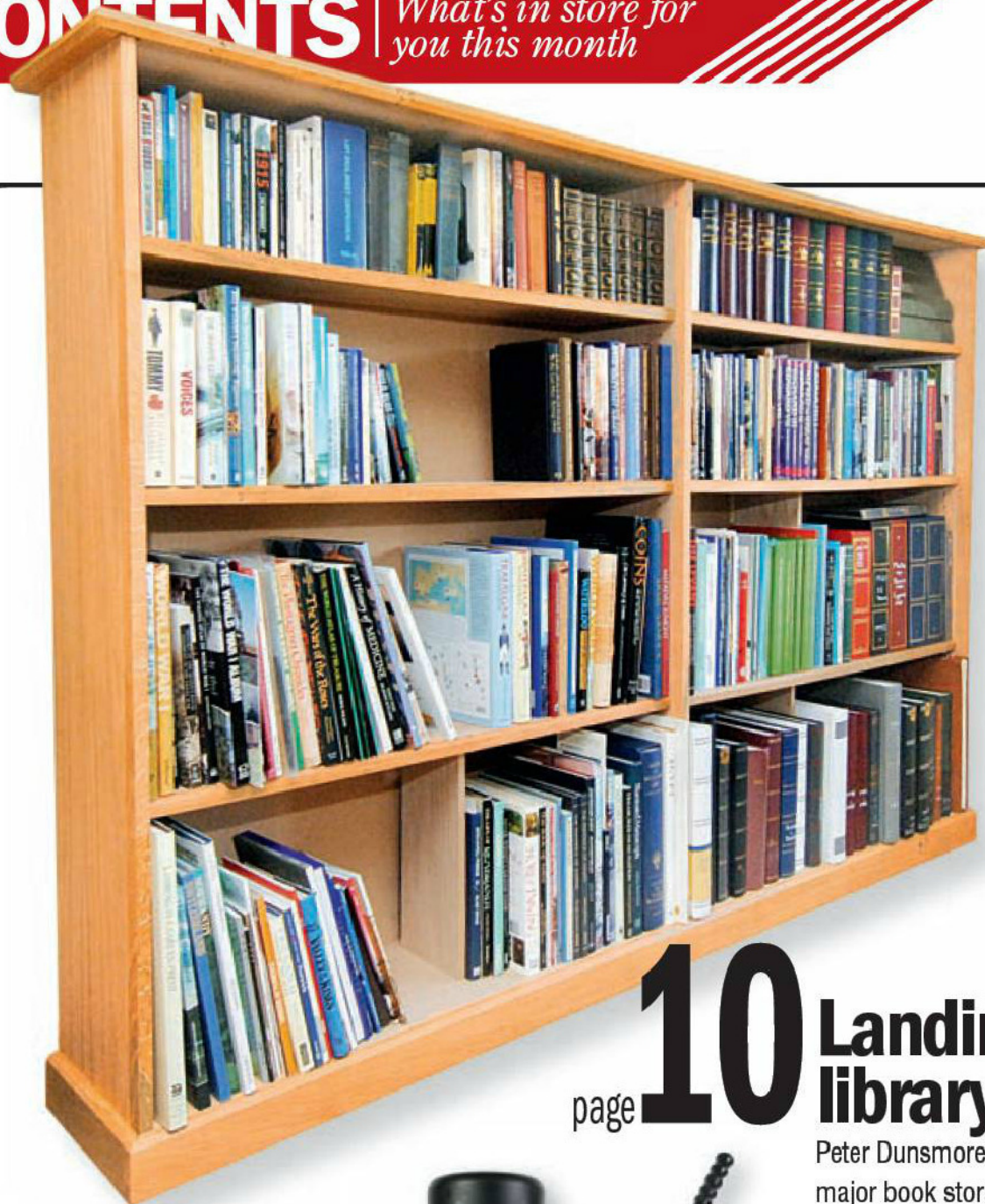
Finally, I have a new e-mail address here at *The Woodworker*. You can now contact me directly at [ralph.laughton@myhobbystore.com](mailto:ralph.laughton@myhobbystore.com)

*Ralph*



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## 44 NEW SERIES Understand... Glues

Ralph Laughton continues his new series of features on workshop essentials

# The Woodworker

November 2008

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## ON THE DESK...

So much stuff lands on our desks here at your favourite magazine's editorial office that we've decided to give you a quick sneak preview of what's around as soon as we get it. The best of these items will be earmarked for review in future issues. So feast your eyes on this month's offerings and let us know if you have any experience of the products featured...



### POWER8 WORKSHOP

**SUPPLIER:** CEL UK

**SUPPLIED DIRECT FROM:** [www.power8workshop.com](http://www.power8workshop.com)

**PRICE:** £293.74 + carriage

This British-designed kit is claimed to be the world's first portable cordless power tool workstation. It certainly looks like a compact and comprehensive package. It was designed by Chris Elsworth, a Bristol-based engineer, in his own garage. The whole kit sells for a very reasonable price and is supplied with the unique multifunction work box/tool table.

We'll be testing the Power8 Workshop kit to the full in our December issue.



### SCREWFIX CATALOGUE AUTUMN 2008

**SUPPLIER:** Screwfix Direct

**AVAILABLE FROM:** Screwfix

**PRICE:** Free

As usual the latest Screwfix catalogue is crammed full of good stuff and should keep you busy for a few hours playing spot the latest deal! Keep it handy for reference; in the next issue of *The Woodworker* Ralph will be giving you the low-down on wood screws in his new series Understand...



## DIARY

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30-31 Veneering: Jim Kitson  
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### NOVEMBER

#### John Boddy's Courses

6-7 Woodturning: Simon Whitehead  
13-14 Woodcarving: Peter Berry  
20-21 French polishing: Jim Kitson  
29 Woodturning: Simon Whitehead  
Details as above

#### John Boddy's Demonstrations

1 Veneering: Jim Kitson  
8 Woodturning: Simon Whitehead  
15 Woodcarving: Peter Berry  
22 Wood finishing: Jim Kitson  
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MANUFACTURER: Erbauer

AVAILABLE FROM: Screwfix

PRICE: £219.99

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#### AXMINSTER POWER TOOL CATALOGUE 08-09

SUPPLIER: Axminster

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BY PETER DUNSMORE

# Landing library

**Some good friends of ours recently completed building their own home, with a place for everything and everything in its place... almost! The sheer quantity of books they owned meant that the landing was being used as a temporary overflow book stack. Then it occurred to them that a large bookcase there could solve the problem at a stroke. An idea was born...**

**T**he landing (inset opposite) featured a long wall leading to the landing window, which offered the ideal space for some bookshelves. However, most flat-pack units were a little too ordinary, and the sizes available wouldn't fit neatly into the space. Their existing purpose-built bookcases were simply too big to go up the staircase. A compromise was needed, and the design I suggested seemed to fit the bill. The completed bookcase would not only fit in the available space and blend in with the style of the house. It would also be made in sections, so the individual components could be carried up the stairs and the finished bookcase assembled in situ.

The dimensions in the cutting list (page 13) are obviously designed with the recess on this landing in mind, and can easily be adjusted to any reasonable size following

the same general design principle. It's worth bearing in mind that the shelves shouldn't exceed about a metre in length, to minimize sagging under load.

## Design basics

For this project I used oak-veneered MDF, with solid oak lippings on all the front exposed edges. This material is very stable and easy to work, as well as being much cheaper than using solid oak throughout. In addition, when much of the unit was to be hidden in the recess, it seemed a bit of a waste of real wood that could be better used on other projects.

The base is joined to the ends using sliding dovetails, and the top is secured to them using biscuit joints. Sliding dovetails are used to fix the centre partition between the base and top, thus holding the top down in the middle of the case.

The shelves are supported on small brass peg supports fitted into holes drilled on the inside faces of the bookcase uprights. By drilling an array of holes, the shelves can be adjusted up or down to provide spaces to suit the books.

## Making a start

Begin by cutting to length the various pieces that make the top, the base and the uprights. The central upright is 6mm narrower to allow for the 6mm backing board. Remember to allow an extra 20mm on the length of the centre upright and the base for the dovetails.

## Dovetailing boards

The small router table originally made by ELU but now sold by DeWalt is in my opinion a very under-rated tool. As well as being fitted with fine adjusters, you can



1 Use a small router table hand-held to cut the dovetails on the board ends



2 Set the same depth of cut for the grooves using a depth gauge



3 Use a straightedge as a guide when cutting the grooves





remove the table top from the legs and use it to cut accurate dovetail profiles on the ends of long boards, **photo 1**, thus avoiding the problems associated with running a board along a table top. Use this table with a dovetail cutter to cut the dovetails to a length of 10mm on both ends of the base and the centre partition.

## Cutting the housings

Use the router, hand-held, to cut the dovetail housings in the centre of the base, the underside of the top and the lower inside faces of both ends. The previously cut dovetails will then slide neatly into them.

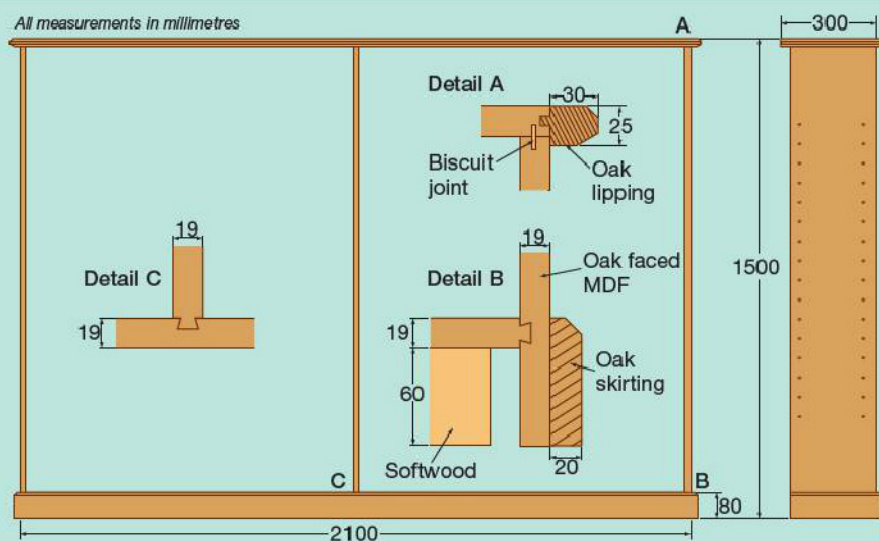
Set the depth of cut accurately to 10mm using a depth gauge, **photo 2**, and secure a straightedge onto the timber to act as a guide. My router base is 110mm wide and the guide should, therefore, be positioned 55mm from the centre of the slot being cut. Cut the slots in one pass, **photo 3**, keeping the router pressed firmly against the guide. Note that the edges of the uprights already have a tongue formed on them prior to this stage; see Fitting the lippings below for details.

## Fitting the lippings

All the MDF boards are faced with oak lippings planed to match the thickness of the boards. They're glued in place, **photo 4**, after cutting the matching grooves using a bearing-guided slot cutter. Note that I tongued the board and grooved the lipping on the uprights, but reversed the tongue and groove on the edge of the top because of its length – see below.

## Centring the cuts

The method I use to guarantee that the tongues and grooves are central is to set the depth of cut approximately central, either on the router if used freehand or on the table otherwise. Rout the groove, then turn the work around and repeat the



**Fig 1**



**4** Tongue and groove joints are used to locate the oak lippings



**5** I used a slot cutter in a hand-held router to groove the edges of the top...



**6** ...and installed in the router table to cut the offset tongues



## OAK BOOKCASE CUTTING LIST

All dimensions are in millimetres

| Part              | Qty         | L    | W   | T  | Material      |
|-------------------|-------------|------|-----|----|---------------|
| Top / base        | 2           | 2100 | 300 | 19 | oak-faced MDF |
| Uprights          | 3           | 1480 | 270 | 19 | oak-faced MDF |
| Shelves           | 6           | 1030 | 240 | 19 | oak-faced MDF |
| Underside of base | 2           | 2100 | 60  | 20 | softwood      |
| Top surround      | 1           | 2700 | 30  | 25 | oak           |
| Skirting          | 1           | 2700 | 80  | 20 | oak           |
| Lippings          | as required |      | 25  | 19 | oak           |

You will also need a quantity of brass shelf support pegs (I used Trend SS/B5/12 pegs) and a supply of No 20 biscuits.



process. Although the groove may be slightly wider than the cutter itself, it will be positioned centrally in the edge.

Now lower the cutter and make the tongue by cutting on both sides of the work. Increase the depth of cut a little at a time until the resulting joint is satisfactory. To save time resetting the cutter, cut all the tongues and grooves in batches.

In retrospect, I would glue all the lippings in place first and then cut the dovetail slots right through them, as the ends of the slots will ultimately be covered by the skirting.

Finally, while you've got the router out, use a bearing-guided rebate cutter to cut a

rebate to take the 6mm backing board along the inside faces of both ends, top and base.

### Making the top

The top is made in a similar way to the sides. Note that the lipping is a little thicker than the top so the overhang will cover the joint between the top and the sides. Because of the length of the top, it's easier to use the router hand-held to cut a groove for the lipping, **photo 5**, with the top is secured firmly to the workbench. Trying to manoeuvre such a long board over a router table is fraught with difficulty!

As this lipping is slightly thicker than that on the shelves, the tongue has to be offset and this should be set accurately on the router table. Use a scrap piece of timber of the same thickness as a trial piece, **photo 6**.

Before gluing the lipping in place, cut the slots for the biscuits in the underside of the top and cut corresponding slots on the top edges of the both end panels, **photo 7**.

### Moulding the top lipping

Use a bearing-guided 45° chamfer cutter to form a simple profile on the edges of the top lipping, **photo 8**, before gluing the pieces in place around the front and sides of the top. Take care when cutting the mitres

not to leave them too short; it's much easier to remove excess timber than it is to stick the sliver back on!

Glue the lippings in place using PVA adhesive, and clamp them in position with scraps of MDF to act as softeners, **photo 9**. Two small scraps of MDF clamped either side of the mitres will ensure that the lippings dry level.

### Fitting the shelf supports

For maximum flexibility, I fitted the shelves using brass pegs located in holes bored into the uprights using the Trend shelf support jig, **photo 10**. This is an extremely accurate method of positioning the holes, and it's well worth purchasing if you're regularly making units like this with adjustable shelves.

A couple of points are worth noting, however. Firstly, you should set the depth of cut on the bookcase sides as per the instructions. On the centre partition, set the depth of cut deep enough to cut right through the board so the pegs can be used on either side, but place a waste piece of ply or MDF on the underside to prevent breakout. The second and more important point is to ensure the holes will all be level with each other. Take all measurements for



7  
Biscuit joints will secure the top panel to the bookcase sides



8  
I cut a chamfer along the length of the lipping for the top panel



9  
The top lippings are carefully glued and cramped in place





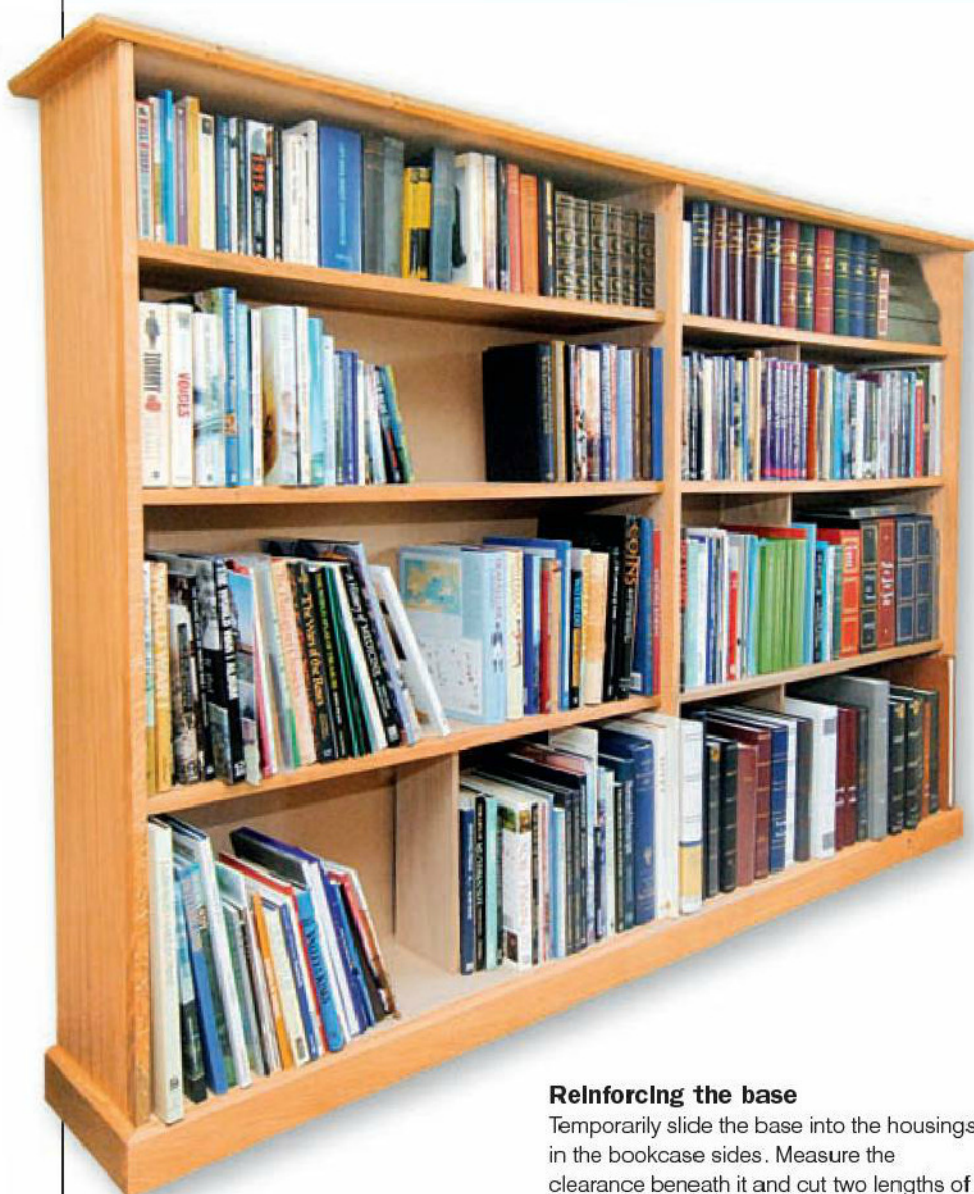
**10** The Trend shelf support jig guarantees accurate positioning of holes for the shelf pegs



**11** Two lengths of softwood give extra support beneath the base



**12** Sliding the sides onto the ends of the base as the bookcase is assembled



the positioning of the jig either from the base or the top of the sides and remember to measure the centre partition from the shoulder of the dovetail, not the end of the board.

## Reinforcing the base

Temporarily slide the base into the housings in the bookcase sides. Measure the clearance beneath it and cut two lengths of softwood to this width. Glue these in place on the underside of the base, **photo 11**. These will provide support at floor level to prevent the base from sagging, and also provides a surface to which to glue the skirting mouldings.

## Testing the fit

A trial assembly without adhesive appeared to go well, so I next cut the two 6mm thick backing boards to size and temporarily pinned them in place to hold the bookcase square. I then cut the three lengths of skirting to size, mitred their ends and glued and cramped them in position to the bookcase sides and the front edge of the base. The mitres will be glued together during the final installation at my friend's house.

## Preparing the shelves

The shelves are made from 20mm oak-faced MDF with a simple lipping glued along the front edge in a similar way to the other timbers. I formed a chamfer along the front upper edge to compliment that around the top. Finally I applied a matt cellulose-based finish to protect the surface.

## Assembly on site

Putting the bookcase parts together in its final location was surprisingly straightforward. The side panels slid smoothly onto the dovetailed ends of the base, with adhesive applied only to the mitred faces of the skirting boards, **photo 12**. I also used a little adhesive to secure the biscuits and the lipped top in place. Then I slid the centre partition in – the right way up, so the shelves would be level! – and pinned the back panel into its rebate. Finally I inserted the shelf pegs into their holes and slotted the shelves in place. It was time to give the book stack a home...

## FURTHER INFORMATION

**Trend shelf support jig (TEMP SS/A) and brass shelf support pegs (SS/B5/12)**

- Trend Machinery
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BY GORDON WARR

# Show home!

**Collecting things has become more and more popular in recent years, prompted no doubt by the many TV programmes and magazines devoted to the subject. Putting your collection on display is a natural progression, and this case is designed with that in mind. It's intended for small items such as snuff boxes, egg cups, serviette rings, model vehicles or, as here, a collection of china birds**

**T**he sizes given in the cutting list would suit a range of small collectibles, but the unit can easily be modified if necessary. Measure up what you want to display by setting your collection out on a table top, row by row, and don't be afraid to leave some space for future additions. Then

you can get a sense of the overall scale involved, how many shelves you'll need and how far apart they should be.

## Starting work

I had several pieces of old mahogany shelving in my workshop, all around 20mm thick and ideal for my needs. It didn't take me long to saw and plane the ten individual components to the widths and thicknesses required, **photo 1**.

Next I marked out the two ends to show the spacing of the shelves. It's good practice to mark these out with the two parts held together in a vice, **photo 2**. This ensures that they're exactly the same. I then cut all ten parts to length on my old universal machine.



My first job was to saw, plane and thickness all the parts to size





**2**  
I clamped the two end pieces together before marking the shelf positions



**3**  
I then used my biscuit joiner to cut all the biscuit slots



**4**  
A home-made string bow makes smooth curves easy to mark out





5 I cut the curved top rail roughly to shape on the bandsaw...



6 ...and finished the shaping with a compass plane and drum sander



7 Bore large and small holes to accept the hanging plates and screw heads



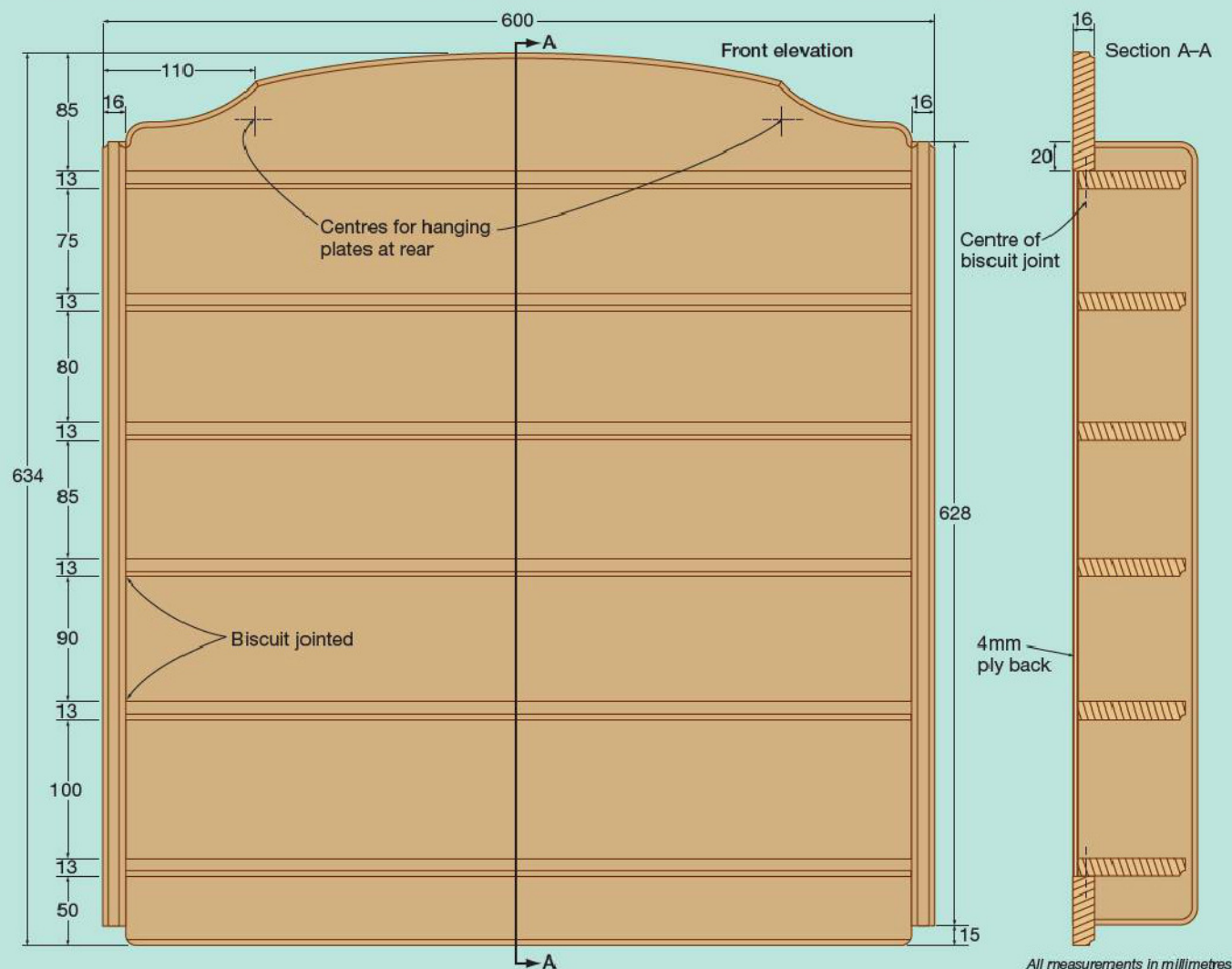
8 Use a 4mm bearing-guided quadrant cutter to detail all the edges



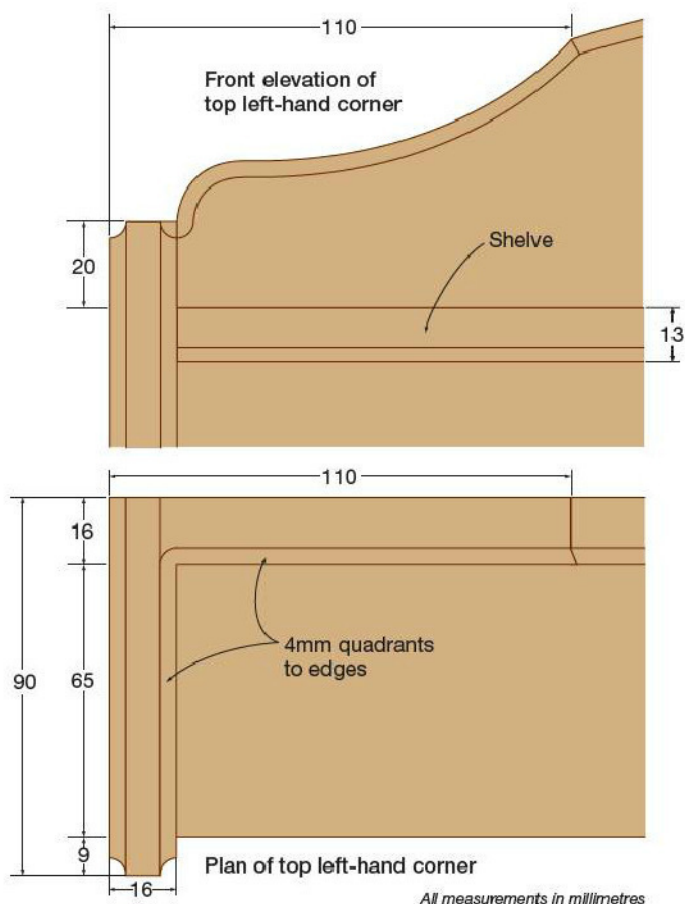
9 With all the parts prepared, it was time for a final sanding



10 The first of two sub-assemblies, the top rail and top shelf







#### DISPLAY CASE CUTTING LIST

All dimensions are in millimetres

| Part        | Qty | L   | W   | T  |
|-------------|-----|-----|-----|----|
| Ends        | 2   | 600 | 90  | 16 |
| Shelves     | 6   | 610 | 65  | 13 |
| Top rail    | 1   | 610 | 85  | 16 |
| Bottom rail | 1   | 610 | 50  | 16 |
| Back (ply)  | 1   | 550 | 610 | 4  |

Widths and thicknesses are net; an allowance has been made on the lengths. You will also need a supply of No 10 biscuits and two brass hanging plates.



I used shaped packing pieces to cramp each sub-assembly

#### Taking the biscuit

The joints between the shelves and the ends are made with No 10 biscuits, so my next job was to cut the slots required using my biscuit joiner, **photo 3**. You'll see from the drawings that the joints between the top and bottom shelves and the top and bottom rails are offset from the centre lines of the rails to form a rebate at the rear of the unit for the 4mm thick plywood back panel.

#### Shaping the top rail

It took only a moment to mark out the curved shape of the top rail. I tackled the

central part with the aid of my home-made bow, **photo 4**, which I can adjust by means of a string tourniquet to create a wide range of curves. I used a large plastic tub to mark the smaller diameter curves at each end, and blended them together smoothly. I then cut the rail roughly to shape on the bandsaw, **photo 5**, and smoothed off the main curves with a compass plane and my drum sander, **photo 6**.

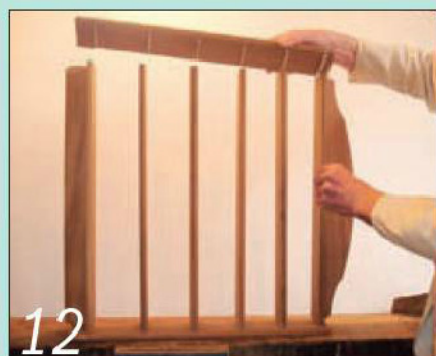
#### Ready to hang

The other job I had to carry out on the top rail was to prepare it for the two hanging

plates I intended to use. They're easy to fit and simple to use. The plates I'd bought were 25mm in diameter, so I first bored a shallow hole at this size to accept the thickness of the plate. I then bored a couple of overlapping 12mm diameter holes to provide space for the heads of the supporting screws, **photo 7**. Don't attach the hanging plates yet, though

#### Quadrant beading

The edges of all ten components have quadrant cuts formed on them, with the ends having both edges treated in this way.



The single biscuits in the shelf ends made final assembly very easy



Long cramping pieces and sash cramps held the assembly tightly



The rebates for the back panel needed their corners squaring up





**15**  
After cutting the back panel to size, I sanded it thoroughly



**16**  
I treated the case and back with a rich mahogany stain...



**17**  
...and followed this up with a couple of coats of sanding sealer



**18**  
Finally, I burnished the final wax finish to a sheen with a soft shoe brush

This is a job for the router table, with the router fitted with a 4mm bearing-guided quadrant cutter.

Most of this shaping is quite straightforward, **photo 8**, but you need to take care where the quadrant cuts on the top and bottom rails meet the ends. The cuts have to be stopped, with their relative positions matched up exactly to create what is effectively a continuous quadrant edge. Any misalignment of the details will be immediately apparent!

## Room at the back

The last job for my router was to create a rebate for the back panel on the inner edges of the ends. Remember that the top and bottom edges of the rebate were formed by inseting the top and bottom shelves 4mm. Note that the rebates are stopped at both ends – not a problem as long as the limits of the rebates are clearly marked.

All that remained before I could start the final assembly was to clean up all round, using a power sander on the flat surfaces, **photo 9**, and hand sanding on the edges, curves and quadrants.

## Working in stages

Assembling any project is always easier if you can do it in stages. Here I decided to create two sub-assemblies. One involved

joining the top shelf and the top rail, the other the bottom shelf and bottom rail. Note the four evenly-spaced biscuits, **photo 10**. Once they were glued up and clamped securely with the aid of some shaped packing pieces, **photo 11**, I set them aside to dry. I also attached the two hanging plates at this stage.

## Coming together

It was now time to bring all the parts together in sequence. The single biscuits linking the shelf ends to the sides were a big help in aligning the various components, **photo 12**. I used cramping pieces the same size as the ends, plus sash cramps to both sides of the unit, to ensure that all the joints were tight, **photo 13**. I then checked that the assembly was square and free from twist, and quickly wiped away any excess adhesive with a damp cloth.

## All squared up

Once the assembly was out of the cramps, I could attend to the ends of the stopped rebates. These needed to be squared up with a chisel, **photo 14**, to allow the plywood back panel to fit properly.

I then cut the panel to size,

trimmed it to fit snugly within the rebate, marked the positions of the screw holes needed to fix it in place, and gave it a final sanding, **photo 15**. It wouldn't be fitted yet, though... not until I'd applied its finish.

## Stained to perfection

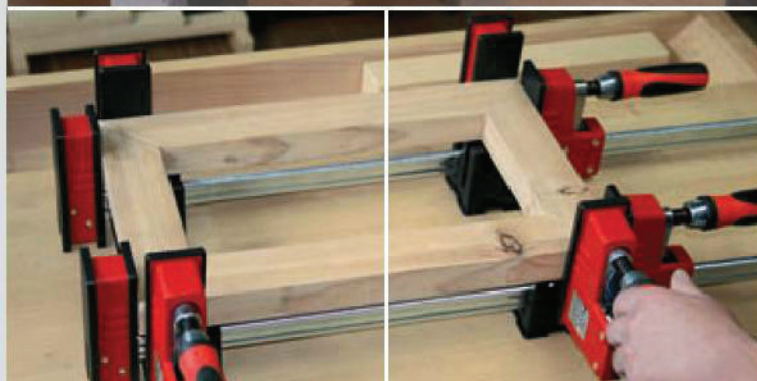
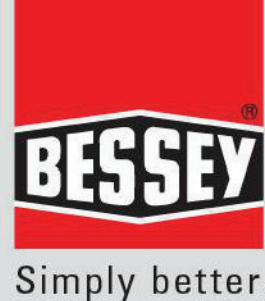
I first stained the case and back with a rich mahogany stain, **photo 16**, which helped to disguise any shade differences between the various components. I followed this with a couple of coats of sanding sealer, **photo 17**, and then gave it a wax finish. I applied this with 0000 grade steel wool, then burnished it thoroughly with a soft shoe brush, **photo 18**. After all, there's not much difference between furniture polish and shoe polish, so a brush works rather well!

The final touch was to screw the back panel into its rebate and hang the unit on the wall, ready for the birds to come home to roost! There's a little spare space, but I fear it will soon be taken up...





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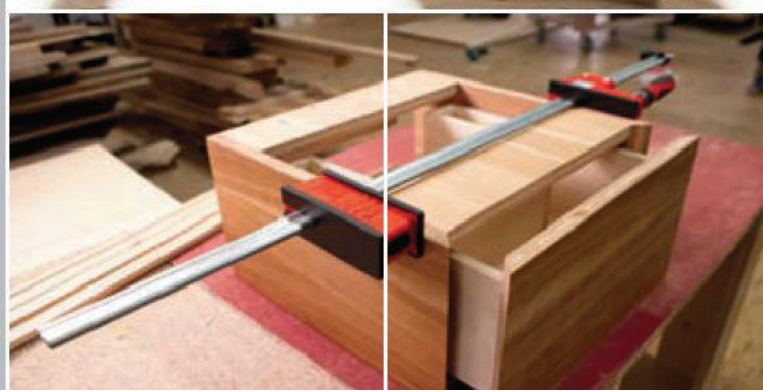


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BY ALAN HOLTHAM

# Clear the decks!

With my desk overflowing with excess but necessary clutter, I reckoned the time had come to bring some order to the chaos. I decided to replace the tottering tower of wobbly stationery trays with a smart little desk tidy that had some closely spaced shelves for papers and a small drawer to hide away all the other odds and ends





**S**uch a simple project could be modified for all sorts of other applications, like storing recipe sheets in the kitchen, magazines in the living room or even abrasive paper in the workshop. It's a good example of less being more on the design front.

### The raw materials

I wanted something that would look a bit stylish, so I settled on using some second-hand Brazilian mahogany for the whole construction. In a former life this material had been a shelving unit in a local shop. Although it was peppered with screw holes, biscuit slots and bad scratches, it was ideal for a project like this that needed only short lengths of thin stock.

Its existing thickness of about 25mm meant that although I could resaw the very thin material for the shelves, the thicker material for the carcass would require some rather wasteful planing down, but at least it was free!

### Cutting down

If you need to cut thicker material down into thinner sections, the bandsaw is the ideal tool, **photo 1**. Use a sharp blade and allow it to cut at its own speed rather than forcing it. With old and dry timber like this, there is rarely any serious distortion during the re-sawing process, and you should end up with truly flat material.

It's just not safe to surface very thin material such as this. Instead you'll have to

### DESK TIDY CUTTING LIST

All dimensions are in millimetres

| Part              | Qty | L   | W   | T  |
|-------------------|-----|-----|-----|----|
| Top/base          | 2   | 360 | 245 | 12 |
| Sides             | 2   | 270 | 235 | 12 |
| Bottom shelf      | 1   | 320 | 228 | 10 |
| Centre shelves    | 4   | 325 | 220 | 5  |
| Back panel        | 1   | 330 | 280 | 3  |
| Drawer front/back | 2   | 318 | 50  | 8  |
| Drawer sides      | 2   | 210 | 50  | 8  |
| Drawer base       | 1   | 310 | 225 | 3  |

rely on the thicknesser to plane both sides, but it will press flat anyway under the feed rollers. Take only light cuts from each side, and leave it a couple of millimetres over the finished thickness at this stage, **photo 2**.

### Glue up

Unfortunately, the original shelves were not quite wide enough for my finished project, so I had to glue up a wider piece. The most effective method here is to glue it all up into one big piece and then slice off the widths required, rather than trying to make up each piece individually.

When the timber is this thin, I don't bother with biscuits as any slight misalignment can be corrected when the shelves are finally thickened. There is also then no danger of cutting through a joint and exposing the biscuits when making any of the later shaping cuts.

Use the same procedure for the thicker material for the carcass, cramping it all up thoroughly and then leaving to dry at least overnight, **photo 3**.

### Ripping away

The completed boards can then be removed from the cramps and the worst of the hardened glue squeeze-out removed with a chisel to allow it to sit flat on the saw table. Rip these down to the required widths, leaving them a little oversize and being careful to orientate the cuts so that there will be no joints near the edge of a piece, **photo 4**.

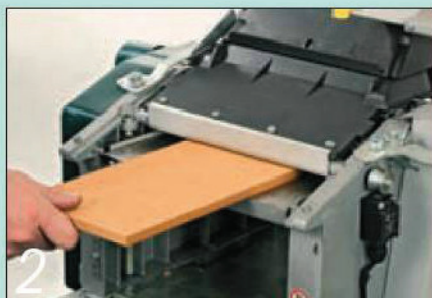
Although the widths are cut slightly oversize to allow for planing, I cut the lengths to the exact size so that any breakout on the crosscut is removed with the subsequent thicknessing cuts. Once again, only take light cuts until you reach the required thickness.

### Joining up

The main carcass is then biscuitted together – a relatively straightforward procedure for the uprights, as the slots can be aligned using the fence on the biscuit jointer, **photo 5**. Things are little more complicated for the horizontal members as



1 Cut the thinner sections down to size on the bandsaw



2 Use the thicknesser to plane both sides of these thin sections



3 Cramp the widened sections and leave them to dry



4 Rip the widened boards down to the required widths



5 Align the biscuit slots using the fence on the jointer



6 Use the fence again to provide the correct offset



the uprights are set in slightly. However, if you hold the work in the vice against a piece of wide scrap material, you can still use the fence to provide the correct amount of offset and at the same time keep the slots vertical, **photo 6**.

That's all there is to the main carcass. No fancy joints are needed on this one, but you do get a good-looking result with minimum expertise, **photo 7**. The intermediate shelf also needs to be fitted in the same way, using a couple of biscuits at each side, **photo 8**.

## Routing along

The next stage is a little trickier in that you have to produce parallel and matched slots in the two sides to take the thin shelves. I have always found the only way to get a perfect match in this situation is to clamp the two sides together and machine the slot in one go, using the router with a

6mm cutter and guiding the base against a straightedge, **photo 9**. Remember that the slot needs to be stopped at either end, as the four shelves are set back slightly from the front of the unit.

Once you have made the first slot, machine a small strip of wood to be a tight fit in it. This has the effect of locking the two halves together while you make the subsequent cuts, **photo 10**. If you have a lot of these evenly spaced slots to cut, it's worth making up a repeat jig, but for just a few like this, some careful measuring each time you reset the clamp guide is a quicker option, **photo 11**.

## Rounding over

Now thickness down the shelf material until it is a smooth sliding fit in the groove, **photo 12**. Resist the temptation to make it too tight, or you'll have trouble assembling it all later on and you'll end up damaging

something if you have to start hammering it into place. Obviously the ends of the slots are radiused, but the shelf edges are square, so to make them a neat fit the shelf edges have to be rounded over.

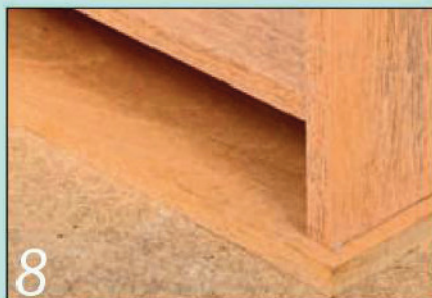
For this I used a horizontal router table and a tall temporary sub-fence to provide the necessary support, **photo 13**. You could use a round-over cutter and make a pass along either side of the shelf. I found a beading cutter of the correct dimension that allowed me to run it in a single pass. The resulting fit was very neat and extremely pleasing, **photo 14**. I must try this technique again sometime, instead of fiddling about cutting haunches so that the shelves overlap the rounded housings!

## Rebating In

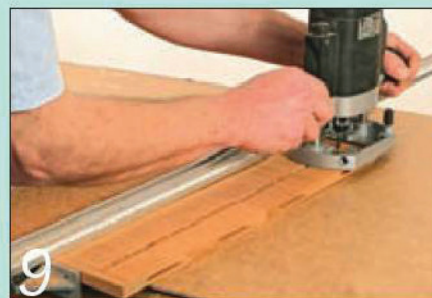
The back edges of the carcass now need to be rebated to take the back panel, which is just a piece of 4mm mahogany-faced



**7** Assemble the main carcass dry to test the fit, and do any necessary trimming



**8** The intermediate shelf is fitted in place with two biscuits at each side



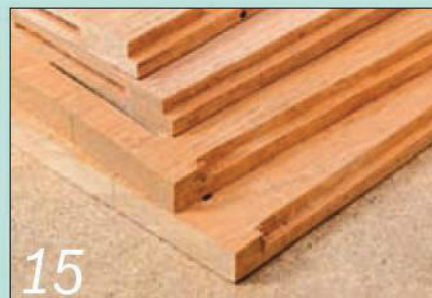
**9** Clamp the two sides together side by side and machine the first slot for the shelves



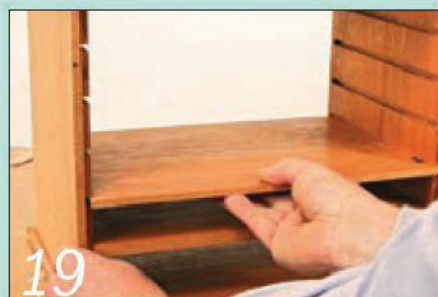
**13** Round over the shelf edges using a tall temporary sub-fence as a support



**14** The resulting fit in the routed grooves was very neat and visually pleasing



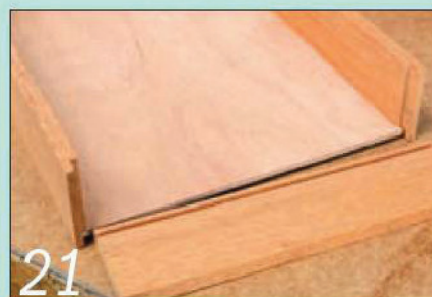
**15** Note that the rebates in the carcass top and bottom are stopped



**19** Then slide the four centre shelves into place in their grooves from the back of the unit



**20** Prepare the four sides of the drawer box and cut the grooves for the drawer base



**21** The corner joints are half laps, easy to cut on the router table



plywood. The rebates are again cut on the horizontal router table using a straight bit. Don't forget that the top and bottom rebates need to be stopped, or they will show in the finished cabinet, **photo 15**.

Finally, the front edges of the carcass need to be radiused like the shelves. This is a simple job with a round-over cutter in the router table. It's good practice to make the end grain cuts first before you do the long ones, to minimize any breakout on the corners, **photo 16**.

### Finishing off

Once the unit is assembled, it will be very difficult to do any polishing work on the shelves, so now is the time to finish those areas that will become inaccessible after assembly. I use brushing lacquer for projects like this, **photo 17**, as it dries very quickly and gives a lovely satin finish that highlights the grain but is not too glossy.

This will also dry to a hard finish in an hour so, even after several coats, so you can quickly move on to the assembly of the main carcass, gluing and cramping it firmly and checking for square as you increase the cramping pressure, **photo 18**.

I decided to assemble the basic carcass first and then fit the shelves afterwards, **photo 19**, rather than trying to get it all together in one go – a sure-fire recipe for disaster!

### Boxing up

Prepare the material for the drawer from some of the offcuts, machining in the grooves to take the base, which is another piece of mahogany-faced plywood, **photo 20**. The corner joints are half laps – another simple job to cut on the router table, **photo 21**. The drawer front has a small radiused cut-out to act as the finger pull. Shape this to a perfect curve using a drum sander in

the drill press, **photo 22**, then clamp the drawer box and set it aside to dry.

The back panel just glues in place after you have squared out the corners of the stopped rebates in the horizontal members, **photo 23**. There's no need to pin it.

Once everything is assembled, you can lightly sand the unfinished areas and then brush on the lacquer as before. Leave the outside of the drawer sides unfinished or they will tend to bind when you close the drawer, **photo 24**.

### Checking out

This really was a simple little project to make, with nothing difficult or challenging in the making process and requiring just some basic tools. Even working in quite a leisurely way, it offered a very pleasant day off from my normal paid jobs, and my reward was a tidy desk at last. Now where's that stapler?



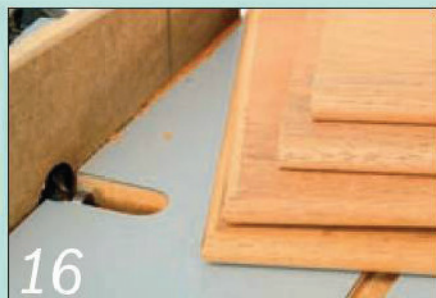
**10** Lock the two halves together with a wood strip while making subsequent cuts



**11** You could make a repeat jig, or just reset the clamp guide as required



**12** Thickness the shelf material down so it's a smooth sliding fit in the grooves



**16** Round over the carcass edges; make the end-grain cuts first



**17** Apply brushing lacquer to all the internal surfaces before doing any assembly work



**18** Assemble the main carcass and check that everything is square as you tighten the cramps



**22** Shape the radiused finger pull using a drum sander and assemble the drawer



**23** Glue the back panel into place in the squared-off rebates. There's no need to pin it



**24** Finish the lacquering, but leave the drawer sides bare so they don't bind in the cabinet



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BY KEITH SMITH

# Perfectly pierced!

**Now and again I get asked to tackle something unusual, and this pierced design for a headboard to adorn a single bed was certainly that. But nothing ventured, nothing gained... and I do like a challenge!**

**F**or this project I needed to create a complicated cut-out pattern. I'd been sent the approximate design, which I had to copy as closely as possible. One particular problem with this sort of design is the symmetry; the eye will spot any minor discrepancies immediately, and the effect of the design will be lost.

## OK computer

I'm used to using TurboCAD, a computer drawing package, to produce working drawings for furniture, so I set about producing a full-size drawing of the design on the computer, **photo 1**. It wasn't actually that difficult; the only problem arose when I came to printing it out. Like most of us I have only an A4 printer, and it took ten sheets of paper to cover the complete design! I then had to assemble them carefully using sticky tape, **photo 2**.

## Tried and tested

The design was to be cut out from a sheet of 6mm MDF. To transfer the drawing, I covered the MDF with carbon paper, **photo 3**, placed carbon side down, and laid the pattern on top. I know it's an old-fashioned method, but it works!

Once I was sure the design was all within the MDF sheet, I taped it down to ensure it didn't move as I used a blunt pencil to transfer the outline onto the board, **photo 4**. I couldn't easily tell where I'd already marked, so I managed to miss the odd line, **photo 5**. However, this was easily resolved with a bit of artistic licence.

## The first cut

I now bored a 10mm hole through each section of the design where I would need to



insert a jigsaw blade, **photo 6**, and cut out the design using a blade designed for cutting tight circles, **photo 7**. The jigsaw leaves a relatively coarse finish, and I cleaned this up with a small drum sander in a power drill, **photo 8**. This creates a lot of fine dust, and a good respirator is a must.

## Gently rounded

The front edge of the design needed to be rounded over, and the easiest way to achieve this was to fit a bearing-guided round-over cutter in the router table and to follow the design very carefully, **photo 9**. This didn't reach into all the corners, and I needed to trim those with a small carving chisel, **photo 10**. I then sanded the design smooth, taking care to keep the back edges as square as possible.

## Coming together

I used PVA adhesive to glue the completed design to an 18mm MDF backing board. A vacuum-type bag press would be the ideal method of holding the two pieces together while the glue set, but as I don't have one I had to resort to placing a scrap piece of ply over the pattern and clamping it down, **photo 11**. When the glue had dried, I was pleased to find that the whole design was securely bonded to the MDF.

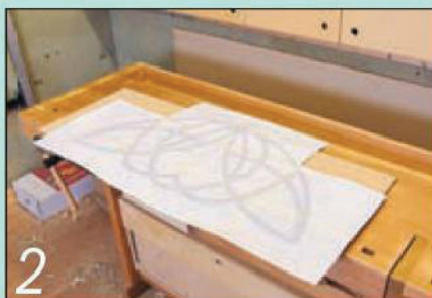
The 18mm backing board was oversize so I could cut round the design once the glue had set. I left a 200mm wide plain section below the pattern to allow the headboard to be fixed to the bed.

The headboard was now ready for final finishing and colouring, **photo 12**, which was to be completed by my client.





1 I produced the design from a paper drawing, using TurboCAD software on my computer



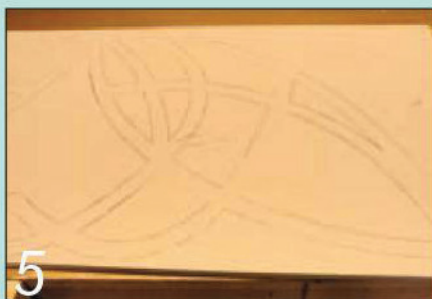
2 I had to tape together ten sheets of A4 paper in order to complete the design



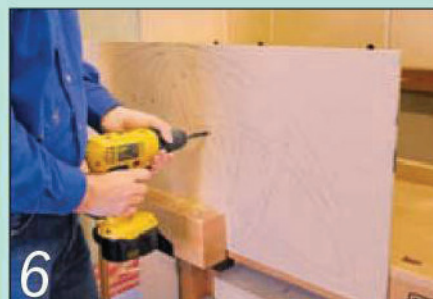
3 I then laid sheets of carbon paper face down on the 6mm thick MDF sheet..



4 ...and traced carefully all round the pattern with a blunt pencil



5 I managed to miss a few lines, but these were easily added later



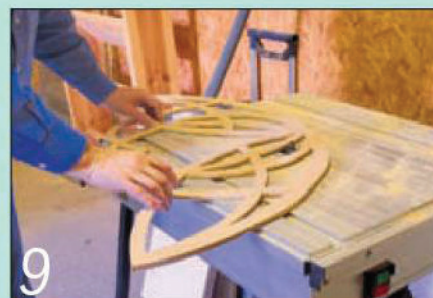
6 I then bored a 10mm hole within each waste area of the pattern...



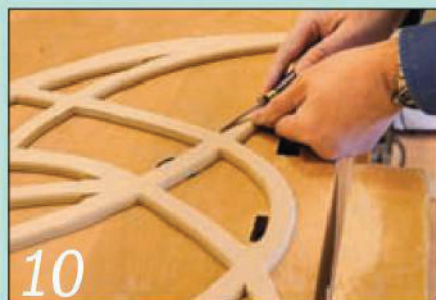
7 ...which allowed me to insert the jigsaw blade into each one and cut it out



8 I did the initial clean up with a drill-mounted drum sander



9 I carefully rounded over the front edges of the design on the router table...



10 ...and cleaned out the inaccessible corners with a small chisel



11 I used a plywood offcut to hold the design down while the glue set

## Design on a shoestring

I have TurboCAD Professional software, which at about £700 for the latest version (v15) is far too expensive to consider for occasional use. However, TurboCAD Deluxe has all of TurboCAD Professional's features for drawing in two dimensions, plus most of them for 3D work, and is available for less than £100. An even cheaper option is to buy an earlier version such as TurboCAD Deluxe v12, which you can usually find for half the original price. TurboCAD is available for both PCs and Macs; go to [www.turbocad.co.uk](http://www.turbocad.co.uk) for more details.



12 The headboard ready for finishing: the client was delighted (and the dog seemed pleased too!)



# WOODWORKER OF

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### WOODWORKER OF THE YEAR

Awarded to any project made by a home or professional woodworker over the age of 18

### YOUNG WOODWORKER OF THE YEAR

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- BT-VC 1450SA wet 'n' dry vacuum cleaner
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- BT-JS 800 jigsaw
- BT-BJ 900 biscuit jointer
- BT-OS 150 orbital sander
- BT-CD 18TP cordless drill twin pack
- BT-MG 135 multi-function tool kit
- BT-BG 150 bench grinder

### PLUS

A kit of hand tools worth £500 from the Faithfull catalogue

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An Einhell Blue power tool package worth almost £500, including the following tools (see first prize for model details):

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 Eric Coates  
 Dressing chest

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All you have to do is send in the completed entry form (or a photocopy), accompanied by a brief description of your project and a selection of pictures.

- The description should include brief details of the materials, tools and techniques you used.
- The pictures should ideally be digital images, sent to us on a disc, but we can also accept prints or slides.
- Please send at least three pictures shot from different angles, but no more than 10 pictures per project. Enclose a strong stamped addressed envelope if you want prints or slides returned to you.

**CLOSING DATE:** December 31st 2008

### RULES OF THE COMPETITION

- Employees of MyHobbyStore Ltd, Einhell UK and the Toolbank group of companies, their agents or relatives are not eligible to enter.
- The decision of the judges is final and no correspondence will be entered into concerning the judging.
- Entrants must agree to have their projects photographed for publicity purposes by MyHobbyStore Ltd, Einhell and Faithfull.
- The competition is open to readers in Great Britain, Northern Ireland, the Channel Islands and Eire.
- By entering the competition, entrants will be deemed to have accepted these rules.

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**8-10 Knoll Rise, Orpington, Kent BR6 0EL**

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## Clarke SCROLL SAW

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- Air-blower removes dust from cutting area

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| MODEL           | MOTOR PLUNGE (W) (MM) | EX VAT  | INC VAT |
|-----------------|-----------------------|---------|---------|
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| Clarke CR2      | 2100 0-60             | £79.98  | £93.98  |
| Ryobi ER12100F  | 2100 0-60             | £119.98 | £140.98 |
| Freud FT220VCEK | 1900 0-67             | £179.98 | £211.48 |

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| CM12S | 305/25.4mm     | 90/310mm            | £139.98 | £164.48 |

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| Bosch PS1650      | 500       | 65mm                      | £29.98  | £35.23  |
| Bosch GS11350LE   | 720       | 135/10mm                  | £139.98 | £164.48 |

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|---------|-----------------------|--------------|----------------|-----------------------------------|-----------------------------------|
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|-------------|------|------------|---------------------------------|---------------------------------|
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| CBG6RSC     | HD   | 150mm      | <del>£34.99</del> <b>£41.11</b> | <del>£41.11</del> <b>£49.33</b> |
| CBG6S8      | PRO  | 150mm      | <del>£37.99</del> <b>£44.64</b> | <del>£44.64</del> <b>£53.57</b> |
| CBG6RWC     | HD   | 150mm      | <del>£37.99</del> <b>£44.64</b> | <del>£44.64</del> <b>£53.57</b> |
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**Makita** **Bosch**

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|-------------|-------|--------|---------------------------------|----------------------------------|
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| Bosch PBS7A | 600w  | 250    | <del>£52.99</del> <b>£62.26</b> | <del>£62.26</del> <b>£74.71</b>  |
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| Makita 9911 | 650w  | 75-270 | <del>£82.99</del> <b>£97.51</b> | <del>£97.51</del> <b>£117.01</b> |

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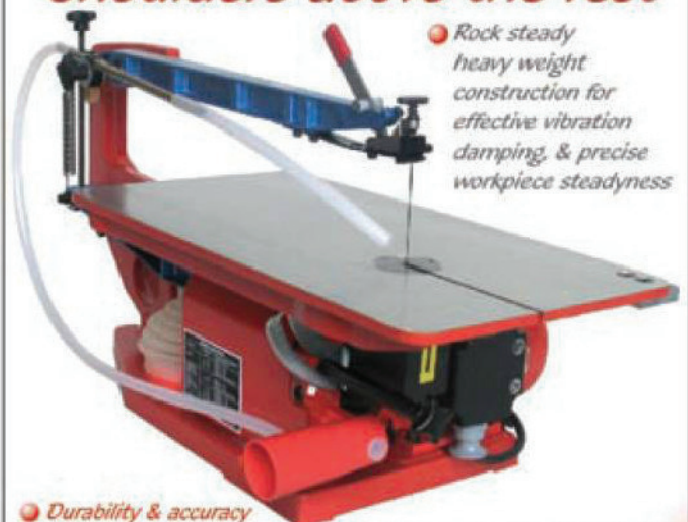
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## NEW UNDERSTANDING... SERIES

**GLUES** Ralph Laughton continues his new series in which takes a look at workshop essentials in a new light. His topic this month is woodworking adhesives, without which a great many woodworking projects simply wouldn't hang together



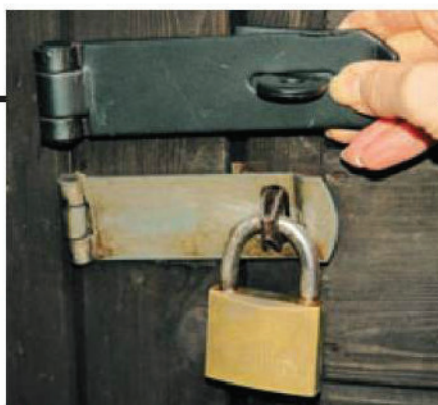
**KEITH SMITH** gets two new machines up and running, puts the finishing touches to his dust extraction system, makes some internal door panels for a 1939 MG TA and lays a new hardwood floor



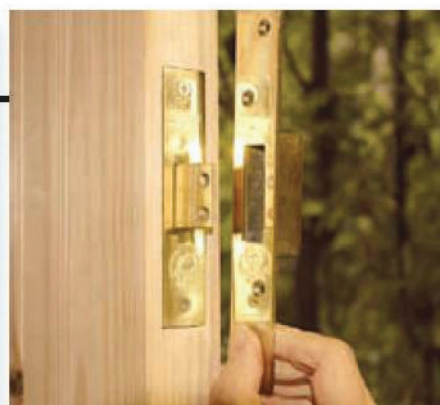
**RON FOX** explains how many bread-and-butter routing jobs can be made easier, safer and more accurate by means of simple home-made jigs. This month he concentrates on the circle jig



**GROOVES AND REBATES** are the topic for the latest feature in our series that pits man against the machine in the workshop



Fit a heavy-duty hasp and staple to garden sheds. This one costs £4.99 from Screwfix



Mortise deadlocks and box keepers will improve the security, making it much harder to gain entry

## Keep your stuff safe!

Ralph Laughton takes a look at workshop security

We all think of our own little domain as sacred: how dare anyone enter uninvited? However, those of us who have workshops in the back garden are prime targets for a bit of light-fingered crime. Just having your workshop tucked away out of sight doesn't mean that it's going to be secure. I'm not trying to start a scare here, but we're all a bit inconsistent in our attitude to security. If we leave a car parked on the street, we always lock it from force of habit. We don't stop to think how many times someone is going to walk past trying the car doors, but we still lock them just in case.

For me, the same policy applies to my workshop. I lock it up every time I leave it. Excessive? Maybe, but it's a good habit to get into and soon becomes second nature, just like locking the car.

The typical garden workshop usually resembles a garden shed, and can be a target just because it looks as if it might contain the odd mower or strimmer that will fetch a few quid down the pub. Imagine the delight on a thief's face when he discovers that it actually contains a collection of expensive woodworking tools and equipment, all ready for lifting! And many of those same tools could be just what he's looking for if he has a bit of more serious breaking and entering on his mind.

### Off with the old...

Most sheds are supplied with inadequate hasps and staples that are designed to be secured with a cheap padlock, but they have no real deterrent value because one heave with a crowbar will pop the fixing screws straight out of the wood.

If you do nothing else, consider replacing this arrangement with something more substantial. The hasp and staple in the picture above will still yield if the thief is determined to get in, but it will require much more effort, take longer and, most importantly, make more noise. These are all things any self-respecting burglar will try to avoid. You can make his job even harder if you use nuts and bolts rather than screws to fix the parts in place.

### Five levers best

For more substantial timber outbuildings, fit a good-quality five-lever mortise deadlock and keeper... or preferably two, for extra protection. The more work you give the thief to do, the less likely he is to attempt a break-in. Make sure any lock you choose conforms to British Standard BS3621, which ensures that it has at least 1000 key variations, is proof against

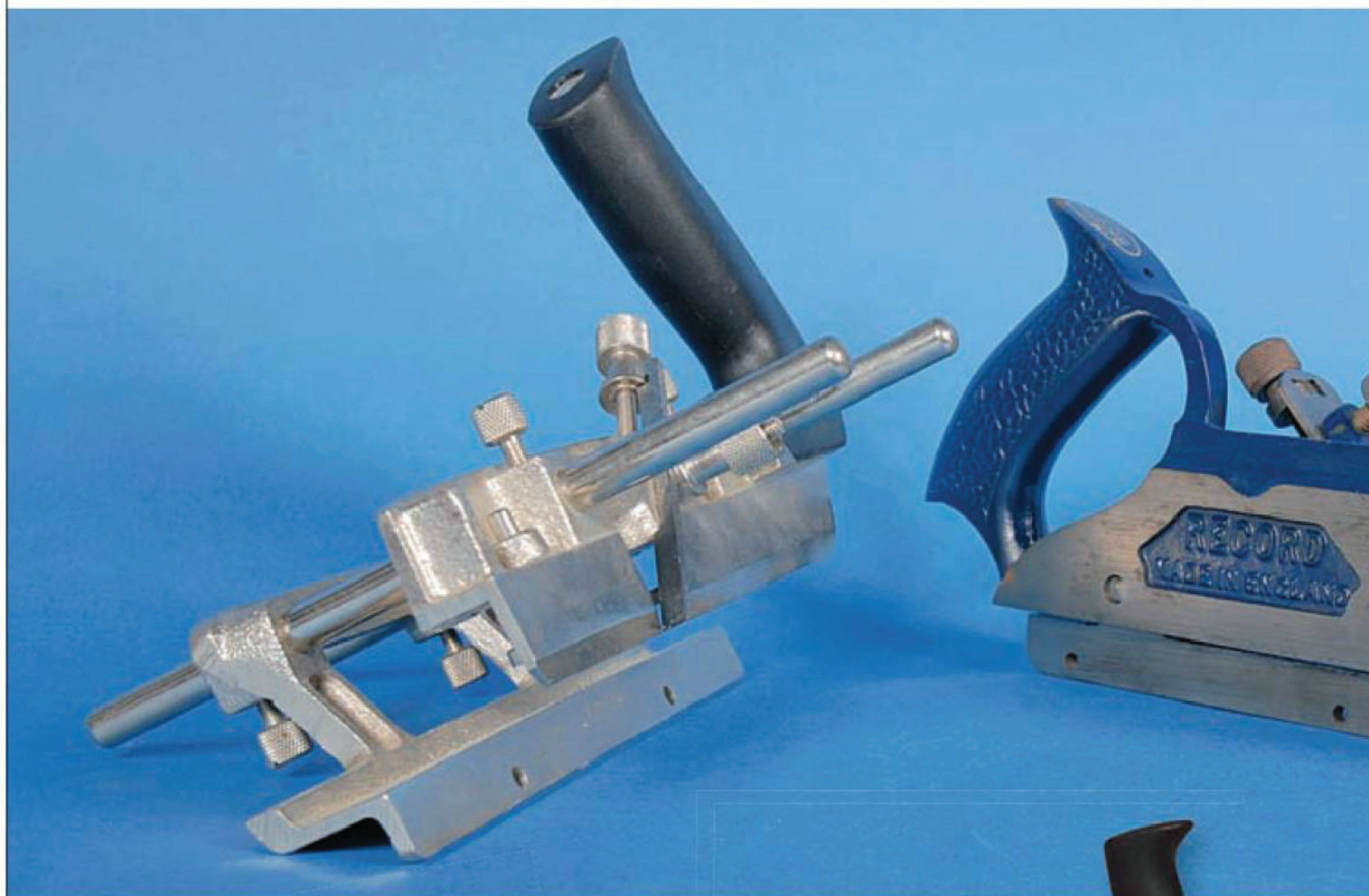
picking and is strong enough to resist drilling, cutting or forcing. These deadlocks are not over-expensive and could save you a fortune in lost tools and damage.

For more information on security devices, take a look at the Screwfix catalogue for a vast range of locks and other equipment.

### FURTHER INFORMATION Security equipment

- Screwfix Direct
- 0500 414141
- [www.screwfix.com](http://www.screwfix.com)





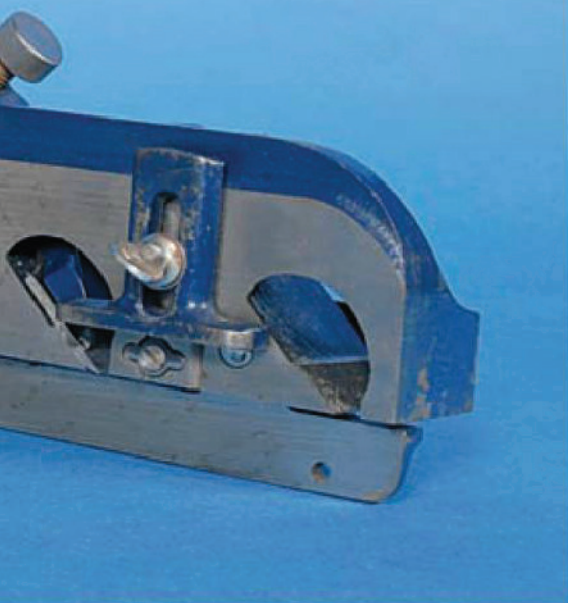
The panel in this door is held in place by fitting it into grooves sunk in the inner edges of the frame

A late-model Stanley plough plane, complete with plastic handle, used in this article

Cutters are made in both metric and imperial sizes



# 6: Grooves & rebates



In this article the subject is ploughing grooves and cutting rebates. To plough a groove means to sink it in line with the grain of the wood. To sink a groove across the grain is referred to as cross-grooving or trenching. In the next issue we'll take a close look at cutting housings and cross-grain rebates

## HAND CUTTING GROOVES & REBATES

In his 1902 book *Modern Practical Joinery*, George Ellis describes grooving as 'a rectangular sinking in the surface of any material'. His definition of a rebate (pronounced rabbit) is similar: 'a rectangular sinking on the edge of any board or framing'. This definition covers all 'sinking', and to that end will include housings. More than a hundred years on, the definitions have become somewhat muddled thanks to the ever-increasing literature and reference material available from abroad, chiefly America.

Grooves are chiefly sunk into timber for retaining panels. They're also used for other purposes such as creating a track for a sliding door or to add a decorative feature.

### Hunting the plough

These days, finding the tools to plough a groove by hand can be quite a challenge. Apart from a few specialist makers, there are no readily available new tools since the Stanley plough plane disappeared from the catalogue a few years ago. However, they're still fairly common on the second-hand market. A trawl through the current eBay listings is always worth a go. A quick search recently revealed 20 listings of various designs of plough plane.

The plane being used here is a late model Stanley complete with plastic handle. It's not the most desirable tool for the collector, and a modest £20-30 should provide you with a very respectable tool complete with a good selection of cutters.

When buying second-hand planes, make

sure they're complete as spare parts are hard to come by. You may need to buy a second 'scrap' plane to obtain any missing parts.

### Cutters galore

The Stanley plough planes came with a good selection of cutters in various widths. The set used here includes cutters that in both imperial and metric sizes. This is useful when deciding what sort of fit is required. A 6mm thick panel will be a very tight fit in a 6mm groove. However, if a 1/4in cutter is used this will cut a 6.35mm wide groove, making the panel an easy sliding fit. If for any reason a groove needs to be widened after sinking, then a side rebate plane should be used to open it up. Attempting to plough an overlapping groove seldom results in a satisfactory result.

### Fitting the cutter

Select a cutter that matches the width of the groove to be sunk. Narrow cutters are held in place using the knurled securing nut alone, being held square by the slot in the casting. Wider cutters will need more support and a slotted block is used, in addition to the knurled nut, to support the outer edge of the cutter. This is the part that is often missing from second-hand planes.

### Ready for take-off

Prepare the timber to be grooved, ensuring that the face side and edge are square. Use a pencil to mark the position of the edge of the groove nearest the reference side of the

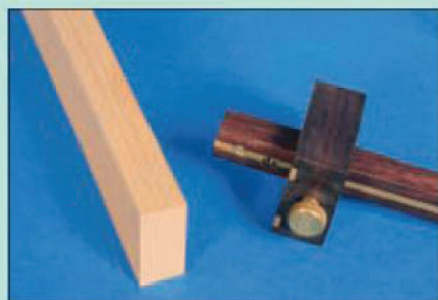


Make sure second-hand planes are complete. This was missing the wide cutter clamping block



Using a cutter slightly wider than the panel thickness will ensure an easy sliding fit





Marking the path of the groove with a mortise gauge will cut the grain and help make a crisp edge



Ploughing a groove in the edge of a door stile; work progressively from the far end back towards you



A ploughed groove in the top of a small wall cabinet, ready to accept a captive loose back



The Record 778 rebate/fillister plane; if buying one second-hand, make sure it's complete



For cutting deeper rebates, the fence bar can be withdrawn into the machined side of the plane



Lubricate the running surfaces with candle wax to reduce friction and make the cut easier to progress

material. Set the depth of the groove by adjusting the depth stop. Ensure the stop is set parallel to the bottom of the plough. Tighten the locking screws with firm pressure. This can be applied with the aid of a slotted screwdriver if required. Don't over-do it; you need to make sure it won't work loose, but you'll need to loosen it off again when you've finished. Add the bars and side fence and set it so the edge of the cutter aligns with the pencil mark.

## Crisp and even

Now the plane is set up, you're almost ready to start sinking the groove. To get a good crisp edge, it's best to cut or score the edges of the path the cutter will take. The easiest way to do this is with a mortise gauge. Set the pins to the width of the cutter and set the stock level with the fence of the plough plane. Carefully scribe the wood with the gauge. Check that all is aligned and start cutting the groove.

Work from the end of the groove, removing a short length at a time and moving progressively back, taking longer and longer strokes. Continue until the stop prevents the plane from removing any further material and you've reached the opposite end of the board.

## Stopped grooves

Stopped grooves are sunk using a similar method, except that instead of running

through the board the groove is terminated in a shallow mortise, of equal width and depth to that of the groove, cut at one or both ends of the groove.

## Long-grain rebates

A rebate is a groove sunk on the face edge of the board. In this case we're looking at rebates that run in line with the grain.

Again, rebate planes are not as common as they used to be and a lot of the larger planes command a high price on the second-hand market. There are a few makers still producing rebate planes, so tools such as the Record 778 used here can still be found at reasonable prices.

This is a rebate/fillister plane. Technically speaking, a fillister is a rebate cut on the opposite edge to the face edge, typically for receiving the glass in a window. It can be configured for bull-nose working by relocating the cutter to the forward position. This is handy if you're sinking a stopped rebate, as it leaves less material to be worked by other means.

## Using a fence

A rebate can be cut using a batten secured to the work to act as a fence. The rebate plane is run over the work, while being held against the batten, steadily sinking a rebate to a gauged line. I use this method for cutting larger rebates using heftier planes.

For more delicate work, the 778 is an

ideal tool. Not only can it be used for rebating, but with its attachments removed it can also be used for square work.

## Planing a rebate

Prepare the timber to be rebated, ensuring that the face side and edge are square. Set a marking gauge to the width of the rebate and gauge a line along the entire length of the rebate. Set the depth stop on the 778 to the required depth. Although it isn't strictly necessary, gauging a depth line on the work is a useful double-check.

Work in the conventional manner, taking long thin shavings until the required depth is reached. Take care to keep the plane square. It's easy to produce a slanted rebate if you let your attention wander!

## Practice makes perfect

Both grooves and rebates are easy to produce once you've had a little practice. The choice of wood will play a big part in the success of either operation. Straight-grained hardwood is the preferred choice. Cutting in softwood such as pine is perfectly possible, but the cutters have to be kept sharp and any resin build-up must be removed. Lubricating the running surfaces with candle wax will also help matters.

For cutting grooves and rebates by machine, go to page 54





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BY MARK CASS

# Pattern repeat

**Most woodworkers enjoy making bespoke pieces of furniture – each one unique, and proudly so – but there are times when pairs, sets and multiples need to be created too. Not everyone will want to take on a set of six chairs, for example, but don't let the numbers put you off. There are ways of making a potentially long job just that bit shorter. We're talking batch work.**

**T**he term 'batch work' is generally associated with professional workshops turning out short runs of products made to a uniform standard at a price agreed with the customer. Quality can vary from the very best workmanship to the grudgingly acceptable, the important thing being that each piece is exactly the same as the next in terms of materials used, constructional standards and dimensions, as well as colour and finish.

Batch work differs from the continuous output of a dedicated factory set-up in as much as the smaller costs involved mean greater flexibility of design and a quicker turnaround. I don't know what the minimum

order for a run of furniture at the IKEA plant is, but I imagine they'd be somewhat reluctant to make your special table, chairs and sideboard suite for you.

## Applied philosophy

For the amateur or hobbyist woodworker though, batch work is more of a philosophy which can be applied to almost any job or process, in fact wherever repetition is

involved. As well as the obvious things like the aforementioned sets of chairs, even the most ordinary item will probably have some component parts which are identical – the doors in a cupboard, the drawers in a chest or the legs on a table. All of these provide ample opportunity for applying the methods and disciplines of batch work. So, if you've ever baulked at requests for large numbers or sets of things because of the size of the job, these next few pages might make you reconsider.

## Pleasure v profit

One of the great things about making for pleasure as opposed to profit is the (usual)



1 Clear marking helps the tally-up before the actual machining begins

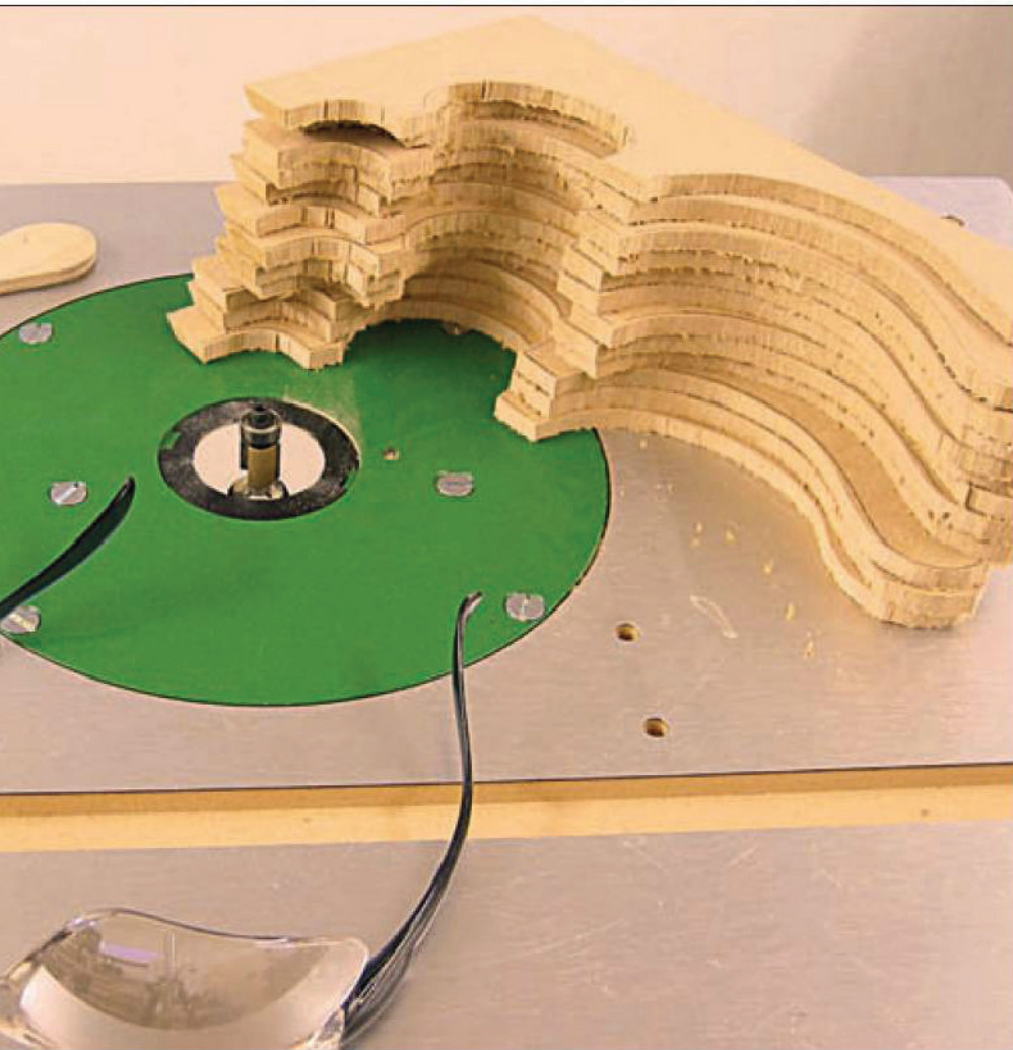


2 Try to keep each marked-up batch separate from the next



3 Once the parts are squared and thickened, you can cut them all to length





lack of pressure involved. You can take your time and proceed with the job along lines of your own choosing. This is fine for the majority of projects, but every now and then an urgent commission will intercede to disrupt that carefully nurtured workshop harmony.

What is needed at times like this is an economy of effort, some increased efficiency and constant and repeatable results. If this sounds dangerously like turning your workshop into some sort of suburban sweatshop, don't worry: batch work methods won't compromise your craftsmanship, and are very satisfying and rewarding on many other levels.

### Back to basics

Batch work starts at the drawing board, or its electronic equivalent the computer. This is one of the most important but frequently rushed stages of any job. It's here that the concept design can be considered, and opportunities for multiple component working identified as the drawing takes shape.

Identical items are obviously first on the list for batch work, but you should also be on the lookout for pieces that will share a common joint, dimension or shaping treatment. Not only will this be a benefit in terms of economy and efficiency; closer consideration of every aspect of the job will bring to light any shortcomings in the

design at this early stage. This is a definite bonus for anyone who has discovered a mistake only when it's too late to do anything about it but start again.

### Spillt for choice?

With the job's progress mentally mapped out, or listed as bullet points to assist any memory shortcomings, it's time to turn your attention to timber. Wherever possible, choose the timber that's most suitable for the job in terms of minimum machining, ease of handling and so on, and resist those special offers which will always involve twice as much work and three times as much waste.

### A little list

Another oft-ignored step of the making process is the cutting list. It's often cursorily attended to or skipped altogether, usually leading to regrets further down the line. I've got into the habit recently of preparing a rough cutting list for machining purposes, and a more detailed one drawn up from my sketches after I can see all the necessary materials to hand.

### Handle with care

When it comes to converting timber from the rough sawn to the dimensioned and prepared state, patience is high on the list of desirable emotions. Rushing headlong into the work, as well as being potentially dangerous, generally results in any or all of the following:

- the wrong dimensions;
- the best pieces used by mistake for the bits that won't show;
- more waste;
- another trip to the timber merchant.



4 Identical components should all be marked out simultaneously

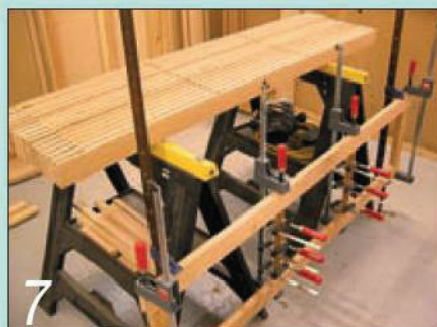


5 Trickier marking may have to be done from a master or template



6 Complete all of one manufacturing stage first, as with these through mortises...





7 ...before going on to the next stage, to avoid the risk of confusion

Start with the biggest items on the cutting list first and work your way through methodically, trying to plan the process so as to use the same settings wherever possible. Not only will this help keep things constant; it will mean less chance of error in setting and resetting machinery.

## Avoid the run-out

With everything cut roughly to size, it's on to the planing and thicknessing stage. Before you switch on the machines though, it's worth having a final check to see that you have sufficient timber. It really is worth having that little bit extra, both as insurance against error, and just as importantly, to enable samples and test pieces to be made.

From experience I know that it's much better by far to be generous with quantities than to run out, and be forced to knock out a rush component which in all probability will be ever so slightly different from the earlier batch. If you aspire to the close tolerances of accurate work, any small discrepancies resulting from separate batch machining will be noticeable.

## Marking time

Once you've set out the job on a rod (or rods), it's time for marking out. Again, accuracy and consistency are everything



8 Working from the saw fence produces a set of identical tenon shoulders

here, and you won't regret employing a painstaking and methodical approach throughout. Consistency is the name of the game and, with multiple components marked up exactly the same and cut to length on the same machine setting, you're pretty much assured of an error-free job.

## Paying attention

It's important to stay attentive throughout the whole machining process, and every little thing you can do to help will be effort well rewarded. I'm probably not the most tidy of workers, but nonetheless I make sure that all pieces to receive a particular machine cut or treatment are stacked in the same orientation – all top faces uppermost, for example – so I can repeat the same movement again and again and be sure that I'm cutting the right bit the right way. It's a little like thinking of yourself as a robot.

## Production line

Batch work can be likened to a factory production line, with you as the worker and



9 All these frame beads have been mitred on the same machine setting

each machine or stage just one more section of the conveyor belt. Don't forget that you're also in charge, and you have the power to pull the plug at any point and redesign the whole process. Although it's somewhat repetitive and mind-numbing at times, I've found that the mass production philosophy soon becomes quite pleasing, and the sight of a batch of identical items lined up on the workbench is very gratifying.

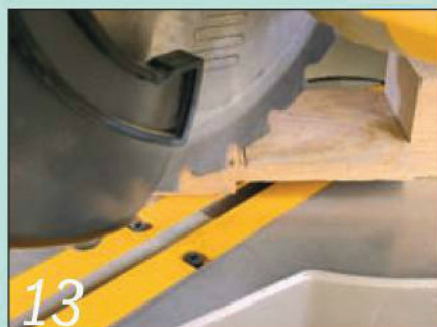
## Work aids

Jigs, stops and other similar work aids should be utilised to the maximum wherever possible in batch work, and in this might mean that you can dispense with marking out every component in full.

A good example is where a stop is used when cutting the shoulders for tenons on a set of door rails; by calculating the required lengths beforehand, and setting the tenon dimension to, say 75mm, not only can all the shoulders be cut with confidence. Their uniform length can be utilised later on in another stage, where a stop on a machine will enable another repeat operation to be accurately carried out.

## Absolute zero

To ensure the consistency of each batch, it's vital that all machines, jigs and stops are



13 Stop plus uniform tenon length equals consistent accuracy

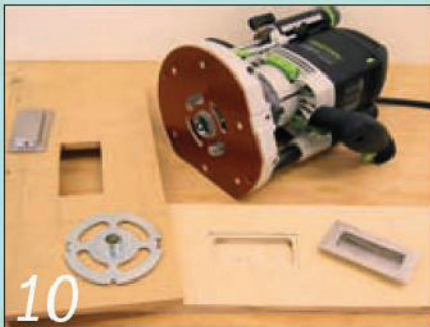


14 Without this purpose-made support, boring these sockets would be impossible



15 Frame components are stacked up, ready for the next stage





10 Using a jig and two guide bushes makes short work of fitting a set of handles



11 A simple holding aid ensures consistency and easy handling of small components



12 Temporary stops can make repeat cutting so much easier – and more accurate

set with the utmost accuracy, as any mistake will be duplicated on each part. It's the zero error philosophy.

This is what the extra quantities of materials are for. As well as setting up the job, dimensioned offcuts can also be used to check constancy at random times throughout the process, to make sure that nothing has altered or changed.

### Stop and search

In my experience, the minute you suspect that something's not quite right, it probably isn't, so stop immediately and investigate. Just think of it as quality control at the factory. This is particularly important on a long run of machining, or if you've had to stop halfway through the job for any reason.

### Order of play

It's also important to have a clear stage plan before starting work, and I find that emulating the tried and tested ones of the commercial joinery shop is a very good place to start. I expect most readers will be

familiar with this list, but it may be of help for anyone just starting out:

- setting out (rods, timber selection)
- marking out (accuracy is vital)
- forming grooves, rebates and mouldings
- cutting mortises (always before tenons)
- cutting tenons (shoulders first, then cheeks)
- shaping tenons (creating haunches and wedge slots)
- fitting joints
- dry assembly (the time for adjustments)
- full glued-up assembly (final check for square and wind)

Although such a list can look a bit daunting, you'd be surprised how quickly the work moves along if you follow it. Let's face it; if your methods are disorganised and prone to error, you'll probably be wasting a lot of time and effort in setting and resetting your machines, not to mention running the risk of doing the wrong bits in the wrong order.

### Hand v machine

It's not all about machines though. Even a run of handwork can be organised along batch work lines to good effect. Take a set of drawers for example. Regardless of their different sizes, each component can be processed this way. To improve your work and make the job easier, it really is best to complete all of one stage – cutting the

dovetails on the drawer sides, for instance – before moving on to the next. Not only does this avoid confusion; you soon get your eye in, and the whole 'muscle memory' phenomenon works well to your ultimate benefit, making repeat movements an almost unconscious task.

### Luxury extra

For anyone with a big enough budget and sufficient time available, the ultimate batch work luxury is to make one extra complete item. Not only will this ensure that every stage or process is tried and tested. It will also give the lucky maker the chance to pick out the best of the finished products for the customer, and have one left over for future reference or workshop usage.

### Summing up

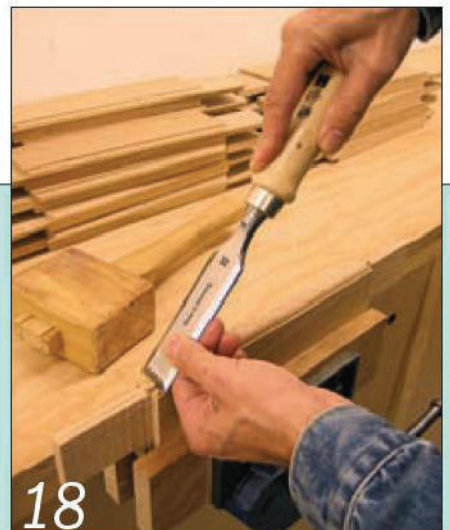
The next time you receive a query regarding a run of items or a set of something, don't panic. The batch work philosophy will get you through the job in good time. So when can you start?



16 It makes sense to make and fit all these staircase mouldings in one go



17 Repetition hones the senses and can also improve the quality of your work



18 By batching these mitred rails, you'll get consistent accuracy with minimum effort





BY RALPH LAUGHTON

NEW  
SERIES

# Understand... glue in the workshop

There are many glues available to the woodworker today. The subject is vast, and whole books have been written on the subject. Here I'll look at the four types of glue I use regularly in my workshop; polyvinyl acetate (PVA), polyurethane (PU), urea formaldehyde (UF) and contact adhesive



## A LITTLE HISTORY

In 1947, the first consumer PVA (white) glue was introduced and marketed in the USA by Borden under the trade name Cascorez Glue. It was casein-based – hence the name – and was packaged in glass bottles with ice-lolly-type wooden applicator sticks attached with a rubber band. Shortly thereafter, the glue was rebranded under the name Elmer's Glue-All – named after Elmer, the spouse of Borden's corporate symbol, Elsie the cow. Elmer's head is still featured in the company logo today. So now you know!

Woodworking at home took a great leap forward with the introduction of the first synthetic woodworker's glues in the late 1940s. The one that springs to mind instantly for me here in the UK is Evo-Stik Resin W. This and its many competitors are white PVA glues, and I must have used many gallons of the stuff in my workshop over the years.

### 1: Regular PVA glue

When PVA (polyvinyl acetate) is emulsified in water, it makes the universally popular woodworker's white glue. Until recently, almost all DIY woodworking glue was this white PVA type. During the past decade,

however, American yellow PVA glues have become more readily available in the UK.

Rather misleadingly, these yellow glues have been marketed as aliphatic resin glues, giving the impression that they are different from regular PVA. In fact, many substances can be described as aliphatic resins – including all PVA glues, whatever their colour. The yellow glues are just a different grade of PVA. The yellow colour isn't a magic ingredient; it's just a dye.

### Open time

The amount of time the glue stays workable during glue-up (referred to as open time) is usually a large factor in the decision as to

1



Resin 'W' PVA glue comes in two versions – green for interior use and blue for outdoors

2



The American yellow glues such as the Titebond family are just PVA glues with dye added

3



Decanting bulk-bought PVA glue into a jar makes it easier to apply by brush





which glue to use. This can be dramatically affected by temperature and humidity. The small print on the bottle will give you a guide – 10 minutes at 20°C, for example. At higher temperatures, the open time can be reduced to just a couple of minutes. On the other hand, at temperatures below about 5°C the open time can extend to the point where the glue won't cure properly.

#### Fast or slow?

Fast-curing types are useful when a number of small sub-assemblies have to be combined into a larger unit. The sub-assemblies can be removed from the cramps in under an hour and put together

as a second stage glue-up without having to wait until the next day.

Glues with a longer open time are invaluable for complicated glue-ups. If it's going to take you half an hour to glue, assemble and cramp up a particular job, you need a glue with an extended open time or the pieces you glued first will be starting to cure before the cramps are applied, weakening the assembly.

#### Is PVA waterproof?

There's no such thing as a totally waterproof PVA glue. Different formulations can result in a higher resistance to moisture, and some are better than others. Most are

labelled as not suitable for immersion. Their main use is where the glue joint is exposed to the weather, but has some additional protection against the elements such as paint. External door frames and windows are obvious candidates for the use of this type of glue.

#### Using PVA glue

PVA glue should be applied to both mating surfaces as a thin film. This can be achieved using the spout of the bottle, one of the proprietary applicator bottles or a brush. The various makes differ in consistency, and some will spread more easily if they are slightly thinned with water. Don't over-thin the glue, however; dilute it to a maximum of one part water to twenty parts glue. Let the glue rest on the surface of the wood for 15-20 seconds before bringing the parts together, giving the glue a chance to settle prior to cramping.

Most PVA-glued joints will have cured enough for the cramps to be removed in about half an hour, although full joint strength won't be achieved for several hours. This means that when there is a lot of gluing up of different pieces, cramps can be removed and reused before the glue has totally cured.

#### Cleaning up PVA

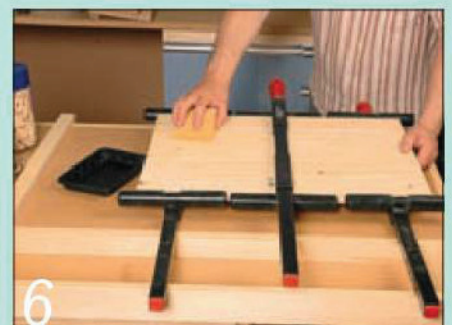
After cramping, a small continuous bead of glue should be squeezed from the joint along its entire length. This can be cleaned off immediately with a damp sponge. After an hour or so, the surplus glue can be pared off with a sharp blade. However, I prefer to remove most of the surplus glue while it's still liquid. I then let the joint cure completely and remove any large lumps with a carbide paint scraper, finally smoothing the joint with a card scraper. A chisel-bladed knife and small offcuts of wood are useful when removing soft glue from awkward corners.



Small amounts of PVA glue can be poured onto a non-porous surface and picked up on a brush



There are lots of applicators for PVA. Most of the screw-on type will fit standard glue bottles



Apply enough glue so a thin bead is squeezed out along the entire joint as cramps are applied





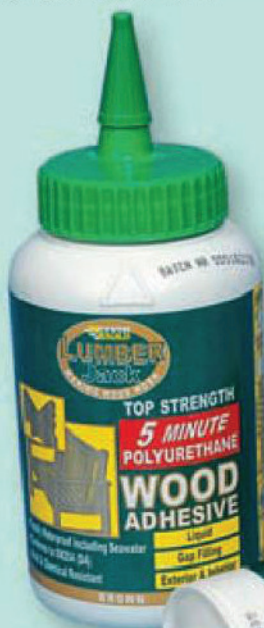
7 Clean off surplus glue from the joint with a damp sponge when it is fresh...



8 ...or use a chisel-bladed craft knife to slice it away while it's still soft



9 Once it's set hard, you'll need a carbide-tipped paint scraper to remove it



11 Apply PU glue with a wood offcut and wear gloves to keep it off your skin



12 Foam Eater will remove solid PU glue, but it's often easier to cut or scrape off any residue



10 Polyurethane (PU) glue is available in liquid and cartridge form for rapid fixing



13 Urea formaldehyde (UF) powdered resin glue comes in an air-tight tub

### HANDLE WITH CARE

Try not to get PU glue on your skin; it takes days to wear off! In its uncured state you can remove it with white spirit, but you have to be quick; the moisture in your skin starts the curing process almost immediately. I make a point of wearing disposable gloves if I'm doing a large glue-up and I'm likely come into direct contact with the glue.

### 2: Polyurethane (PU) glue

Polyurethane glues are becoming more readily available to the enthusiast, and are finding their way into more and more UK

workshops. They cure in the presence of moisture, taking this from the wood itself or from the surrounding air. In some extreme cases, the surfaces being joined may need to be moistened with a damp rag in order to activate the curing process. PU glues are completely waterproof, and can be used for exposed external joints – in garden furniture for example.

#### Using PU glue

The glue is applied to one side of the joint only, straight from the bottle. I use a scrap of wood to spread the glue evenly. If you're using biscuits, dowels or compressed splines, dip them in water immediately prior to the glue-up, as the glue won't swell them as a PVA glue will.

As the glue cures, it will foam a little at the joints. Let this cure fully and remove it with a sharp blade. Polyurethane glues have a degree of gap-filling ability, but with little or no strength in the fill.

### 3: Powdered resin glue

Urea formaldehyde (UF) glue is a powdered glue which was originally developed in the 1930s as a technological advance over the animal glues of the time. It was used mainly in the aviation and boat-building industries.

It's waterproof and extremely durable when fully cured. Although modern glue technology has reduced the need for such a glue in many areas, there are still some situations where it can be the answer to a glue-up problem. For example, the trend





**14** Contact adhesive is best purchased in large cans. Don't forget to buy some of the cleaner too



**15** Apply contact adhesive to both surfaces using a paint brush or mini paint roller



**16** Place scrap strips on the base board so the laminate can be positioned accurately

towards solid wood kitchen work surfaces means the installer needs a glue that will hold in the most arduous of situations. Powdered resin is the perfect choice.

#### Mixing UF glue

The powder is mixed with water to form a smooth paste. You can gauge the mix by weight (if you have suitable scales) or by volume. Don't mix more than you can use before it starts to cure. Once the glue starts to set, it's of no further use and must be disposed of.

UF glue has good gap-filling properties, and the viscosity can be altered as necessary during the mixing process. It has a reasonable open time in average conditions, but don't try using it on a summer's day in direct sun; it will cure in the mixing pot before you get the mixing stick out (don't ask me how I know this!).

#### Using UF glue

I mix powdered glue in an old glass jar and apply it to both surfaces with a brush. Letting the parts rest for a minute or two after application will allow the glue to penetrate the fibres of wood prior to assembly and final cramping. Due to its low initial grab, this type of glue is ideal for the laminating of thin timber in order to form curved work.

As the glue is soluble in water until cured, brushes can be washed in water and the jar can be discarded after use.

### 4: Contact adhesive

My early memories of contact adhesive as a schoolboy are of the smell and the stringing. I'd raid my father's tool box, borrow the Evo-Stik to fix something and usually get myself into a terrible mess... not to mention "serious trouble when your father gets home..."

After that, I have to admit I avoided the stuff for years. Nowadays, the one thing I

use it for is applying plastic laminate to man-made boards. It has many other uses, but this is its reason for being listed here.

#### Using contact adhesive

There are several types of contact adhesive available, but here I'm dealing with the solvent-based product most of us are familiar with. The instructions are to spread a thin coat on each surface and allow this to dry for a set amount of time. You then bring the pieces together accurately and apply pressure to make the bond. But it's easier said than done!

The key to success is viscosity. If the adhesive is thinned a little using a suitable solvent – usually sold as a 'cleaner' by the same manufacturer – it can then be applied with a brush or a small short-pile roller. This is much easier than spreading the stuff straight from the tin.

The brush or roller can be restored to its normal state by rinsing it out in the special cleaner supplied by the manufacturer, and then washing it in warm soapy water and leaving it to dry.

#### Bonding laminate

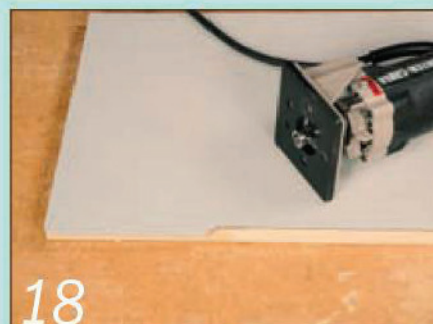
MDF is a popular material for many applications. It takes plastic laminate particularly well as the surface is perfectly smooth, resulting in a high degree of contact and a good bond.

However, MDF is a very porous material; it soaks up primer and paint like a sponge, and will absorb contact adhesive in the same way. For this reason it's advisable to coat the MDF with adhesive in two stages – once to seal it, and a second time to provide the adhesion.

Here's how I do it. I pour a quantity of the adhesive into a jar and apply a thin coat to the surface of the MDF with a brush or roller. I let this dry for about 20 minutes, then apply a second coat. At this point I also apply a coat the back of the plastic laminate



**17** Apply pressure with a hard rubber roller as the strips are removed



**18** Trim off the overhang using a laminate trimmer and flush trim cutter

and set both surfaces aside until they're almost dry – usually for about 10 minutes, subject to temperature.

To bring the two together, I place thin strips of wood over the glued MDF surface and position the laminate on top of them. I then remove the strips, starting in the centre and working towards the outside, and apply pressure with the aid of a hard rubber roller to exclude any air bubbles between the two surfaces and make the bond.

#### NEXT MONTH

In the next part of Understand... I'll be explaining what's what in wood screws – which head to pick, which thread to choose and why no one in the business can spell Pozidriv correctly!





BY KEITH SMITH

# Shop notes

**It's said that the table saw is the heart of any workshop, and having managed without one for a week, after I sold my old one on eBay, I think this is definitely true. So I was very happy when Richard from Felder arrived with my two new machines squeezed into the back of his van. It was like welcoming a new member to the family!**

I'd decided to pay to have these machines assembled and commissioned, and watching Richard work on one of the few hot days we had this year, I was very glad I didn't have to assemble them myself. I also discovered that having the machines commissioned by Felder extends the warranty from one year to three, so it was well worth the extra outlay. This has been a big investment in the business for me; now I'm going to have to work until I'm 65 to pay for them!

## Up and running

I've also finally got my new dust extraction system fully working, with the cyclone proving to be a great boon, particularly as I have two waste containers. I can now easily separate the wood dust, which we compost, from the MDF dust which has to go to landfill because of its chemical content... until I forget to switch over the drums!

Even after all the work I've put into the



**1** I'm now moving in to manufacturing car parts! These old MG TA inner door panels badly needed replacing...



**2** To keep the panels stable, I made them from a number of staves. The red glue line is a characteristic of resorcinol adhesives. A Plano glue press ensures they glue up flat



**3** I needed just two templates for this job; I did the remainder of the shaping by hand



**4** One of the old cedar door panels and its ash replacement. I cut the various rebates using a template and a hand-held router fitted with a guide bush



workshop this year, there are still things that could work better. I was once advised to spend one day each month making improvements to layout, storage and the like. I was assured that the time spent would ultimately be cost-effective, as efficiency and production would increase. I've come to the conclusion that there's some sense in this, and I plan to have a regular workshop day every month from now on.

### Lost skills

Young people rarely get the chance to acquire woodworking skills these days; in fact they rarely have any manual skills, which is a great loss for them and for society in general. To never know the joy of making something that can be both useful and beautiful is bad enough, but worse than that is that they don't even learn the practicalities needed for living. Automation is fine, but what will people do in the future when they need something hand-made?

### Different doors

Here's a case in point. I got a call recently from a sports car enthusiast to ask if I could make some replacement internal door panels for a 1939 MG TA Tickford drophead coupé. He brought me the old panels to copy, but doubted whether they were original as he thought they should be ash (the TA had a steel body on an ash frame), whereas these were cedar. It didn't help that they weren't perfectly identical and, as they had both cupped quite badly, it was hard to take accurate measurements.

### Cut and paste

The new panels were to be in ash and I decided to make each panel by gluing three narrow boards together; this would reduce the chance of the panel cupping once it was fitted inside the car door. I used Polyproof, a two-part resorcinol adhesive, as it is completely waterproof.

The panels needed shaping, and various rebates had to be cut. For this I find it best to make a template from MDF for each rebate; that way I can flip the template over to cut the identical mirror image rebate on the other panel.

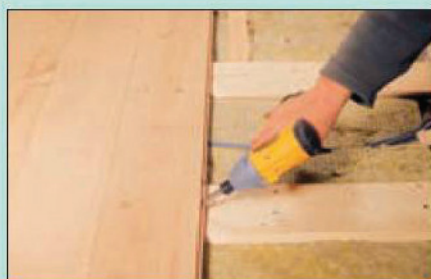
Where I had to form a large rebate, I cut the edge using a template and a hand-held router fitted with a guide bush. I then removed the bulk of the remaining waste on the router table. It's surprising how much work goes into making something that looks so simple!

### Unpullable nails

I live in a barn that was converted, very poorly, about ten years ago. This month I had to take



**5** Wedge-shaped firrings on top of the joists take some of the slope out of the floor



**6** Tongue Tite screws are driven down through the tongues at a 30° angle

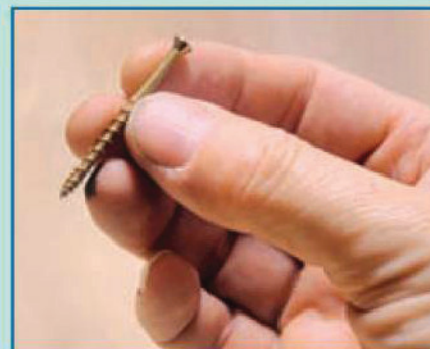
up the chipboard floor in an upstairs bedroom after discovering that the electrician had loose-laid some cables across the joists and an incompetent chippie had then fitted the chipboard floor directly on top of them.

Cutting access holes in chipboard flooring is easy, and chipboard can usually be reinstated more easily than traditional tongue-and-groove flooring, but taking the whole floor up is a different matter. This floor had been nailed down with ring-shank nails which had rusted into the joists, and I simply couldn't get them out. As I prised up the boards the nails pulled through, and I had to resort to cutting them flush with the joists using an angle grinder. If you ever have to do this, be aware of the potential fire hazard the particles of hot metal can create. I managed to singe myself in several places!

### On the level

This floor had never been flat, but I thought that even for a barn conversion a 50mm dip was a little excessive. Unfortunately I couldn't level the floor completely; otherwise I would have to raise the adjoining hall floor level (and tackle all the rooms off it too). So as a compromise I fitted wedge-shaped softwood firring pieces along the tops of the joists to bring it up by about 20mm; believe it or not this has made a big difference!

Rather than re-lay chipboard and carpet, we decided to fit an oak floor directly to the joists instead. With modern boards the ends are often tongue and grooved, and this



### TIGHT TONGUES

Elka Tongue Tite screws are 45mm long and 3.5mm in diameter, with a very small head which fully countersinks itself into the wood as they are driven. They have a T10 Torx head, and each box of 200 screws comes with an appropriate bit. They should be positioned every 300mm along the board tongue, and can be driven directly except at the ends of boards, where a pilot hole should be drilled to prevent splitting.

allows them to be joined between joists instead of over them. This saves a lot of waste, as long as no two adjoining boards have a join between the same pair of joists.

### Squeak-free fixings

Typically, hardwood flooring would be fixed down to the joists through the face with screws and the resulting holes would then be plugged, but I wanted to fix these oak boards invisibly. I reckoned that if I pinned them down I'd end up with a squeaky floor, especially with joists as uneven as mine. I've used Elka Tongue Tite screws before, and they seemed the ideal solution in this situation.

Tongue Tite screws are designed to be driven down through the tongue at an angle of 30°, so they do a similar job to a Porta-Nailer but without the need for buying or hiring the machine. They are obviously slower to use, but as my floor is so uneven I thought screws would hold better than nails.

The only problem with the screws is that, as they are driven at a shallow angle, they don't pull the board down very well. So the board must be reasonably tight against the joist before the screw is inserted. I find that having a willing assistant to stand on the board usually does the trick!

**NEXT MONTH:** I have to replace five old roof windows. One of these days I'll get some time in the workshop and actually do some woodworking!

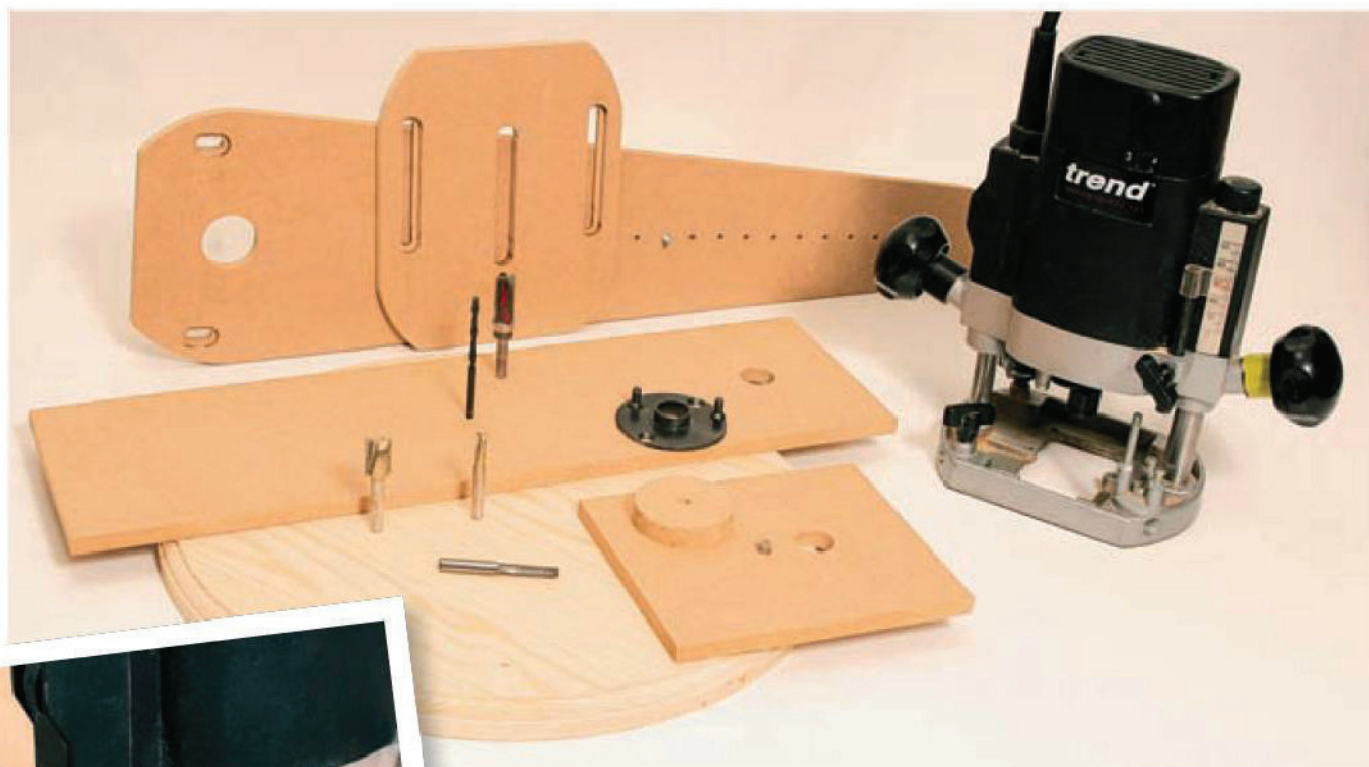




BY RON FOX

# Routers: circle jigs

**Much of the versatility of the router comes from its use with jigs and templates. Some of the best known are commercial devices for dovetailing, mitring kitchen worktops, sinking hinges and so on, but many bread-and-butter routing jobs can be made easier, quicker, safer and more accurate by means of simple home-made jigs**



1

Marking the centre of the guide-bush hole

Unfortunately, as I know from my courses, many otherwise competent woodworkers seem to regard jig-making as a specialised art, requiring the skills of a pattern maker to be successful. In fact, many simple jigs and work aids can be made quickly and easily, using a few basic tricks of the trade.

Home-made jigs can be divided into two broad categories: one-offs for a particular job (after which the jig might be thrown away), and more sophisticated versions for repetitive use.

I'll illustrate the principle by describing two kinds with circle-cutting jigs. Circle cutting is something that the router is ideally suited to, with countless applications.

## Throw-away jigs

Suppose you want to make a circular stool or little table top. Take your router and fit the guide bush that came with it. Measure the projection of the bush from the base of the router and choose a piece of MDF or plywood a bit thicker than the projection.

Cut the MDF to a length sufficient for the





2 Boring the 20mm diameter hole for guide bush



3 Marking off the radius of the circle to be cut



4 Cutting the circle by moving the router anti-clockwise



5 The small circle cutter in action

diameter of the circle plus the size of the router base and a bit extra. The width should be about equal to the width of the router base. I used a scrap piece that happened to be handy.

### Boring the holes

Now cut a hole in the MDF equal to the diameter of the guide bush. To find the centre of the hole, stand the router (switched off and unplugged) on the MDF and plunge a pointed or narrow cutter to mark the surface of the board, **photo 1**.

Bore the hole with whatever means you have available – a drill bit, **photo 2**, a hole saw or a router cutter will all do the job – and if necessary enlarge it with a file or abrasive.

Fit the cutter ( $\frac{1}{2}$ in diameter will be big enough), stand the router upside down, and measure off the radius of the required circle, **photo 3**. Bore a small hole – say 4mm diameter – through the MDF.

### Securing the work

With the workpiece face down, mark the centre and bore a shallow hole with the same 4mm drill bit. This will be the pivot point for the circle.

Fasten the workpiece, face down, to the bench. You'll probably have to improvise a clamping system. Alternatively, use double-sided tape. Place some of the tape under the centre of the circle to prevent the

wood moving as the cut is completed.

Remember that you'll be cutting right through the workpiece, so place a piece of hardboard or similar material under the workpiece to avoid cutting into your workbench. Alternatively, do as I do and use a sacrificial cutting table. Mine is just a piece of 18mm chipboard held on my Workmate by means of the plastic pegs.

### Squaring the circle

Locate the cut by using the shank of the 4mm drill bit pushed through the hole in the MDF and into the hole in the workpiece.

Make the cut in several light passes, taking the router anticlockwise round the workpiece, **photo 4**. If you have room you can walk round the workpiece, but I usually stand still and pivot the router. This is easier if your router has a simple on/off switch.

### Moulding the edge

With the circle cut, you will probably want to put a decorative edge moulding on it. Turn it right way up and use an appropriate bearing-guided cutter to mould the edge. If you have a router table, the job is less fiddly.

Job completed: you can now throw the jig away, but if you want to use it again you just have to bore another hole for the new radius. You can also make fine adjustments to the radius simply by varying the diameter of the cutter.

### Cutting small circles

Circle cutters such as the one just used cannot cut very small circles because the minimum radius is limited by the smallest dimension of the router base. With the Trend T5 the minimum radius is quite small, but routers with D-shaped bases will have a larger minimum radius. The problem is easily overcome by modifying the circle-cutting jig. To illustrate this I'll make a new one.

The aim is to place the centre of the circle underneath the router base. Measure off, mark and drill the radius as before and tap a short length of steel rod or a plain bolt into the hole. Drill the centre hole in the workpiece as before, press the rod into it and cut the circle as before. Two small pieces of double-sided tape hold the router



6 Two straight edges and the router base pattern





Trimming the slot to the exact size required



Boring the line of 4mm holes using pegboard



Shaping the end of the jig with the router

base firmly to the jig, **photo 5**.

I find innumerable uses for small-circle cutting: reducing rings in router table tops, wheels for toys and garden furniture, extractor hose connections, loudspeaker cabinets, jigs for kitchen cabinet hinges, clearance holes for cabling... the list is almost endless

### Permanent Jigs

When the jig is likely to be used on a regular basis, it pays to make a slightly more sophisticated version – usually incorporating some means of adjustment. You can speed up the jig-making process by first making a couple of very simple work aids that you can regard as your ‘machine tools’. You will find yourself using them again and again.

### Straight-cut Jigs

The first of these is a pair of straight edges, consisting of two lengths of 18mm MDF about 500mm long and 50mm wide, **photo 6** top. These are used with a bearing-guided profile cutters (the sort with the bearing on the shank) to make very accurate straight cuts.

The second is an MDF pattern of your router base, **photo 6** bottom. The main purpose of this is to provide a template for drilling fixing holes to attach your jigs to your router base. If your router has a removable sole plate, take it off and use it as your initial pattern. You can then restore your router to its normal working state. If, like the T5, your router sole plate is glued on, drill appropriate fixing holes in an oversize piece of MDF (dimensions are in the Owners Manual), screw it to the router base, draw round it to give the base outline and shape it with whatever means are at hand. You only have to do this once.

### Slotting Jigs

Next, make a slotting/counter-slotting jig. Take a piece of 9mm MDF about 30mm square, and cut a slot in it to be a snug fit

for your guide bush. Carefully draw the slot on the MDF, rough cut it and finish the cut by fastening the two straight edges to the pencil lines with double-sided tape. Put the template trim cutter in the router and trim the rough-cut slot to exact size, going round the edges in a clockwise direction, **photo 7**.

Now glue a length of batten to the MDF, taking care that it is at right angles to the slot. Put the guide bush and the largest straight cutter that will pass through it in your router, and make a cut across the batten to allow for the depth of the housing. Change the cutter for a V-groover and cut a shallow V to mark the centre line of the cut. Highlight the V with a black ballpoint pen.

### Improved circle Jigs

We’re now ready to make the improved circle jigs. With these, the jig is screwed to the router through the threaded holes in the base. This will also provide a degree of adjustment.

Prepare a piece of 9mm MDF to a length adequate for the likely radii plus a bit to spare, and a width equal to that of your router base. Tape the base pattern to one end of the MDF and draw round it, then use it as a template for drilling the fixing holes.

Bore a line of 4mm holes along the length of the MDF for different radii. A piece of pegboard makes an

excellent drilling jig, **photo 8**.

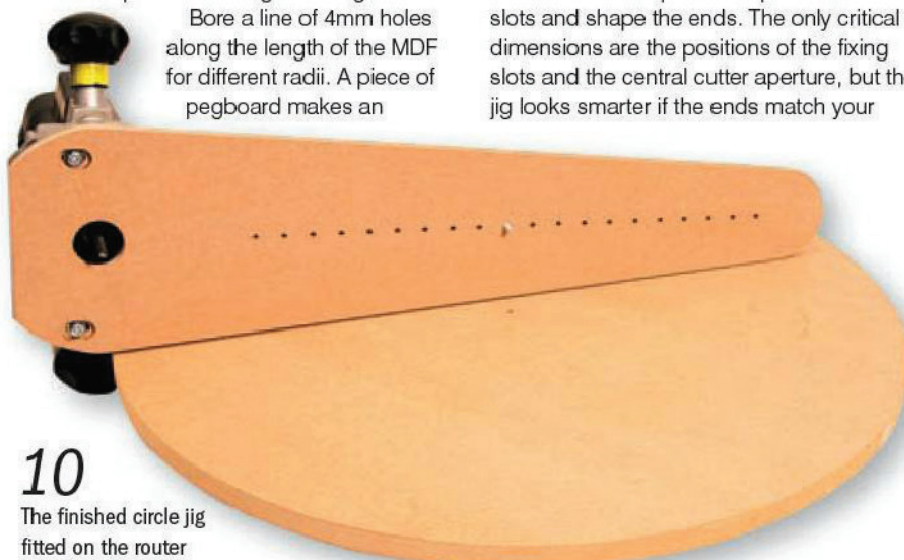
Now elongate the fixing holes into short slots to give fine adjustment to the radius of the circle. Clamp your newly made slotting jig over the fixing hole, put your guide bush and a cutter of a diameter to give clearance for the screw’s shank into your router, and turn the hole into a short slot. Change the cutter for one that gives clearance to the head of the bolt, reset the depth of cut and over-cut the first slot. Repeat for the other fixing hole. If you wish, you can shape the body of the jig to give a more finished appearance, **photo 9**.

### Cutting big circles...

To cut a circle, put a narrow straight cutter into your router and measure off the radius. Make fine adjustments with the fixing slots. Bore a shallow 4mm diameter hole in the centre of your workpiece; drop a 4mm screw through the jig into the centre hole and cut as before, **photo 10**.

### ...and small ones

Use MDF at least 9mm thick to allow for the counter-slots. Begin by drawing the outline of the finished jig on the MDF, using your MDF router base pattern to position the slots and shape the ends. The only critical dimensions are the positions of the fixing slots and the central cutter aperture, but the jig looks smarter if the ends match your



The finished circle jig fitted on the router





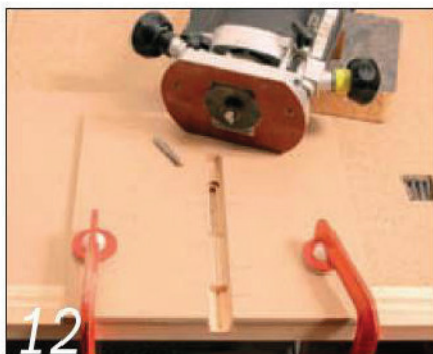
11 The marked-out small circle cutter

router base. Mark out the jig on a larger board so you can clamp it while you cut the slots, **photo 11**.

Position the slotting jig to slot and counter-slot the fixing holes. The Trend T5 has 6mm tapped holes, so I used a 1/4in cutter for the shanks and a 1/2in cutter to recess the heads of the screws.

Don't forget the middle slot for the cutter to come through. A 1/2in cutter should give a wide enough slot for most applications, **photo 12**.

Cut the jig from the board and shape the ends with your router base pattern and a



12 Counter-slotting the jig

profile cutter. Insert a short pin of suitable diameter into a hole drilled near the end of the cutter slot. I used a piece cut from a 6mm rod. Secure it in epoxy resin for added strength.

#### Cutting small circles

To cut your circles, set the radius using the recessed screws and a calliper gauge. Remember that the centre of the circle is the centre of the pivot pin. By using an easy diameter – in this case 6mm – you can add or subtract the pin radius from the circle radius and measure from the edge of the

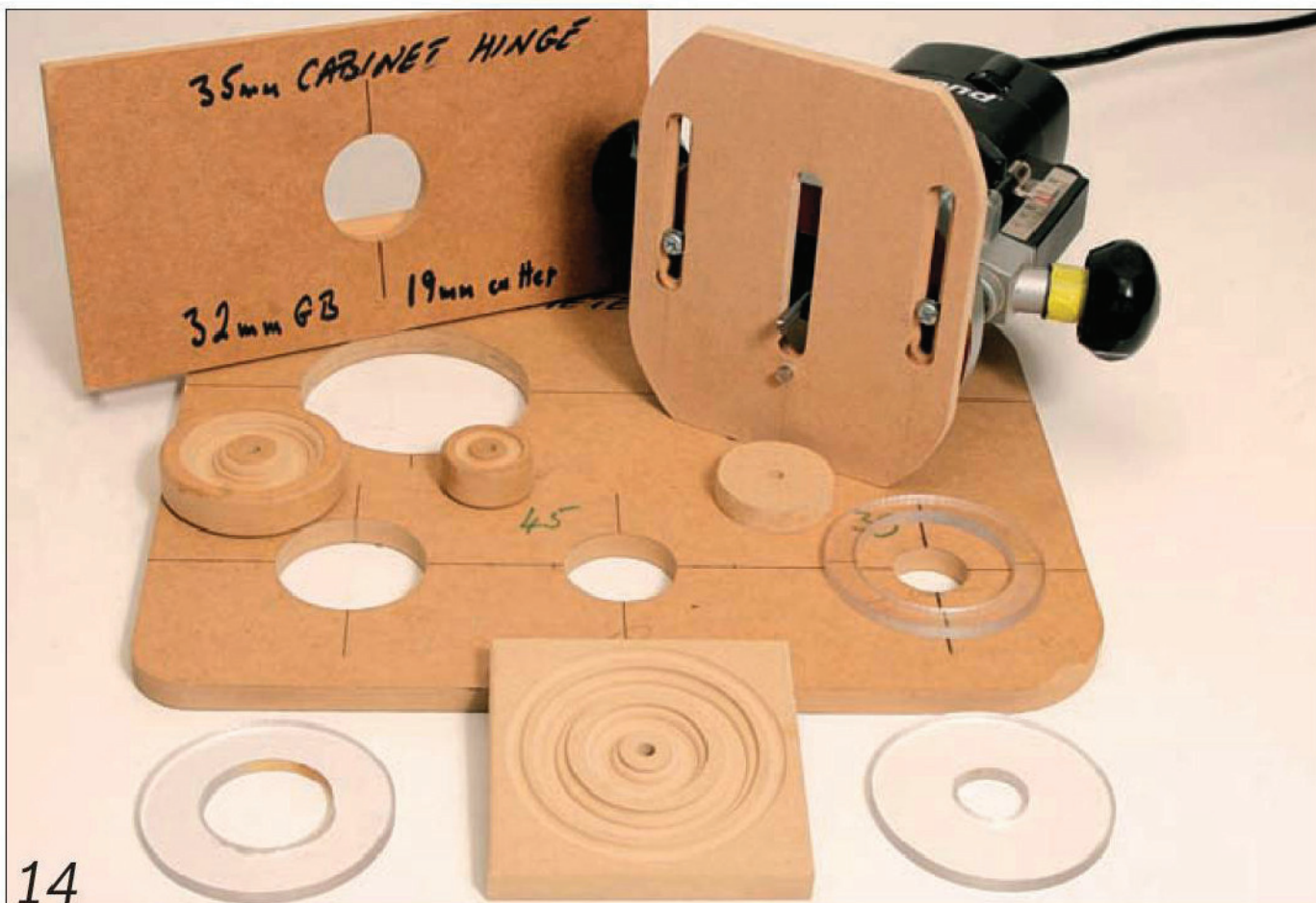


13 Setting the radius with a calliper gauge

pin. The setting also depends on whether you are cutting the hole or the disc. In the first case the radius is measured to the outer cutter blade, in the second to the inner blade, **photo 13**.

Drill a hole in the workpiece for the pivot pin. Push the pin in the hole and make a series of light passes in an anti-clockwise direction.

You will find innumerable other uses for circle cutting jigs, and the simple work aids used to make them will enable you to make all sorts of other jigs as you need them, **photo 14**.



14

The small circle cutter and examples of the work you can create with it



# 6: Grooves & rebates

**It's never been easier to cut grooves and rebates using power tools. There are several ways of producing them, some of which are safer than others. The choice lies between the router, the power planer, the circular saw and the table saw. Here is a look at the pros and cons of the main contenders**

## MACHINE CUTTING GROOVES & REBATES

It's possible to cut both grooves and rebates on a table saw, and there have been many television programmes and books, mainly originating in America, advocating this practice. However, apart from the health and safety issues, there are some practical reasons why it's not wise to attempt this. The chief reason is that table saws sold in this country have to comply with European safety specifications, and their set-up precludes cutting grooves and rebates with unguarded blades.

Even with the table saw out of the equation, there are still plenty of options open. The router is the obvious choice, although you will need to select the right cutter for the job. Some power planers have the facility to rebate, and it's also possible to use a circular saw in some instances.

### Routing a groove

Let's look at the obvious choice first. If you own a router, the chances are that you'll have a straight cutter and the router has a parallel side guide. That's all you need to cut a groove.

Mark the position of the groove on the

timber. Adjust the parallel guide to align the cutter with the groove. With the power off, plunge the router until the cutter is touching the surface of the timber. Lock the plunge in position and zero the depth gauge. Lift the depth gauge to the maximum depth of the groove and lock it in position. Release the plunge lock and you're ready to groove.

Making several shallow cuts rather than a few deep ones will result in a cleaner cut. It will also keep the noise level down and reduce cutter and router bearing wear. Don't try to make a cut that is deeper than the diameter of the cutter's shank; aim for no more than about 70 per cent of that.

### Falling off the edge

Using a straight cutter is fine on a wide board where the router is fairly stable. When it comes to sinking a groove on the edge of a board, trying to balance the router on such a thin surface can at best be difficult. Doubling up the items can help, but by far the easiest way to sink such grooves is with a slotting cutter. These work at 90° to a conventional straight cutter, and resemble a small circular saw blade mounted on an



Straight or slotting router cutters can be used to sink grooves



Using a straight cutter to sink a groove in the face of a piece of MDF



Using a slotting cutter to cut grooves on either side of a muntin



**NEW  
SERIES:  
HAND vs  
MACHINE**



Lock a hand-held router down with the plunge lock and the depth stop

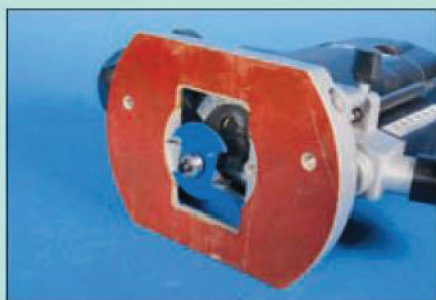


Fit a fine height adjuster if one is available

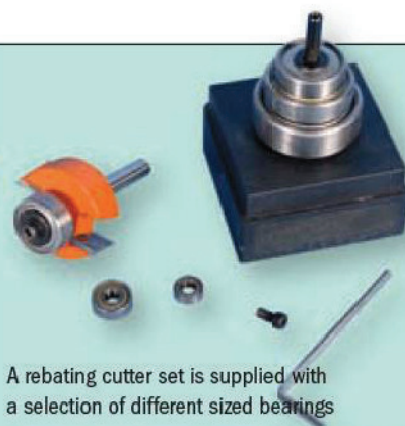


Adjust the width of the slot by arranging various cutters and shims on the arbor

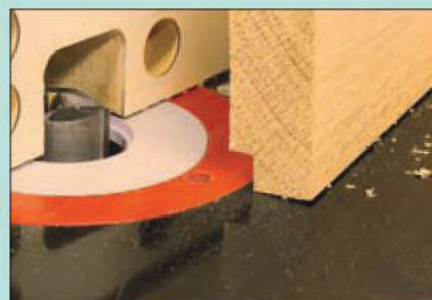




When using a slot cutter, limit the depth of the groove using a bearing fitted to the arbor



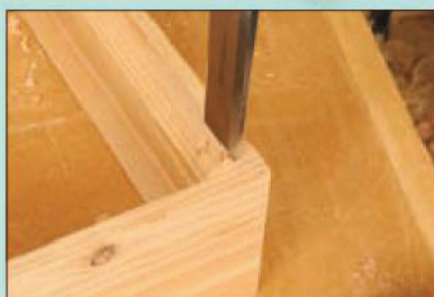
A rebating cutter set is supplied with a selection of different sized bearings



When rebating on a router table, use the fence to limit the depth of cut



The router is ideal for rebating an assembled carcass...



...although you'll have to clean out the corners with a sharp chisel



The power planer ready for rebating; remove the material in small bites

arbor. The width of resultant groove can be adjusted by adding cutters and shims of varying thickness, making a huge range of widths easy to achieve.

## Slotting a groove

These cutters can be adjusted for depth of cut by adding a bearing to the arbor, limiting the depth of penetration, or by using the router's parallel guide as a depth stop.

To cut a groove with a slotting cutter, first build up the cutter to the required width. Take care to stagger the alignment of teeth from one cutter element to the next. This will help the assembly to cut more cleanly, and will reduce the impact on the router's spindle and bearings.

Fit the assembled arbor into the router and set the plunge depth to place the cutter in the correct position relative to the timber to be grooved. Lock the plunge and lower the depth stop until it contacts the base; lock this off too in order to add a second locking method. Alternatively, if you have a fine height adjuster for your router's plunge depth, use that to set the depth and lock it off using the plunge lock.

## The right direction

Set the router speed down to about three quarters full speed. Run the groove down the right-hand side of the work, moving away from you – in other words, against the rotation of the cutter. Never try cutting with

the direction of the slotting cutter. The cutter simply wants to climb out of the cut and is extremely difficult to control. In America this practice is referred to as climb cutting, for good reason.

Both these grooving operations can also be carried out on a router table, rather than using the router hand-held, if the material is of a convenient size.

## Rebating with the router

The same set-up used for groove cutting with a straight cutter can be employed to cut rebates. The only difference is that the cutter is aligned to break the edge of the board. Larger cutters can be used, and can be plunged to the full depth of the rebate. This time the width of the cut is increased progressively until the full rebate is accomplished.

However, I wouldn't advise using slotting cutters to cut rebates. There's no advantage in using them, as the rebate can be made from the widest face of the material.

## A better way

Another method is to use a rebate set. This consists of a large rebating cutter with a top-bearing fitment. It's supplied with a selection of bearings. The depth of the rebate to be cut is set by the depth of plunge, and the width is limited by the chosen bearing.

Using this type of cutter/bearing

combination is a very easy and quick method of rebating the back of ready assembled casework to accept a back panel. The corners of the rebate will need to be squared with a chisel, or the corners of the panel can be cut at 45° to clear the rounded corners.

## Using a power planer

Power planers are useful around the house for DIY applications, but they're of limited use in the home workshop... except for rebating. If you have metres of rebate to cut, this tool will make short work of the job and produce a really good finish.

Power planers take a bit of handling, due to the gyroscopic effect created by the cutter block spinning at great speed. Also they must be treated with extreme care, as they're about the only power tool on the market that cuts with its blades completely out of sight. Always make sure the cutters have stopped spinning before you put them down on the bench.

If you decide that the planer is the tool for you, buy a good make. It needs to be solidly built if it's to produce a good clean rebate. A lot of the cheaper models don't have the rebating facility anyway.

**NEXT MONTH** Hand vs Machine looks at cutting housings and cross-grain rebates





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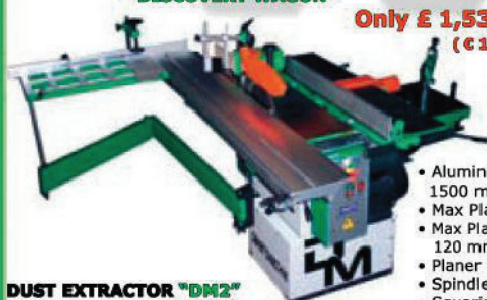
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**ALAN HOLTHAM** explains that mastering the technique of chasing threads on the lathe is far simpler than it looks, and is well within the capabilities of even relative newcomers to the world of turning



**BRYN EDWARDS** reveals how a trip to New Zealand gave him the inspiration for a charming turned box with a domed, hinged lid and a paua shell insert



**LINTON WEDLOCK** presents the last of three features in which he describes how to use lasers to position the main features on turned work. This month he mounts the laser using a ball-and-socket joint that can be rotated and swivelled to direct the laser line at any angle you want



## Acrylic pen blanks

**Ian Wilkie turns some unusual pens**

Turning pens is an enjoyable hobby. The finished pens make an attractive personal gift and sell well at craft fairs, bazaars and fêtes. The average simple twist pen kit costs in the region of £2, but you can spend up to £4 on a more elaborate model. Then all you need is a pen mandrel and a prepared blank of suitable wood – or a synthetic material such as acrylic resin.

Acrylic is interesting to turn, and this variety pack is a good starting point.

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The blanks need to be cut to length and then drilled to take the pen tube. You can cut them to length by hand using a junior hacksaw, or use a small bandsaw. It's wise to cut the blanks a little longer than the tube so you can tidy up any break-out caused during the drilling.

I did the drilling using a small pillar drill with the blank held in a machine vice. I then glued the brass tubes in place with Araldite Rapid two-part epoxy resin. It cured quickly, and gave a very good bond without causing any damage to the material.

### Time to turn

With the lathe speed set at 1500rpm, I turned the blanks using just two tools: an 8mm spindle roughing gouge and a 13mm oval skew. The tools must be really sharp, because the material is brittle and a blunt tool may cause chips to break off. For this reason it's essential to wear good eye protection. The material turns extremely well, producing fine stringy shavings which tend to stick to everything and give off a distinctive sweet smell.

Acrylic resin takes an excellent finish using a fine abrasive, followed by buffing with a polishing compound such as T-Cut or Pro-Fin.

These acrylic blanks are colourful and fun to turn, producing a range of interesting patterns. You're never quite sure how the finished pen will look, and no two pens are going to be identical.

A pack of these blanks, together with some pen kits, would be a very acceptable Christmas present for a hobby turner.

### FURTHER INFORMATION

- Axminster Power Tools
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Acrylic resin is easy to cut and drill



Tools must be sharp to avoid chipping



The turned blanks are sanded and buffed





BY ALAN HOLTHAM

# Thread chasing: first steps

**Chasing threads by hand on the lathe has always been regarded as far too difficult for all but the most experienced of turners. In reality it's quite simple, and well within the capabilities of even relative newcomers to the lathe. The even better news is that it requires the minimum of equipment**

**T**here's a misconception that you need very low lathe speeds for successful thread chasing. With the majority of popular lathes having a minimum speed of around 400rpm, many turners have dismissed the possibility until they upgrade to an expensive variable-speed machine.

In fact, the speed of rotation is more dependent on the number of threads per inch you intend to cut. For the 20tpi (teeth per inch) chasers recommended as the ideal size to start with, the optimum lathe speed is about 450rpm, so nearly everyone with a lathe should be able to chase threads. It's also possible to cut coarser threads; you just have to move the chaser a bit faster if you can't reduce the lathe speed.

## Tools for the task

Thread chasers are readily available, and many tool

manufacturers now produce a range of different sizes, the most popular being those with 10, 16 and 20tpi. The tools are always sold in pairs, as different tools – known as male and female – are needed for cutting the internal and external threads that make up any threaded assembly.

There are a couple of other tools that help to make the job easier. For internal threads, you need a relief cutting tool that can cut a rebate at the far end of the internal thread to prevent the tool bottoming out. This can be ground out of an existing tool, though they are available ready-made.

Thread chasing experts also recommend the use of an armrest to help support the chaser when you're working on internal threads. Although this isn't essential, it does allow you to have more control of the chaser and saves you having to keep moving the tool rest.

## Gauging sizes

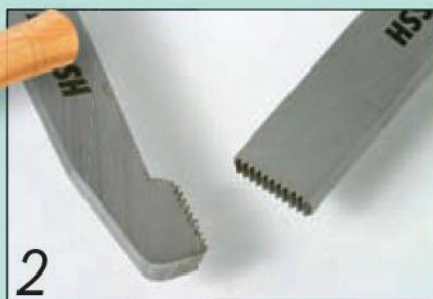
You can also buy sizing gauges that make the job of matching the internal and external thread diameters a lot easier, particularly as they take account of the different thread pitches using an adjustable anvil on one of the jaws. Again this is not strictly necessary, and with a little practice it is quite easy to match the threads using conventional callipers or even by eye.

## Ready to chase

If you're buying new chasers, they'll need a little work before you start. They will probably need sharpening using a flat stone to rub over the top surface of the chaser. Don't try to sharpen the individual teeth, just hone the top surface. I use a diamond slip stone, and once the initial sharpness has been achieved a couple of quick rubs is all that's necessary to restore the sharp edge.



**1** The most popular sizes for thread chasers have 10, 16 and 20 teeth per inch (tpi)



**2** The tools are always sold in pairs – one for cutting external threads and the other for internal ones



**3** A sizing gauge makes matching internal and external threads a lot easier





### Tool rest tricks

One of the most critical requirements for successful thread chasing is that the tools can slide effortlessly along the tool rest, so use a file or grinder to put a small radius on the underside of the male chaser so there are no sharp edges to catch.

This is less critical with the female chaser, as the movement is in and out rather than from side to side, but the more you can polish the backs on both tools the better. Also, dress the top edge of the tool rest with a fine file so there are no nicks or paint blotches to affect the progress of the chasers. Occasionally rub a candle along the top of the tool rest to make it as friction-free as possible.

### Timber choices

One final consideration is the type of timber to use. There are dozens of timbers that will take a thread, but it's the really fine-grained ones that are most successful. Species like boxwood, African blackwood, mopane, lignum vitae and tulipwood are among the best. Although they're relatively expensive, it's worth practising on one of these species; you'll struggle to get a clean thread on many of the others, no matter how good you are.

If you're lucky enough to have a variable speed lathe, you can experiment with different speeds as nothing in thread chasing is critical, but 400 rpm is ideal to work with using a 20 tpi chaser.

### Preparing the blank

To cut your first thread, mount a small piece of suitable wood in a chuck and turn a small spigot on one end with a rebate to act as a run-off area for the thread. Slightly chamfer the leading edge of the spigot to help get a clean start with the thread. Although any normal turning tools are suitable for this type of work, many of the experts use a point tool for the majority of hollowing and shaping work on these hard materials. This super little tool takes some getting used to, but its almost universal nature makes it virtually indispensable, and it also speeds up the turning process considerably as you only have one tool to worry about.

### The first cut...

Pull the tool rest back from the work far enough to allow your fingers to grip the ends of the chaser. Practise making small anti-clockwise movements just clear of the revolving spigot. Then once you have established a smooth rhythm, just kiss the

work with the chaser, applying it at an angle onto the chamfer. Don't start with the first tooth of the chaser, but about two or three teeth in from the edge.

Throughout the whole process you must apply only very gentle pressure, or the tool won't pick up the same thread each time. Keep the anti-clockwise circles going, gradually bringing the chaser round to work parallel with the spigot. With several repetitions, a thread will gradually begin to form. Remember to lift the chaser clear as it reaches the rebate, or it will bottom out against the shoulder of the spigot and tear off the thread.

### Repeat as necessary

Once you've got started it's just a matter of reapplying the chaser at the beginning of the thread, using the same gentle pressure each time to gradually deepen it. If the chaser is properly sharpened, you should be getting tiny wispy shavings rather than dust, but try different angles of approach to get the cleanest cut.

All this will take some practice, and you may not achieve a thread at the first attempt, but once you have got used to the steady rhythm of the cut it is surprising how quickly a perfectly formed thread appears.





**4** The best woods for thread chasing include African blackwood, boxwood, lignum vitae, mopane and tulipwood



**5** If you have a variable-speed lathe, you can experiment with different speeds



**6** Turn a small spigot on the blank with a rebate at its inner end



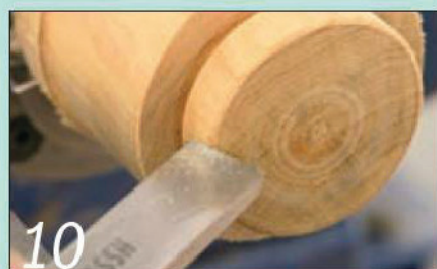
**7** Chamfer the leading edge of the spigot to give the thread a clean start



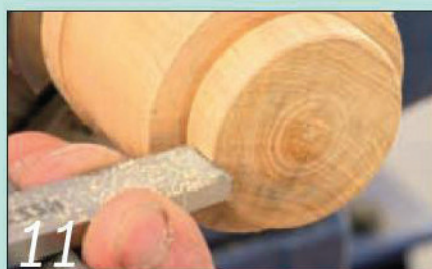
**8** Many chasing experts use a point tool for the shaping work on these hard woods



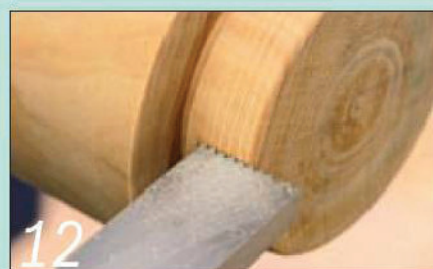
**9** Position the tool rest so your fingers can grip the tip of the chaser



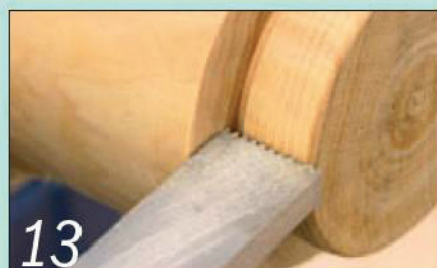
**10** Just kiss the wood with the chaser, applying it at an angle to the chamfer



**11** Gradually bring the chaser round to work parallel with the spigot



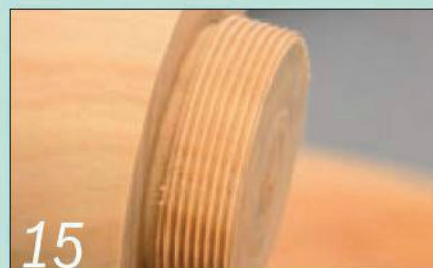
**12** With several repetitions, a distinct thread will gradually begin to form



**13** Lift the chaser clears as it reaches the rebate to avoid tearing off the thread



**14** Reapply the chaser at the start of the thread to gradually deepen it



**15** It's surprising how quickly a perfectly formed thread appears



## Practice makes perfect

Perhaps the most important point to remember when thread chasing is to keep the chaser perfectly parallel with the spigot, so the thread ends up an even depth all the way down.

Thread chasing is all about persistence and practice, so don't be disappointed if your first attempts end in relative (or complete) failure. There is no greater satisfaction than suddenly getting the knack and watching a perfect thread appear before your eyes as the chaser follows it unerringly every time. It makes all that effort seem worthwhile!

## Problem solver

One of the main problems most beginners experience with thread chasing is getting the correct speed of travel of the chaser along the rest. Although you might expect the opposite, the rate of movement is actually quite slow. For example, with a 1in spigot turning at 400rpm, it takes about 3 seconds to traverse the length using a 20tpi chaser of the thread.

The other stumbling block is how to get the chaser back into the existing thread each time without messing it up. The answer is that initially you can't always start it in the same place each time, and you may end up with two or three different threads starting. However, by the third or fourth rotation of the tool the chaser will enter an existing thread and start deepening it. From then on, providing you only use light pressure, it will centre itself perfectly each time and gradually form just the one thread.

Another cause of double-start threads is moving the tool too quickly, so stop the lathe occasionally if this happens and check that all is well.



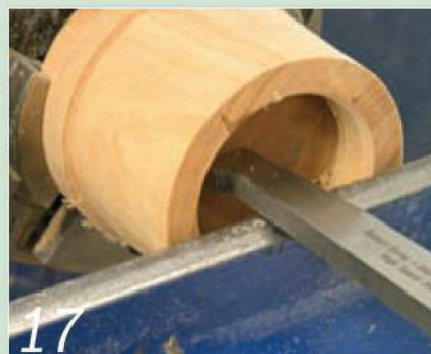
### NEXT MONTH

Although this article covers the basic principles of thread chasing, there's quite a lot more to it than just cutting each individual thread. Next month I'll explore the procedures involved in making matched threads on a box, and ending up with a perfectly-fitting lid.

## Internal threads



Make sure that the initial hollowing for the internal thread has parallel sides



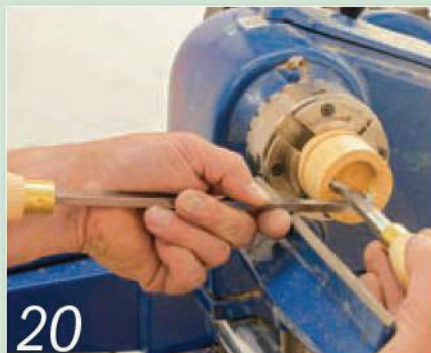
Use the relief cutting tool to form a rebate at the base of the hollow



Apply the chaser at an angle to the outer chamfer to start with...



...and then swing the chaser round so it's cutting parallel with the sides



Use the hook and the arm rest to apply gentle pressure to the chaser



Make a few more cuts to get the crest of the thread properly shaped

The procedure for cutting the internal thread is much the same as for the external one. Just make sure that the initial hollowing is perfectly parallel, or the male thread will not screw on properly. Again a groove must be cut as a relief at the end of the thread. Use the hooked rebate tool, cutting slightly deeper than the depth of the thread.

Slightly chamfer the inside corner of the hole as before. Using a similar but now clockwise motion, apply the chaser initially at an angle. Then swing the handle round to end up working the chaser parallel with the sides of the hole.

If you have an arm rest, the process is slightly easier as you can use the hook on the rest to apply very gentle pressure to the chaser. The secret is to withdraw the chaser as it reaches the end or you will bottom out in the hole and strip the thread.

Again, don't be aggressive with the cutter; take very gentle cuts, extending the thread by one or two new grooves with each pass. After half a dozen passes or so the thread will be well established, but it may be necessary to make a few more cuts to reach the full depth and to get the crest of the thread properly shaped rather than flat.





BY BRYN EDWARDS

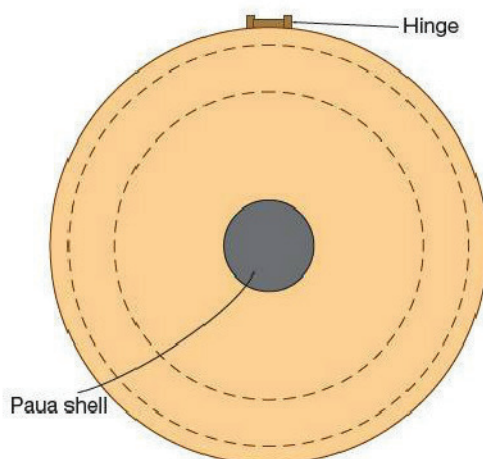
# Holiday souvenir

**I recently visited some relatives in Christchurch, New Zealand, and wanted to make something that would remind me of my visit. I had already picked up some paua shells and various coloured stones whilst over there, as an inspiration for what I was already calling my New Zealand box**

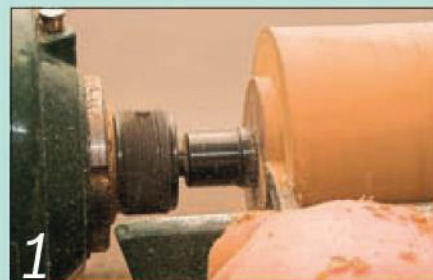
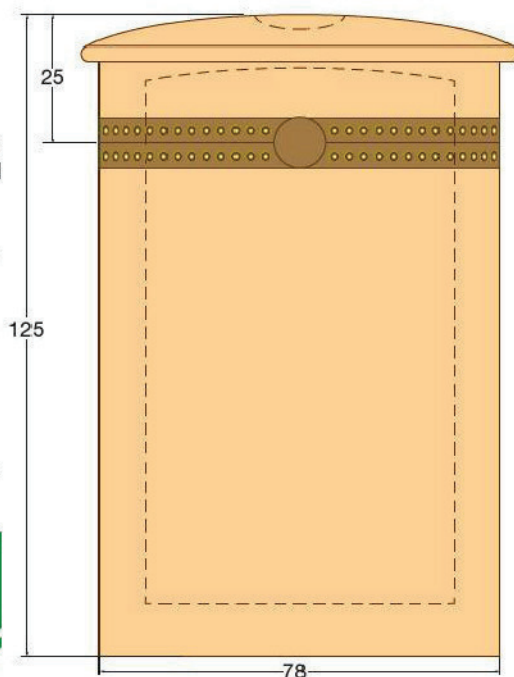
I had no pre-conceived design ideas for this box, but felt that a hinged lid with a gentle dome would show off the best of my shell buttons. Paua is an edible abalone that's native to New Zealand, and displays wonderful iridescent patterns on the inside of its ear-shaped shell. It seemed to invite the creation of a uniquely appropriate souvenir of my visit, so I set off to my local wood yard – Ockenden Timber – to buy some elm for the turning, and a hinge mechanism for the lid.

## FURTHER INFORMATION

- Ockenden Timber
- 01588 620884
- [www.ockenden-timber.co.uk](http://www.ockenden-timber.co.uk)



All measurements in millimetres



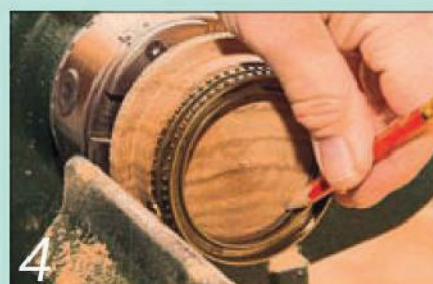
Reduce each end of the blank to a spigot to fit into the chuck



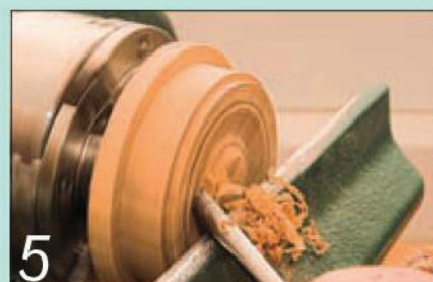
Use a parting tool to separate the parts that will form the lid and base



Mount the lid blank in a four-jaw chuck and shape the edge to accept the hinge



Test the fit of the hinge and mark out the inner recess on it



Finish hollowing out the inside of the lid, checking the depth as you proceed





**6**  
Now tackle the outside of the lid to create the gentle dome



**7**  
Then carefully turn the edge of the lid to shape and form a recess for the shell (shown below)



**8**  
Sand the lid smooth, starting with 180 grit and working down to 400 grit



**9**  
Apply a coat of friction polish first, then finish it off with wax polish



**12**  
Reverse the hollowed-out box base on the chuck and finish the underside...



**10**  
Tackle the box base next; mark the position of the hinge on its end



**11**  
Gradually scoop out the interior of the box base with a small bowl gouge



**13**  
...with a series of concentric circles. Polish and wax it as for the lid



**14**  
All that remains is to glue the hinge to the box and set the paua shell into the lid





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In the final part of this series, the construction of a rotating laser line unit is shown. The device shines a light spot at any angle onto the object being turned, and is a precise guide for turning straight, parallel or tapered sections. One or two of these, built for the turning guide, will greatly enhance its usefulness



BY LINTON WEDLOCK

# Turning heads



## Laser safety

The lasers used in this project are low-powered and will not affect any surface they shine on. However, the beams of light are intense, and should not be looked at directly. Care should also be taken because the beams can be reflected off mirror-like metal surfaces. When using the turning guide, the laser beams are occasionally reflected off the lathe tool and into the eyes, but this will not cause any problems unless the tool is exceptionally finely ground and brightly polished.

**T**his unit is similar to the one described last month, and most of the construction is done in the same way. There are just two differences: the wood block is slightly larger, and the laser is separately mounted in a turned wood shape (I'll call this part the laser-head). This shape is attached to the block by a ball-and-socket joint, fig 1, and can be rotated and swivelled to direct the laser line at any angle onto the work surface.

### Shaping the main block

Start with a 75 x 60 x 24mm hardwood block. Follow the same construction steps as for the unit that was described last month, but drill a 25mm hole at the bottom

to hold the laser head, fig 2. This hole extends below the bottom edge of the block and should be drilled by clamping a scrap piece of wood to the block.

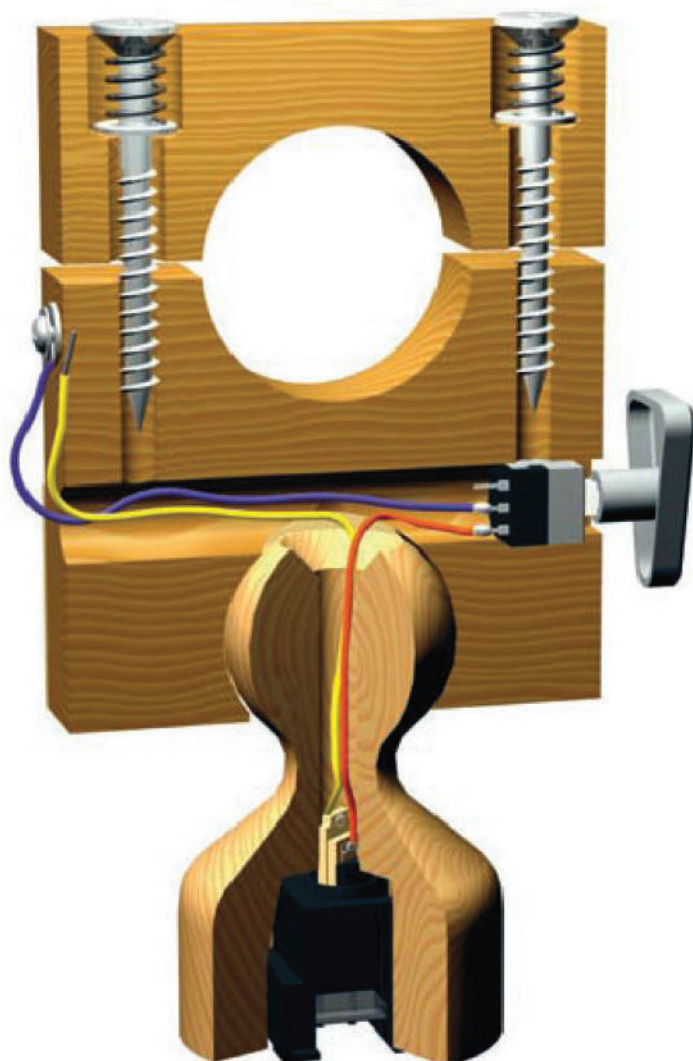
### Creating the laser head

Next, turn the laser-head to the shape shown in fig 3. To make this part, I used a simple homemade screw chuck. The top part of the laser-head fits in the 25mm hole in the block, and forms the ball-and-socket joint. When turning the laser-head ball, the hole can be used as a template, and there should be a close but free fit between them.

Drill a 6mm axial hole in the laser-head, and countersink and smooth the opening at



**Fig 1**



the top end. Lastly, carve out the recess for the laser and its plastic holder.

Two thin plywood plates will hold the head in place in the hole, **fig 4**. They should be screwed down until the head can be easily rotated and swivelled by hand, yet will retain its position when released. I faced the plywood plates with small leather patches, but thin nylon or plywood discs coated with candle wax could be used instead.

### Checking the laser

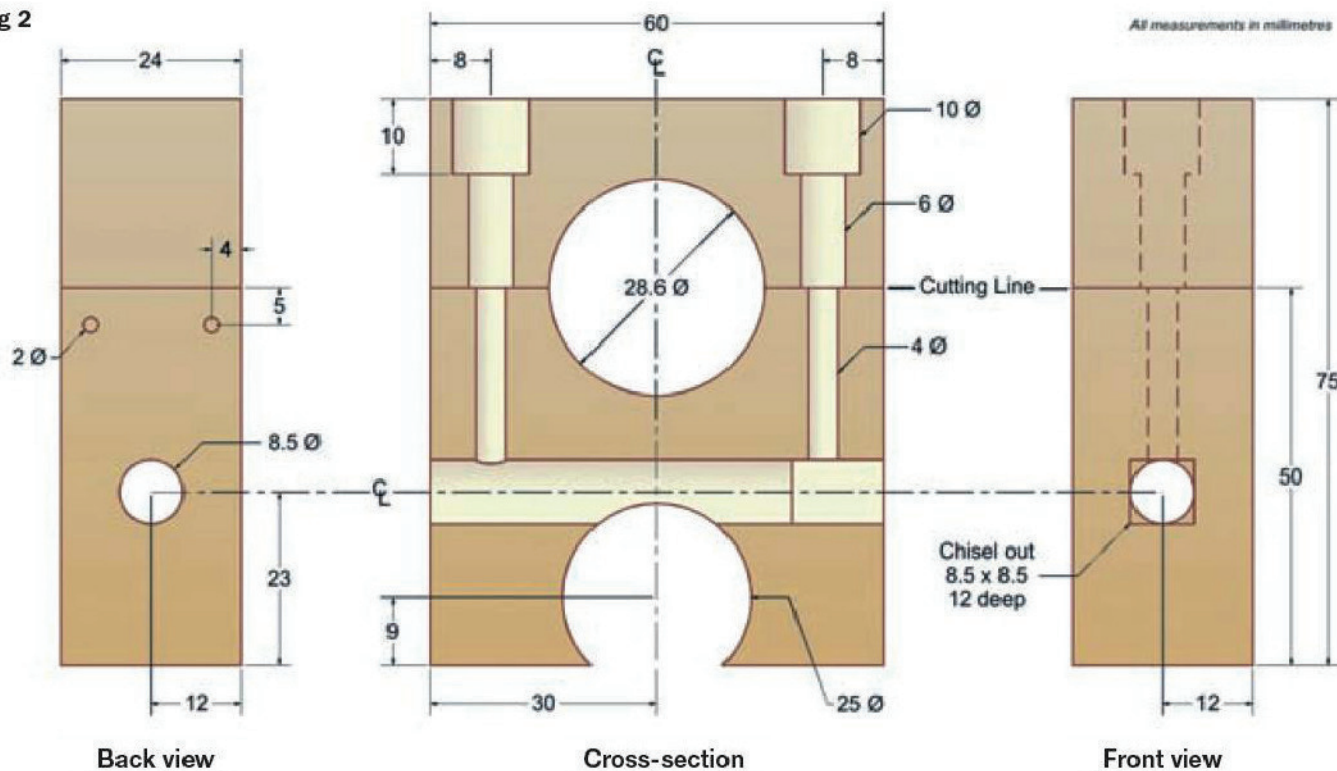
Before removing its internal components, try out the laser-line. They are not always well set-up, and the laser lines that they project are often somewhat curved. It is possible to correct this defect by altering the angle of the piece of clear plastic that is in front of the laser until the line becomes straight. The plastic piece has usually a firm press fit in its housing, but can be rotated by carefully pressing its edges. Try not to mark the centre of the plastic where the laser beam shines through.

### Tackling the electronics

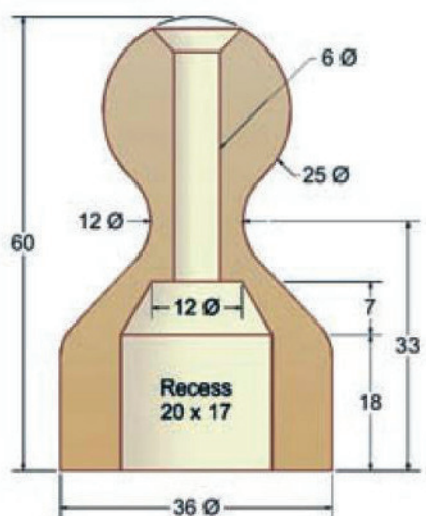
Prise off the bezel from the laser-line, as shown last month. Then remove the laser and switch, but this time take out the whole plastic section that holds the laser and clear plastic piece. It is usually easy to separate this part from the rest of the laser-line base, but it may need to be cut off if it has been heavily glued in place.

The complete holder is lightly wedged in

**Fig 2**







**Laser head cross-section**

**Fig 3**

place in the recess in the turned laser-head (I used a strip of thin leather), and the wires passed through the axial hole to the ball end. The wire to the switch will need to be temporarily disconnected to do this.

### Mounting the unit

Assemble all parts of the line unit, test it, and then mount it on the turning guide rail. Connect some power wires to the battery box, check all wiring for any faults, and turn on. It should now be possible to project the laser line at any angle onto the object being turned by swivelling the laser-head.

Adjust the laser line until it is parallel with the lathe turning axis, and put an identifying mark on the front of the laser-head. This mark can be used as a rough indicator of the laser line angle, but its main purpose is to keep the head always facing towards the front of the turning guide. This will prevent the head being turned around many times and breaking the wires inside it.

### The gulde completed

For the turning guide, I made a total of nine laser units – two line and seven spot units. This seems to be a good number to use when turning small articles with a small number of features. Long complex objects may require a large number of features to be marked, but it is quite easy to just work on one laser-marked section at a time. The laser units are mounted on two holding rails, and this is recommended because of the closer laser spot positions that it allows.

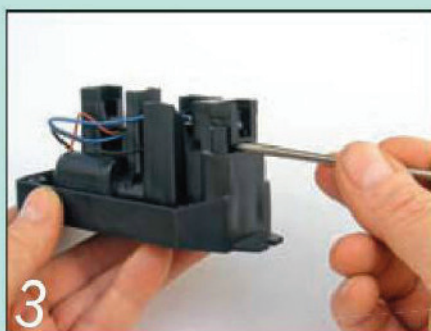
I've only recently completed this project, and I'm now beginning to discover the best way to use the accessory. Here are a few initial thoughts on its use.



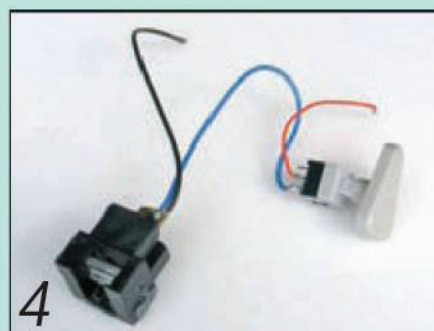
1 Cramp on some scrap wood while drilling out the hole for the laser head in the rectangular block



2 Use the hole in the block as a template when turning the laser-head to the required shape



3 Prise out the complete laser holder from the laser-line base



4 Remove the laser holder, switch and wires from the laser-line



5 Temporarily disconnect the switch wire and mount the laser holder in the laser-head



6 Fit the laser holder in position, packed with a leather strip

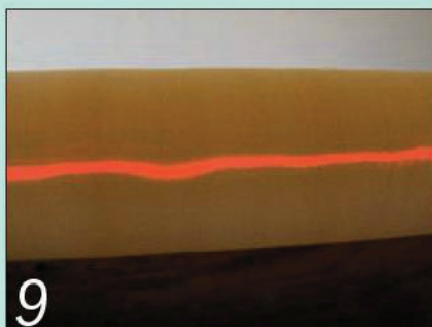


7 Thin plywood plates with leather pads hold the laser-head in place in the block





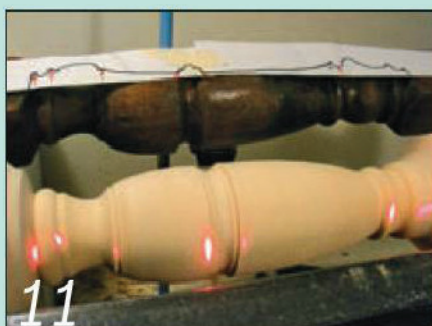
8 An underside view of one possible configuration, with nine laser units on two rails



9 The irregular laser line above the centre line shows parallel turning not yet finished to size



10 The straight, wide laser line on the centre line shows tapered turning completed



11 Turning is almost finished to the laser guide spots (compare this with photo 17 in part 1)



12 The original object (left) and a copy made with the aid of the turning guide

## Practical points

The line units are a great help when turning straight sections, both parallel and tapered. Once the line position has been set up, it is easy to turn down the section to the finished size. As the final size is approached, the laser line gets closer to the lathe centre height.

The beam width also increases because it is projected at an increasingly oblique angle onto the wood surface. When close to the finished size, the laser line magnifies any small irregularities in the surface. For example, the wavy line in photo 9 is due to a maximum diameter variation of 0.5 mm. When the laser line forms a wide straight band at the lathe centre height, photo 10, this shows that the section is completed. Theoretically, it would be possible to turn the section undersize, but in practice the turning down is easily discontinued before the laser line disappears from the wood surface.

## Setting up the guide

The procedure I use to turn an article is, first, to set each laser spot inner edge (nearest the lathe turning axis) to mark each important feature on the work. The work is then roughly turned down to the lathe spot outer edges, leaving the work about 2-3mm oversize. The detail is then cut at the inner spot edges, and lastly the areas between the spots are judged by eye. This is visually accurate for

most purposes, but templates or callipers could be used for more exacting work.

## Working drawings

One small problem when turning to a set of numerous laser points is that it is easy to forget at the outset how the points relate to the features on the work. To overcome this, I usually make a rough full-sized sketch of the object, and this has arrows to show the exact position of the laser spots.

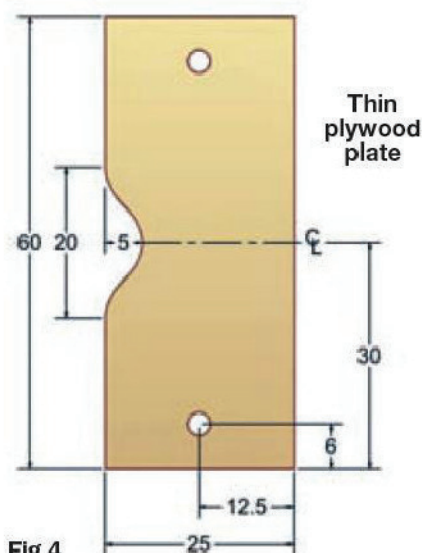


Fig 4

## Taking a copy

As an exercise to find out how accurately turnings could be made, I made a copy of an object using only the turning guide, and without using any measuring tools. The resulting turning was visually quite close to the original, and the maximum measured difference between the original and the copied objects was 1.7mm. With a little more practice, I think it should be possible to produce work accurate to about 1mm and perhaps even less. The original object and its copy are shown in photo 12 (the original looks slightly smaller because it's further away from the camera).

## Summing up

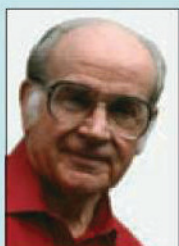
This has been an interesting project to build, and it looks as if it should make turning both simpler and quicker in the future. The accessory is particularly useful when making several copies of the same object where only a close visual match is required. By using the turning guide, no measuring tools are necessary to make such objects.

The flow of the work is also improved because the turning doesn't need to be stopped to make any checking measurements. As with any new piece of equipment, the laser turning guide requires a little practice in its use, but after working with it for only a couple of weeks, I now wish I'd made one years ago!





**ANDY STANDING** rounds up everything you need to know about choosing and using bench-top mortisers. Then he follows this with a comparison of six budget, mid-price and top-of-the-range machines to help you choose the right one for your requirements



**GORDON WARR** takes the Worx WU644 third-sheet orbital sander for a test drive, and reports that it goes rather well. He also picks up a set of bevel-edge chisels from ITS and finds them a joy to use

#### ALSO TESTED

- SIP 01445 16in heavy-duty bandsaw
- Metabo KGS255 PLUS sliding mitre saw
- RojekR2002 dust extractor
- Veritas scrub plane

#### OUR RATINGS

- Faultless performance, excellent value for money
- Very good performance, good value for money
- Average performance, reasonable value for money
- Less than satisfactory performance, poor value for money
- A stinker: avoid at all costs!



Ian Wilkie tries out a box clamp with a unique feature

## Woodpecker box clamp



**£12.26**  
(+£5.95 p&p)

This clever clamp from the USA is designed for clamping box, case, drawer and cabinet components from 6 to 25mm ( $\frac{1}{4}$  to 1in) thick. Its unique patented feature is its ability to apply simultaneous inwards and downwards pressure against the two pieces to be joined. It can be used for corner, T and mitre joints.

The clamp measures 95 x 95 x 30mm, and is made from aircraft-grade aluminium with a red anodised finish. It consists of an outer adjustment wedge and an inner clamping wedge, both of which can be moved to secure the workpiece against the outer, fixed frame to ensure an accurate right angle. Both wedges have screws that lock their position.

The clamp can be assembled in the fixture or hand-clamp mode. In fixture mode the clamp is set down on the bench, the workpiece is then inserted and the wedge is tightened using the Allen key. In the hand-clamp mode the procedure is reversed; the workpiece is on the bench and once the clamp is set onto the joint it's tightened with the knob.

#### The clamp in use

First make up a sample joint with two pieces of the wood you're using. Loosen the adjustment wedge screw so that the wedge can slide back. Undo the clamping wedge screw by at least two turns and slide in the wood. Push the two wedges so they close

onto the wood and tighten the adjustment wedge screw.

At this stage the clamping wedge will be slightly above the top surface of the adjustment wedge. The surface between the two wedges is bevelled to give downward pressure. Tighten the clamping wedge screw; the wedge will tighten up against the wood and push the joint firmly together.

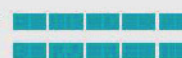
Undo the clamping wedge to remove the sample joint. The clamp is now set up for the project in hand, and you'll get a perfect 90° joint every time. This may sound a little complicated, but it's quite straightforward in practice. And it works every time!

#### VERDICT

This is an outstanding product which thoroughly deserves its full marks.

- PROS**
- Accurate 90° joints
  - Good clamping pressure
- CONS**
- A bit fiddly to set up

**VALUE FOR MONEY**



**PERFORMANCE**



#### FURTHER INFORMATION

- Rutlands
- 01629 815518
- [www.rutlands.co.uk](http://www.rutlands.co.uk)
- [www.woodpeck.com](http://www.woodpeck.com)





# Mortiser basics

**Woodworking machines offer two big advantages over traditional manual procedures. They do things more quickly, and they do them more accurately. The bench mortiser is a good example, allowing you to cut perfect mortises over and over again in a fraction of the time it would take to cut them by hand. It's the ideal addition to your workshop if you do a lot of repeat joint-making**

Ask a layman to name a woodworking joint, and the chances are that the answer will be either a dovetail or a mortise and tenon. The mortise and tenon is one of the oldest of joints, and is still extensively used in joinery and furniture making.

It is, in essence, a very simple joint. A hole, the mortise, is cut in a piece of timber and a corresponding peg, the tenon, is cut on another. The two are then fitted together. It's a joint that's generally used when the two components are to be joined at right angles, and is an extremely efficient joint with great mechanical strength.

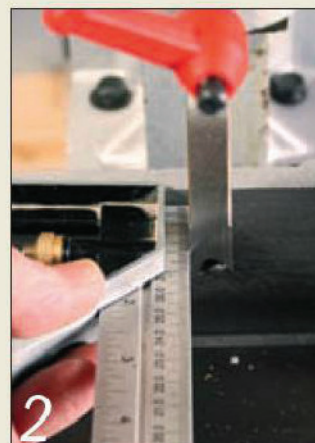
## Machine options

Traditionally the mortise and tenon would be cut by hand, using a mallet, a heavy mortise chisel and a tenon saw. Today most mortise joints are cut by machine, and there are several methods of doing this.

You can use a power drill or a pillar drill to remove the bulk of the waste, and then clean up the hole with a chisel. You can use a router to cut both components, though you may need a jig and you'll get rounded mortises and tenons. Lastly, you can cut tenons



Use a £1 coin to set the chisel/auger clearance

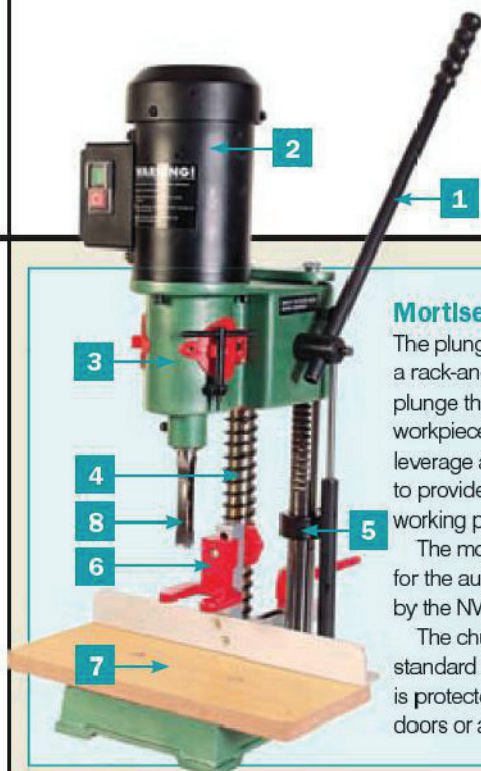


Align the chisel square with the fence





TESTED BY ANDY STANDING



### Mortiser anatomy

The plunge handle (1) works on a rack-and-pinion system to plunge the chisel into the workpiece. It should give good leverage and is often adjustable to provide the most comfortable working position.

The motor (2) provides power for the auger, and is controlled by the NVR switch.

The chuck (3, concealed) is a standard key-operated type and is protected behind opening doors or a removable shield.

The column (4) must be rigid, and the springs and gas strut must be properly balanced with the weight of the motor to provide a smooth and controllable plunging action.

The depth stop (5) is a very important component; it must be easy to set and must stay in position under load, otherwise your mortises will be too deep.

The work clamp (6) holds the workpiece down on the table so it doesn't rise up as the chisel is withdrawn from the mortise.

The table (7) is usually made from a soft material such as MDF so the chisel won't be damaged if it reaches it. An adjustable fence is also fitted to hold the work in the right position under the chisel. On larger machines a travelling table is fitted.

The chisel (8) is clamped into the plunging head and the auger rotates freely within it. The auger must be set in front of the chisel and the ejection slot must point to one side of the work, never towards the front.

(but not mortises, obviously) on a bandsaw or a table saw fitted.

However, to produce a square-sided mortise quickly and accurately, the most efficient tool is the hollow-chisel mortiser. These machines have a hollow square chisel with a spinning auger bit mounted inside. As the chisel is plunged into the timber, the auger removes the bulk of the waste and then the chisel squares up the hole behind it.

### Setting up the mortiser

The chisel must be inserted into the machine with enough clearance between it and the auger, so that the waste can be efficiently ejected without jamming in the chisel. The simplest way to achieve this is to insert the chisel into its socket, but place a £1 coin between the shoulder of the chisel and the face of the socket as a spacer to stop the chisel being pushed fully home, **photo 1**. This will give about 3mm of clearance. Tighten the holding screw, insert the auger hard into the chisel and tighten the chuck.

Next, loosen the holding screw and push the chisel fully home. Align the edge of the chisel square with the fence, **photo 2**, and ensure that the slot is pointing to the side at which you intend to start cutting the mortise. This means that the chippings will be ejected into the previously cut section as you work your way across the joint.

Rather confusingly, catalogue photographs of mortisers often

show the chisel slot facing forwards. They should never be used like this, as the chippings would be unable to eject from the chisel and overheating and damage to the chisel and auger could occur.

### Making the cut

Mark up the joint position with a centre line and two end stop lines, **photo 3**. Secure the workpiece on the table and align the auger on the centre line, **photo 4**. Start the cut at the end towards which the slot in the chisel is pointing, **photo 5**.

Take care when making the initial cut. It is often wise to plunge down to full depth in stages, raising the chisel each time to eject the chippings. Move the workpiece along under the chisel until the joint is cut, making each step about half a chisel width, **photo 6**. This reduces strain on the chisel assembly, and is especially sensible when mortising very hard woods.

The chisel may smoke a little; this is normal, but check regularly that it is not getting clogged. If it is, increase the chisel/auger clearance slightly.

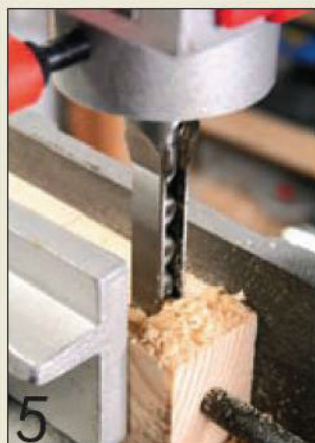
To cut through mortises, always work through from both sides of the workpiece so that the mortise meets in the centre. Otherwise you risk damaging the mortiser, causing breakout on the back of the workpiece, and severely overheating the chisel.



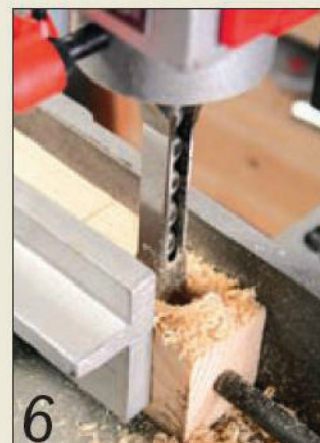
3 Mark up the workpiece as shown, ready for mortising



4 Clamp the workpiece and align the auger on the centre line



5 Start the cut at the end towards which the slot is pointing



6 As you move along, the chippings are ejected into the open mortise



*In an ideal woodworking world of no pressure and endless time, we'd still do everything by hand. Mortising is a perfect example of a job that can be done just as well, if not better, by a dedicated machine in a fraction of the time. Try making a large oak table and cutting all the mortises by hand. It is hard, time-consuming and exacting work. A powerful mortiser will do the job in about twenty minutes with little effort and total accuracy*

# Bench mortisers

A mortiser is not perhaps high on the list of machines for the home woodworker, as it's possible to cut the occasional mortise using a router... or perhaps a pillar drill. However, once you start to tackle any serious furniture or joinery projects, a good mortiser becomes indispensable.

There are several types of mortising machine to choose from: the slot mortiser, which is similar to a router and often found on universal machines; the chain mortiser, which is effectively a small plunging chainsaw, and is primarily used in structural joinery, and finally the hollow chisel mortiser. This is the machine of choice for the furniture maker as it's simple, versatile and produces a square-ended mortise.

Here is a selection of machines to suit everyone, from the occasional user to the serious enthusiast.

## VERDICT

If your budget is restricted, the Axminster AW12BM represents very good value for money, and unusually features dust extraction. Of the mid-range machines, the Record just shades out the Charnwood on performance. In the top price bracket, the Jet 701 has the edge over the SIP 01375; it would be my first choice for a top-end machine on performance grounds.



## SAFETY FIRST

As with any bladed bench power tool, make sure the machine is securely mounted before you start using it. Spin the chuck by hand to ensure that the auger set-up is correct, and check that the chuck key has been removed before starting the motor.





**Budget  
priced**

*These are the most basic designs in the bench mortiser family. Ideal for modest work and simple to use, they are generally small enough to be stored out of the way in a corner of the workshop until they're needed*

**TESTED BY  
ANDY STANDING**



#### SPECIFICATION

|                       |        |
|-----------------------|--------|
| POWER                 | 370W   |
| CHISEL CAPACITY       | 13mm   |
| CAPACITY UNDER CHISEL | 120mm  |
| WEIGHT                | 26.5kg |

#### VERDICT

This is a well-finished machine with modest capacities, supplied with a good set of chisels.

- PROS**
- Smooth motor
  - Easy to set up and use
- CONS**
- Fiddly fence setting

**VALUE FOR MONEY**

**PERFORMANCE**

#### FURTHER INFORMATION

- Draper
- 02380 266355
- [www.draper.co.uk](http://www.draper.co.uk)

## Draper BM13B

The Draper is a smart machine. It has a large, heavily finned induction motor mounted on the mortising head with a standard NVR switch on the left-hand side. The head is supported on a pair of steel columns with a return spring on the left.

The depth-of-cut stop is a large plastic collar on the right-hand column. Access to the chuck is through a pair of removable plastic plugs which also double as clips to store the chuck key. The Draper is supplied with three chisels and augers and two bushes, so can use chisels with 19mm and 1½in shanks.

The table has an MDF top and a sliding rear fence. The hold-down is mounted on the fence, but restricts the height of the workpiece to 70mm, so for thicker workpieces it must be removed or possibly reversed. The fence and hold-down are somewhat fiddly to set, but once in place, they lock securely. In use the Draper runs smoothly and cuts well. Overall it's a thoroughly competent machine.

**£125.75**



#### SPECIFICATION

|                       |        |
|-----------------------|--------|
| POWER                 | 370W   |
| CHISEL CAPACITY       | 12.7mm |
| CAPACITY UNDER CHISEL | 120mm  |
| WEIGHT                | 25kg   |

#### VERDICT

This is a versatile and well-specified machine at a realistic price.

- PROS**
- Dust extraction
  - Work light
  - Drilling chuck supplied
- CONS**
- Work light operates only with motor on

**VALUE FOR MONEY**

**PERFORMANCE**

#### FURTHER INFORMATION

- Axminster
- 0800 371822
- [www.axminster.co.uk](http://www.axminster.co.uk)

## Axminster AW12BM

The Axminster AW12BM has a large adjustable plunging handle and a depth stop is clamped around one of the supporting bars. This incorporates a second haunch stop so dual-depth mortises can be rapidly cut. The NVR power switch also operates a low-voltage work light which is on an adjustable arm.

It also has a dust extraction pipe – a feature not generally seen on mortisers. This is a simple piece of piping attached to the hold-down that can be pointed directly into the side of the chisel to extract the chippings as they are ejected.

The AW12BM is an efficient machine. The fence is simple to position and has a useful fine adjuster. The plunging handle is comfortably shaped and provides good leverage. The work light is a bonus, but it would be more useful if it could be switched on separately from the motor. The dust extraction is particularly good – simple and efficient. It is supplied with a ½in chisel and also a separate drilling chuck, so it can double as a pillar drill.

**Budget  
priced**

**£116.83**





**Mid-range**

**Moving up the price scale**, the machines get heavier and their capacities increase. The build should be more robust and the machines will be better able to withstand sustained operation.

# Charnwood W310

**£179**

Not only does the Charnwood have a sliding table; it has the additional benefit of having a drilling chuck included in the price. The sliding table mechanism has adjustments operating in both the X and Y axis. However, there are no end stops on the table movement, though it does have a locking screw for securing the table when used for drilling.

The mortising head is mounted on a pair of steel columns with a sprung gas strut supporting it. The depth stop is a large plastic ring that clamps around the right-hand column. Access to the chuck is via a pair of removable yellow plastic plugs, which also double as clips to hold the chuck key. It has a long plunging handle with a rubber grip.

In use the steeply angled plunging handle is rather poorly positioned, and combined with the slightly stiff operating action, makes it difficult to exert maximum pressure.

However, the depth stop is reliable and the sliding table is fine. The Charnwood is also supplied with a set of three chisels with augers and, of course, the drilling chuck. Overall this is a versatile machine, though it's slightly stiff in use.

## SPECIFICATION

|                              |       |
|------------------------------|-------|
| <b>POWER</b>                 | 375W  |
| <b>CHISEL CAPACITY</b>       | 13mm  |
| <b>CAPACITY UNDER CHISEL</b> | 100mm |
| <b>WEIGHT</b>                | 37kg  |

## VERDICT

This is a solid and versatile machine with the benefit of a sliding table.

**PROS** ■ Sliding table  
■ Drilling chuck

**CONS** ■ Slightly stiff action  
■ Awkward plunging handle

## VALUE FOR MONEY

## PERFORMANCE

### FURTHER INFORMATION

- Charnwood
- 01530 516926
- [www.charnwood.net](http://www.charnwood.net)



The depth stop is a large plastic ring



The sliding table  
is fully adjustable



Chuck access is via removable plugs







Top  
price

If you plan to do a lot of mortising, it is worth splashing out on the largest machine that you can afford. Obviously you will need a permanent space for it in your workshop, as these machines are heavy to move around

## Jet 701

£345



The Jet is aimed at the professional user and has some attractive features. The base is extra large and although it is not equipped with a sliding table, it has a solid cast iron fence which is easily adjusted with a rack-and-pinion system. A sturdy hold-down is fitted to the top of the fence and on the front of the table there's a pair of adjustable rubber guide wheels.

The mortising head has adjusting shims incorporated into the chisel mounting. These are used to set the chisel-auger clearance, so you don't need a £1 coin. A sliding alloy bracket is fixed to the main column and acts as the depth stop.

The long plunging handle is mounted on a spring-loaded shaft so it can be easily adjusted to the most convenient position. For mortising large workpieces, such as doors, the column can be reversed so that the mortising head can be suspended from the edge of a bench over the floor.

On the top of the supporting column is a tool rack which also contains a conical diamond stone for sharpening the chisels.

In use the Jet is impressive. The wide base makes it particularly stable. The fence is excellent and the rollers work well. The motor runs quietly and the plunging handle allows considerable force to be exerted.

### SPECIFICATION

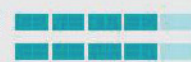
|                       |       |
|-----------------------|-------|
| POWER                 | 550W  |
| CHISEL CAPACITY       | 19mm  |
| CAPACITY UNDER CHISEL | 140mm |
| WEIGHT                | 42kg  |

### VERDICT

This rugged heavyweight machine is built for serious mortising use. It's stable and very powerful.

- PROS**
- Supplied with sharpening cone
  - Reversible plunge handle
- CONS**
- No sliding table

VALUE FOR MONEY



PERFORMANCE



### FURTHER INFORMATION

- Axminster
- 0800 371822
- [www.axminster.co.uk](http://www.axminster.co.uk)



The hold-down and guide wheels



The cam clamps and the fence's rack-and-pinion adjustment



TESTED BY  
ANDY STANDING



## SIP 01375

Top  
price

£399



The SIP is supplied with a flat-packed cabinet base and also a second chuck so that it can also be used as a pillar drill. The base provides good storage and supports the mortiser at the ideal working height.

The cast iron mortising table is easy to adjust and has the standard two operating wheels and a large work clamp. The front-back movement, used to set the mortise position in the width of the timber, is lockable. The work clamp is quite high-sided – good for large timbers. There are no hold-down clamps.

The mortising head is supported by a gas strut, and the long mortising lever is adjustable and can exert considerable pressure. Mortise depth is controlled with an efficient depth stop system. Instead of using a plain bar, it uses a serrated rod that grips the adjustable collars, so there is less chance of slippage. The mortising head itself is also adjustable on its slide. It can be raised or lowered to suit the timber thickness and is locked with two large nuts.

In use the SIP is a good performer. It's very powerful, though a little noisy. The depth stop grips well and the table is precise. The addition of a separate chuck is a bonus and gives added versatility to a competent machine.

### SPECIFICATION

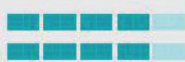
|                       |        |
|-----------------------|--------|
| POWER                 | 750W   |
| CHISEL CAPACITY       | 25.4mm |
| CAPACITY UNDER CHISEL | 220mm  |
| WEIGHT                | 90kg   |

### VERDICT

This is a powerful and versatile machine with good capacities and stands its own cabinet base.

- PROS**
- Separate drilling chuck
  - Good sliding table
- CONS**
- Rather noisy in operation

VALUE FOR MONEY



PERFORMANCE



### FURTHER INFORMATION

- SIP
- 01509 500359
- [www.sip-group.com](http://www.sip-group.com)



The chuck is easily accessible



The table clamp is high-sided



The operating wheels are the standard type



## SIP 01445 16in heavy-duty bandsaw

£695



The lower bandwheel with the two-speed pulleys



The cast alloy bandwheels have nylon tyres



The upper guides are mounted on the blade guard



**While smaller bandsaws have their uses, it is the larger ones that have the capacity to handle heavier timbers and the table support to hold large workpieces. Unfortunately, they also tend to come with a big price tag, so it is refreshing to find the new SIP 16in bandsaw retailing at under £700**

**TESTED BY  
ANDY STANDING**



For sheer versatility, there are few saws that can beat a good floor-standing bandsaw. Their powerful motors and heavy frames mean that a wide range of blades can be used, from narrow fine-toothed blades for precision work to wide and robust ones ideal for large-scale resawing jobs.

The 01445 is a conventionally designed machine, incorporating all the features that a serious user needs. It has a heavily braced steel frame with separate top and bottom doors. These can be opened without tools and are micro-switch protected, so the machine won't run with the doors open. The cast alloy wheels are dynamically balanced and have nylon tyres for a good grip on the blade. It has two speeds, good fences, a powerful motor and efficient dust extraction.

### Table and fences

The table is cast iron with a smoothly finished surface. It can be tilted from 0-45°, and a simple rack-and-pinion system is fitted to make accurate adjustment easy. An alloy rail is fitted to the front of the table on which the rip fence runs.

The fence is a two-part alloy design and can be adjusted easily to suit both thick and thin workpieces. It runs along a clearly marked metric scale and there is a magnified setting window to ensure maximum accuracy. Unusually on a bandsaw, a fine adjuster is also fitted to the rip fence. An adjustable alloy mitre fence is also supplied, and this runs in a groove cut into the table on the right-hand side of the blade.

### Good guides

Even the best-designed bandsaw can be let down by a poor set of blade guides. The SIP is equipped with a triple set of roller guides, both above and below the table, which are simple to set and give good consistent blade support. The upper guides are mounted on the adjustable blade guard, which is operated with a rack-and-pinion system.

### Blade changing

Changing blades on larger bandsaws can be tricky, as there's a lot of blade and many sharp teeth to catch the unwary. The SIP benefits from a tension quick-release lever mounted on the back of the casing. This makes it easy to replace a blade quickly and, with the tension wheel conveniently mounted on the underside of the top casing, it's easy to adjust the tension.

## SPECIFICATION

|                          |             |
|--------------------------|-------------|
| <b>POWER</b>             | 2200W (3hp) |
| <b>TABLE SIZE</b>        | 535 x 435mm |
| <b>THROAT</b>            | 410mm       |
| <b>MAX CUTTING DEPTH</b> | 254mm       |
| <b>WEIGHT</b>            | 126kg       |

## VERDICT

This is a well-made tool at a very attractive price and should satisfy the enthusiast and the professional alike. It's solid, sturdy and has very good performance.

- PROS** ■ Well-designed fittings and controls  
■ Two speeds  
**CONS** ■ It's massive!

**VALUE FOR MONEY** ■■■■■■  
**PERFORMANCE** ■■■■■■

## FURTHER INFORMATION

- SIP
- 01509 500359
- [www.sip-group.com](http://www.sip-group.com)

### Dust extraction

Bandsaws produce a fair amount of fine dust and it's often difficult to extract this efficiently if the extraction point is too far from the cutting position. The SIP has a pair of 100mm extraction outlets, one just beneath the table and the other in the rear of the lower casing. When these were connected to a powerful extractor, they seemed to work pretty well.

### Using the saw

The SIP is a pleasant machine to use. The motor runs smoothly and has considerable power. I was impressed with the precision of the cut; it could reliably produce wafer thin veneers with ease. The rip fence is secure and the mitre fence moves accurately in its groove.



The lower blade guides give excellent blade support



The rip fence setting window is highly accurate



There is a micro-adjuster on the rip fence









TESTED BY GORDON WARR

*There are probably more different types of sander on the market these days than any other power tool. The Worx range, which is exclusive to Screwfix, includes several models, and their third-sheet orbital sander is the latest one to land on my workbench for testing*

## Worx WU644 $\frac{1}{3}$ sheet orbital sander



**£79.99**

This sander offers variable speed settings controlled by a rotating knob set into the lock-on switch. The upper part of the body is plastic, with a comfortable soft-grip area on the top, while the lower half is alloy.

The platen takes standard one-third sheets of abrasive, and is pierced to allow the extraction of the dust – an essential feature in today's safety-conscious atmosphere. This is either collected in a small dustbag mounted at the rear of the body, or in a workshop vacuum which is connected to the sander body with an adaptor (supplied).

### Pierced or plain

You can either fit pre-pierced abrasive sheets (expensive) or use plain abrasive cut from sheets or rolls (much cheaper). In the latter case you fit the paper to the platen using the spring steel clips, then use the plastic punch supplied to punch eight evenly-spaced holes in it, corresponding with the positions of the holes in the platen. Obviously the dust collection system doesn't work unless these holes are punched first.

### Using the sander

So long as you don't expect this type of sander to remove large

### SPECIFICATION

|                |               |
|----------------|---------------|
| POWER          | 300W          |
| PLATEN SIZE    | 180 x 92mm    |
| SANDING SPEEDS | 6000-12000rpm |
| SANDING ORBIT  | 2.4mm         |
| WEIGHT         | 2kg           |

### VERDICT

This sander has a long-life-ahead feel to it which the manufacturers obviously share, as is shown by the generous three-year guarantee offered.

**PROS**

- Variable speed
- Choice of dust collection systems
- Hole punch included

**CONS** ■ Nothing significant

**VALUE FOR MONEY**   
**PERFORMANCE** 

### FURTHER INFORMATION

- Screwfix
- 0500 414141
- [www.screwfix.com](http://www.screwfix.com)

amounts of material, the performance is more than adequate. Orbital sanders should be regarded as the second stage of smoothing wood, once the belt sander has done the bulk removal, and so finer grades of abrasive are the most suitable. If a coarse grade is used and too much hand pressure is applied, the orbital sanding motion can leave small but difficult-to-remove score marks on the wood surface. The direction of use isn't critical so long as moderate hand pressure is used, along with the correct grade of abrasive.



The variable speed control is positioned in the trigger



Vacuum dust collection is connected via an adapter



The abrasive sheet is held in place with simple wire clips



Use the plastic punch to pierce hand-cut abrasive sheets



# Metabo KGS 255 PLUS sliding mitre saw

*A good mitre saw is a great boon, both in the workshop and also on site. Being able to crosscut timber accurately and quickly makes life so much easier. Mitre saws can be a problem, however, as the smaller tools tend to have a relatively limited capacity, and the larger and more powerful sliding mitre saws can be cumbersome to transport.*

The Metabo KGS 255 PLUS sliding mitre saw solves this problem by providing an acceptable crosscut capacity and pretty good performance in a very compact and transportable unit.

This is a well-designed and robustly made machine. It has a solid alloy base with widely splayed feet, giving it good stability. The table turns to 47° in both directions and there are click stops at 0, 15, 22.5, 30 and 45°. The table can be locked at any point in between these settings using the table lock screw. The rear fence is solid and can be adjusted for accuracy.

On each side of the table is an extension arm to give additional workpiece support. A small sliding support table is incorporated in the left-hand side of the machine, and on the right there is a length stop for repetition cutting.

## Swivelling sawhead

The cutting head is supported on a pair of hardened steel rails; these are mounted on a large swivelling bracket on which the bevel angle is set. The blade is directly powered by a universal motor, and both the fixed and retracting saw guards are metal. The head plunges easily. Once the release button is pressed, it will pivot down as the guard automatically opens. The rails are smooth and the saw slides with very little effort.

For cutting narrow workpieces, the sawhead can be locked in the rear position on the rails. A depth of cut adjuster is also fitted. This allows you to make partial cuts – for instance, when cutting a series of housings for shelving units or even when cutting tenons. It's a particularly useful feature.

## Versatile laser

Almost all the power tool manufacturers seem to be sticking lasers onto their tools these days, and some are considerably better than others. The Metabo laser is one of the best I've used. It arrived perfectly set and lined up on the left-hand edge of the blade, and was extremely useful.

## SPECIFICATION

|                |            |
|----------------|------------|
| POWER          | 1300W      |
| BLADE DIAMETER | 210mm      |
| NO-LOAD SPEED  | 5700rpm    |
| MAX CUT AT 90° | 255 x 60mm |
| MAX CUT AT 45° | 177 x 30mm |
| WEIGHT         | 17kg       |

## VERDICT

Overall this is a high quality tool with good capacities that's still light enough to be taken wherever it's needed.

- PROS**
- Very stable
  - Smooth sliding action
  - Useful laser
- CONS**
- Fiddly depth-of-cut adjustment
  - Average dust extraction

## VALUE FOR MONEY



## PERFORMANCE



## FURTHER INFORMATION

- Metabo
- 02380 732000
- [www.metabo.co.uk](http://www.metabo.co.uk)

## Average extraction

A dustbag is provided that attaches to the rear bracket, and a workshop vacuum can also be connected. However, as you can see from the photographs, a lot of the sawdust still escapes, though this is a common problem with this design of saw.

## Using the saw

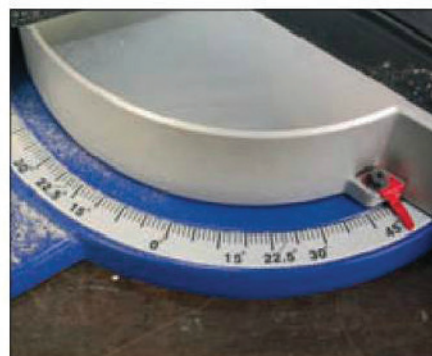
The Metabo is a reassuring and predictable machine to use. The controls are easy and precise, and the saw movements are smooth and controllable. The depth of cut adjustment is a bit fiddly until you get the hang of it, and unfortunately you cannot retain the setting, but this isn't a huge problem.



The laser is accurate straight out of the box



Easy to set bevel angle



Clearly marked table scale



TESTED BY  
ANDY STANDING



£222



The depth of cut adjuster is a bit fiddly



A solid workpiece clamp is fitted



Extra adjustable side support



**Dust extractors are often an afterthought; few of us would actually look forward to getting a new extractor, as opposed to a shiny new bandsaw. However, decent extraction can make a huge difference to both the workshop environment and machine performance.**

## Rojek R2002 extractor

Dust extractors are always a compromise between high-volume systems which have little suction but move large volumes of air, and high-suction machines which move a much smaller volume of air but with a higher vacuum pressure, allowing them to work with smaller diameter hoses. For my needs, I decided to go for a high-volume chip extractor. After a careful look through the brochures, the Czech-made Rojek R2002 seemed to fit the bill.

### Solid build

This machine is heavy, with most of the weight being in the substantial Siemens motor. The frame requires some assembly – a lot easier with two people. Build quality is good, although I'd describe it as robust rather than fine engineering.

Another demonstration of its quality is that it's fitted with a more expensive cast aluminium impeller. Compared to a steel one, this is far less likely to generate dangerous sparks should the rotor come into contact with a metal object. It also reduces the fan noise.

### Double bagged

The machine comes in two versions – the R2001 fitted with a single bag, and the double-bagged R2002. This type of machine is more suited for use with a planer, thicknesser, table saw or spindle moulder, where a good airflow is required to carry away the large quantity of chips and coarse dust these types of machine generate. It won't collect the very fine dust generated when machining MDF, for instance, where a vacuum extractor would be more suitable.

### The extractor in use

This machine is remarkably quiet when running. It's a big machine, but is stable and moves round easily on its castors.

The two collection sacks are of a woven material and have proved extremely durable. Both the collection and felt filter bags are clipped in place using a spring toggle on a metal band. This works well enough, but does allow a small amount of dust to escape. Bag changing is relatively straightforward. However, once full the large bags are very heavy; I empty them when they're about half-full.

The machine has a 150mm air intake. Fortunately, it comes with a 150-100mm reducer that provides an adequate airflow for most machines. I've tried it with 50mm hose which dramatically reduced the airflow, but it still removed most of the dust from my chop saw.



£554

### SPECIFICATION

|             |                        |
|-------------|------------------------|
| POWER       | 1100W                  |
| AIRFLOW     | 1760m <sup>3</sup> /hr |
| FILTER AREA | 3.6m <sup>2</sup>      |
| NOISE LEVEL | 79dBA                  |
| WEIGHT      | 55kg                   |

### VERDICT

This machine should give years of excellent service, with the caveat that it's suitable only for chips and coarse dust.

**PROS** ■ Excellent motor ■ Large waste bags  
**CONS** ■ It's big! ■ Poor fine dust collection

### VALUE FOR MONEY



### PERFORMANCE



### FURTHER INFORMATION

- Axminster Power Tools
- 0800 371822
- [www.axminster.co.uk](http://www.axminster.co.uk)



This machine is big, but very mobile on its castors



The substantial Siemens motor and NVR switch



The expensive cast aluminium impeller reduces the fan noise



The metal reducing coupling connects 100mm hose





TESTED BY  
KEITH SMITH

## Veritas scrub plane

**Does a scrub plane still have a role in an age of power tools and machinery?** Specialist plane-makers Lie-Nielsen and Veritas obviously think so, as they've each added a scrub plane to their extensive range of quality hand tools

A scrub plane is designed to remove stock quickly and with the minimum of effort. It comes into its own for flattening boards which are too wide to go through the thicknesser. I also find it useful if I want to remove a few millimetres off the edge of a board, when it's often quicker to take a couple of shavings with the scrub plane rather than reset the planer.

### Simplicity itself

Compared to a traditional bench plane, the scrub plane is a relatively simple tool, consisting of just three main parts – the body, the blade and the lever cap. There is no cap iron or chip breaker. Set screws along the side prevent the blade from shifting sideways when it hits a knot. The body is ductile cast iron, accurately machined and ground so the sole is perfectly flat.

The 38mm (1½in) wide blade fitted to the Veritas plane is ground with a 75mm (3in) radius which gives the plane its aggressive cutting action. With no cap iron and a very wide mouth, the plane won't clog up even with the thickest of shavings.

For flattening work, the plane is typically used across the grain at an angle of 30-45°. The resulting surface will normally need work with a smoothing plane unless you actually want a coarse hand-worked finish.

### Blade upgrade

The 4.75mm (¾in) thick blade supplied with the Veritas is available in either high carbon steel (£15.89) or in the more costly A2 tool steel (£32.20). Unless you envisage using the plane extensively with abrasive timbers, I'd recommend getting the cheaper carbon steel blade.

If nothing else, it is far easier to sharpen. This may be important as sharpening the blade is a bit of an art. The rounded end of the blade normally makes freehand sharpening the only option. Fortunately, this isn't too difficult because, since the blade sits bevel-side down, the sharpening angle is not crucial as it doesn't affect the cutting angle.

**£129.99**

(£155.29 with  
A2 steel blade)



### SPECIFICATION

|             |        |
|-------------|--------|
| LENGTH      | 285mm  |
| BLADE WIDTH | 38mm   |
| WEIGHT      | 1.35kg |

### VERDICT

The Veritas works very well, is beautifully made and will last a lifetime with a little care.

**PROS** ■ Superbly made ■ Easy to set up

**CONS** ■ Tricky to sharpen ■ The price!

**VALUE FOR MONEY**

**PERFORMANCE**

### FURTHER INFORMATION

- Brimarc Associates
- 0845 330 9100
- [www.brimarc.co.uk](http://www.brimarc.co.uk)

### Using the plane

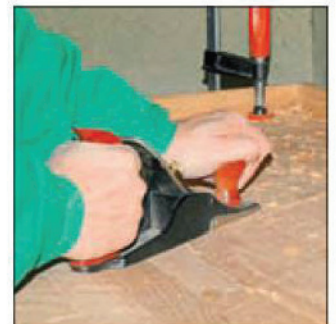
Setting the blade is straightforward. I set it so it has no projection, and lightly clamp the blade with the lever cap. Then a very light tap on the blade is usually enough to give the correct amount of cut. When I'm happy I tighten the lever cap by a quarter turn.

The scrub plane may seem outdated, but it is one specialist plane which most of us would find a good use for.

The scrub plane has just three parts



The blade is ground to a 75mm radius



The plane is used at a 30-45° angle



**Chisels are among our oldest tools**, and haven't changed much since their production moved from the blacksmith to the factory. Better quality steel and the option of plastic handles are the most obvious... along with the fact that you can now buy them in smartly-packed sets

TESTED BY  
GORDON WARR



## ITS chisel set

Even with a workshop overflowing with power tools, chisels still have a role to play in most projects, so every woodworker should own a selection. One of the most economical ways of buying them is as a set, because you usually get some sort of useful packaging to keep them in. ITS – short for Industrial Tool Supplies (London) – has a set of six chisels available in a choice of packaging.

£35.19



### Regular features

The set includes the six most used chisel sizes – 6, 12, 19, 25, 32 and 38mm – in bevel-edged profile. The blades are chrome vanadium steel and the handles plastic. They're actually a combination of a clear amber plastic body with soft-grip areas incorporating finger rests near the handle, and a hard end cap to resist damage from hammer and mallet blows. They're honed ready for immediate use.

### A choice of packaging

It's the way these chisels are packaged that sets them apart. You can buy them in a handsome aluminium case with clips and handle, complete with a moulded plastic inner tray sculpted to hold each chisel in its place. The chisels therefore have total protection, enhanced by the caps fitted to the cutting edges.

As an alternative, you can have a space-saving zip-up canvas case instead at the same price. You can also buy the six chisels individually, at prices ranging from £3.47 to £6.46.

### The chisels in use

I tried the chisels out for typical jobs such as dovetailing, forming half laps, paring end grain and some delicate hand chamfering, and found them a pleasure to use. Tools which look the part invariably perform well, and this is certainly true with these chisels.

### SPECIFICATION

|                  |                              |
|------------------|------------------------------|
| <b>SIZES</b>     | 6, 12, 19, 25, 32 and 38mm   |
| <b>BLADES</b>    | Chrome vanadium steel        |
| <b>HANDLES</b>   | Plastic composite            |
| <b>PACKAGING</b> | Aluminium case or zip-up bag |

### VERDICT

An excellent set of quality chisels at an attractive price

**PROS** ■ Ready to use out of the box ■ Easy-grip handles  
**CONS** ■ They'll need sharpening from time to time!

**VALUE FOR MONEY** ■■■■■■  
**PERFORMANCE** ■■■■■■

### FURTHER INFORMATION

- ITS (London)
- 020 8498 3600
- [www.itslondon.co.uk](http://www.itslondon.co.uk)



Each chisel has its own blade guard



The handle is very comfortable to hold



The blades are honed ready for use







# NEXT ISSUE

Details are correct at time of going to press but are subject to change without notice

The December 2008 issue is out on November 21st

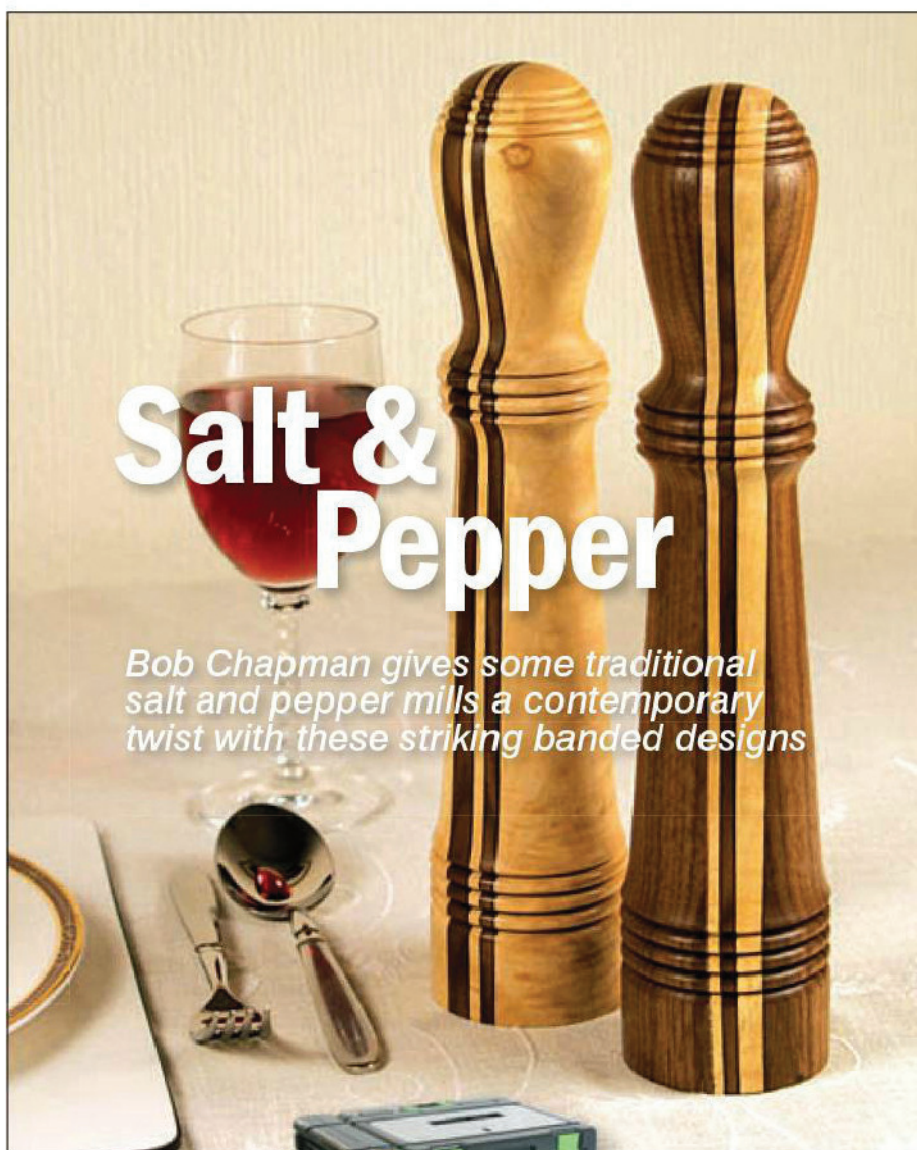


## TICK TOCK!

Gordon Warr starts the countdown to Christmas with an attractive mahogany pendulum clock that's easy to make – and a perfect gift!

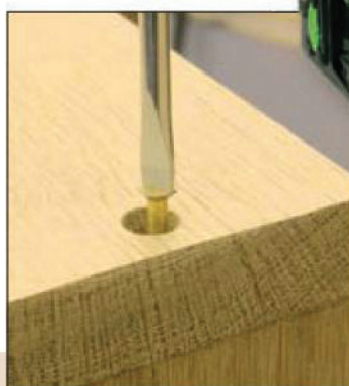
## Salt & Pepper

*Bob Chapman gives some traditional salt and pepper mills a contemporary twist with these striking banded designs*



## HAND vs MACHINE

Our regular workshop series looks at cutting housings and cross-grain rebates in traditional and new ways



## UNDERSTAND...

Ralph Laughton unravels more workshop mysteries with a close look at the humble screw



## SIX INTO ONE

Andy Standing reveals how all these tools fit into one compact chest as he tests the new Power8 Workshop8



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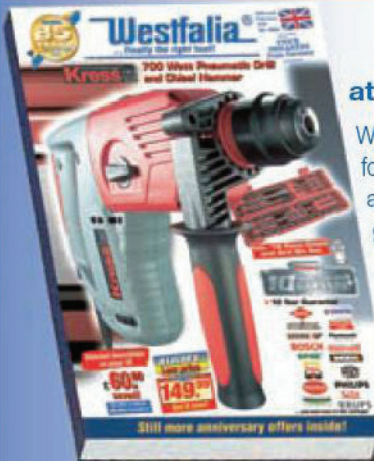
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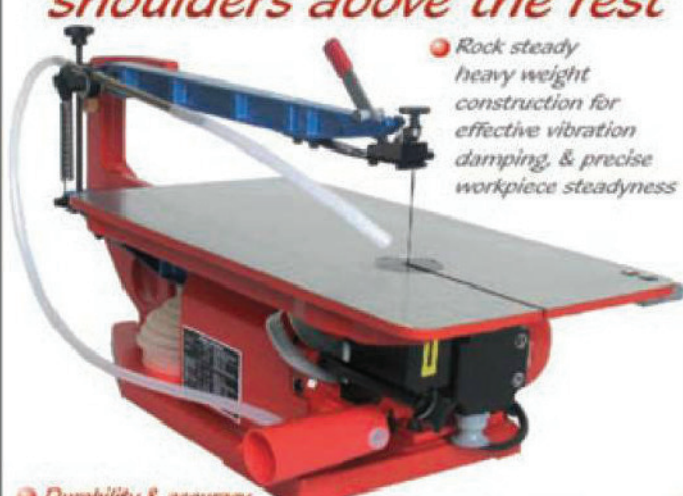
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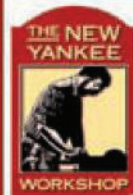
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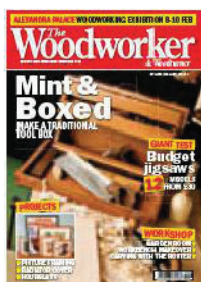
### DECEMBER 2007

**PROJECTS:** Oak double bed, Model tram, Pencil cases  
**FEATURES:** Puzzle heaven, Building a router table, Anatomy of a drawer, Plug cutters, Weekend groover  
**TURNING:** Wine tap and spigot, Gavel, Polishing on the lathe  
**TESTS:** Giant test – Cordless drills, Faithfull whetstone, Draper honing guide, Hitachi cordless circular saw, Forge Steel tool sets, Draper planer, Axminster Odd-Jobs, Dremel Versatip, Leigh dovetailing jig, SIP workbench, Trend router. Six of the best: block planes  
**MACHINERY CHECKLIST**



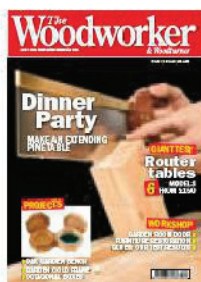
### JANUARY 2008

**PROJECTS:** Writing slope, Miniature chest  
**FEATURES:** The Harp maker, Router table, Drawer details  
**TURNING:** Rugby ball trophy, Mug tree, Routing on the lathe  
**TESTS:** Giant test – Bench mortisers, Makita planer, Dakota mallet, Axminster sanding pens, Draper bradawl, Irwin holesaws, Erbauer combi drill, Faithfull sash cramps, Worx drill, Woodstar and DeWalt table saws, Black & Decker Autoset tools, JCB router, Veritas apron plane, Six of the best: Ear defenders  
**MACHINERY CHECKLIST**



### FEBRUARY 2008

**PROJECTS:** Traditional toolbox, Radiator cover, Picture framing, Hall mirror  
**FEATURES:** Garden room, bench makeover, Glues 1, Carving with the router  
**TURNING:** Hourglass, Textured bowl, Choosing the right chuck  
**TESTS:** Giant test – Budget jigsaws, Site power tools, Faithfull spokeshaves, Draper hand drill, Axminster stones, Behlen stains, Rutlands magnetiser, Oneida Dust Deputy, Proxxon belt sander, Record table saw, Veritas jack plane  
**Six of the best: Toolbox saws**  
**MACHINERY CHECKLIST**



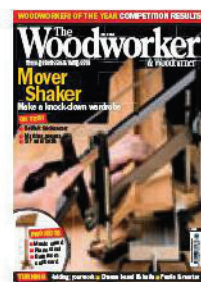
### MARCH 2008

**PROJECTS:** Pine dining table, Oak garden seat, Cold frame, Octagonal box  
**FEATURES:** Garden room door, Table restoration, Glues 2, Cromwellian chair  
**TURNING:** New series: Turning Basics, Nutcracker, Mirror  
**TESTS:** Giant test – Router tables, Dakota T-track bolt kit, Hansen pencil sharpener, Crown plane handles, Makita cordless pin nailer, Erbauer driver, Veritas shoulder plane, Draper tool bag, Scheppach bandsaw, Woodstar router, Six of the best: Dust masks  
**MACHINERY CHECKLIST**



### APRIL 2008

**PROJECTS:** Pine dining chairs, Weather station, Garden seat  
**FEATURES:** Joints without joints, Preparing stock timber  
**TURNING:** New series: Turning Basics 3, Gavel, Staircase finials, Competition winners  
**TESTS:** Three orbital sanders, Woodstar dust extractor, Metabo drill, Behlen DVD, Japanese chisels, Draper multi-tool, Faithfull callipers, Hermes sanding pad, Nobex square, DeWalt/Einhell sanders, Record midi lathe, Festool plunge saw, AEG jumbo pack, Joint-Genie bracket and track  
**MACHINERY CHECKLIST**



### MAY 2008

**PROJECTS:** Shaker wardrobe, Piano stool, Music stand  
**FEATURES:** Woodworker of the Year winners, Bathroom built-in, Joining without joints 2, Making finger joints  
**TURNING:** New series: Turning Basics 3, Pestle and mortar, Cheeseboard and knife  
**TESTS:** Circular and bench planes, Makita jigsaw, Bosch Multi-tool, Draper power planer, Screwfix countersink, Axminster router, SIP lathe, DeWalt thicknesser, Veritas honing guide, SIP planer thicknesser, Marking gauges  
**MACHINERY CHECKLIST**



### JUNE 2008

**PROJECTS:** Ash chest of drawers, Gift box, Utile coffee table, Chopping board, Picture easel, Bookshelves  
**WORKSHOP:** Joining without joints 3, Cutting beads and reads, Making finger joints  
**TURNING:** Turning Basics 4, Turning fruit, Hors d'oeuvres dish  
**TESTS:** Kreg K3, Makita drill, Faithfull magnetic head hammer, Sjöberg's QSH hold-fast, Einhell drill, Axminster hobby case, Dakota chisels, Draper multi tool, Woodstar thicknesser, Record bandsaw, Worx router, Scheppach mortiser, ITS cutter sets  
**MACHINERY CHECKLIST**



### JULY 2008

**PROJECTS:** Oak drawers, Oak fireplace surround, child's chair  
**WORKSHOP:** Hand vs Machine – mortising, joining w/o joints – Miller Dowel  
**TURNING:** Turning basics 5 – wood selection, light pulls, potpourri bowl  
**TESTS:** Festool OF2200 router, Einhell compressor & vacuum, DeWalt cordless drill, Bosch GTM12 combination saw, Charmwood W583 planer thicknesser, Titan wet & dry grinder, Trend cutter and collet care, Axminster rule stop, Veritas surface clamp, Faithfull double ended scribe, Forge Steel carpenter's mallet  
**MACHINERY UPDATE**



### AUGUST 2008

**PROJECTS:** Ash shelves, Fumed oak chest, Slimline TV stand, Tudor seat  
**FEATURES:** Hand v Machine – Resawing stock timber, Joining without joints 5 – Biscuit joints, Tools I can't live without, Planer thicknesser top tips  
**TURNING:** Turning Basics 6: A day at the lathe, Lamp stand  
**TESTS:** Bridge City Toolworks square, Makita router, DeWalt cordless plunge saw, Metabo impact drill, Trend Airshield Pro respirator, Record planer thicknesser, Tormek woodturners' kit, Forge Steel Clamp 'n' Cut, Axminster file grip, Trend square, Faithfull trimming knife  
**MACHINERY UPDATE**



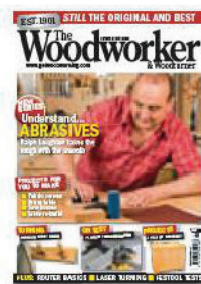
### SEPTEMBER 2008

**PROJECTS:** 'Ecuador' chairs, Key cupboard, Oak bookcase  
**FEATURES:** Hand v Machine – Planing small workpieces, Joining without joints 6 – Carcass screws, The spindle moulder, Router cutter care, Keeping glue-ups flat  
**TURNING:** Mug tree, Revolving spice rack  
**TESTS:** Bandsaws, True Angle gauge, Draper clamps, Brennenstuhl Safe-Box, Trend Multiscribe, Hock plane irons & blades, Gorilla Glue, Fisch plug cutter, Faithfull rule / rasps, Einhell, Bosch and Metabo mitre saws, Sorby woodcarving tools and honing kit  
**MACHINERY UPDATE**



### OCTOBER 2008

**PROJECTS:** Sleigh bed, Tapered-leg table, Necklace case, Front door  
**FEATURES:** Hand v Machine – Sanding your work, The new generation routers, Joining without joints 7 – the Mortise Pal  
**TURNING:** Laser turning guide 1, Traditional yo-yo  
**TESTS:** Small table saws from SIP, Einhell, Draper, Charmwood, DeWalt & Bosch, Eliminator chuck, Record dust extractor, Robert Sorby turning and carving tools, Carpenter's squares, Kamasa off-line screwdriver, Forge Steel spring clamps  
**MACHINERY UPDATE**



### AUTUMN SPECIAL 2008

**PROJECTS:** Fabric screen, Drum table, Kitchen cabinet, Workhorses  
**FEATURES:** Understand... abrasives, Hand v Machine – Cutting dovetails, Router basics – Setting up, SIP Tools visit  
**TURNING:** Laser turning guide 2, Shaker-style coat rail  
**TESTS:** Planer thicknessers from Axminster, DeWalt, Erbauer, Record, Scheppach and SIP, Draper combi drill, Bosch drill/driver, Festool multi-function table and router module, Bosch spray system, Acrol midi chuck, Carroll drum sanders, Microplane shapers and sanding discs



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# A blast from the past...

This month's dive into the dusty bin that is The Woodworker archive has unearthed some gems from 1938, when the emphasis was still very much on traditional cabinet-making, and from 1958, when more contemporary designs were starting to appear on the magazine's pages... and the birth of a brand new tool was announced

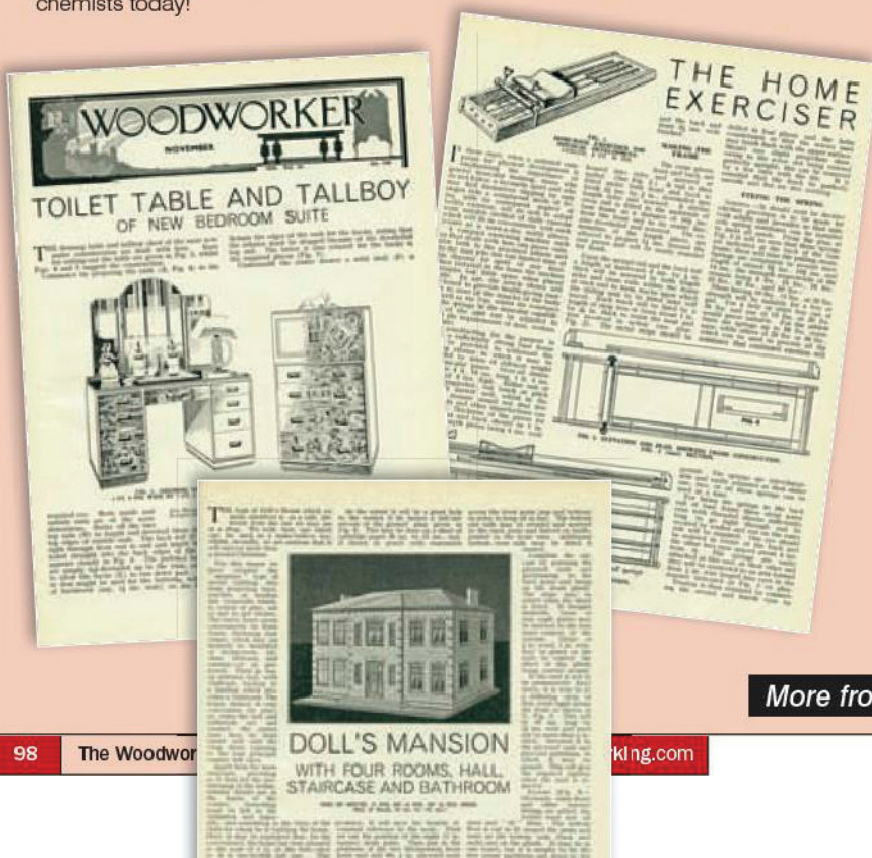
## NOVEMBER 1938

The lead story featured a 'toilet table and tallboy' – the second part of a bedroom suite project that had started in the previous issue with this splendid call to arms: "October, with its prospect of long winter evenings, is the month for taking on some new, ambitious task, and to the man with a comfortable home nothing can appeal more strongly than a full bedroom suite." How could he refuse?

Another feature that caught our eye was the Home Exerciser, a design for a compact rowing machine which "will be found to provide health-giving exercise to most of the muscles of the body as well as the legs... and can be adjusted to meet the requirements of man, woman or child." Bet they couldn't even lift it!

There was plenty of the usual mix of techniques – How to Lay a Cross-banding, The Cutting Action of the Plane and Methods of Fish Jointing, to name but three. Projects to make included a slab-end dressing stool, a lady's worktable, a light bedroom cabinet, an oak bureau bookcase, a cycle stand and an outdoor aviary, not to mention the irresistible "Little bookstand cupboard for the mantelshelf", which obviously no home could afford to be without! There was certainly plenty to keep the man about the house busy when he'd finished making that bedroom suite. And then there was the doll's house mansion to assemble – all 37 x 18 x 26 inches of it!

On a lighter note, there was a page of Not-too-knotty Problems to solve, and an amusing selection of tidbits called "Are you aware that..." This included some very scary chemistry. Apparently immersing real ivory stringing in phosphoric acid makes it easier to bend round curves. And ink for writing on tin or zinc labels can be made by dissolving 1oz of copper in half a pint of nitric acid. Try asking for that at the chemists today!



## NOVEMBER 1958

If you fancied a woodworking challenge, you could tackle this Dining Table with tambour-action extending leaves, made from Japanese oak and Indian laurel. It certainly had a fashionably contemporary look, and elsewhere in the issue were details of some matching dining chairs to continue the theme.

At the opposite end of the spectrum were plans for making a doll's tea trolley. This could be finished with "decorative transfers... to give a gay and appealing effect", and was

illustrated with a delightfully non-PC golly in a frock! You could also tackle Simple Carved Woodware for Delightful Christmas Presents, make a trio of cheeseboards or immerse yourself in part 10 of a long series on Making a violin that dealt with cutting the head and neck. The final part – Fitting up and stringing – was to appear in the February 1959 issue. We wonder if anyone actually completed their own neo-Stradivarius...

For the more technically minded, Mr F Pain (honestly!) presented a look at special contour cutters for turners, while the pseudonymous "Craftsman" shared his knowledge of creating built-up mosaics in veneer. There was also a round-up on using timber from the garden, implying that readers at the time had garden trees big enough for them to harvest the occasional branch for a bit of woodturning.

And that brand new tool? It was the Stanley Shaper, and came in two types – Plane-type and File-type. It had replaceable blades, and cost 12/6d. The name never caught on, but the tool did. It became the Surform...



More from The Woodworker archive next month...



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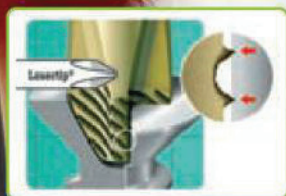
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