

Good Woodworking

Issue 114 October 2001

We aim to offer the best advice, the best projects, the latest techniques and the most authoritative tests. All our testing is independent and based on years of experience.

PROJECTS

Bedside Table

Bryan Blow uses his favourite English walnut to build a traditional bedside cabinet complete with Queen Anne legs

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Add a stylish touch to your home with Andy King's hardwood door

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Booking in, booking out

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DRILLS!
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Shelf life - p 63



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Tools On Test

We test new kit

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- Mafell Dowel Joints DD40 ● Trend Router Bits
- Draper Cordless Drill CD140VKS
- DeWalt DW706 Mitre Saw **Exclusive**

On Test Special

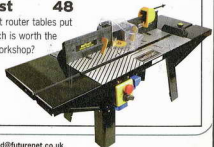
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- Andy King gets to grips with a brand new Stayer Lab 6 Combination Machine

Group Test

48

Five of the latest router tables put to the test. Which is worth the space in your workshop?



Exclusive
DeWalt
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p17

Project: Tusk tenon bookcase p.63

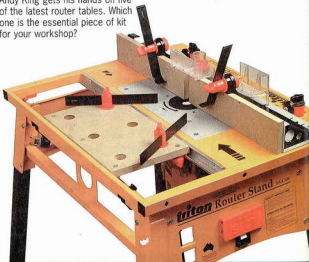
We've kept poor old Barrie Scott pretty busy in this issue. Build us a bookcase without the need for screws, nails or glue, we asked. Being the clever chap he is, Barrie therefore chose the tusk tenon joint for the project. It makes a neat job and is easy to dismantle, too.

**EASY
TO
MAKE**



Group test: Router tables p.48

Andy King gets his hands on five of the latest router tables. Which one is the essential piece of kit for your workshop?



Great new tools on test...

On test special p.34

Stayer's new budget
combination machine



Masterclass: School's out p.42

David Savage has mixed views about the way some of the next generation of furniture craftsmen are being trained. In this month's Masterclass he reviews a college end of year show.



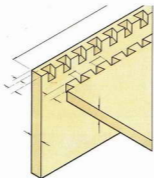
Joint: Lapped dovetail p.6

That old friend the lapped dovetail joint is put to good use in the construction of a traditional bedside cabinet in walnut, complete with Queen Anne legs. Bryan Blow explains how to make the joint using a router and hand tools.



Techniques: Table saw safety p.68

Workshop safety should be a priority for us all, particularly if you want to keep various body parts in the location that they've originally been designed for. Jeff Gorman takes time out to review some crucial tips when it comes to the use of table saw



Plus: Top boxes

Celebrating Boxes kicks off its tour this month with an international conference, show and book launch. Details on page 56.



Garden room

There has to be some summer left, surely? Why not dream about extending next year's summer by following Barrie Scott's advice on building your own conservatory. See page 28.



Noisy toy

Shake, rattle and roll with this excellent child's push-along rattle, including turned wooden balls for the inside. See page 78.



What our test performance ratings mean

- Superb, can't be faulted
- Excellent performance
- Good, but not the best
- Scope for improvement
- Don't bother

TOOL PRICES

In our tests we show manufacturers' list prices wherever possible, including VAT. Value for Money ratings are based on these. Typical prices are those often found in the shops and are no more than a guide.

WIN: Over £1560 worth of drills this month

ATLAS COPCO PERCUSSION DRILLS p.62

Worth
£1560

Atlas Copco build some of the best professional power tools money can buy. We have a total of £1560 worth of their impressive T-TEC 201 drills to give away to six readers. Turn to page 62 to find out how you can get your hands on one...



BOSCH DRILL p.13

Worth £70

Something to share, praise or moan about? Our Letters section lets you get it off your chest – and the best letter every month wins a superb Bosch cordless drill.



SKIL SANDER p.12

Worth £40

What have you made recently that you're really proud of? Send in a few pictures of your best work for our Readers Gallery page and you could win a Skil sander.

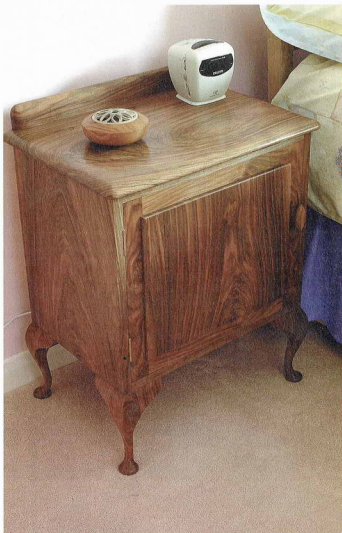


On test p.16

Is this the world's first portable dowel jointer? We reckon it probably is...



Bedside manner



Bryan Blow's traditional bedside cabinet in English walnut has Queen Anne legs. It matches the dressing table he made in GW106

Having made all the furniture for our bedroom, including a side table, bed headboard, rocking chair and dressing table, to finish the room I decided to make a bedside cabinet in a similar style and wood to match the dressing table.

This project is in English walnut, a timber I particularly enjoy using even though it can be very expensive. You could consider a number of alternative timbers, such as mahogany (but use recycled materials if you can) or cherry, either American or the more highly figured English, if you can find it.

Making the Legs

I decided to make the Queen Anne style cabriole legs first.

Cut the blanks to 200mm long and square them up to 45x45mm. Mark the leg shape on each piece's face side and face edge from a template. The foot can then be turned on a lathe, or shaped by hand. Using a fine tooth blade in the bandsaw, cut

Making the carcass using lapped dovetails



01 Set the cutting gauge and mark a shoulder line all round the tail piece (bottom panel). Lap thickness is 5mm



02 Mark the lap thickness on the side panels. Use a dovetail marker or sliding bevel to set out the joints



03 Cut down the sides of the tails on the top rails. Position them over the side panels and mark pin positions with the saw



04 Saw down the sides of the pins as far as possible. Use a bevel edge chisel to gradually cut away the waste

out to the shape marked from the template on the face side, leaving the line on. Tape the offcuts back into place with masking tape and cut out the shape on the face edge. (see GW 106:4 for full description of making cabriole legs).

2 Fix a suitable sash clamp to your bench to hold the legs. Then use a spokeshave to true each leg to the line, and mark with a soft pencil the center line down each side. Turn the leg in the clamp so that a corner is uppermost. Take off the corner and trim with the spokeshave until you have a quarter quadrant shape on each of the four sides.

Start from the top end, from nothing to a full round of the leg about one-third down. Shape the ankle section with a file to blend in from the round of the leg to the turned foot.

3 Sand the legs with 80 grit down to 240 grit abrasive paper to get the final shape and finish. Cut out the cheeks on the bandsaw and glue to the legs. After the glue has set, true the inside face on a drum sander, and shape the outside curve on a disc sander.

Building the Carcase

4 Prepare a cutting list for the main cabinet body and work out the best way to convert the boards into the various parts required. Unfortunately my planer thicknesser only takes timber 225mm wide. I cut all the boards in half to thickness them, then jointed them together again.

I inserted a 6mm loose tongue in slots routed centrally in each board. You could just as well biscuit the joints or even simply rely on well-glued butt joints.

Unless you're obsessive about quality, don't worry about the tongues being visible. Those on the bottom will be hidden by the lap joint with the side panels. Any exposure on the side panels will be



underneath where it will not be seen. Having assembled the carcase side and bottom panels again, dimension the panels fully and plane all the edges square.

5 The carcase sides are joined together with 65x20mm rails front and back at the top. The bottom is 20mm thick solid walnut, and is also jointed with lapped dovetails.

If you have not made lapped dovetails before, the front and back top rails are a good place to start. They involve single tails and only small sections of timber should anything go wrong. Once you have conquered these joints you can then move on to the multiple dovetails on the bottom joints. The principle for all is the same.

We'll start by marking the tails. The thickness of the lap must first be determined before the tail member is cut. I normally set the width of the lap at a quarter of the material thickness. For the 20mm thickness used here, set the lap at 5mm.

Note that the rails and bottom must be cut accurately to length and square at this point, finishing at

The raised panel is achieved with a groove which overlaps the framework of the door. A round-over completes the effect

490mm for a 500mm wide cabinet. Mark all inner faces of the carcase sides and the two rails with a face side mark. Set a cutting gauge to 15mm and mark the shoulder all round the prepared end of each rail.

6 Set out each of the single dovetails to a 1:8 angle. For a 65mm wide rail a maximum tail width of 50mm should be suitable, placed centrally, with 7.5mm at either side. Mark on the end grain first and square across, then drop the tails down to the shoulder line on front and back faces.

Make sure you mark the waste areas. Use a fine hard pencil for your lines to give a precise cutting point. A dedicated dovetail gauge is best as these are smaller and much easier to control than large sliding bevels and try squares. (We tested a fine gauge from Clenton in GW 113, but there are plenty of far cheaper ones on the market!)

Set the rail in the vice with the top fairly close to the bench top, so

PROJECT GUIDE

Difficulty

Advanced

Time

25 hours

Type

Furniture

Cost

Approx £100

TOOLS YOU WILL NEED

Dovetail saw

For cutting the tails and pins of the lapped dovetails

Bevel edge chisel

For cleaning out the sockets and paring down the dovetails

Router

Used with 6mm straight and grooving cutters to cut mortices, tenons and grooves. Plus the deep thumb mould around the top edge using an appropriate cutter

Lathe

Used to turn the bottom round of the foot. This could be shaped by hand along with the rest of the foot

Bandsaw

To cut the basic shape of the cabriole feet



05 Try the dovetailed top rails for size, but don't tap them fully home. They should be tight, but not excessively so



06 After marking out the tails, cut down the sides with a dovetail saw. Alternatively, you can use a bandsaw



07 Position the bottom panel over each side panel and clamp together. Then mark dovetail pin positions with the saw



08 Cut the tails on the bottom panel, followed by pins on both side panels. Check for fit and make any adjustments

The rounded door panel gives the appearance of being added after the frame is glued up. It's actually rebated and sits in a groove around the inner edges of the rails



JOINTS Lapped dovetail

This is one of the most used joints in cabinetmaking. Typically used for making traditional drawers, it's also used in carcass construction where the dovetail joint is needed for strength but should not be seen from the side. It's similar to the through, or common dovetail except for the cutting the pins

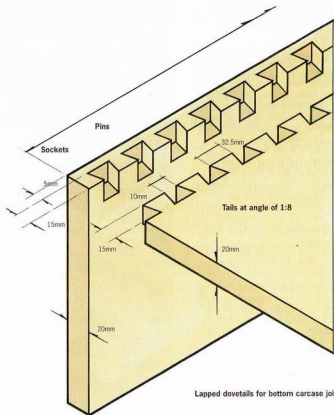
that the timber does not vibrate too much as you saw.

Angle the workpiece until each marked tail line to be sawn is vertical (it's far easier to cut a vertical line than an angled one), and tighten the vice. Cut down on the waste side just clear of the line with a fine dovetail saw.

Though you are striving for accuracy here, don't worry if the cut deviates from the line, as long as the cut is square. You will be marking the corresponding pin socket directly from each tail and any discrepancies here will be transferred, which is not a problem.

Remove the bulk of the waste at either side with a coping saw, then pare back to the gauged shoulder line with a sharp bevel edge chisel. If you have a good eye it's possible to saw straight to the shoulder line with the dovetail saw. At least there is a chance to correct any mistakes if you pare back the waste.

JOINTS: Lapped dovetails



Lapped dovetails for bottom carcass joint

7 With the same 15mm set on the cutting gauge, mark a line on the mating end of the pin member (the side panel), working from the inside face. Now reset the gauge to the (20mm) thickness of the material and gauge the shoulder line down from the lap end.

It pays to mark each and every carcass component in sequence before resetting the gauge for this second marking.

Set the side panel upright in the vice, with the end flush with the

bench top (or a piece of scrap laid on it), and place the tail piece on top. Align the end of this accurately to the gauged lap line, and ensure that the sides also line up.

Then hold or clamp the two pieces together while you mark the pin(s) socket from the tail(s). Mark the pins from the tails with a very sharp hard pencil.

Some people like to mark the pins direct from the tail sawcuts before the waste has been removed by dragging the same sawblade

Fitting the shelf and making the door



9 Rout stoppered housings in the side panels for the 18mm thick shelf. The rounded ends are cut square with a chisel



10 Try the shelf for size. Its front edge will be lapped with 30mm thick waunot to match the carcass



11 Two router fences give accuracy when cutting the 6x6mm groove in the rails and stiles for the door panel



12 Door rails and stiles are jointed with haunched mortise and tenons. Cut the mortises before forming the grooves

through the kerfs. Whichever you prefer! Clearly mark the waste portions again.

8 To cut the pins, set the work vertically in the vice with the inner face facing towards you. Hold the dovetail saw at the appropriate angle and cut down the waste side of each socket, just clear of the line. The saw should also be angled to about 45° vertically to enable you to cut this compound line as far as the gauged lap line on the end, plus the gauged shoulder line on the face. Do not cut beyond these lines.

I then cramp the work flat on the bench. Use a router to remove the bulk of the waste to the correct depth between each pair of saw cuts, using a small straight cutter (about 6mm). By hand you'll need to chop out the waste in a series of vertical and horizontal movements until you have cleared a square section of each socket.

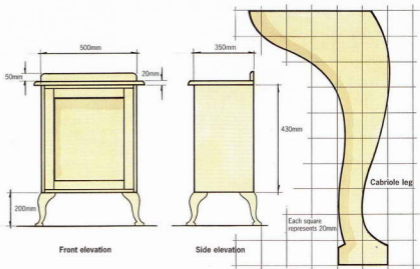
Then, whether the rest was done by router or hand, trim out each socket to the marked and sawn lines with a bevel edge chisel to produce the angled cheeks and sharp corners.

Try the two pieces together for fit, but do not drive the joint fully home before the final gluing up or you will slacken and thus weaken the fit. Having made each of the two rail joints, you should be able to make the bottom joints with no problems in order to produce the basic carcass.

9 The central shelf is 18mm birch ply, with a 30mm wide walnut facing glued to the front edge. This is housed into the sides to a depth of 5mm with a router. It's stopped 21mm back from the front edge of the carcass to allow for the 20mm thick door.

You can make a single cut with an 18mm cutter, guiding the router with a batten cramped square across the carcass side. Alternatively, make two cuts with a smaller cutter, adjusting the guide for the second

CONSTRUCTION DETAILS: Cabinet



cheek. Stop the cuts just short of a gauged line 21mm in, and trim the end square and to the line with a sharp chisel.

10 The 6mm carcass back panel sits in a rebate routed around all four rear edges. Alternatively you could rout the rebate in the bottom and two sides, taking care to stop the cut in the sides before you reach the ends, which would leave a visible notch after assembly.

You would then set the top rail in 6mm from the rear when you set out the dovetail positions. The panel will then sit in the rebate on sides and bottom and overshoot the top rail, to be covered by the top when this is added.

11 Clean up all inside faces before gluing up and assembling the bottom first, applying a light smear of glue to all the cheeks of the tails

and sockets. Push or tap the joint fully home at either side and adjust the cramps.

Glue up and insert the shelf as you tighten up the cramps, then check for square and adjust. Finally, glue the top rails and tap these down into their sockets and cramp. The back panel will pull the carcass square again as you glue this into its rebates and screw it to the top rail, but check the front just to be sure. Set the carcass aside to dry.

Making the Door

12 The door is made up of 50x20mm framing, morticed and tenoned at the corners. The panel is actually ploughed into the frame so that its front face overlaps the rails with a rounded edge. This feature was included in the design to give a similar appearance to the projecting drawers in my dressing table (GW 106).

Although they will not be

MATERIALS YOU WILL NEED

Timber
 Bryan used just over 1cu ft of English walnut @ £80 per cube. Carcase and door were from 1in thick boards, plus 2in material for the legs



13 A groove is run around the edge of the panel to enable it to fit inside the rails. The exposed edge is rounded over



14 Glue up the door frame, but don't apply glue to the panel edges. Measure the diagonals to check for square

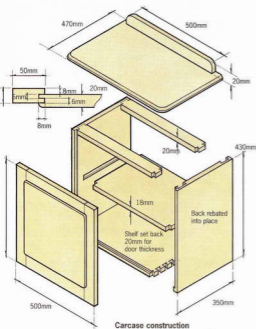


15 Round over the edges of the top panel with a router. The top is fixed by screwing up through the top rails



16 To hold each leg securely for shaping, secure them in a sash cramp bolted to the bench. This way they can be rotated

DETAILS: Carcase



Carcase construction

CUTTING LIST

Part	Qty	Material	Length	Width	Thkns
A Top	1	Walnut	550mm	470mm	20mm
B Sides	2	Walnut	430mm	350mm	20mm
C Top rails	2	Walnut	500mm	65mm	20mm
D Bottom	1	Walnut	500mm	350mm	20mm
E Back	1	Ply	500mm	350mm	3mm
F Door sides	2	Walnut	400mm	50mm	20mm
G Door rails	2	Walnut	410mm	50mm	20mm
H Door panel	1	Walnut	385mm	320mm	20mm
I Legs	4	Walnut	200mm	45mm	45mm
J Leg cheeks	8	Walnut	70mm	70mm	50mm
K Shell	1	Ply	500mm	350mm	18mm

Cutting lists give the full length of a piece including the joint but not wastage. Allow 25mm extra for length and 5mm width and thickness for sawn stock.

central, I decided to set a 6mm wide stopped mortice in 6mm from the front edge, then run a 6mm groove around stiles and rails at the same inset. In this way the groove in the panel can act as the mortice haunch as well. Make the mortices 35mm long and set them in 15mm from the ends of the timber. I used a 6mm slotting cutter to make the grooves to a depth of 12mm.

Cut the rails 20mm short of the overall door width. Mark the tenon shoulders back 40mm at each end and gauge the tenons onto the rails. Cut by whatever means best suits your equipment.

For four joints it's just as easy to work by hand, but you could use a bandsaw or even a router to make the cheeks, cutting the shoulders with a fine saw.

13 Cut the door panel to overall size to fit the grooves in the door frame, minus about 3 or 4mm in the width to allow for a little expansion (to be honest, the panel is more likely to shrink but...).

Work a 12mm deep by 6mm wide groove around all four sides, set 6mm in from the rear face. This will produce a snugly fitting tongue to fit the groove in the frame, while allowing the front of the panel to protrude over the frame.

This may take a little adjustment to get right. As a result, make a trial cut on a piece of matching 20mm scrap to avoid problems with your main panel.

Make a trial dry assembly to check the frame and panel, then round over the front edge of the panel with a 6mm radius cutter. Finish both sides of the panel, then apply glue and assemble. Check for square and twist, then set aside.

14 My home-made door handle is cut to shape on the bandsaw. The handle mounting pins are first turned to 15mm diameter. They are then inserted into holes cut into a 18mm ply faceplate, set at

equal distances to match the arc of the handle profile. This is mounted on the lathe, which is used only as a fulcrum for turning by hand.

Using a router mounted on a home-made jig, I fitted a 25mm round nosing cutter to make the hollow cut on the inside edge, then a 6mm rounding over cutter to finish the outer edge.

When mounting the handles, insert the handle mounting pin into a 15mm hole in a scrap piece of wood. With a 3mm drill cut a hole half into and up the length of the mounting pin. This is to form a groove to allow the air and excess glue to escape when finally fixing the handle. (For a fuller explanation see *GW 106:10*).

Completing the Table

15 Fix the legs to the frame with a dowel, glued and screwed through each cheek into the bottom rail and side panel. I made up a simple template jig to position the dowel holes in both carcase and the leg itself.

The top of the cabinet has a nice curved edge to it. This was made using a thumb mould cutter in the router. The 50mm high backboard also has this thumb mould. It's screwed into place through the top panel from underneath.

Screw the top in place through the front and rear rails. As the sides are of solid walnut as well as the top, any movement will affect all the wood equally.

I finished the bedside cabinet by carefully hand scraping and sanding down with 120, 180 and 240 grit paper. This was followed by white French polish.

If you don't want to attempt this method, an easier finish to apply is oil and wax, which will give a beautiful satin finish to walnut.

NEXT MONTH

Andy King shows you how to build a workstation for your mitre saw and router.

Shaping and fitting the legs



17 Shape each leg with a spokeshave. Reduce the timber from a square at the top down to a quadrant shape



18 Make a simple template to help you drill accurately into the top of the leg for dowel and screw positions



19 The rear of the cabinet has a solid upstand. This is screwed through from underneath



20 Brass butt hinges are used to hang the door. There's a magnetic catch at the top to keep it closed

NetWorks

There's all manner of useful information to be found on the Internet for the woodworker. We help you separate the screws from the sawdust

Single Irons v Double Irons

This intriguing title at <http://www.planemaker.com.articles/dblirn.html> offers Clark & Williams' opinions and advice about planing a good finish on difficult timbers. These makers of reproduction planes also offer tips on grinding that challenge some people's ideas about grinding the irons. They say 'Recently, many woodworkers have turned to white or pink grinding wheels for general purpose grinding. We believe this is a result of the influence of turners who, looking to go from the grinder to the lathe,

prefer fine grinding wheels for their finished edge. Grinding plane irons and chisels, however, is or should be a rough shaping operation. We suggest you try a coarse grinding wheel similar to what likely was provided with your grinder before absorbing the expense of these specialty wheels. Chisels and plane irons should be finished with whatever honing techniques the woodworker is comfortable'.



Theoretical Mode?

From Michael Cramer's Woodworking page the link <http://www.wover.net/~michael/nl c-wood/chapters/caop.html> offers an extract dealing with the cutting action of plane blades and

insights into the 'spring' and 'skew' on moulding planes. If you work back to the home page, you'll find many useful woodworking links, including one to a formula for making beeswax polish.



Gleanings from the Net

Harvested by Jeff Gorman

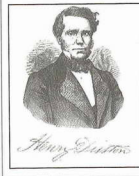
Stephen J Musial: After a mortise and tendon (sic) accident with the chisel, I was scared stiff every time I picked up a chisel. I'd sharpen them, look at them and finally figure out a different way of doing whatever I needed to do. Finally, I put a piece of cherry in the vice and started taking off parings from different directions. I moved on to different joints and finally figured out how to make each without ever holding on to the wood.

It may take a few more clamps and a few more minutes to set it up, but those few minutes won't compare

to the weeks in a cast, almost endless physical therapy or awkwardness of trying to hold our newborn daughter without scraping her with a cast or splint. Nothing makes up for safety and the few seconds you'll save doing something wrong or quick can/will turn into days, weeks or months of Homer Simpson voices in your head saying DOH, DOH, DOH. It's been nine months and I still don't have full a range of motion. I need to find a good hand surgeon and get scar tissue cut out.

How old is your Disston?

If you are interested in the age of your inherited saw or boot sale 'find', try the link from Erik von Sneidern's home page to 'The Disstonian Institute Online Reference of Disston Saws' at <http://home.earthlink.net/~enric>



[o62/index.html](#). Amongst other things, you can also find a treatise on hand saw filing theory and the principles of saw tooth function. Written about 1907, it also reveals the secret of the much-theorised-about function of the 'nib' you find near the tip of old saws. If you look at the home page you can compare the tidiness of Erik's workshop with your own.



Inspirational

When the Spanish monks encountered the Native Americans of the Southwest and began spreading the word of the Catholic Church, many missions were founded. Of course, one needs furniture in a new mission. The new parishioners of the Church, along with the monks, dedicated themselves to building simple, sturdy,

utilitarian chairs and tables for their churches. So runs an extract from the account of the derivation of the design style for 'Mission' furniture much appreciated by American recreational woodworkers. Follow the links at www.missionstudio.com for further inspiration or to exercise for your critical faculties.



A flat arm spindle settle in the original Arts & Craft style



A solid oak Mackintosh desk found on www.missionstudio.com

A Wife's Viewpoint

Anon: Let me say things do get expensive. My husband has taken 20 years to buy odds and ends. He used to work in the basement and cramped places to do his things. Since 1996 he had been dreaming of his own 16 by 20 shop. This is a dream I have listened to more than once. When I got some back pay I built him his dream shop. I still listen to 'I need tools'. He is getting ready for retirement and needs extra money to quit work next year. So he's been dreaming how to make money from his work. He just landed a contract for a phone company that sells old phones and needed a woodworker to make the old wooden phones. He has over 20 years of refining his

skills. He loves doing it. We took out a loan for this new business. So he got more tools and now is wondering where he going to add on to the shop. He's got eight months to show me a profit and when he does then no work. It is something in his blood. He could be chasing women or God knows what else. So for the extra money it is worth his happiness. He takes great care of his tools. I know he will get many of years of enjoyment.

RC: Those who decry the inauthenticity of using a power saw should remember that old-time craftsmen had the equivalent of modern power tools to do the rough work. They were called 'apprentices'.



On Test



After a new power tool? Want to replace your bandsaw?
ANDY KING gives new products a workout to help you decide

How do we test?

Our policy at **GW** is to rigorously test all products sent to us and not reprint press releases. Tools are not tested to destruction, but they're given a fair workout

Prices

We show manufacturers' list prices wherever possible, including VAT. Value for Money ratings are based on these prices.

What the performance ratings mean

●●●●●
 Superb. Can't be faulted

●●●●○
 Excellent performance

●●●○●
 Good, but not the best

●●○○○
 Scope for improvement

●○○○○
 Don't bother

Mafell DD40 Dowel Jointer

£522.88 **T 01484 400488**

www.mafell.com

Motor: 600W Speed: 1850rpm
 Weight: 3.3kg Noise: 83db(A)

Most woodworkers will agree that the biscuit jointer is a superb invention. But it can be limited when it comes to joining finer, narrow components such as rails.

Sometimes the end of the slot will show through if you're not careful. Mafell have spotted a gap in the power tool market and released a high quality jointer that uses dowels.

The German-made DD40 uses a pair of replaceable lip and spur drills, set at 32mm centres. Internal gearing turns both bits in tandem, cutting quickly and cleanly. Bits are held in collars with hex grub screws, tightening against flats on the shanks. Five bits are available: 5mm, 6mm, 8mm, 10mm and 12mm.

Plunge depth can be set up to 37mm to suit timber thickness. You grip the tool like a biscuit jointer and activate with a paddle switch. There's no top D handle, but the dowel height clamping bar will give extra grip.

The sturdy alloy fence can be adjusted from 0° to 90° with indents at 22½°, 45° and 67½°. There's a locking knob and graduated scale.

The face of the fixed fence is deep, giving excellent support. It has two sprung pins, and locating one against an edge gives perfect alignment for both components. Pins offer left and right-hand positioning, and can also be used with an optional template guide for repetition drilling for shelf studs or carcassing work.

A three way adjustable turret is used to set the dowel height, preset to 8mm, 9.5mm and 11mm centres.

Plunge action is really smooth. I found on deeper plunges, especially in MDF, I needed to extract the bits a couple of times to clear the holes. Cutting is not quite as easy as with a biscuit jointer, but it's very accurate. It certainly creates less waste than a biscuit jointer, so a dustbag is not supplied. There's a 38mm dust port.

The advantage of the DD40 over the biscuiter is its ability to position

single dowels for fine work. You can bore with just one bit, if need be. I found initial setting out needs to be more accurate in some cases to get spot-on results. This tool would ideally suit a small kitchen builder or furniture-maker. It could even become more flexible than a biscuiter.

The kit comes with dowels, bits and a bottle of glue.

GW verdict

- Greater jointing accuracy for fine work
- Precise setting-out may be needed

Value for money ●●●●●
 Performance ●●●●○



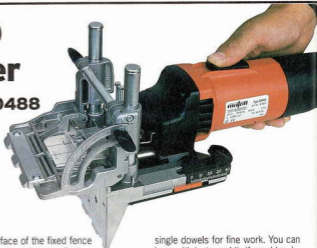
Cross-hair lines on the clear plastic insert help locate drill bits accurately and safely



Marks on the baseplate indicate drill bit centre lines from either the front or sides



Each dowel bit is locked in place with a hex grub screw. A wrench is supplied



DeWalt DW706 Mitre Saw

£916.50 or 0700 4 339258

www.dewalt.com

Exclusive

Motor: 1600W Speed: 4000rpm Blade: 305mm
 Max depth of cut: 85mm @ 90°, 56mm @ 45°
 Max cross-cut: 203mm @ 90°, 144mm @ 45°

Lovers of quality tools will certainly appreciate DeWalt's new heavy duty compound mitre saw. Their German-built DW706 has double compound tilt. Belt drive enables the motor to be positioned at the back of the saw, increasing cutting capacity.

There's a smooth running turntable, with a steel adjuster and indent plate for setting angles. This keeps everything running smoothly. Softer aluminium can be notorious for sticking and binding if two pieces run against each other.

Indexed angles are 0°, 10°, 15°, 22.5°, 31.62° and 45°. The 31.62° setting is common in America. When used with a compound angle of 33.85° (marked on the scale), a standard crown moulding with 52° top and 38° bottom angles favoured in the States can be cut at 45° by being laid flat on the table. The saw will tilt to 50° to both left and right.

There's a positive locking knob for clamping the saw at less common angles. For fine tweaking the clear plastic cursor has a centre line relating to the angle, with 0.25mm increments either side. Handy for shaving off tiny degrees for fine fitting.

Setting compound cuts is simplicity itself. A large three-pointed locking knob at the rear enables the head to tilt, a forward-facing scale showing the angle. There are left and right flip stops for fast setting the 33.85° angle. In normal use the saw tilts just to the left. For right hand tilt you release a locking pin.

Double tilt gives the advantage of being able to always cut from the face or reverse of any piece of work. This ensures your initial mark can be accurately lined up. Heavily-moulded stock can be awkward to transfer marks around, with veneered pieces prone to breakout. The DeWalt scores highly for this feature alone.

Aluminium fences are split to enable them to slide back in a locating groove as the saw head is tilted for compound work. A

single locking knob on each fence clamps it tight.

The combined power and safety handle has a horizontal enclosed grip, easy to plunge without turning your wrist. You push down a paddle lever to release a safety lock on the plastic guard and lower the head. I'd find it easier if the paddle was pulled towards the trigger, though.

The head can be locked down with a push-in pin. A handle on top of the motor housing helps for carrying, although the machine's sheer size, let alone weight (20kg), makes it very bulky. Although the brush motor has a softer and quieter start-up than most, ear defenders are recommended. For quality, this compound mitre saw cannot be faulted. Accuracy is spot-on, with easy adjustments.

DeWalt's DW706 is superb for deep cuts in fine work. It's ideal if you do a lot of face moulding work, although for really fine work you'll need to upgrade to a finer blade. Expect to pay around £650 in the shops. A variable-speed version, the 706E, costs about £23 more.



Each side of the fence can be moved sideways to enable the head to tilt



A paddle lever releases the lock on the guard in order to drop the head



The protractor scale for bevel cuts is easy to read and can be calibrated

GW verdict

- Deep cuts and tilts either way
- Bulky to carry about. Very pricey

Value for money ●●●○○
 Performance ●●●○○



Locking the turntable at any angle is positive with the sturdy clamp

Draper CD140VKS Cordless Drill

£39.95 tr 02380 266355

www.drapertools.com

Battery: 14.4V Speed: 0-650rpm Chuck: 10mm Charge time: 3-5 hours Weight: 1.7kg

Apple computers have a lot to answer for... The trend in translucent shades for computers spilled over into the home with an array of electrical household goods, but I never thought it would reach the workshop! Draper's new 14.4V Far Eastern cordless drill comes in a fetching shade of translucent blue.

Aimed at the DIYer, the CD140VKS drill has a single gear with variable speed control from zero to 650rpm. This low speed range makes it more suitable for screwdriving rather than drilling. It can still cope with drilling 10mm in mild steel and 20mm in timber, although slowly. There's no hammer action.

Behind the 10mm keyless chuck is the familiar twist-type

torque collar. There's a choice of six positions.

The soft palm-grip handle is slightly tapered and so pretty comfortable, particularly for small hands. Handles on budget drills are often too bulky. A push-through button above the variable-speed trigger selects forward or reverse. A lift-up flap on the casing reveals storage cavity for a couple of screwdriver bits.

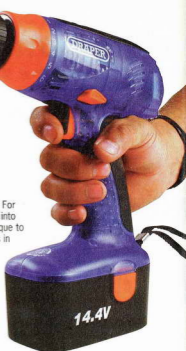
Power is supplied by a 14.4V battery, which takes between 3 and 5 hours to reach full charge. With only one battery this could become very frustrating.

I tested the drill at full 20mm drilling capacity using a spade bit in MDF and timber. The Draper seemed to cope fairly well with no undue strain. Its slow speed

makes life tedious, however. For screwdriving the drill comes into its own. There is enough torque to drive home 70x5mm screws in softwood without needing a pilot hole.

The unique clear body is certainly a talking point, and you do get a reasonable drill. Battery charge time is a pain, as is the single gear speed. For a 14.4V drill I would have expected bigger capacities, but then this is not really a professional tool.

For occasional or DIY use this Draper drill is pretty good. It comes with a fitted case, drillbit and screwdriver pack as standard. It's a reasonably well made tool at an affordable price.



GW verdict

● Style in the workshop at last!

● Single battery takes an age to recharge

Value for money ●●●●○
Performance ●●●●○

Trend Replaceable Tip Bits

£82.20 (Rotatip Rebater) £70.45 (Template Profiler) tr 0800 487363

www.trendm.co.uk

Trend have added to their already bulging range of cutters with a couple of replaceable solid carbide-tipped router bits.

Although not a new invention, the replaceable tip router cutter is perfect for the woodworker predominantly using man-made boards. These are notorious for dulling cutting edges in minutes. The Rotatip Rebater is a $\frac{1}{2}$ in shank double-tip cutter. Each blade can be rotated and has four useable edges. Each blade is secured with a Torx screw. The double bearing below the cutter gives a 12.7mm rebating capacity. Free with the bit (a limited offer) is an

aluminium ring which fits over the bearing, reducing the rebate size to 9.5mm. Bearing rings from 3.2mm to 11.9mm are available. Extra blades cost £2.31, and two spare ones are provided (again a limited offer).

More useful to kitchen fitters is the Replaceable Tip Template Profiler. For jointing post-formed worktops, this cutter is almost essential. Again with $\frac{1}{2}$ in shank, the bit has a single 50mm solid carbide reversible blade, held with two Torx screws. A spare one is included, worth about £5. Used with a worktop jig and guide bush, the cutter will make post formed joints. For peninsula or radius cuts on the ends, its top bearing guide will follow the jig profile.

I tried both cutters on chipboard and the 50mm bit on

a laminated worktop. Both cut superbly. The Profiler's single 50mm blade didn't seem to affect the finish, leaving a clean smooth cut.

These Trend cutters are more expensive than standard router bits. But if you consider the time spent re-honing (and subsequent reduction in diameter) non-replaceable tipped bits, the benefits become obvious. These cutters are worth every penny, especially for abrasive materials.

GW verdict

● Replaceable blades are cheap

● Initial cost is high

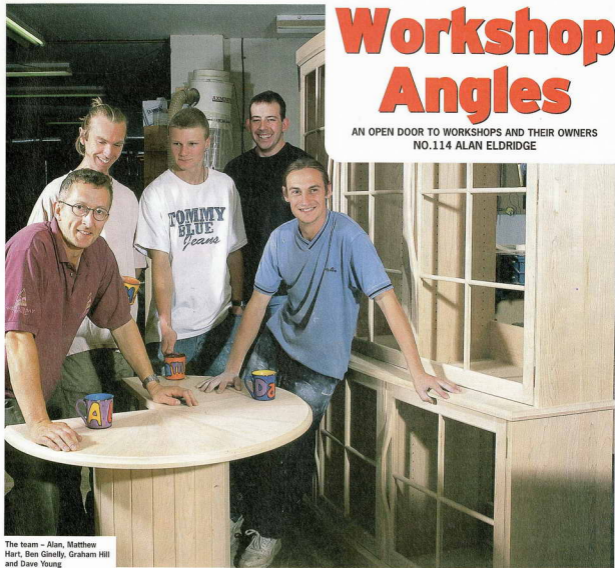
Value for money ●●●●○
Performance ●●●●○



Trend's Rotatip Rebater (left) and Template Profiler (right) both have replaceable blades

Workshop Angles

AN OPEN DOOR TO WORKSHOPS AND THEIR OWNERS
NO.114 ALAN ELDRIDGE



The team – Alan, Matthew Hart, Ben Ginelly, Graham Hill and Dave Young

A partner's desk in burr thuya with satinwood and sycamore detail. This was originally made for an exhibition



For somebody who went to a school that didn't teach woodwork, Alan Eldridge has done remarkably well to earn himself a strong reputation as one of the Britain's top furniture craftsmen. Indeed, it wasn't until he had already taken up a place at university to read architecture that he really discovered his feel for woodworking.

"In the holiday I got my father's woodworking tools out from when he'd been a naval architect after training as a dockyard joiner, and started making things," recalled Alan. "When I went back to university and was meant to be designing buildings, I found I was more interested in what furniture I could build."

Soon after, Alan quit university and got

a job with Paul Litten in Dorset, gaining six months' experience building furniture for embassies overseas, before going to college. "I recommend anybody who is going to college to get some experience before they go," suggests Alan.

It was while at college that Alan rented his first workshop, a simple nissen hut with a single lightbulb and a couple of pieces of kit. "I had my father's tools and a small circular saw that I'd bought at college, plus a DeWalt cross cut. I think I was very naive because I didn't really have any work to do except a few projects for friends."

Since then Alan's work has progressed to the point where he now employs five workers and splits his time between individual projects and small order batches for the likes of Conran and the Shaker Shop in London. Such a change, however, has



Alan at the over head pad sander, a machine that's largely been superseded by big wide belt sander

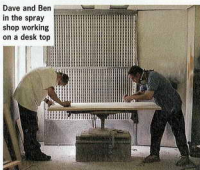


(Above) One of Alan's Shaker blanket boxes (Right) inside the wide belt sander with the calibrating belt on right and the fine pad sanding belt on the left



The Wadkin thicknesser, 30 years old and still in daily use, sits alongside many more modern pieces of kit

Dave and Ben in the spray shop working on a desk top



Samco oscillating sander, used for shaping edges and convex curves



The Oliver 30 inch circular disc sander, bought ten years ago for just £40



forced Alan to develop his production process.

"At first I made what I fancied and hoped it would sell. But now everything has grown and I have to make sure that everything I make is sold."

"I have really enjoyed the transition from making one-off pieces to being much more of a production facility. It's a real challenge to make things efficiently, to get all the tools and jigs right to make the small batches and to get the right staff.

"The great thing about the workshop now is having four or five people who know what they're doing. The difficult thing is when you have a 16 year old trainee in that when they're at school, 50 or 60% is a good mark. In a workshop situation, unless it's 100% you've got to do it again. And that's devastating to the wrong person.

"I used to pride myself on my portfolio. I think I'm more proud now when people come in and see a happy workshop environment, it's vital that people are happy in their work."

While Alan focuses strongly on finding the right staff, machinery and materials are obviously also important.

"The wide belt sander, heated hydraulic



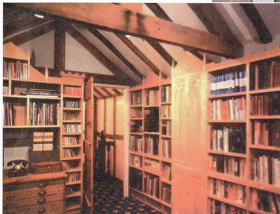
Ash bedside cabinets decorated with heart and dolphin designs for two young sisters



Meddings pillar drill another refurbished bargain at £25 from a farm sale



Graham Hill sanding a Linley Trestle in the foreground, while in the background Alan is inspecting a curved door ready for polishing and glazing with curved glass



A gothic library in maple from a collaborative design by Alan and the client

Alan's Bugatti Lotus desk in art deco style with a satinwood fan, maple construction and black dots of Indian rosewood

This chair started out as a college project but has been brought back into production as part of large library project

Dave final planing the edge of one of the curved door frames



press and a 1950s Danckaert circular saw are all crucial pieces of equipment in the workshop. We've also got a very useful Leigh doetailing jig. If a customer wants to pay premium and have hand cut dovetails, that's fine. But generally if we're making a batch of X number of drawers, we won't want to hand cut them.

"As for the wood, up to about seven or eight years ago we hadn't used maple for anything. Now we use it for just about everything, although I am told by one of London stores that it's on its way out. Still, it's what people want.

"There's not a particular wood that I prefer - it's nice to use a variety. Some woods are more beautiful than others and while maple isn't the most attractive type around, it's hardwearing and is suitable for a lot of interiors."

When it comes to summarising what his workshop does best, Alan has a clear idea of what he's after.

"I think we're very good at making small furniture accurately and well. I feel that as long as the portfolio is increasing and I'm proud of what we're doing, then each year is going to be a little better."

Alan is also presently looking for more staff. "I could do with a skilled craftsman to get involved with making small batches straight away. A good college leaver would be OK, but they will have had to have worked for somebody else before."

If you're interested, call Alan at his workshop in Malvern on 01684 540213.

Words by Ian Waller, Photos by David Askham.



About 90 hours work went into this elegantly curved maple chest of drawers

Hints & Tips



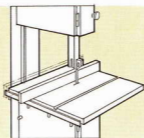
Phil Davy rifles through your latest hints and tips to help everyone improve their woodworking. This month includes a workshop space saver and an extension for a bandsaw

Bandsaw extension

If you have a Record DMB65 bandsaw you will know the distance between fence and blade is about 4½ inches. To increase the distance, under the four bolts, the fence slides on, move to the left seven inches and tighten the bolts. You have now increased the distance between fence and blade to a massive 11 inches, enabling you to cut much wider boards.

Bill Plume, Camba

TIP
OF THE
MONTH



Sitting on the problem

When using a handsaw to rip down the length of a thin board of wood and relying on a Workmate or sawhorse for support, I found that the board buckled and flexed so wildly that it was difficult to keep to the line. Also, if the timber was clamped down to the



support, the whole thing could 'walk' across the floor when sawing and the constant re-clamping to move the cut takes time.

I solved these problems by sitting on the board across the Workmate and using a modified 'cabinetmakers-rip' grip on the saw.

Once the cut is started, the saw is held upright, gripped between the palms of the hands and can be 'steered' using pressure from the fingers to keep to the line. The board is fed forward a few inches at a time by lifting one's weight off it, while the last few inches can be cut by reversing the board, and the saw, and cutting away from oneself.

This method works well on solid timber, but can be a bit messy with man-made boards. Most common types of saw can be used, although 'Turbo-cut' types tend to tear the timber up a bit more on the reverse side, because of the steep angle of the cut.

Providing one sits far enough back on the Workmate, you shouldn't be in any danger of injury from the sawblade.

T.A. Little, Kent

Drill turn buttons

In Good Woodworking issue 110 there was a tip on turn buttons which I recall using at school 50 years ago.

I currently use a variation on this theme to store my two small cordless drill/drivers. It is simply the outline of the underside of the drill cut in a piece of wood thick enough to support the drill. This is then fixed to the rear of the workbench (or wall in my case).

By this method the drill/drivers are always clear of the bench, while also visible and neatly to hand.

Peter Lamb,
Newcastle upon Tyne



Successful polishing

The key to successful finishing, be it painting a window sill or French polishing a jewellery box, is surface preparation. With French polishing the first stage of grain filling is particularly important – get it right and you are 75% there.

I have tried most methods, including the traditional plaster and pumice, but now use the following system which is sanding and filing at the same time.

1. Prepare a sanding block

Cut a fine decorating sanding block into two sections and using a Bradawl to make a series of holes in the cut side. Also make a series of tiny holes on the surface using a pin.

2. To use

Pour some polish into the holes – the block's interior is very absorbent. I then sand and, by gently squeezing the bench, polish exits through the pin holes to create a slurry with the wood dust to fill the grain.

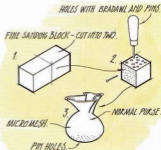
Wipe off any excess with a cloth soaked in meths, working across the grain. Leave for two days and sand gently.

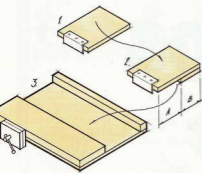
On some items this may be all that is needed, but I go through a second filing stage using fine wet and dry paper (with pin holes) wrapped around the block.

If the item to be finished has compound curves, then make up a standard rubber and cover with micro mesh which has a flexible cloth backing.

A little oil (I use walnut) helps to avoid sticking in all cases.

Peter Giolitto, Surrey





Thickness of underboard B is equal to the depth of tool well 3, while measurement A allows the angle iron to fit into the vice

Workshop space-saver

There must be lots of DIY folk, who like me, are limited for space in their workshop/shed.

To save space I used the following idea. I cut 1x4in boards (1 and 2) – large enough to mount the tool on – and screwed a piece of angle iron on the front edge which was, in turn, locked in the vice of my carpenter's bench.

When not in use, I store them on a shelf. I have even mounted my lathe bed this way, but had to put a small vice on the end of the bench to make it extra secure.

I have also mounted my hand mitre saw in the same fashion.

It only takes a couple of minutes to mount on the bench and saves a lot of space. Of course, the tools must be well bolted onto the base. I have had no problems with movement when using the tools.

PS. I used the angle iron of an old bed which is just the ticket.

Mr P.E. Douch, Eltham

Framing solution

I have recently started framing my own water colour paintings and have been using the excellent Pushmaster V nail inserter. Whilst this tool works very well on softer moldings, I sometimes struggle to get the nails into hardwood.

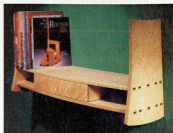
I have solved the problem by fitting the Pushmaster into an old drill press which was 'borrowed' from my boyfriend.

A small piece of wood was used to secure the tool in the press. The increased leverage makes the insertion of the nails into the hardwood an easy task.

Alison Short, Amesbury



Win Brimarc Tools



Stop for a moment.

Think a while about your workshop. What clever tips have revolutionised your woodworking, making it easier, safer and more fun?

Perhaps you've picked up hints from other woodworkers or just worked them out yourself. However large or small they are, other readers are bound to benefit from your tips. So send them in to us at Good Woodworking, along with simple sketches or photographs if necessary. It's well worth the effort as each month we will award the winner a £35 Brimarc voucher, while each of the runners-up will receive a £25 voucher.

The Brimarc catalogue, which we'll send to the winner and all the runners-up, is jam-packed with great ideas that have been turned into clever woodworking tools. If you would like a Brimarc brochure and details of your nearest stockist just telephone ☎ 01926 493389.

Send your ideas to Hints and Tips, Good Woodworking, 30 Monmouth Street, Bath BA1 2BW. Don't forget to include relevant sketches and photos.

Candlestick calipers

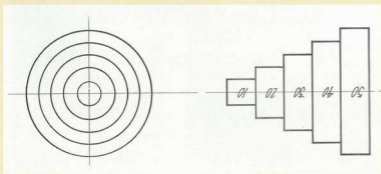
I was recently asked to turn a pair of classic shaped candlesticks. Although I have a number of spring loaded calipers, I was constantly having to adjust these to suit the various diameters encountered in this type of project.

I started off by using a steel rule to alter the dimensions. I then had the idea of making this tapered gauge so that the calipers can be adjusted to the required diameter by slipping it

over the gauge and altering to the dimension required without the need to measure.

The gauge can be made in a few minutes. I used a scrap of seasoned sycamore in order for the numbering to be clear. The dimensions can be altered to suit individual needs, but I recommend the steps to be at least 12mm wide in order for the numbering to be legible.

Alan Reid, Abingdon



Tip of the year



In addition to Tip of the Month, we will also be awarding a **Tip of the Year** prize to the best idea published in these pages during the year. The winner will receive a complete **Leigh D4 Dovetail Jig** worth £375 from **Brimarc Associates**. This innovative Canadian jig was tested in GW 86 along with nine other dovetail jigs and was highly recommended by Phil Davy. It will cope with material from 3mm to 30mm thick and up to 610mm wide. It's beautifully engineered and simple to adjust.

LEIGH

Conserving effort



Conservatories add value to a house and are a popular addition. **Barrie Scott** reckons a basic construction would be well within the scope of many woodworkers, and sets out the principles involved



Photo courtesy of www.conservatoriesonline.com

Conservatories, sun lounges and orangeries have had a surge of popularity in the last few years. They can be a useful and economical addition of floorspace to a house, as we are constantly told by the telephone sales people who try to flog us plastic ones.

They are also a very pleasant place to spend time: enjoying the prospect of the garden but sheltered from the elements and making maximum use of solar heat.

For woodworkers, especially those equipped with some form of

morticer, building a conservatory may be considered a very viable exercise. The joinery techniques involved need not be complicated. It's mostly mortice and tenons, just rather a lot of them! On my own basic lean-to job, I counted 108, excluding the door.

Design Matters

Conservatories can be designed to avoid planning restrictions. Provided they are at the rear of a building and do not exceed a given height and cubic metrage, no permission is

required. These specifications are available on request from local planning departments.

Conservatory design is an area with vast possibilities. The joinery framing can comprise light plain members or substantial elegant sub-frames with fixed or opening lights attached. It can include brick or stone piers, sections of wall to give a heavier appearance or steelwork supporting a grand roof structure like some of the original extravagant Victorian affairs. Walls may be hexagonal, octagonal or curved; the roof may rise to a grand lantern light.

There are also some funky possibilities in using good old traditional pegged oak framing. It is even possible to acquire a few reclaimed window frames and, with studwork and creative use of cover strips, bang out an economy model. The combinations are endless.

Size and location are deciding factors. Building around corners, in alcoves or L-shaped spaces can dictate the shape and roof pattern.

Most modern conservatory frames, however, are basically an extensive windowframe with structural members also acting as glazing bars. They either rest on dwarf walls or are built full height from the ground. What follows are a few basics to explore the principles of buildings of that type.



Photo courtesy of www.conservatoriesonline.com

(Left) The standard rafters of this conservatory are glued and screwed into position through the ridge board
(Above) A hardwood conservatory showing a dentil mould detail around the top of the windows



Placing the pre-cut rafters in position, supported by the decorative finial

Choosing Materials

As with any exterior joinery, hardwood is the best choice to offer resistance to damp. Cedar is useful for conservatories with its weather resistant properties, as is iroko, which is extremely durable and a reasonably priced hardwood, provided you can come to terms with its grain tearing qualities. Better quality Asian mahoganies are popular amongst manufacturers, as apparently is idigbo.

A good second best would be to use a hardwood cill and make the rest in preservative treated softwood. The cill is the member that always cops the worst of the weather, gravity being what it. Left unprotected or poorly designed, it will soon start to perish – expensively – so a hardwood cill is always a sound investment. On something that size, repairs or replacements are a pig of a job.

Broadly, conservatories can be put in two categories. Using single glazing they serve as a summerhouse or, in their original use, a posh greenhouse. Sunlight will be enhanced enough on bright winter days, but at night a lot of heating will be required to make it a useful space. Use of double-glazing and draught proofing gaskets on doors and windows, however, has changed the role of the conservatory. It can now be a comfortable all-purpose room.

Effective Joinery

The first design function for the joiner is to repel rainwater effectively using slopes, not ledges, on anything horizontal. The sections to be used are designed accordingly. Next to consider is access and ventilation – doors and windows. For an opening 'light' or casement, the rebate may need to be deeper than for the sections containing fixed glazing, depending on whether the casement



Note the stepped lead finishing detail at the rear of this conservatory where it adjoins the existing house wall

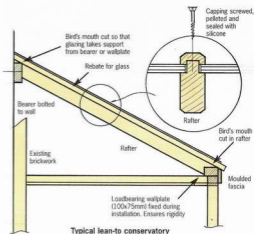
is in the traditional pattern or 'storm section'. For the door it will definitely need to be deeper and the section size of the frame adequate to bear the weight of the door.

Normal glazing bars can, in the right circumstances, be light in section. This will depend on how close they are together and what load bearing is required. If the roof is double glazed the weight will be considerable – polycarbonate will not need the same support.

On the interior the framing timber can be moulded or left square and simple. If decorative mouldings are required, there are a couple of approaches. The mouldings can be cut during initial machining along with the rebates, in which case each joint will require profile scribing. The easier alternative is to make up the frame in the square and use a bearing controlled router cutter to add the moulding after assembly.

Methodical setting out is the key to making large frames. Horizontal detail and spacing between uprights can be marked directly on the cill and head. For the stiles or uprights the drawing of a detailed rod is to be recommended, showing precisely the positions of all shoulder cuts. Tenon shoulders on window framing are always offset so that the joint fits neatly into the glazing rebates. The

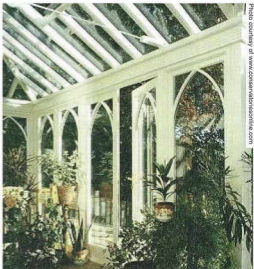
CONSTRUCTION: Lean-to details



Typical lean-to conservatory



[Left] Cross section through dwarf brick wall and concrete base. Here the timber frame is fitted slightly forward of the inside of the external course of brickwork. This makes fitting the window board easier (courtesy www.conservatoriesonline.com)

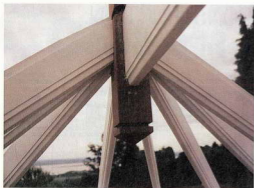


frames are prefabricated in the workshop in manageable sections of up to two or three metres. Opening lights can be shot to size, hinged and fitted, and then removed to make the frame as light as possible.

The gothic window arches in this hardwood conservatory add a stylish touch

Windows With Style

The overall look, aside from the shape of the walls, is achieved by the chosen pattern of glazing bars.



(Above) Pre-cut rafters in position and ready for fixing. The finial is an essential feature as it gives support
(Right) This conservatory consists of two spans of tiled roof intersecting at a glazed section. It will create considerable insulation for the main building and will have a sun-trapping corner with the additional advantage of a shaded area. In the summer some conservatories get very hot and blinds may well be required



Obviously the house's architecture and joinery style is a prime consideration. Georgian, small pane or fenestration may be appropriate, as might wide expanses of glass. Arched heads to window lights are popular. This can be achieved either by shaping the head and rebate during manufacture or the swift method of planting on curved fillets after glazing. Is this cheating or a

cunning way of avoiding the extra cost of curved glass and having to bend glazing beads? Then there are rising sun-patterned glazing bars, leaded lights, coloured glass and so on.

Additions to the exterior can include the turned finial, the carved ridge crest and the tooth-patterned moulded fascia board. In fact some of the modern efforts finish off all done

up like a wedding cake. It's all, of course, a question of taste.

Walls and Cills

Assuming the foundations and slab are suitably installed – 6in of hard core, a damp proof membrane, 4in of concrete and 2in of screed, and the desired wall is in position – we can commence. It is ideal to have the wall built before making the frame,

Glazing for conservatories

While double glazing may seem an expensive option, as a proportion of the overall cost it actually may not work out too costly. You can get surprisingly good value dealing direct with double glazing unit manufacturers and phoning around for the best price. Labour-wise it involves only a few joinery modifications, such as cutting deeper rebates for the double-glazing and grooves to accommodate draught proofing.

The type of glazing needs to be selected in order to plan the woodwork. If the roof is to be glazed, the covering needs to be unbreakable; great shards of glass accompanying a falling roof tile to earth are always inconvenient. Until a few years ago, single glazed conservatories only had recourse to Georgian wired glass. Laminated with a steel mesh, it was robust but in no way pretty.

Now we have either laminated or toughened glass, something that's a legal requirement in doors. Toughened glass is used in double glazing units for roofs. I have seen a roof slate fall on the stuff with no ill effects. Insulation in double glazing, especially roof glass, has become sophisticated with various treatments for 'solar

control', but that's for the glass companies to expound on.

A popular roofing option, which is also more economical in cost and labour, is 'polycarbonate', a tough but light cellular plastic sheet material, easily cut with panel or jigsaw. 16mm 'twin wall' is most common, but thicker stuff with more insulating layers is available. An amusing point in the instructions is to ensure you fit the supplied plastic capping strips over the open cellular ends. Otherwise it makes an excellent habitat for spiders!

Fitting the Glazing

When installing double glazing the key word is 'silicone' – the glazing variety and plenty of it. Where the glass rests in its rebate on a suitable bed of silicone, a rubber seal is formed around it and any excess can be removed with a knife after setting. The glazing beads should also be bedded on before being pinned or screwed into place, and a neat bead of silicone formed where bead meets glass. Putty should never be used with double-glazing as it sets rigid. Movement in the timber can be absorbed by the flexibility of one pane of glass, but a double pane will not

wear it and will almost always crack.

U-shaped cappings are used instead of beads for the more exposed roof glass, again bedded on silicone for a secondary seal. When screwing down the cappings a squelch of silicone down the screw hole is a useful precaution.

Polycarbonate is a simpler system, where the rafters do not need rebating. On flat runs of roof the sheet can span several rafters. For fixing down and jointing on more complex faceted roofs where cuts are made, manufacturers supply an aluminium capping system with pre-fitted seals. Don't forget to use loads of silicone.



The dry fitting of a conservatory's lantern roof light in preparation for the installation of glazing panels

especially if the shape is complex. No disrespect to our brothers in the wet trades, the brickies, but if there is a discrepancy once the frame and wall are built, it will require some creative crisis management.

A useful strategy, where the masonry is ready, is to make accurate thin ply templates of the wall. This will be a pattern for the cill, providing data for setting out.

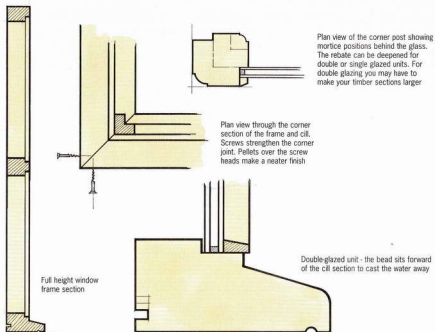
If the conservatory is full height with the cill near ground level, it's important to ensure it does not touch the ground. Raise it a couple of inches or more on a concrete or brick pad. The nose of the cill, in any case, should protrude beyond the base sufficiently for the drip groove to function in expelling water.

For a demonstration model, let's assume our conservatory is a basic rectangular three-sided structure with a lean-to roof, a door and two opening lights, around 4x2.5m with a base wall around waist height. The glazing bars incorporate a horizontal member or transome mid-height around the frame. The 4m length will be awkward to transport so would be best divided into two sections. Where frames are joined together during installation it may be necessary, as in this case, to fit the transome or intermediate rails, adjacent to these joints, on site. The stub tenons are vulnerable during transport and manhandling.

When positioning the frames on the walls the cill should sit on a damp course strip. It is sometimes good practice to also use dampcourse where the wall stiles are fixed to the house walls. The underside of the cill and all end grain should be preservative treated before fixing.

It's practical to position the section with the door frame first as this is least manoeuvrable when in place. In order to pull the corner joints and finger joints connecting the large frame together, the whole thing will need to be moved outwards, then slid into position. Then, with the help of sash cramps, everything is pulled together.

CONSTRUCTION : Typical sections



(Above) The size, style and grandeur of a conservatory is up to the taste of the designer

(Left) Making finishing touches to the final – in this case a decorative feature that's also a structural key to the roof



(Far left) The wall frames are fixed in place using galvanised strapping. The fixed lights are screwed into the main frame (Left) Structural wallplates are fitted to the top of the framing, ready grooved to receive the rafters. Note the device for guarding against rump marks

A useful tool for the assembly struggle is canvas strapping with a ratchet fasteners, as used for tying on to roof racks. Set diagonally across the conservatory this can hold the frames in position while necessary adjustments and judicious blows with club hammer and block are made.

The frame can be screwed to the house and onto the cill through the glazing rebates. This will hide all fixings while glazing silicone will seal the screwheads. Alternatively, metal strapping can be used, let into the framework, screwed to the walls and hidden by plaster. The top of the frame is then often reinforced with a 100x75mm wallplate, onto which the rafters will bear.

When the frame is stable and fixed, a string line is fixed precisely in the rafter position between the bearer bolted to the house and the wallplate. Using adjustable bevellers the angle for the 'birdsmouth' cuts in the rafter is calculated. The seat of the rebate should line up directly with corners of both bearer and wallplate to provide lateral support for the glass. If everything is 100% square, all the rafters can be cut in one go. An initial pattern rafter should nevertheless first be tested in all positions. Any slight discrepancies can be gauged from this and appropriate adjustments made when cutting the others.

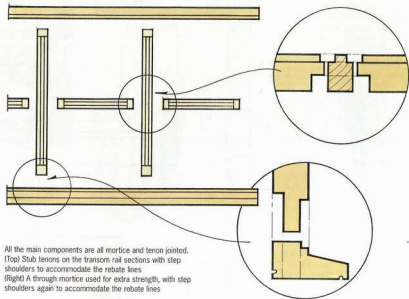
The bird's mouths need to be an extremely neat cut because all woodwork is highly visible on conservatories. This demands very accurate work from the professional installer, especially when components are delivered on site with a couple of initial coats of stain. Any splintering during the sawcut becomes highly visible.

The rafters are also screwed to plate and bearer through the rebate shoulders so that all fixings are invisible. When the opening lights are screwed in and the door hung, it is time to begin glazing. On more complex roofs with hips and valleys where rafter positions demand triangular glazing units, the only safe method is installing roof timbers first and then measuring up for the glass. There is too much potential for inaccuracy to risk calculating the sizes and shapes on paper. Hardboard templates are cut to exact size and shape and passed on to the glazing company.

Painting or Staining?

Where the frame meets the wall, a bead of mastic or similar sealant should be applied beneath the cill. Lead flashing should be fitted between the conservatory roof and house wall, let into the brickwork

CONSTRUCTION : Glazing sections

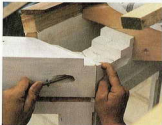


All the main components are all mortice and tenon jointed.
 (Top) Stub tenons on the transom rail sections with step shoulders to accommodate the rebate lines
 (Right) A through mortice used for extra strength, with step shoulders again to accommodate the rebate lines



(Left) Once the ridge is in position, the sawn timber rafters of the tiled roof are capped with members to match the glazed section of the conservatory.

(Below left) The rebate of the standard rafters is positioned to line up with the housing on this pattern piece of the ridge capping
 (Below far left) Intersections of the wallplate are drawbolted with stainless steel threaded rod (studding)



and sealed with mastic or mortar. Applying and maintaining a high standard of paint or stain finish is crucial. If left for a few years, following summer shrinkage fine cracks may appear where the joints are and rain will penetrate, causing your wallet to suffer.

Otherwise it's time to relax. Get the potted plants in, a comfortable chair, maybe some liquid refreshment and sit back and watch the garden grow...

For more information, contact website: www.conservatoriesonline.com



On Test

Special

If a machine is somewhat bigger or more expensive, **Andy King** takes a closer look to ensure you make the right choice

Stayer Lab 6

£1099.00 ☎ **01483 454502**

www.stayer.it

Motor: 2x1.5kw Spindle & planer speed: 6500rpm Saw speed: 4000rpm Maximum saw cut: 65mm @ 90° Planer thicknesser: 200x140mm Weight: 105kg

Stayer's new Lab 6 combination machine is designed for the smaller workshop. It takes up just 720x1070mm of floor space without the morticer fitted. Although not an industrial machine, it's well built and capable of consistent, accurate work. Economy is achieved by the use of steel and aluminium for tables, instead of heavier, more stable cast iron. There's extensive use of plastic for the adjustable parts. In a busy production workshop environment, some of these items may not last long. But if you're the sole user you're likely to take more care...

The Lab 6 features twin induction motor drives with no belt change. One motor drives the spindle and saw, the other sorts out the planer/thicknesser and morticing functions. Switching between modes takes some getting used to. There's a standard emergency button, plus switches for each motor. Above the saw motor housing is a further switch to swap from saw to spindle functions. Another rocker switch at the far end controls the planer.

While Stayer have safety very much in mind, getting the right combination of switches can be confusing. I think I could launch a Space Shuttle faster!

Sliding saw Carriage

The saw table is steel, with an aluminium sliding carriage alongside. This gives you the advantage of crosscutting as well as ripping action. A mitre fence

fits into a T-slot on the carriage. Two simple clips hold the carriage stationary if not required.

The saw's crown guard clips into a slot on the riving knife, so it can be quickly removed when dropping the blade for spindle work. There's no need to risk crosscutting without the guard fitted, as the spindle moulder will easily make tenon and rebate cuts while safely guarded.

When ripping with the saw, you can cut up to 65mm deep at 90°, not bad for a 200mm diameter blade. Height adjustment is via a lever, lifting the blade to the required height. Twisting the lever locks it.

Bevel cuts are not so easy as the blade doesn't tilt. Instead the sliding carriage has two tilting scales. Held with locking knobs, it will tilt up to 45°. There are a couple of snags though. Steeper bevel cuts mean the carriage cannot be locked off to prevent it sliding (the lugs are too short) and I found the operation pretty hit or miss.

The Lab 6 has two fences, both extruded aluminium. One acts as the rip fence for the saw, the other for the planer. The saw fence locates on a 'U' channel at the end of the table, locking with a cam lever. A scale in the channel shows ripping widths to a maximum of 285mm. The fence locks rigidly, while an extra slide-on fence is used for ripping thin material. The fence's triangular shape gives the impression that it can be reversed for 45° cutting,



The Lab 6 is compact enough to fit through a standard 30in wide doorway. It's available without the morticer as the Lab 5, which costs £999.99

but in fact, this is not possible.

The ripping and crosscutting action was good, and the 1500W motor coped well with deeper timber. It runs smoothly and quietly. The fence is rigid and far better than those on most budget saws. A lack of decent tilt action is a minus point.

Spindle Moulding

Behind the sawblade is the 30mm diameter spindle column. A 40mm deep CMT Euro block with rebating knives is provided. Maximum block diameter through the table aperture is 105mm. The limited rise and fall of 60mm should be enough for most woodworking tasks. A set of

collars on the spindle can be used to pack narrow or stacked cutters, if necessary.

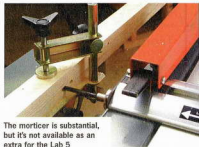
The spindle is locked with a rod through the shaft. Rise and fall is via a plastic handwheel, with a knob locking the height.

A set of safety fences and dust cowl are supplied, although the thin MDF on the split fence is best removed and replaced with a couple of substantial timber facings. The fence and cutterblock cover flips up for easy cutter access. Maximum thickness beneath the hold-down is 150mm.

Although the spindle moulder does not have a huge capacity, it's fine for common mouldings.



An excellent mitre fence is standard, here used with the sliding carriage



The morticer is substantial, but it's not available as an extra for the Lab 5



There's an adjustable facing on the fence. Saw, spindle and planer are at the same height



An aluminium bridge guard is fitted, while the planer fence can be tilted to about 30°. The saw's sliding carriage can be tilted to 45°, but bevel cutting is tricky



Standard equipment includes a CMT cutterblock. This is fitted with 40mm HSS straight knives. A huge range of cutters is available for moulding profiles

There's enough power for making deep rebates such as door frames. As long as timber is fed at a steady rate, a good finish is guaranteed. Including the CMT block in the price of the machine is a shrewd move by Stayer. Their range of cutters covers virtually every moulding you're likely to need. At about £14 a pair, including safety chip limiters, a decent set of cutters can be bought for the price of two or three big router bits.

Powerful Planing

A two-knife aluminium cutterblock is fitted to the planer. Cutting width is 200mm and it runs at 6500rpm. Surfacing tables are heavy aluminium extrusion with milled faces. The aluminium thickening bed rises on a central column.

You can set the infed table to give up to 2.5mm per pass. The lever is a bit sloppy and unsuitable for really fine adjustment. It's more than adequate for general timber straightening, though.

A flip-over bridge guard locates on a sprung pin for quick setting. A winder knob adjusts this to suit timber thickness.

A neat feature is the micro-switch, tucked away under the surfacing bed. Before you can start the machine this must be in

contact with either the top hood when thickening, or the lower hood for surfacing.

Capacities are reasonable at 200x140mm. This is sufficient for most woodwork, and the finish from both surface and thicknesser (speed seven metres per minute) was very good. Both feed rollers are steel.

The aluminium surfacing fence locks solidly. You can tilt it to help overcome the saw's limitations when bevelling. Tilt is limited to about 30°, but there's no scale for quick setting.

Making a 2.5mm maximum cut isn't really advisable, especially on hard woods. The planer will struggle, but this is common even on big machines. Finer cuts of about 1mm per pass are better for the

planer, particularly the motor, and give a superior finish.

Morticing Machine

The end of the block is bored to take a 13mm shank morticing bit (extra). A grub screw tightens against a flat to hold them.

Hex bolts secure the morticing cradle, while a knob controls mortice height. To cut a mortice the work table operates with both lateral and plunge action. Its arms are flat steel bars with plastic grips. A hold-down clamps work in place. A unique feature of the table is its tilt action (up to 30° to left or right). Ideal for morticing shaped work such as chair legs or louvre rails.

Mortices should be made with shallow, steady cuts for best results. Unguarded thin tooling

running at 6000rpm means too fast a feed or plunge could result in a snapped cutter flying off.

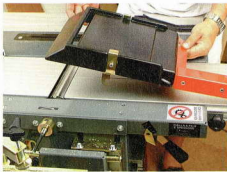
There are three dust outlets. One's on a hopper built into the base to catch dust from the saw. Another is on the spindle cowl, with the third on the planer hood. Oddly, these are all of different diameters, so you'll probably need some extractor adaptors.

If you want to upgrade an economical machine, Stayer's Lab 5 or 6 should be on your list.

GW verdict

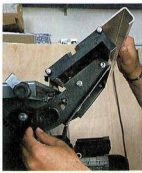
- Two motors. Great value
- Accurate bevel sawing is tricky

Value for money ●●●●●
Performance ●●●●○



A micro-switch is incorporated into the cutterblock hood (left)

The sliding carriage can be tilted up to 45°, but the blade is fixed at 90°. I found it difficult to get any degree of accuracy, though (right)



Make a Stable Door

PROJECT GUIDE

Difficulty

Simple

Time

20 hours

Type

Joinery

Cost

£100 to £150

MATERIALS YOU WILL NEED

Timber

Andy used 2cu ft of 2in sapele for the framework and 1cu ft of 1in to make the matchboarding

TOOLS YOU WILL NEED

Triton 2000 Workcentre

Fitted with router and cross-cut attachments, plus a fine adjust carriage. Also a 1/8in router, plus a 4mm slotting cutter and a 12mm straight cutter

Morticer

Best for the 75mm deep mortices, but you could cut by hand. A router would not suffice



In association with **triton**



This traditional two-part door isn't

just for horses.

Andy King shows you how to make one fit for bolting

A stable door can be one of the most attractive items of joinery for the home. The top half can be opened independently of the bottom to allow light and air in. They are regularly found in older properties, particularly as external kitchen doors. Joiners will often be asked to make them to fit non-standard openings.

This door is a traditional matchboard design with mortice and tenon framework. I was asked to make it in a hardwood and chose sapele. This is a fairly cheap but durable external timber suitable for a paint or varnish finish. As predicted, it wasn't a standard size height, though I have rejigged the dimensions here to fit a regular frame opening of 78x30in (1980x760mm).

The procedures shown here could also be used to make a standard full door with matchboard panelling simply by omitting the centre rails and rebates.

Setting out the mortices



01 Mark out the rails and stiles from the setting-out rod. This is the best way to ensure accuracy throughout the job



02 Mark out the mortices with a gauge. Pencil in the waste to identify the haunches so you don't mortice too deeply



03 Cut the mortices by hand or machine. For through mortices, you could use a router from either side



04 It's safe to cut the tenon shoulders on the Triton, as the crown guard does not need to be removed

Using the Triton system

Many woodworkers assume that you need expensive and dedicated kit to make quality joinery. Nothing is further from the truth and to prove it I set out to make this door using the Triton 2000 Workcentre, plus a planer thicknesser to prepare the timber and a morticer.

I cut the sawn planks to size and routed the joints with the Triton's table saw and routing table options. The wide

rail was dimensioned on the Triton and then the two edges skimmed on the planer. An optional carriage for the Workcentre enables the saw to be raised and lowered with extreme accuracy (see GW 110), and this makes setting blade heights for cutting tenon shoulders very easy. Without it, things are a little more awkward, although good accuracy is still possible.



Choose fittings that will stand up to the elements. Solid brass or galvanised are good options



Setting-out rod

The first step with any job designed to fit an opening is to measure up on site. Take maximum height and width measurements, plus thickness, and build to this.

Now you can draw up a setting-out rod. Because the rails and stiles don't incorporate any rebates, you could in theory dispense with this. All the shoulders are simply square-jointed and can be easily set out with a tape measure. I prefer to use a rod though, as it eliminates measuring errors. In this case it's a definite advantage as it shows the correct height with the centre rebate, which can be easily overlooked with a tape measure.

The door could be made full size, taking into account that it needs to be longer to allow for the rebated joint, then cutting in half once complete. This is a good way of matching grain on the stiles when the door is closed. But the easiest way is to make two doors. The components are smaller and easier to handle both for initial machining and when cutting the joints.

Preparing the Timber

1 Rails and stiles all finish at 95x45mm once planed, as does the bottom rail on the top door. The bottom rail of the lower door finishes at 195x45mm. Allow between six and 10mm when ripping to give enough waste to clean and straighten up the timber. The matchboarding is finished at 95x19mm.

I used the Triton in overhead cutting mode to cross-cut components to length before ripping. Allow a 50mm horn at either end of all stiles, but cut all other components just a few millimetres overlength. Then put the tool back into table saw mode to rip the timber to width.

Plane all components to square edge and thickness ready for the machining of tongues and grooves. The rails and stiles will need a groove to take the matchboard,

ensuring a weathertight fit, and the matchboard will need both tongues and grooves worked on it.

2 Before the rails and stiles are grooved, the mortice and tenon joints need to be made. I normally prefer to use through tenons with wedges on doors. With this door split in two, the weight is halved and stub tenons will suffice, as long as the tenon is long enough and the joints are a good fit. Allow for a tenon length of 70mm.

A fox-wedged tenon can be used, but there's no second chance with this if it doesn't fit first time. Set out all measurements (overall lengths and shoulder positions) in front from the rods.

Mortices should be marked out allowing a haunch for each 95mm rail. Use a double-haunched mortice for the wider bottom rail. The matchboard thickness of 19mm provides the cheek position of the tenon and mortice. The mortice itself should be about 14 to 16mm thick, and at a depth of about 70mm for a stub version. Set a mortice gauge and scratch mortice and tenon positions.

Joints with the Triton

3 Smaller mortices could be cut on the Triton by carefully dropping the timber on to the router bit with the tool inverted.

You could also plunge-cut with the router upright, but because of the depth of mortice I chose to use a bench morticer. You could also chop these by hand.

4 There are a couple of variations which can be used to cut the tenons. Having first cut the timber to finished length using the saw as a sliding cross-cut, put the Triton back into table saw mode. Set the fence to a 70mm backset to allow the saw to cut to the shoulder. Drop the blade down to cut to the correct thickness and, using the sliding mitre fence as a guide, cross-cut the shoulders. Make sure you cut the correct

Cutting the tenons and forming the grooves



05 Set the cutter depth against the edge of the mortice. This gives the correct height for removing the tenon cheeks



06 Rout the waste away from the tenon cheeks. On the Triton you can do this with router inverted or mounted overhead



07 Use a coping saw to cut the haunches. Make sure you have marked the waste with a pencil first



08 Set the cutter against the tongue of the matchboard. This will give the correct height setting for the groove

CONSTRUCTION DETAILS: Joint details



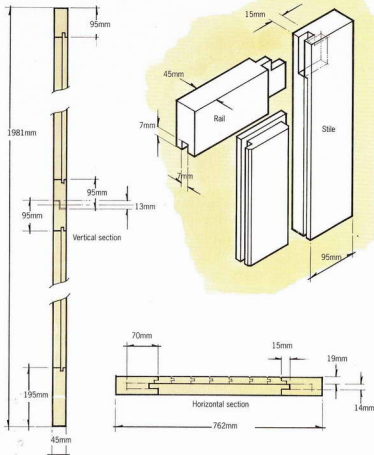
The finished door will need a weatherboard at the bottom, plus a smaller version on the top leaf

shoulder for each component as the tenon is off centre. (The use of face and edge marks should avoid this!)

This process involves removing both riving knife and guard on most standard table saws, although the Triton enables the knife to be pushed back while still retaining guarding over the blade.

After the shoulders have been cut, the waste can be nibbled away with the saw or the router table. Set the cutter projection to match the tenon cheek and rout the waste away. Although the Triton has no sliding carriage for the timber to rest against, a simple jig made with a piece of ply or MDF and a batten will suffice to support the timber as it runs past the cutter. The ply sits on the table as support and the batten runs along the edge of the table.

Another way is to use the router in the Triton's sliding carriage and pass this over the work. Clamp a stop block to the right angle fence for the shoulder cut and adjust the depth

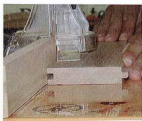


of the cut for each cheek cut. Slide the timber along after each pass until it touches the stop. Either method works well and it's really down to what you prefer.

With the tenon cheeks cut, mark the haunches and cut the waste away with a tenon saw and coping saw. Check the fit of all the tenons and dry assemble.

Matchboard Grooving

5 The router table is perfect for the operations involved in making the matchboarding and grooving the stiles and rails. You could use a straight bit, but I preferred a biscuit slotting cutter. This means the timber is always fed flat on the table instead of vertically against the fence for some cuts.



09 I used a biscuit cutter for making the grooves in the matchboard. Run the work from both faces to centralise the slot



10 Form the grooves in the matchboard rails and stiles at the same setting as before. There are no rebates at all



11 Once the shoulders have been cut on the ends of the matchboard, the waste can be sawn away



12 Dry assemble each door and run a small decorative chamfer around the inner edges of stiles and rails

Cut the 7x7mm grooves in the matchboard first, setting the fence for the correct depth of cut. The biscuit slotting bit only produces a groove 4mm wide, but this is an advantage for running central slots. Set the bit to one side of the groove and make the cut. Flip the timber over and run the cut again, and the slot is guaranteed to be central.

6 Keeping the fence at the same distance, cut the tongues. Use the groove previously made as a setting gauge and drop the cutter down until it lines up with the edge of the slot. Run the matchboard through, taking a pass from each face. Test the fit in the groove.

You may find that the rebate is a little ragged on the face; this isn't a problem as the arris edge is taken off with a chamfer later.

7 The groove on the rails and stiles is worked to correspond with the cheek line of the tenon. Adjust the height of the cutter using the tenon cheek as a reference. The slots on the stiles should be stopped at the mortices to prevent a hole appearing on the finished end grain. Put a mark 25mm back from the mortice shoulders as a guide. The rails are grooved straight through.

8 Measure the length of the rail from tenon shoulder to tenon shoulder. The matchboard has to cover this measurement, plus an extra 14mm overall for the rebates into the stile grooves. Work out the positioning of the matchboard. The

two outer pieces should be of equal width to retain a symmetrical look. Matchboard height has to fit the rail to rail measurement, plus 14mm for the rebates.

9 Work the long rebates on the router table. Either a straight bit or the slotting cutter can be used, making a pass both horizontally and vertically to cut the waste.

The end rebates are cut with the router table or on the table saw, using the sliding mitre fence and nibbling the waste away.

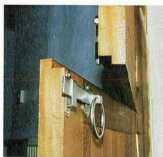
Assembling the Door

10 Dry assemble both leaves of the door and check for fit, adjusting the rebates if required. Then work chamfers onto the matching. Because the chamfer on the tongue side sits back from the face, a standard bearing or pin-guided bit won't make the cut. Instead either a flat bottomed chamfer or a veining bit is required.

Run all the chamfers on both the face and reverse of the boards. The amount of bit projection for this is minimal, no more than a couple of millimetres. The end grain chamfers can be done in the same way, but a sharp block plane is just as quick.

11 A further dry fit of the frame without the matchboard is now needed. Sand all faces and run a very light arris chamfer around the inside faces of the frames. A hand-held router is the quickest method, although a stopped chamfer can be worked on the router table.

Sand all the matchboard faces, then you are ready for gluing. An external quality adhesive (such as Extramite) is essential. An expanding polyurethane glue such as Gorilla or Balcotan is an option as it will fill any voids in the bottom of the joints. Remember to wet one part of the joint as this sets up a reaction to ensure maximum adhesion.



Make sure the rebates are cut to suit your opening orientation. In this case, opening out

Don't glue the matchboard as this needs to move around with changes in atmosphere. Clamp up and clean any excess glue up then leave to set.

12 Cut the horns from the stiles at the meeting rail ends and mark the rebates. Make sure you mark these properly! After all this work, the last thing you want is the wrong orientation of leaf opening. This door opens out, top leaf first.

Set the router table with the fence moved back 13mm. The depth is set to 22.5mm, half the thickness of the finished door. One cut is too much so building up to it with a couple of smaller passes is a better option.

13 If you set out everything correctly at the beginning you should now have the correct finished overall height once the two door leaves are fitted together. Hanging such a door is far more difficult than hanging a standard door, especially into an old opening!

A door that looks right when closed can spread wide open at the rebate or bind together when opened as a single door if it isn't hung properly.

Look out for a feature on hanging this type of door in a future issue.

NEXT MONTH

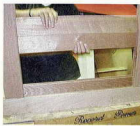
Mark Corke shows you how to make a hall cupboard

CUTTING LIST

Part	Qty	Material	Length	Width	Thkns
A Stiles	4	Sapele	1100mm	95mm	45mm
B Top/meeting rails	3	Sapele	800mm	95mm	45mm
C Bottom rail	1	Sapele	800mm	195mm	45mm
D Matchboard (top)	7	Sapele	850mm	95mm	19mm
D Matchboard (bottom)	7	Sapele	750mm	95mm	19mm

Cutting lists give the full length of a piece including joint but not wastage. Allow 25mm extra for length and 5mm on the width and thickness for sawn stock.

Gluing up the door



13 Glue the rails and one stile together. Slide the matchboard into place (without glue), then add the opposite stile



14 Assemble each door using sash cramps across the rails. Check for square by measuring across the diagonals



15 Sand the assembled doors. I used a random orbit sander to reduce the amount of swirls formed on the surface



16 Carefully mark out the rebates in the two meeting rails. You will not get a second chance, so rout these carefully



MASTERCLASS

Expert opinion from *David Savage*,
master designer and furnituremaker

A future for furniture

Always keen to see what the next generation of woodworkers are designing and building, David goes back to college to view the creations from a Furniture Design and Craftsmanship course. While some of the training techniques may be open to question, a few of the results earned David's seal of approval

This is the time of year when all the colleges are churning out their final year students and letting them loose on the great woodworking world. Of all the colleges I know, Buckinghamshire Chilterns University College seems to have one of the most interesting courses. They have several options on furniture making, ranging from antique restoration and repair to contemporary furniture design for industry.

This breadth of course is in partial reflection of the location of the University in High Wycombe. This town was once the chair making capital of our country, building its reputation in the time when there was an enormous Windsor chair making

industry in the area. More recently, larger furniture making factories, such as Ercol, have evolved and situated themselves in the region.

However, of late it's a sad thing to see so many firms that were present in the town have closed, resized or moved away. Still, that's more of a reflection on the furniture making industry in the UK as a whole rather than just High Wycombe or Buckinghamshire Chilterns University College.

Student Life

Once a year I enjoy going along to see what the students are doing, as I always find the contact with young people invigorating and challenging. If you can't have crazy ideas when you're a student, when else are you able to explore and develop your ideas? This is an opportunity, a golden period in one's life where one can afford to make mistakes and do something that is right on the edge. Yet these days so much student work is so safe, so desperately predictable, that one wonders exactly what is going on.

The college course I find most interesting is the BA Honours Course in Furniture Design and Craftsmanship. Now these are two phrases to conjure with – 'furniture design' and 'craftsmanship'.

You see, there are other college courses that profess to teach furniture design without any involvement of craftsmanship. These are the courses which might aspire to be more industry-based, with the student involved with conceptualising a piece but not actually making it.

In this day and age, pieces of furniture can be developed on a CAD (computer-aided design) screen as a virtual object. One can then turn it around, look at it from every angle, examine the details of this or that joint, go in and out, seeing the object as one might view it more or less in real life.

For the young aspiring designer, CAD is a powerful tool enabling the student to quickly realise a new object and create it in virtual space.

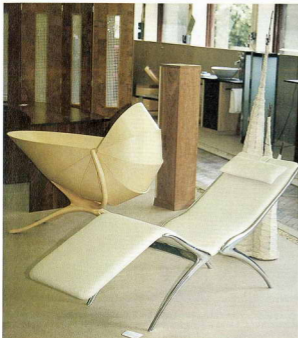
Yet CAD has a total absence of awareness of materials and their constructional properties. True, one can clothe a CAD wire frame in ash, oak, stainless steel or whatever, and make it look exactly how it should look in real life in any of these materials. But the program does not have an awareness of the structural properties of the material. So joints can be rendered on a CAD program that simply will not work in real life.

Misfortune

Sad to say I had the terrible misfortune to see in the college, not, I might add, on the



James Butcher's garden seat in green unseasoned oak with curved oak panels is a beautifully unpretentious piece



(Left) Luke Miller's chaise longue combining leather over a laminated bed with cast aluminium underframe. (Above left) Richard Drayton's telephone table in maple and yew oyster. (Above right) another piece by Richard Drayton, this time the top of his sycamore tall lamp

Furniture Design and Craftmanship course exhibition but in the Contemporary Furniture Design degree show, a piece of furniture that would probably fall to bits if given more than a gentle kick.

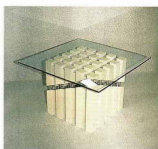
The student had joined a leg to the table top using a comb joint. This is a joint that works perfectly well when two pieces of wood have a comb cut in each piece, so that the grain runs right to the end of the fingers of each comb.

But our student, who for reasons of modesty will remain nameless, had cut the fingers of the comb on the table top across the grain, leading to perilously weak end grain.

It transpires that the contemporary furniture department does very little actual making, very little 'craftmanship'. Students are encouraged to realise their designs in virtual space, then technicians are employed to take the drawings and create real objects with them, just as might occur in a real world design office.

Yet this throws up an incredible failure of the training system if students aren't able to grasp an understanding of the materials in which they are designing, as the exhibition of this piece suggests. It is, I'm

Jamie Ward's Union Flag table in stained and bleached sycamore



(Above) Alex Sutherland's glass-topped occasional table with maple and aluminium base. (Below left) Oliver Renison's high tables in brown oak with stainless steel wire binding the feet. (Below right) Alex Nash's vanity unit with slate top and doors



certain, a part of an ongoing process. One where college courses are made cheaper and more efficient by removing design students away from the point of manufacture, enhancing their prestige by giving them courses of degree status and decreasing their relevance and value by distancing them from the poor devils who make the piece.

Design and workmanship, as David Pye would call it, are two sides of the same coin. An object may be realised yet it also has to be manufactured. The design of that piece then could and should develop, enhance, grow or simplify in the process of making.

This is where workmanship or craftsmanship comes into the picture. If our colleges want to stay on top of this subject then they have to damn well address the subject of workmanship. It's no use stuffing a class load of would be Philippe Starkes into a room full of CAD equipment and expecting them to emerge at the other end of a three year course with a grasp, let alone an intimate understanding, of the manufacturing process, if the only contact they have with that process is with a bored



(Left to right) A stand by Russell Sales made from hornbeam with stainless steel rods; David Alcock's display lamp in maple and hand-made paper with lights and stainless steel underframe; A lamp with ash base and frosted perspex top by Carrie White

technician. In order to understand how something is put together, you have to know how to make it yourself.

The Furniture Design and Craftsmanship course is, I believe, slightly frowned upon and looked down upon as being 'woody'. But if that is the case then long live the woodies. For it is these people who are at least addressing this very important issue.

The woody course is expensive to run as it requires tons of qualified teaching staff, CAD technicians, cabinet making technicians, wood machinists, designers, upholsterers and polishers.

It also requires workshop facilities, machine shops and design studios. But is it addressing the real issue of design, which is how does one make a new object and realise it in real space, not only in virtual space?

Qualified Designers

This year there are 25 students leaving the Furniture Design and Craftsmanship course. All of them, as far as I know, have achieved some sort of a degree so they're fully qualified designers. Yet the work, with a few exceptions I have to say, does not inspire me with the greatest of confidence.

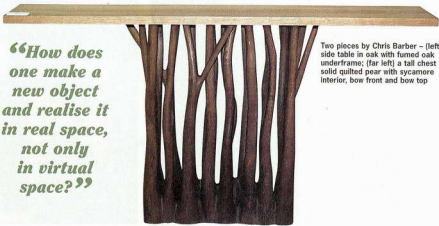
I'm sure that this department is being stretched almost to breaking point by the sheer numbers of students which are being processed through the three year course.

If Professor Philip Hussey, who runs the course, were able to cut that number down from 25 to 15, I believe he would have a much more powerful degree show, and 15 students will be far better educated in the process.

As it is, students are, I think, receiving degrees that quite frankly haven't a hope in hell of surviving in the very tough world that lies beyond the college forecourt.



“How does one make a new object and realise it in real space, not only in virtual space?”



Two pieces by Chris Barber – (left) his side table in oak with fumed oak underframe; (far left) a tall chest in solid quilted pear with sycamore interior, bow front and bow top

“Talent is an asset and many students here have no shortage of this”

Show Highlights

However, having ranted for half this article, I think it is beholden on me to look at the highlights and the interesting side of this show, and maybe draw a veil over the rather depressing work that one inevitably sees, not just here but in any degree show these days.

James Butcher caught my eye as I walked in at the start of the show, with a simply made and nicely realised garden bench. This was a very beautiful and unusually unpretentious piece, made with split in green unseasoned oak.

James has utilised the properties of unseasoned oak, which cuts like cheese under a well sharpened edge tool, to produce a simple but very effective piece of garden furniture that would lend itself very well to the actual production process.

To my mind this very unassuming piece was clearly one of the stars of the show because it was so totally compete and thought through to a viable conclusion.

The next piece that caught my eye was a very beautiful organically formed lamp by Richard Dreyton. This simple and elegant piece was a carefully made expression of a simple but wonderful idea.

Richard also made a telephone table in maple with a top constructed of yew oyster veneers. An oyster veneer is created by cutting diagonally through a small bough or branch so you can see the annual growth rings of the tree. These oysters have to be very carefully dried and then attached to a ground, probably using something like epoxy resin, to prevent them moving or cracking.

One of the more technically demanding pieces on show was a child's cot by Luke Miller. This was in sycamore veneered plywood on a laminated sycamore base. Luke had managed to achieve a complete absence of glue lines in his laminating of the sycamore base which is a considerable achievement.

I like the way he'd used the plywood forms, overcoming the problem of edge lipping a complex shaped form by showing the birch ply laminations and making it a part of the bleached structure.

The whole organic sense of the piece worked for me extremely well and some courageous collector should buy this piece at the very modest £6700 price tag. If they did they'd probably find themselves in a few years

sitting on a considerable appreciation in value.

Luke's other piece was a chaise longue in cream leather with cast aluminium legs. Here's another resolved piece but I can't help feeling I've seen it somewhere before.

I understand from Philip Hussey that Luke Miller and another student, Chris Barber, are due to set themselves up in business. If this is the case then we should all look to our laurels because Barber is another talented maker who produces interesting and well thought out furniture.

I especially liked the tall chest that he made in solid quilted pearwood with a sycamore interior. The top of the cabinet was subtly bowed to compliment the bow fronted drawers. This wasn't an extrovert piece but was well considered, gentle, subtle and very confident – not adjectives that one would normally associate with student furniture.

Another student whose work I think deserves attention was Jo Crow, whose elliptical desk in maple with ebony stringing was a simple and confident form. Again, qualities not usually associated with

student furniture. This piece was not on show at the time I visited the exhibition but from the transparency I have now on my light box, one can see that it involved a considerable amount of intricate workmanship and thoughtful design.

Dismissive

It's easy to be terribly dismissive from a lofted position of nearly 30 years experience in this business, and there was so much reasonably good work in this exhibition, that it seems unfair to single out three or four students for special mention. But that is the nature of the very tough market place that these young people are now entering.

Talent certainly is an asset and many students here have no shortage of this. Yet determination, technical skill and good fortune are all factors that play a part in the steps they must now take.

I wish them all luck and I would congratulate Professor Philip Hussey and his assistants at the college, especially Pete Legg, who have done an exceptional job of work in enabling these young people to get their first steps onto the furniture-making ladder.



Luke Miller's remarkable cot in sycamore-veneered plywood with a laminated sycamore base



Jo Crow's elliptical desk in maple with ebony stringing



Router Tables

Essential kit in the workshop? **ANDY KING** thinks so, and tests four new router tables plus a power tool workstation



Most woodworkers would vote for the router as the most useful power tool in the workshop. It's incredibly versatile as a hand-held portable machine, capable of a wide variety of cutting, shaping and moulding tasks. But very often it's easier and safer if the router is mounted upside down in a rigid table.

When moulding narrow sections of timber, it's generally safer to invert the tool. This leaves both hands free to feed the workpiece against the rotating bit.

Trying to balance a router with a whirring cutter above the work can be dodgy, especially if the machine itself is cumbersome. It can be easy to damage the router simply by tipping the router inadvertently, not to mention your fingers...

Large diameter profile router bits (more than about 40mm in diameter) should only be used in a table-mounted router anyway. Panel raising cutters in particular should never be used in hand-held machines. Their peripheral speed and size makes them pretty unwieldy.

What type of table should you choose? If you have a big $\frac{1}{2}$ in router and wish to do meaty spindle moulding-type work, a sturdy table is the obvious choice. For general lightweight work with a $\frac{1}{2}$ in router, a smaller table will be more appropriate. Owing just one router you'll need to be able to remove it from the table easily for hand-held work.

Cutter changing is important, so access to collet and spindle lock should be good. If you aim to leave the router permanently inverted, quick and easy access may not be so important.

This month we're testing four new tables. After the Group Test we investigate the Eazi-Way, which is more a multi-power tool workstation.



Wolcraft 6156

£99.95 tr 01787 880776

www.wolcraft.de

Wolcraft's 6156 router table is a bit of a departure for this German company. Unlike their familiar galvanised steel tables, this has an aluminium bed mounted on pressed steel legs, reminiscent of the Bosch and Trend models. Some assembly is required, but this is straightforward. Half an hour should be enough to get you up and running.

This table comes with a range of gadgets such as a straight fence, crosscutting mitre fence, a lead-on pin for template work and a vertical tenoning jig.

The oddest thing about this table is the NVR switch fixed to the front. It combines a 13A socket (for the router) and a fixed

plug on the side, which I've never come across before. You need to make up an extension socket lead to fit this, which is then plugged into the mains. The router is plugged into the socket part in the normal way.

A couple of pressed steel extension tables are provided to give an overall table length of 1035mm. Table width is 360mm, with the routing aperture offset to give 220mm from the front edge to the centre of the bit. The cutter opening is supplied with plastic reducing rings of 32, 44 and 54mm openings, while maximum bit diameter possible is 55mm.

Two options are provided for fitting the router. A cranked steel baseplate can be used for bolting

the router in place, which is then mounted beneath the table. The instruction manual includes a drilling template for this. Alternatively the preset holes in the table top itself can be used. If neither option works, a further flat plate is available free of charge from Wolcraft. Pretty well most routers on the market, both $\frac{1}{2}$ in and $\frac{3}{4}$ in, will fit.

A straightedge showed the ribbed and milled table was perfectly flat. The fence is a hard plastic extrusion measuring 610x100mm, perfectly square to the table. A groove along its length is the locator for the tenoning or end grain jig. To use this, the timber is held in a clamp incorporated in the jig and pushed along the fence. Although this works reasonably well, I found it was a little shaky. It needed pressure against the fence as it travelled to stop it from wandering. For more accurate results it's far better to use the mitre fence.

For planing cuts or to support rebated cuts there's a plastic offset section in the outfeed fence. This can be moved outwards with locking knob holding it in position. Two more

locking knobs hold the fence to the table, giving 109mm of travel.

A set of three plastic hold-downs are supplied and these slot into angled grooves on both the table and the fence. There are six slots on the table and, depending on which one you use, timber of varying thickness can pass. The fence itself has a slot each side of the cutter opening, but these limit maximum depth beneath the hold-downs to about 25mm.

Cutter changing can be frustrating. You have to struggle beneath the table or unscrew the mounting plate to work more easily. Despite this, the Wolcraft is a pretty good table for smaller work, and is a reasonable choice for the home woodworker. The instruction manual is easy to follow and gives some useful basic tips on procedures for making dovetail and fingerjoints and box construction.

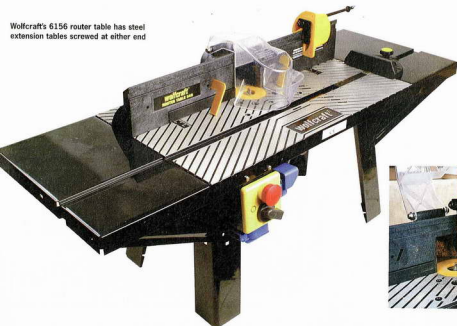


The NVR switch has a 13A plug at the side and a router socket underneath



There are two methods of fitting a router underneath the table

Wolcraft's 6156 router table has steel extension tables screwed at either end



GW verdict

- Feature-packed at a budget price
- NVR switch, inaccurate tenon jig

Value for money ●●●●○
Performance ●●●○○



Plastic hold-downs fit into slots on the table or on the fence itself



To cut tenons or mould end grain, the jointing jig slides along the fence

DeWalt DE2000

£468.83 + 0700 4 339258

www.dewalt.com

Although it may not be quite as new as the rest, DeWalt's DE2000 router table has only recently been launched in Britain. It's designed for routing and sawing, with an optional interchangeable plate for a circular saw. In standard format it will accommodate any of the DeWalt/Elu range of portable routers.

The table top itself is made from slotted aluminium extrusions which slide together. Its centre section slides out to fit different cutter opening plates, and three inserts are provided. These have maximum cutter diameters of 12mm, 32mm and 52mm. For a big table such as this which is designed for heavy work, these openings are quite limited.

Removable tubular steel legs give a table height of 870mm from the floor. This is perfect for routing operations where keeping your back straight makes feeding timber more comfortable, especially on longer runs.

The fence is box section

aluminium, with two sliding faces that can be adjusted for different router cutter sizes. There's no split fence for planing cuts though. On top is a small bracket which holds the lift-up clear plastic guard.

Similar to a fence fitted to a table saw, it slides on to a dovetailed rail across the front of the table. Nylon inserts within the fence are designed to prevent binding on the rail, but it was difficult to adjust really freely until I'd applied a silicone lubricant spray.

There's a fine adjuster knob at the right-hand end of the fence. A locking knob clamps the front and a Bristol lever tightens the back. These hold the fence really firmly and at a perfect right angle to the table. Using the T slot as a mark, I checked the fence for parallel to the table. Although an earlier fence I tried was running about 5mm out of true, the replacement was perfectly accurate. This accuracy is more important if you buy the optional circular saw insert and use the

fence for ripping.

Three countersunk holes in the table line up with the router's baseplate. Two holes are accessed directly through the table, the other is below the sliding insert.

Once the router is mounted, fitting bits is awkward. You either have to remove the machine or crawl around below it. The 140mm deep aluminium skirt around the table makes this even more of a bind. This skirt certainly keeps the table rock solid and flat in both planes, giving good support for panel raising work. It also houses the NVR switch fitted to the front of the table.

The basic table doesn't come with any accessories such as a sliding mitre fence (this costs about £40 more) or work hold-downs. These are available as extras, as is the adaptor plate for non-DeWalt routers. This costs around £33, while the circular saw kit costs a massive £340.

DeWalt's DE2000 table is built in Slovenia to high

standards, but it's pretty basic unless you buy the accessories to go with it. These push up the cost of what is already a very expensive table. Expect to pay around £350 in the shops.

GW verdict

- Build quality, fence travel
- No accessories included. Cost

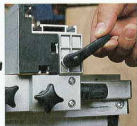
Value for money ●●●○○
Performance ●●●○○



You can slide both sides of the fence outward to suit the cutter diameter. The fence is box section aluminium



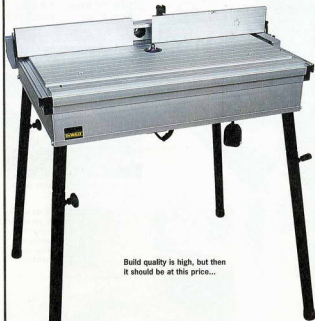
Three interchangeable aluminium centre inserts are included, which seems a bit wasteful...



The fence is locked with a Bristol lever and there's a fine adjuster knob. Everything slides smoothly



The table is drilled for DeWalt/Elu routers, though other makes can be fitted fairly easily



Build quality is high, but then it should be at this price...

Rousseau RM3350DL-MT

£299.95 + 01629 815518 (Rutlands)

www.rutlands.co.uk



The American-made Rousseau RM3350DL-MT is the sturdiest table tested. Everything about it is designed for heavy, constant use, with no skimming on materials at all. Even simple things like fence facings are 19mm thick birch plywood. The table itself is big, measuring 605x1110mm, which is good for supporting large panels as well as straight runs. It's 32mm thick MDF, laminated on both faces to prevent warp and also to minimise friction on the upper surface.

A substantial leg frame supports the table, made from square section powder-coated steel. It folds down like a decorator's pasting table for storage or transport, leaving the router in position. An adjustable foot on one leg takes up any discrepancies if the workshop floor is wonky. Spliced legs make it very solid to work on. At 930mm high, it's the tallest bench here. This makes it the most user-friendly, with no stooping

necessary when in use.

The router plate is made from 9mm hard plastic, similar to Tufnol. Two push-fit inserts are supplied for varying cutter diameters. These create openings of 70 and 32mm diameter, increasing to 100mm with both removed. Concentric circles on the underside of the plated enable you to line-up the router centrally.

It needs to be drilled to suit your router baseplate, but will take any machine on the market that has tapped holes in its base. It's held into the table with four lugs. These can be rotated so that the insert, complete with router, can be removed easily for bit changeover.

Rousseau's fence is excellent. It's based around a single piece of cast aluminium which makes up the fence facing support and the dust hood. A piece of hardboard at the rear of the casting is designed to be cut to suit your own extraction hose, going away with stepped adaptors. The ply

facings are fitted with large knobs enabling them to slide freely for varying diameter bits.

Bolted to the hood is the hold-down assembly, comprising a curved pressure foot, a clear plastic flip-up guard and two sprung wheel assemblies. These all fit into aluminium blocks which slide along to the required position and are locked off with hex screws. Wheels are rubber and canted at about 5° which has the effect of forcing the timber down on the bed and against the fence as it's fed through. This is a big advantage when feeding long lengths of timber, when it's awkward to apply front pressure. It's not until you use them that you appreciate how well they work. Maximum timber capacity beneath these wheels is 100mm, although fitting a longer rod will increase this depth.

The fence locks on to the table with two big knobs. Slots in the fence provide only 55mm of movement, so any parallel

grooving with the fence is pretty limited. A way round this is to drill another set of holes behind the existing ones, although there's limited space.

An offset insert gives 410mm of usable table in front of the router bit, offering excellent support for any job. A full length T-slot is let into the table, giving options for fitting featherboards, jigs, or a mitre fence for end grain and tenoning work (this is not supplied).

The downside of the Rousseau is the lack of an NVR switch and limited fence travel. Apart from this it's a pretty good router table and built to withstand heavy use.

GW verdict

- Excellent hold-down and fence
- Limited fence travel, No NVR switch

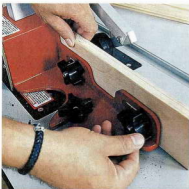
Value for money ●●●●○
Performance ●●●●○



Hold-down wheels are mounted on aluminium bars and locked tight with hex grub screws. The bars can be raised on the rear vertical rod



This is arguably the 'best hold-down system of the lot. Wheels are canted so that the workpiece feeds in towards both fence and table



Equipped with birch ply facings, the alloy split fence is fully adjustable with locking knobs

The router is bolted on to a rigid plastic mounting plate. It can be quickly removed for cutter access



The Rousseau table is also available in a smaller version without a groove for the mitre fence. It costs £229.95

Triton RTA300

£214.00 ☎ 0800 856 7600

www.triton.net.au



Triton's new router table is a retro fit for both the 2000 and the Mk 3 Workcentres. It's also available as a stand alone version with leg assembly. If you choose the legstand option, the unit can be knocked down with the legs stored inside the table for easy portability. The other bonus of this version is the inclusion of an NVR supply switch for maximum safety.

Bright orange livery makes this table easily recognisable as a Triton product and, like the Workcentre itself, it's pretty unique. It's made predominantly from pressed steel, with fittings for the various adjustments in ABS-type plastic.

The need to adjust a router table accurately and easily is a major benefit, and the Triton does not disappoint in this respect. Its pressed steel fence locates on two slots in the table, enabling it to move backwards and forwards for quick setting.

Slots are marked with both metric and imperial markings, providing 165mm of travel. Fitted into the slots behind the fence are two adjustable stops. By clamping these down to the table the fence can be adjusted by turning an adjuster screw on

each clamp, giving very fine fence tuning. It works in a similar way to the outfeed fence on a spindle moulder, but in this case the entire assembly moves.

MDF facings on the fence can be moved outwards for different bit diameters. Adjustment is with a screwdriver. Overall fence measurement is 650x70mm.

The squareness of the fence to the table is paramount for accurate results, and again, Triton have thought of this. Four grub screws at the back enable you to tweak the fence perfectly in line.

A clear plastic safety guard doubles up as a dust cowl, with a 32mm diameter outlet on top. For planing cuts where the outfeed fence is not in line with the infeed, a set of plastic shims are supplied. The outfeed fence can be packed out to support the work. To hold the timber down to the table a pair of pressure fingers are supplied.

For end grain work there's a small sliding carriage made from MDF. This is very neat and, with 300mm of travel, it's perfect for most tenoning jobs.

When it comes to standard straight routing, the carriage can

be locked off with a couple of built in clamps or, alternatively, removed altogether.

Holes in the carriage are used to position the excellent mitre fence, and also to locate the pressure fingers to hold timber against the normal fence.

Measurement from the front of the table to the centre of the router bit is 330mm. The router is held in the table with two adjustable curved shoes which locate against the baseplate. Spring clamps on the shoes clamp over the baseplate itself.

Cutter changing is easy. Four plastic cam lugs hold the router insert in position, enabling the router and insert to be released from the table quickly. Maximum bit diameter is 70mm.

Despite having to use a screwdriver to move the MDF fence facings, the Australian-built Triton is the most user-friendly of the bunch. It has practically everything you could want in a router table as standard. While not built to industrial standards, it's still good enough for light trade work on a regular basis.

If you already own a Triton Workcentre, the table is available without the legs and NVR switch for a very reasonable £99.

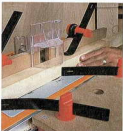
GW verdict

- User friendly, comprehensive
- Screwdriver to adjust fence

Value for money ●●●●●
Performance ●●●●●



Mounting any router is simple with locking clamps underneath



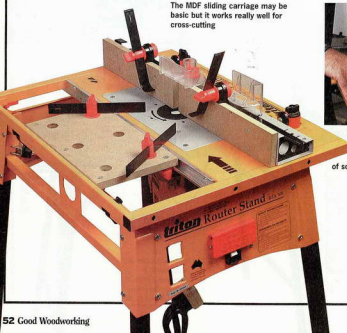
Plastic featherboards can be fitted in a variety of positions



You can adjust the squareness of the fence with a couple of screws



Setting the fence is precise with clamps and fine adjuster wheels



What you need to know about router tables

Make	RRP inc VAT	NVR switch?	Overall table size mm	Distance from bit to front edge	Other tools?	Fence travel	Max cutter opening	Warranty
Wolcraft 6156	£99.95	✓	1035x360	225mm	x	109mm	77mm	5 years
DeWalt DE2000	£468.83	✓	700x580	255mm	✓ (saw)	250mm	52mm	1 year
Rousseau RM3350DL-MT	£299.95	x	1110x605	410mm	x	55mm	100mm	1 year
Triton RTA300	£214.00	✓	695x560	335mm	x	160mm	75mm	3 years
Eazi-Way	£234.00	✓	1000x600	210mm	✓*	350mm	70mm	1 year

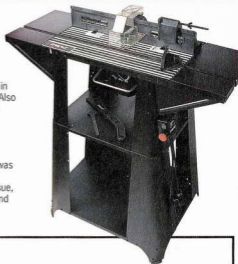
*Eazi-Way can be fitted with circular saw, jigsaw, planer, and belt sander



Other router tables tested

We tested the **Bosch RT60** table (left) in our round-up of tables back in GW 83. Also featured were systems from **Woodcut, Woodrat, Record, Veritas, DeWalt, Charnwood, Rout-R-Slide, Trend, Wolcraft, Unicut** and **Triplex**.

Trend's Mk2 Craftsman table (right) was tested in GW 89. It's similar to the **Wolcraft 6156** on page 49 of this issue, although the hold-downs are different and it's mounted on a floorstand.



FINAL VERDICT • Router tables

Not surprisingly, there are inexpensive router tables out there as well as more expensive, professional versions. All of them will accept both $\frac{1}{2}$ in and $\frac{1}{4}$ in routers, so which one should you choose? Obviously budget is important. If you only want to use a table occasionally a small table will probably be sufficient. Consider what comes as standard equipment. Both vertical and horizontal hold-downs can be important for many jobs. Are they included or will you have to pay extra?

I was surprised that for such an expensive table, the **DeWalt** is so basic. Its quality cannot be faulted, but with just a simple fence as standard, it's rather limited in what you can do with it. No hold-downs are included, and an adaptor is necessary for non Elu/DeWalt routers. Its large table and solid build does make it good for big panel work, though. It can be used as an accurate circular saw bench, but again requires an adaptor kit at substantial extra cost. The largest opening in the interchangeable plates is actually quite small for such an imposing table.

While the **Rousseau** comes in at quite a

high price, it's very user-friendly. The large table area and superb hold-down and fence assembly makes it easy and safe for a variety of work. Quick-folding legs make it a great choice for site use. It can be transported with the router still in place, and for trade use this sturdy table is highly recommended. It's a pity there is no NVR switch included, though. It would be easy to fit one to the front edge (Trend produce one for around £40).

The **Wolcraft** is a neat little table for anyone starting out in routing. It has practically everything you need as standard. Like the **DeWalt**, access to the router for cutter changing is not ideal as you have to get underneath the table. At least it's small enough to mount on a bench. I'd dump the tenon jig. It's wobbly, does not run smoothly and is not capable of really accurate work.

Timber capacity is very limited under the vertical hold-downs and I found the NVR switch assembly rather strange. For the price, however, it's a nice little router table for the smaller type of project.

Which leaves the **Triton**. This is what a

router table should be like, and has easy cutter change, fine adjuster fence, sliding carriage and NVR switch. It seems to have everything to make life easy, and is capable of accurate machining work. If it has a fault, it's the need to use a screwdriver for adjusting the MDF fence facings. If it had the same sort of adjustments as the **Rousseau**, it would be almost perfect.

If you already own a **Triton Workcentre** the router table insert is a bargain at £99. Even purchased with the legstand it's still excellent value, and has to be our Best on Test this month.

The Eazi-Way (see page 54) is not part of the Group Test as such, although we have included its specifications above.

NEXT MONTH: Pro jigsaws

One of the most useful power tools in the workshop and out on site, the jigsaw can be a real workhorse. We test a wide range of professional saw and report back.

WHAT THE TEST RATINGS MEAN

Superb. Can't be faulted



Excellent performance



Good, but not the best



Scope for improvement



Don't bother



Eazi-Way

£234.00 ☎ 01608 647418

www.eazi-way.co.uk

There are several multi-purpose worktables on the market. Some are better designed and made than others. With most of them you can mount a router and circular saw, possibly a jigsaw. The new Eazi-Way table offers rather more. As well as these three operations it enables you to mount a belt sander and power planer on edge.

The table and its supporting stand are built from heavy gauge, powder-coated steel. Corners and edges are nicely rounded, so scraping knuckles is unlikely. Table size is 1000x600mm, which is a decent machining area. You can mount the stand on a bench or Workmate, or there is an optional set of legs available for another £23.50.

Access for mounting power tools is excellent, as the table itself is hinged. A steel retaining clip secures it, and it's locked with a knob. In its raised position you can see clearly how the tools are fitted. Each has a plywood sub base, and two sets of ply templates are supplied. You cut out an appropriate hole in the ply to suit the blade or cutter of whatever power tool you want to fit. The tool is then clamped under the table up to four steel clamps, tightened with wingnuts. Sufficient clamps are provided so that five tools can be mounted simultaneously.

An embossed graduated scale is fitted along opposite ends of the table, showing both metric and imperial measurements. This helps you to position the fence accurately, although fine pointers

would be helpful. The fence itself is box section steel, and runs the full length of the table. It's clamped at both ends. Threaded inserts along the top enable three 6mm thick acrylic guards to be screwed in place. These cover the three cut-outs for jigsaw, circular saw and router.

Height of the guards above the table is fixed at 75mm, although a spacer can increase this to 100mm. It's handy to be able to view the line of cut, although acrylic has a tendency to attract dust as you're working. There are no hold-downs.

Inside the base is a six-way mains board. Each power tool can be left plugged into this, plus a vacuum extractor. A 3.8 m long mains lead is provided. This runs from the rear-mounted NVR switch, which is easy to reach. With up to five power tools fitted it's important to remember to switch off any tool not needed at its individual trigger or switch. Otherwise you run the risk of several machines starting up simultaneously when you hit the NVR's 'on' button. For absolute safety I'd be inclined to unplug each tool after use, so none could be activated accidentally.

Router, circular saw and jigsaw centres are all in line, and all can be used with the fence. I found the router particularly easy to reach (and adjust) at one end of the table. A cut-out in the fence accommodates the cutter, with a dust outlet above this.

You mount the circular saw beneath the centre slot. You may need to experiment with the

cutting out the ply template so that the guard on your saw stays retracted below the table. If not, you'll struggle feeding timber through against the guard. Remember the acrylic guards should always be in place.

There is no slot in the table for running a sliding mitre fence. However, a mitre fence will soon be available at about £35.

I guess fitting a jigsaw upside down may have its devotees, although I always prefer to cut with the timber beneath the tool. Still, this set-up seemed to work alright on the Eazi-Way.

The back edge of the table has sturdy steel vertical plates for mounting the planer and belt sander. A belt sander at 90° to the table is a useful facility. A couple of steel posts are inserted into the deep screw holes found on most sander body shells. These are fixed to a ply template and do not damage the tool. Eazi-Way will supply posts to fit most belt sanders.

Initially I was not so sure about mounting a planer on edge, as no guarding was provided on our test model. Thankfully, Eazi-Way assured GW that tables will now have a planer guard fitted as standard. I tried planing some 20mm softwood and a reasonable finish was produced. Not as perfect an edge as you would expect from a dedicated surface planer, though.

It may be basic in many ways, but the Eazi-Way provides budget machining and is a unique system for power tools.

Phil Davy

Up to five power tools can be fitted into the Eazi-Way workstation

GW verdict

● Budget machining centre. Stydy

● No hold-downs fitted

Value for money ●●●●○

Performance ●●●●○



Using the planer was a bit hairy, although a guard will now be fitted



Planer and belt sander are easy to fit. Access to the NVR switch is good



You need to fit the circular saw so its guard stays retracted below the table



The table is hinged for access. Power tools all plug into a mains board





News from the wood

Each month Pete Martin brings you all the latest news, products and hot gossip from the world of woodworking. This month he previews the Celebrating Boxes show, a cut-price workbench, a new type of vice and that catalogue everyone has been waiting for...

Celebrating boxes

The International Box Conference will coincide with the opening of the Celebrating Boxes show on 21st of September 2001. There are still places available for this two day event. It's designed to be a forum where makers, designers and anyone who is interested in the box as an art form or as a piece of craftsmanship, can meet and be inspired by one another.

This is the first event of its kind and one certainly not to be missed. The venue is Tullie House Museum and Art Gallery in Carlisle.

Speakers at the conference include David Charlesworth,

Andrew Crawford, Roger Gifkins, Robert Ingham and Po Shun Leong. Craftsmen displaying at the show include Neil Erasmus, Andrew Crawford, Peter Lloyd, Ross Kaires and Nicola Henshaw.

A book, *Celebrating Boxes*, featuring work from the exhibition, will be available shortly. Look out for a review in the next edition of *Good Woodworking*.

For further information on the conference, the show and the book, contact Peter Lloyd on ☎ 016977 46698, email PeterLloydboxes@btinternet.com or check the website at www.celebratingboxes.com.



Clockwise from right: Peter Lloyd's pivot hinge desk box in yew; Neil Erasmus' wenge and English spalted beech box; Clare Vetterlein's 'Pebble Box', made from African blackwood, leather and brass; Nicola Henshaw's wader, rooster and plover boxes with monkey chair and fish chair



The same bench as last year for a lot less money

In the January 2000 issue of *Good Woodworking*, Andy King tested the Dyke UB2000 Universal workbench, finding it "versatile" and stating that "for shopfitting or a long run of site work, the Dyke UB2000 bench will certainly make life easier."

However, he also felt that "the price would put a few people off" and added "If the makers could reduce the price as they go into bigger production, this could be a real winner."

Well Andy, it looks like somebody does listen to you! The bench is back for the year 2001 at a far more reasonable £299 – that's less than half the price it was 18 months ago.

The bench has a solid tubular steel construction. Vice jaws are made from 24mm thick birch, operated with a 16mm screw thread. Opening capacity is more than 890mm.

The bracing table features six different clamping options

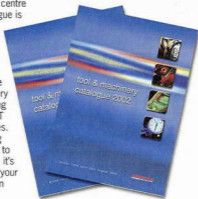
allowing it to hold a range of timber sizes. The bench also comes with a number of optional clamping, vice and jig fixing options.

Contact Tudor on ☎ 01691 623424.



Axminster catalogue

The Axminster Power Tool centre tool and machinery catalogue is the dog's-doo-dahs when it comes to choosing your next bit of kit. Well rejoice for the new 2002 edition is here and it's larger than ever, with more space devoted to machinery and new products, including the introduction of the CMT range of cutters and blades. From bandsaws to hacking knives, from box scrapers to books about woodcarving, it's got the lot. To get hold of your copy, contact Axminster on 0800 1699 450 or email@axminster.co.uk.



Not all vices are bad for you...



Quick-Vice incorporates a novel locking base system to provide a fully portable vice that can, its makers claim, attach to any surface. The vice costs £29.99 and is now accompanied by replacement jaw pads, spare bases and portable workbench attachments, all at around the £5 mark. For further information visit www.recordtools.co.uk/quickvice

Winners galore

It's time to catch up on winners from competitions in GW. From issue 109, winners of the **DeWalt** Planers are **J F Piggott** of Glamorgan and **Mr S Penn** of Ruslip. Winners of the **Bosch** Belt Sanders from issue 110 are **K Bennett** of Guernsey, **D Breckon** of Linthorpe, **J Hawett** of Dunfermline, **M C Davis** of Hillingham, **J P Butler** of Hull and **J M Fields** of York. Finally, the winners of the **Makita** Routers from issue 111 are **J S Sutton** of Rochdale, **E C Jarvis** of Southampton, **Adrian**



Dodds of Ashton, **Mr Higgins** of Connemara, **Russell Orchard** of Aberdeen and **Alan Birtwistle** of Croydon. The dalek pictured above comes from the excellent montage sent in by **Mr Birtwistle** with his entry. Nice one...

One tree art

Just how ecologically sound can woodworking be? When it's part of the onetree project apparently. This extraordinary project centred on creating a rich body of art from a single oak tree. Following the felling of a 170-year-old oak on the Tatton Estate in Cheshire, every part of the tree - including the roots, bark and leaves - were distributed to over 70 of Britain's

leading craftspeople. They were asked to produce an object that demonstrated the diversity of wood in mediums ranging from furniture to carvings.

The result can be seen through an exhibition currently touring the UK (see dates on these pages) and in the book, *onetree*, by **Garry Olson** and **Peter Toaig** (published by Merrell).

Diary dates

NEWS, events, exhibition, shows and courses for the woodworker

WOODFAIR 2001

September 21 to 23
Bentley Wildfowl and Motor Museum, Halland, nr Lewes, East Sussex, 9.30am - 5pm

The leading woodland, wood-use and woodcraft event in the South East. Meet experts from the woodland and timber industry, see the latest products and uses for timber, join in various workshops including hedge-laying, hurdle making, pole lathe turning and charcoal making.
£5 adults, senior citizens £4, £3 for children. Family £15.
☎ **01825 840573**

CRAFT SUPPLIES DEMOS

October 6
Mark Farrington - Pot pourri boxes

Sat 10am to 4pm, Sun 12 to 4.
The Mill, Millers Dale, Buxton, Derbyshire. ☎ **01298 871636**

IAN WILKIE TURNING CLINICS AT TEWKESBURY SAW CO

September 22
Sharpening turning tools
October 20th
Using the scrollsaw
Tewkesbury Saw Company, Gloucester ☎ **01684 293092**

TURNERS RETREAT WOODTURNING DEMO DAYS

September 8
Gary Rance
October 13

Tracey Owen
Turners Retreat Woodturning Centre, Brunel Industrial Estate, Harworth, DN11 8QA, Nottingham ☎ **01302 744344**

SANDOWN NATIONAL WOODWORKING EXHIBITION

September 14 to 16
Daily masterclasses, woodcarving, woodturning, pole lathe turning and chair making, plus all the top manufacturers.
Sandown Park, Esher, Surrey ☎ **01682 614101**

FREE TURNING DEMOS AT PETER CHILD

September 15
Goblet & captive ring -
Tony Witham

October 6
Goblets - Derek Philips
10am and 2.30pm at The Old Hyde, Little Yeldham, Halstead, Essex. ☎ **01787 237291**

ATME TOOLS 2001 (AXMINSTER)

October 26 to 28
Daily demonstrations, workshops, woodcarving, woodturning, sculpting, product launches and competitions, including Hiroshi Morita (below), pictured building an amazing temple-like structure at a previous show.
The Royal Bath & West of England Showground, Shepton Mallet, Somerset. Ticket Hotline ☎ **01297 34836**



A tusk-tenoned Bookcase

PROJECT GUIDE

Difficulty

Simple

Time

10 hours

Type

Furniture

Cost

£20

MATERIALS YOU WILL NEED

Timber

Barrie used ordinary 6x1in PAR softwood from a builders merchant

TOOLS YOU WILL NEED

Router

Used only to put the double staff bead on the shelf edges. You could do this with a moulding plane

Belt sander

Barrie used this to shape the curves on the tenons. Again, this could easily be done with hand tools

Jigsaw

For cutting tenons and mortises



The tusk tenon joinery used by

Barrie Scott on this simple pine bookcase allows it to be dismantled

Tusk tenon joint was traditionally used for trimming joists around fireplaces. For furniture, however, the joint is probably most commonly seen on the bottom rail of refectory tables, partly to reinforce the joint and partly to enable such a bulky item to be knocked apart for transportation.

It's simple, decorative and sturdy, and is ideal for making bookcases and shelving units. This unit requires no nails, screws or glue, can be assembled without clamps and easily dismantled by tapping out the wedges when you want to.

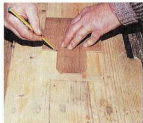
For this example a router table adds decorative features, with a belt sander speeding up the finishing process. However, the job is not much harder using only hand tools.

1 Cut all shelves to overall length then clamp them together face to face for marking the tenon shoulders to ensure uniformity of length.

Marking and cutting the shelf tenons



01 Mark the tenon shoulder lengths together, so that they're 75mm back and square across the shelves



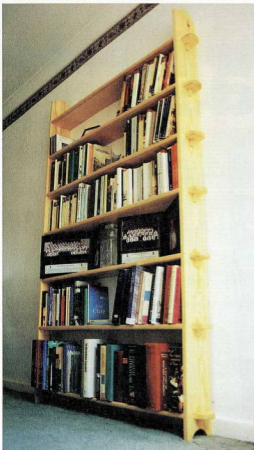
02 Draw around the template on to the stiles. Mark the centre of the tusk opening with a Bradawl



03 Use a marking gauge to mark off the width of the mortise slots on the front edges and on the shelves



04 Cut out the tenons carefully with a jigsaw, sawing the cheeks first and then across the shoulders



When you're designing a tusk-tenoned bookshelf such as the one here, do bear in mind from the start what size books you're hoping to store on the shelves. Alter the distances between them accordingly.

CUTTING LIST

Part	Qty	Material	Length	Width	Thkns
A Stiles	2	Softwood	2000mm	145mm	20mm
B Shelves	7	Softwood	1200mm	145mm	20mm
C Wedges	14	Softwood	75mm	20mm	20mm

Cutting lists give the full length of a piece including joint but not wastage. Allow 25mm extra for length and 5mm on the width and thickness of sawn stock.



Removable wedges allow for easy dismantling

Mark the edge at 75mm back and square across. The joint can vary according to design requirements but, especially when using softwood, enough 'meat' should be left on the tenon length to ensure the wedging process doesn't cause a split and push out the end grain.

Separate the boards and square the shoulder lines round.

2 Prepare a template for the 75mm wide tenons from thin ply, ensuring the shoulders are equal in

size to keep the job simple. Also, mark the thickness of the stile, or upright, off the shoulders.

Measure 2mm beyond this outer line and in the centre of the tenon make a hole with a bradawl. This is the centre for boring the wedge, or tusk, hole. Offer up the template shoulders to the shoulder line of each board.

Draw around the tenon and mark through the bradawl hole. Set a marking gauge to the shoulder width and re-mark the tenon. This is a double check for dimensions and ensures all tenons are identical.

3 Cramp the shelf stiles together and mark off the shelf heights and the thickness of the boards for the appropriate shelf positions. Separate and square round again.

Using the same marking gauge, mark off the width of the mortice slots, making sure you mark off the front edge as with the shelves themselves.

When setting out the shelf positions on the stiles, consider the sizes of books to be stored to make maximum use of the space.

4 Bore out the corners of the mortices using a 9mm flat bit. At the risk of stating the obvious, drill only until the spike of the bit shows through the wood. Then turn over and finish from the other side to avoid breaking out the grain.

Cut all mortices between the corner holes with a jigsaw set to its finest cut, tidying beyond the holes into the corners to square these off. Cut the stiles from what will be the outside face, selected for the most attractive grain, so that any discrepancies in jigsawing will be on the inside and less visible.

5 Cut the tenons with the jigsaw, sawing the cheeks first and then the shoulders. Bore out the tusk hole. For wedges made from 20mm timber, use a 22mm flatbit to allow enough clearance for the wedge.

Cleaning the joints and assembly



05 Cut out the mortice slots with a jigsaw. Cut the stiles from the side with the most attractive grain



06 Drill out the tusk holes using a big enough flatbit to give sufficient clearance for the wedge



07 Use a batten wrapped with abrasive to clean out any rogue splinters from the slots. They should be finished neatly



08 Use an inverted belt sander held securely in a vice to clean up the curves of the tenons

CONSTRUCTION : Bookcase components



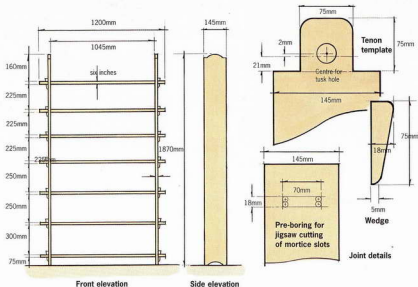
If you're fixing a bookcase like this to the wall, you'll need to use mirror plates in order to take the weight

6 Prepare the wedges. These can be left square, rounded off or embellished. If using hardwood wedges, it is worth making a trial joint to modify the dimensions. The sizes given here allow for a little 'give' in the softwood when hammering the wedges in.

7 Clean any splinters from the slots using a batten wrapped with abrasive. Curves on the tenon ends can be smoothed using an inverted belt sander held in the vice.

At this stage it's a good idea to give all timber an initial cleaning up using 80 grit sanding belts or a smoothing plane, to remove machining and pencil marks.

8 Shelf edges can be left in the square, rounded off or moulded. I chose a double staff bead cut on a router table. The shelves should then be numbered and all joints test fitted.



To create visual effects you could place boards with heavier grain markings at the base, working to the lightest grain at the top.

9 The tops and bottoms of the stiles can be embellished according to taste. Clean this concave cut after cutting, using a suitable curved sanding block. In this case I used a mastic tube.

Give the boards a final clean up, using maybe a 120 grit sanding belt. Sand a decent finish on to the mouldings, working finally with flour paper to bring out the grain, as this is the most visible part of the shelves.

10 The bookcase is now ready for assembly. The first stile should be laid on blocks at least as thick as the protruding tenons. Depending on the length of the shelves it may be easiest to do this on the floor.

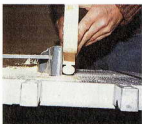
Push-fit the shelves into position. Place the second stile in position, aligning all joints and, using mallet and block, progressively tap all the joints home.

Lay the bookcase on its back and measure corner to corner diagonally to make sure it's square. Place all wedges into position and tap them into place. They need to be tightened gradually, checking for square as you go. This should be done firmly but carefully to avoid damage. All joints should pull up tight and the bookcase becomes stable.

11 Because of its proportions of height and depth, this bookcase will need fixing to the wall using mirror plates for safety.

NEXT MONTH

Three different woodworkers, three different stools, each with their own style and method of construction.



09 Finish off the shelf edges as you like. You could use a double staff bead cut on a router table or a simple chamfer



10 In order to get a good finish on the curved edges of the stiles, use a suitable curved sanding block



11 When assembling the shelves, start by pushing fitting them into position and gently tap the wedges in place



12 Once everything is in place, progressively tighten the wedges, checking they're square as you go



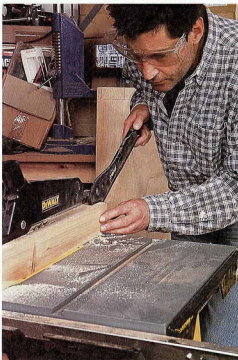
TECHNIQUES

We take you behind the projects and explain the methods you'll use

Now count my fingers...



With table saws becoming cheaper and more easily available to the untrained amateur, the issue of safety is even more relevant than before. Jeff Gorman samples a few of the problems you're likely to encounter and offers essential advice to ensure your digits remain firmly attached to your arms...



crown guard is just too much hassle for a one-off job. Indeed, some say that whatever they do in their own shop is entirely their own affair. By the end of this article I hope that if people do try a few of the more dodgy operations, they do so fully knowing what can go wrong.

With any machine it's always worth asking "What will happen if it jumps?" In the case of the table saw, if it jumps the work probably will have been kicked out of your hands. Since you will already be pushing forwards, you will jump forwards on to the guard or, perish the thought, on to a whizzing blade. There would be little to write if there was just one simple rule for safe practice, but really there ain't! However, "Avoid kickbacks!" will do for starters.

Kickback and the Knife

Set in line with the sawblade, the riving knife is a rigid plate of hardened steel, with a chamfered leading edge. It should be thicker than the plate of the sawblade, but slightly thinner than the kerf. A good one will rise and fall in company with the blade. It often supports the crown guard, although its main job is to prevent the kerf from severely pinching against the upwards-running teeth and causing a violent kickback. This happens when internal stresses are released as case-hardened timber, wet or gnarly-grained wood is sawn.

The riving knife also prevents these teeth from unnecessarily scoring the kerf and guides the workpiece after the trailing end has passed the toe of the fence. Note that until the leading end of the job reaches the knife, there's always a risk of a kickback. Some very short pieces may not even reach as far as the knife.

The riving knife also acts as a form of rear guard that stops offcuts and knots from being ejected by the

Employers of woodworkers are required by law to ensure their staff are fully trained before they can use a circular sawbench. Individuals who buy their benches directly from a responsible dealer might be lucky and receive a few minutes practical instruction. Most just have to manage as best they can. My aim is to help you to make each cut on the table saw an informed, competent and safe operation.

Having nannied many experienced woodworkers over the years, I've seen many things done by people who don't know the inherent risks. They sometimes argue, for example, that fiddling about and making a special alternative to the

Always use a pushstick with a circular saw. The crown guard should be set no more than 12mm above the timber. But how much of the blade should actually protrude above the workpiece? Read on to find out...



The riving knife prevents binding. Maximum gap between knife and blade should be 8mm

back teeth of the saw. The leading edge should be curved so that it matches the largest sawblade you'll use. Fix its distance from the saw teeth small enough to prevent offcuts or knots from getting between its edge and the teeth. Don't make it any more than 8mm. Some knives project above the crown on the saw, so you can't use them on jobs where the work is not divided into two.

Kickback and the Blade

With the saw well and truly switched off, use the end of an offcut to try pressing the blade sideways. I think you'll find it takes a lot of effort to budge it by even a millimetre, but I've seen many a fingerplate that shows evidence of running blades being deflected by at least 10mm! When an incident causes the blade to be deflected sideways, the eventual kickback force will not only involve motor power, but also 'catapult' energy as the blade springs back.

With a rip cut, the missile from a kickback is aimed straight at the operator. Not only can the missile cause damage, but the workpiece will also be taken out of your hands.

If the blade is canted for bevel cutting, the wood should not be trapped between the fence and the saw. The job can be caught by the up-running teeth; the workpiece lifts, jams against the fence, deflects the blade and generates a hefty kickback. Move the fence to the other side of the bench, if possible.

Fences and Faces

Many of the older industrial machines will carry rip fences with a toe that only reaches an inch or so beyond the front of the blade. Since people want to use them for rebating and grooving, many machines are fitted with fences that stretch right across the table.

Some machines are now provided with a two-position fence as shown. You can slide the fence forwards and backwards to adjust the location of the toe. You can also turn its face through 90° to allow for

What Blade Height?

The 'correct' blade height can be a nice topic for a lunchtime argy-bargy, but a diplomat might say that for each job you need to consider the job in hand. There's no clear general answer but here are two considerations:

Minimum Practicable height

Cutting Efficiency: So that the gullets can properly release their charge of sawdust, the minimum height should be such that the gullet roots clear the upper surface of the workpiece. More teeth are engaged with the wood, hence there is less blunting action. The oblique angle cutting angle reduces breakout on the underside of manufactured boards.

Safety: The operator-facing thrust (and hence a kickback force) is greater. Some self-adjusting guards might raise themselves more efficiently when the blade is set low down. As the workpiece approaches the blade it sees what is more or less a curved ramp. If the wood is very hard or the blade somewhat blunt, the work will tend to climb the ramp, you will try to push down harder and probably bring a hand too near the blade. The job might even be thrown out of your hands.

Maximum Height

Cutting Efficiency: More gullets are exposed so there is better chip clearance. The cut becomes more of a chopping than a slicing action. Be sure that at least one tooth will be in contact with the wood at any time, otherwise the teeth can snatch the work if the wood is fed too far into a gullet. The teeth exert less horizontal thrust and the action presses the workpiece more firmly against the surface of the table.

Safety: If you are working on differing sizes of material there will be less need to stop to adjust the blade height. However, safety requires that the guard should be adjusted so that for each and every cut its lower edge is not greater than 12mm above the top surface of the workpiece.

Deep cutting

If you haven't got a bandsaw and need to saw stuff that is too deep to be parted in one cut, the temptation is to saw the work from one face then turn it over to part it with a second cut. Several serious snags lie ahead.

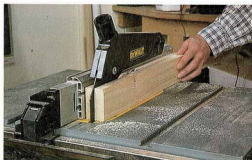
Some riving knives, especially those that support the crown guard, are taller than the crown of the blade, so such riving knives would have to be removed for this job. This means that the kerf can pinch the up running teeth and the work can be thrown out of your hands.

The teeth will not be cutting effectively because the travel of each tooth is relatively long. The gullets are therefore unlikely to effectively clear their load of chips. The wood will tend to ride up the saw. You will then need to press down very firmly and, especially likely with small workpieces, it's quite likely your hands will get too near to the blade. If control is lost, the work can leave your hands.

If the teeth are blunt or have inadequate set, things get worse. The saw overheats, loses its tension, becomes drunk and binds in the cut. The timber has to be drawn back to ease the load. As the saw regains speed the work can kick. Quite probably the wood becomes burnt. In factories this procedure is illegal. It should be avoided in the home workshop as well. Use a bandsaw.

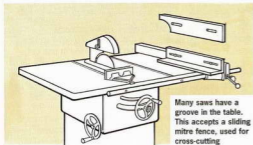


(Above) A roller stand is used for longer work, although a take-off table is better. (Right top) A two position fence can be used for ripping thin material safely (above) and ripping deep timber (below)



SAW SAFETY: Fences

If your table saw has a long rip fence, it's a good idea to make an adjustable facing from MDF. Ideally you should be able to set the rear edge of the facing to line up with the gullet of the tooth where the blade comes up through the table. This will prevent deeper timber binding between blade and fence as the cut progresses



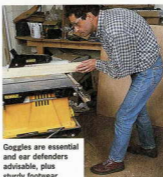
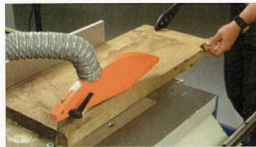
ripping thin material or when working with a tilted blade.

When ripping, the long fence is a disadvantage. As the saw cut releases inner tensions, the wood can spread wider and the edge presses against the fence. This then forces the side of the kerf against the up-running teeth. The result can be a poor quality cut or even a kickback.

With the short fence there is space for the wood to spread and, at the very end of the cut, the operator can move the workpiece sideways before finally feeding the work forwards. Likewise, there will be adequate safe space for offcuts created by repetitive crosscutting.

The illustration above shows two wooden auxiliary fences. The upper fence will be needed to offer support in the vertical plane, whereas the lower, 'L' shaped fence will be useful when ripping most boards, especially useful for slender pieces. When an ordinary fence has to be adjusted for slender jobs, you'll find that its face may clash against the side of the crown guard. The workpiece bears against the narrow edge of this fence, creating sufficient space for the pushstick to reach between the fence and the side of the

Many table saws now feature a dust extraction outlet on the crown guard, as well as an outlet in the base of the saw itself. Here the guard is fitted to the riving knife and is adjusted with a Bristol lever



guard and engage the end of the timber. If this still won't work, use a long, thinner stick directly to the end of the workpiece. You might well find that the L-shaped fence will serve as your general-purpose fence. To allow for the rise and fall of the saw, both fences require their fixings to be slotted.

Crown Guards

If you ask "Why guards?" the bet is that most would say they are for protecting your fingers. Guards also prevent sawdust, knot fragments, splinters and even broken teeth from being thrown towards the face. Offcuts thrown upwards by a kickback first have to hit the guard, so there's a chance that they could be deflected harmlessly out of the way.

Bear in mind that non self-adjusting guards will only be fully effective while the blade is actually cutting the wood. Remember that the teeth become exposed during the very final stages of a cut.

American OSHA regulations require that the guard will automatically adjust itself to the thickness of the material without impeding its passage. In real life, it seems that poor design of some machinery exasperates a handful of woodworkers to the point that they see them as more trouble than they're worth.

If the guard hood is discarded, very likely the riving knife also goes into the bin. A guard can get in the way when ripping narrow sections, but please note the advice under 'Fences'. The manual adjustment of some crown guards can be decidedly user-unfriendly. It makes sense to follow the UK regulations and always see that the guard is adjusted so that its leading edge is no more than 12mm above the upper surface of the workpiece (or as closely as practicable if the surface is uneven). This can mean reaching to the back of the guard and operating a small lever or wingnut that tightens a screw.

It's decidedly risky to attempt to adjust such guards while the blade is still running. Your hands can be perilously close to the teeth and if the guard should inadvertently drop and catch the crown teeth, it can be (and has been) become damaged and the fragments propelled dangerously towards you.

This really means that such saws ought to be stopped and run down between adjustments. I think that most mortals will admit that, unless you have a guard like the one illustrated by the HSE, this requires enormous self-discipline when dimensioning components of a wide variety of sizes. What usually happens is that it remains set at too great a height.

Heaven knows why some manufacturers produce transparent guards! They soon become obscured by dust. Perhaps they do this because some people believe that they need to see the cutting action of the saw. If the wood is being guided by a fence, it is the fence that determines the line of cut, hence there is absolutely no need to see the cutting teeth. The tip given below for precision crosscutting to length is also useful when accurately ripping a component to a gauge mark.

Blade Size and Cleaning

Undersized blades cut badly because their rim speed is too low. They are more inclined to flutter, create a poor finish and deflect to one side. People subject to the UK factory regulations will know that they must not use a blade of a diameter less than 60% of the machine's specified size. (The spindle speed of a saw bench is normally designed to give a speed of 3000m/min with its intended blade).

Your saw will tend to stall if it is gummed up with resin. Cleaning implements used against the side of a running blade have been known to break. A cloth is liable to be caught up, tangle with your hands which are then drawn on to the teeth. Workshop lore offers many recipes for soaking solutions, but given time, plain water will serve to loosen the gum. Oven cleaner is frequently recommended, but it has been shown to slightly blunt carbide teeth.

Don't ever use a sawblade with two or more missing teeth.

If acquiring a machine, it's wise to check that the blade and ripping fence can be set parallel to the mitre fence grooves.

Next month

Jeff discusses cross-cutting, waney edge cutting, Shaw guards and taking-off tables for bench saws

Answers

Our experts answer questions on subjects as diverse as how to bend rosewood, stop a garden gate grating and valuing a plane

Ask the Good Woodworking expert team



ANDY KING
Techniques



PHIL DAVY
Supplies




IAN WILKIE
Woodturning



JEFF GORMAN
Furniture-making

PLUS: Our other specialists in every woodworking field from timber to finishing are available to answer your queries as required

Grating garden gate

 The garden gate on the side of our house keeps binding on the floor. I have put in extra screws and cut a bit off of the bottom but it still keeps dragging. The gate is made of slatted wood held together with two horizontal rails with a diagonal rail going from one rail to the other.

S. Hessel, Weston

It sounds as if the diagonal brace member is running the wrong way. The idea of this brace is to support the outer edges of the gate, throwing the weight back to the hinge side. I suspect your brace has its highest point nearest the hinge side and the lower part on the latch side. It should be the other way round.

In technical terms the gate should

be in compression and not in tension.

The brace works by triangulating the gate. Imagine the gate to be hung with just the horizontal members screwed or nailed to the vertical slats. The hanging edge cannot move up or down, but the outer latch face drops as it has no support. The brace has to support the area with most weight, which is the latch side, so consequently the brace is cut to fit under the top rail on the outer latch edge, putting the dropping strain back to the hinge side.

Running the other way it is holding nothing, only the fixings holding it in position are doing any work.

It's also worth looking at how the T&G slats are fixed to the rails. Staggered fixings or diamond, triangle or X patterns will support the wood better than all-in-a-line fixings. For


nailed slats, the traditional way it to use a nail longer than the two components to be fixed; a 2in nail for 1 1/2in of timber for instance.

These are punched below the face, then the gate turned over and the protruding nails on the rear clenched over with the grain and punched below the surface, helping to hold the timber firmly and minimise drop.

Finally, there's the choice of hinge. Traditionally, this type of gate (or door) is usually hung on T hinges. However, there is a tendency is to use hinges that are too small. If I remember my apprentice days correctly, they should be two-thirds of the width of the door. This can be less on a lighter gate, about 15 to 18in for a slatted 30in gate.

Andy King

The bending blues

 I need to bend 2 to 2.5mm rosewood for guitar sides. I have a bending iron but its use is time-consuming and can be frustrating. I have constructed a marine ply steam box - closed at both ends except for an outlet at floor level to drain. Steam is produced by a wallpaper stripping unit. After 1/2 hour steaming, the timber is not sufficiently pliable. The ply is 1/2in but not insulated. Any help you can offer will be greatly appreciated.

Michael Collins, Essex

Although most luthiers use a bending iron for the sides (ribs) of the guitar, it's feasible to use a steam box. In our recent feature on steam bending (GW 112), chairmaker Paul Hayden describes how he uses one. Obviously it would be wise to experiment on scrap wood first and try extending the steaming time. Rosewood is not the easiest timber to bend and you may find it changes colour slightly after steaming.

You will need either a male or female former to clamp the rosewood to once removed from the steam box. The problem you are likely to encounter is that of springback. When the timber is removed from the mould it's likely



to open up slightly. You could compensate for this by exaggerating the curves at both ends of the former. This would be rather hit or miss, although you could possibly make an adjustable former. Alternatively, using strips of rubber to pack out each end of the shaped nib while drying may help.

In his book *Classic Guitar Construction*, Irving Sloane describes bending sides using boiling water in a galvanised tin trough. A gas burner underneath provides the heat. He suggests immersing the wood for about 1 1/2 hours before removing it and placing on a male former. Canvas is laid over the ribs, and a block

cramped across them at the waist position first. Then the lower and upper bouts are carefully pulled around the former and the ends cramped. The advantage of this method is that both ribs are bent together, side by side. The apparent disadvantage is that you will need to leave the ribs for several days in the former to dry out. Again, you will need to compensate for springback.

Although a bending iron may be slow to use, one of its advantages is that you can correct curves easily that have been over-bent. There is no need to compensate on the former itself.

Phil Davy

Delving into detail

Inlay bandings by Jeff Gorman

An Oak Table by C.F.A. Voysey (1905)

Although Voysey was an architect, it is easy to think that an imaginative wheelwright could have designed this table. The ancient wheelwrights took a great deal of care to find curved grain that matched the curves of the shafts and other parts of a wagon. For this piece to be truly long-lived, such care would also be needed to select material for the curved legs and supports. From the original photograph, it looks as though the cabinetmaker was fairly successful, though there appears to be some shortish grain near the ends. For most of us who lack a stock of suitable boards, there is less hope of being able to be so scrupulous. Now,

the solution might be to form the curved parts from laminated material.

For the GfW who fancies the adventure of trying something similar, I've sketched out the basis for the joints. A wheelwright would call the central boss the 'Nave'.

A Few Hints

- 1 Don't contemplate such a job without being prepared to make an accurate full-size elevation on a white-surfaced board of some kind. (However, there's no need for fancy auxiliary elevations).
- 2 While it would be possible to make the nave on a carefully prepared octagonal block, it is

certainly much easier to turn it on the lathe, thus easily gaining true surfaces.

- 3 You could fit each tenon shoulder against a flat (as at A, which is easiest in some ways, but a bit tricky to plane accurately), into a housing (B) that enables you to use squared shoulders, or you could form the shoulders to fit the curve (C), not as hard as it might appear, and any slight faults will be covered by the domed block.

- 4 For the time being, mark the upper and lower limits of the mortises with a pencil - you will not want scribed marks to show in the lands between the legs and uprights.

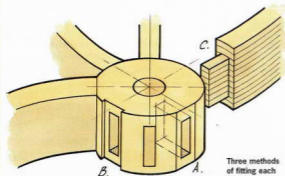
- 5 If your faceplate has eight equally spaced holes, you are in luck. Use them to index the nave to obtain the eight centre lines for the mortises. With dividers, set out marks half the mortise width each side of the lines.

- 6 Assuming the top of the tool rest is parallel to the bed, use its top as a straightedge when marking the flanks of the mortise. Now you can knife over the appropriate arts of the pencil marks.

- 7 Bore out the centre hole.



Voysey's oak table - such designs often featured curved grain to match the curves of the shafts



Three methods of fitting each tenon shoulder

- 8 You'll need a good solid V block to support the job while mortising. Arrange it so that you can see that the centre lines are vertical while chopping. To prevent the far ends of the mortises from breaking out, temporarily fill the central hole with a close-fitting hardwood plug.
- 9 You could build a gadget using a drill, the lathe and paring chisels for accurate mortising. If so you would probably need to use your centres, so leave the boring until later.



£1 for a Stanley No.3 plane in as-new condition. What a bargain!

IS IT A BARGAIN?

At our local car boot sale I bought a Stanley No 30 bench plane, complete in its box with instruction book, as new for £1. A bargain or not?

Also, another bench plane, it is the same size as the Stanley, but has a blade that has adjustments similar to a spokeshave. The base is painted gold with a hammered finish.

I would be grateful if you can

give me some idea of the make and value of this plane. This one also cost me £1.

J Roberts, Denbighshire

Having checked the excellent www.supertool.com web page for the code of your plane, (bearing in mind Stanley plane number coding runs into the hundreds), yours comes up as a wooden based jointer measuring 22 inches long (the same as the No.7 Bailey pattern available today) with a

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Send your supply problems to Supply Service, Good Woodworking, 30 Monmouth Street, Bath BA1 2BW.

Where can I get hold of Gorilla Glue?

Colin New

We suggest that you contact Brimarc ☎ 0845 6590000 or email sales@brimarc.com

PD

cast iron top mounted to it, supporting the blade and taking the handles.

These are known as transitional jointers, in that they are a cross between the old wooden models and the cast Bailey models we are now familiar with. However, as these are very rare, I doubt very much if this is your plane. Especially as the no.30s were manufactured between 1870-1918.

While it could also be the 030 plough plane, as you say this is a bench plane, I think what you have is the no.3 plane, the smaller version of the standard no.4 smoother.

These are still available, although not seen very often, and have a list price of about £55. So yes, you've certainly got a bit of a bargain!

As to your other plane, again this is a Stanley design, usually sold as the SB3 or the SB4 with a list price of £21. It is, as you say, a cross between a spokeshave and a bench plane, having a cast iron base, but with no standard plane adjustments.


Being gold coloured could mean it is either a cheaper foreign version of the plane or someone has decided it would look more fetching with a coat of Hammerite.

Stanley cast planes usually show a raised lettering mark of either 'Stanley' or 'Bailey' on the casting, usually by the front knob to signify its origin. If yours doesn't have this, chances are it's a cheap one.

Either way, for two quid, you didn't do too badly.

Andy King

Which glue?

 What adhesive would you recommend for gluing wood to stainless steel as I wish to put an edging onto a stainless steel sink with flat side.

J Chasmore, Middlesex

To get a successful bond between timber and metal, a two part epoxy such as Araldite is your best option as it bond most materials well, will stand up to the changes of temperature from hot and cold water in the sink, plus it is waterproof.

To get the best bond the edge of the sink should be lightly sanded to give a key for the adhesive. In addition, make sure that both the timber and the sink are clean, dry and free from dust and grease before applying the adhesive to provide the bond with maximum holding power.

I would go for an Araldite standard adhesive over the Rapid version as, although it takes longer to bond, I have found from previous experience that the join seems to be stronger.

Andy King



Which router?

 Is there, in your opinion, a big difference in quality of construction between the DeWalt DW615 router and the Trend T5 router?

Mike Ward, by email.

Having used both, there is little to choose between regarding build quality. They both share pretty much identical operating controls and specifications.

The T5 is slightly less powerful – 850 watt against 900 of the DeWalt – but the difference in power when routing really doesn't seem to make any difference. They are both limited to 1in and 8mm cutters, so their actual performance is practically identical. No doubt each manufacturer would claim the higher rated motor, (irrespective of wattage) but this is an area where we cannot test their claims, having to rely more on performance and ease

of use as a basis for testing. Obviously the cheaper routers out there aren't built to deal with the constant day in, day out tolerances of use, but I would expect both of these to be up to trade or professional specs and last the pace accordingly.

Routing may have moved on, with new types of extraction, control switches and bases, but it is the baseplate used on these two models that manufacturers tend to fall back on, as the huge range of accessories that are available for it make it the most attractive.

It was also one of the main reasons why the Elu MOF96 was the choice of routers to own a few years back.

As for value for money, at the moment the DeWalt comes with a basic fence while the T5 benefits from a micro-adjustable one and sells for about £20-30 less. So, bearing this in mind, it appears that the Trend is really the best value all round.

Andy King



Your Guide to Better WOODTURNING

 Yearning for his younger years, Ian Wilkie uses his Record DML lathe with a 5 in 1 faceplate to turn a child's push-along rattle.

Meanwhile Dave Roberts shows you how to turn a towel rail

Turning over the pages

● Turn a child's rattle p78 ● 5 in 1 Sorby Faceplate p79 ●
Drilling Jigs p80 ● Dave Roberts: Towel Holder p82 ● Revolving
Centres p81 ● Alan Cunningham: Turner On Show p81

This child's push-along rattle illustrates the use of indexing. This was carried out on a Record DML lathe using my 5 in 1 faceplate which stayed on the headstock spindle throughout.

The rattle is very much like a bird cage with turned coloured wooden balls inside. As the toy is pushed along the wooden balls and bells tumble round making a satisfying noise, and of course it is impossible for them to fall out. Although I made three balls there is plenty of room for six!

My rattle has a frame and a handle, but if you do not want the extra woodwork the handle can be dispensed with, and the cage with the balls can roll freely across the floor.

Use a good quality hardwood such as beech, which is strong, durable and splinter-free. It's perfect for toys.

Making the Cage

1 Cut two discs to 110mm diameter from 20mm thick hardwood. Drill the centres with a 9.9mm bit (or Imperial

equivalent) The advantage of drilling the hole marginally smaller than the step of the friction drive means that when the blank is pushed on to the step, a good tight fit is achieved even when tailstock support is removed. This is useful particularly when sanding and the disc can be reversed for the process to be repeated on the other side.

However, I do not suggest drilling the indexed holes with the blank mounted in this way because there is always the slight risk that the blank may move on the drive.

2 Screw the 5 in 1 faceplate on to the headstock spindle and insert an Ian Wilkie 1MT stepped friction drive. Fit a multi-headed revolving centre in the tailstock with a cone fitting or a miniature faceplate end rather than a point.

Push one of the discs on to the 10mm step of the friction drive and bring up the revolving centre to give support. Turn the disc to a diameter of 100mm and slightly

round off the edges. Sand and burnish, then repeat with the second disc, making sure they end up exactly the same size.

3 Cut a 75mm blank from the 20mm hardwood and screw to the 5 in 1 faceplate. Turn to the round. Place a mark on the outer edge of the disc to line up with the register mark on the back of the faceplate to aid re-checking if necessary.

Fit a drill chuck in the tailstock and drill a 10mm diameter by 15mm deep hole in the centre. Glue and tap in a 10mm diameter Wolcraft dowel to form a centre pin.

TIP When preparing glue chucks or turning discs for wheels and the like I use accurately thicknessed wood. This guarantees that the blank will run absolutely true and negates the need to turn off the face. The two beech discs for this toy were prepared to a fine, sanded finish first.

Shaping the ends of the cage



01 Push one of the thicknessed blanks on to the friction drive with the 5 in 1 faceplate to act as a Morse taper ejector



02 Turn the blank to the round with a diameter of 100mm. Use a spindle gouge and slightly round off the edges

Place two pieces of double-sided carpet tape on the face of the prepared chuck and push on one of the discs. Cramp up for a few minutes to improve adhesion. The 10mm centre pin ensures that the disc is located accurately and offers some friction to hold it in place.

4 With safety in mind, unplug the lathe. Fit a drilling jig into the toolrest assembly at right angles to the face.

Locate the indexing bar in the first hole opposite the register mark and drill the first hole 10mm deep and 10mm in from the edge with a 10mm diameter drill. Disengage the index bar and continue in every other hole until 12 holes have been drilled.

Using a knife blade, ease the blank off the chuck and clean off any adhesive and tape – Sticky Stuff is very good for this. Repeat the process for the second disc. De-burr any whiskers from the holes with fine abrasive. Toys should always be well sanded and splinter-free.

5 Cut twelve 140mm lengths from 10mm proprietary dowel or turn dowels to this dimension. Cut or turn one further dowel 185mm long to form the central axle.

Put these pieces aside for the time being but do not assemble at this stage.

Turning the Balls

6 Prepare a glue chuck with a plain face to go on the faceplate. Do remember to place a register mark so that the glue chuck can always be matched up to the faceplate again, because this glue chuck can be cleaned off and used again.



5 in 1 Sorby faceplate

Seven out of ten lathes bought in Britain are made by Record Power, but none of these have built-in indexing. Turners have no alternative but to buy an expensive indexed chuck. Looking for cheaper alternatives, I designed a simple indexed 70mm diameter faceplate which is now produced by Robert Sorby. As the design developed I have shown how to use the faceplate in a number of ways.

The faceplate is threaded for Record lathes with the $\frac{1}{2}$ in x 16tpi thread, but will also fit the APTC Mk 2 Carbatec. The plate offers the following functions:

1 Thread protector. The plate is small in diameter and slim in depth, so can be left on the spindle thread during between-centre turning to act as a thread protector. It also keeps out dirt.

2 Ejector. Because Record lathes have solid spindles (ie, are not drilled throughout), an ejector is needed to remove IMT accessories from the

inboard end of the spindle. The faceplate has a small entry hole on the inboard end which acts as an ejector when the plate is unscrewed.

3 Handwheel. The outer edge of the plate is rounded to form a smooth surface and can be used as a handwheel for turning the spindle manually.

4 Faceplate. Four equally-spaced, 4mm dia, countersunk holes are drilled to take No 8 (4mm) wood screws so the plate can be used to hold wood to make a jam chuck, glue chuck and other faceplate jigs. All you need do is drill the appropriate pilot hole (2.5mm).

A circular register mark has been etched on the back so that a home-made jig can be easily relocated in exactly the same position should it be necessary to remount it.

5 Indexing. The outer rim is drilled with 24 equally spaced 3mm diameter holes. These are placed 15° apart and allow indexing combinations of 24, 12, 8, 6, 4, 3 and 2. When indexing, the lathe is stationary and the work is locked in position by an indexing arm. Sorby have produced a 300x10x10mm steel indexing arm with a swivelling base which can be secured to the bench surface and moved out of the way when not in use.

TIP Do make sure that you do not start up the lathe with the indexing pin still engaged!



Planing facets, an example where the lathe needs to be locked in position



There are screwholes for use as a standard faceplate

A 3mm pin at the end locates in the selected hole.

Indexing offers an exciting range of opportunities to the woodturner. Positions can be accurately marked for facets so that further work can be undertaken with a file or plane. Decorations can be made around lace bobbins with burrs.

With the aid of a drilling jig, holes can be drilled into the wood on the lathe for decorative purposes, while others can be accurately positioned and drilled to insert spindles for sand glass stands for example. If you add a router the possibilities are endless! Successful indexing does rely on an accurate plate and a firm, positive locking arm.

Price: Faceplate & bar £34.95 available from Sorby stockists or Turners Retreat (☎ 01302 744344)



The faceplate has 24 holes for indexing. The lathe is locked in place with the indexing arm and its pin



Using the plate as a handwheel to move a spindle round



03 Push the turned disc on a home-made glue chuck with a dowel centre pin. Carpet tape will hold the work for drilling



04 Cramp up the wood to the chuck with its carpet tape for a few minutes to improve adhesion

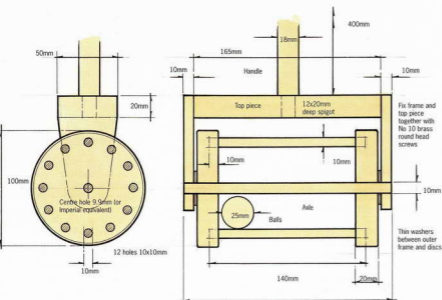


05 Drill 12 holes using a drilling jig. The tape on the drill acts as a depth stop. A small cordless drill is useful for this



06 Sticky Stuff Remover is very good for getting rid of any residue left from the carpet tape

Details: Rattle construction



Drilling jigs

A drilling jig is a useful accessory to use with an indexing facility, enabling holes to be drilled where required. They are designed to fit into a toolpost stem, so that a guide bush for a particular diameter drill can be fitted in the top of the jig to guide the drill horizontally into the wood.

It is important that the centre line of the drill is adjusted so that it's in line with the centre line of the lathe.

Different sized stems are available to suit a variety of lathes; Record lathes take a 20mm stem.

Sorby precision boring jig. Complete kit at £29.37

Craft Supplies boring jig and bushes £23.95, plus stem sold separately for £5.25



7 Cut a 30x30x100mm hardwood blank sufficient to produce three balls. Hot-melt glue the blank to the centre of the interchangeable revolving centre and move up to give tailstock support.

Turn the blank to a diameter of 25mm. Move the tailstock back out of the way and, using a small skew chisel or spindle gouge, turn the first ball, part off and then turn the next ball.

I faced off and slightly hollowed out the remaining piece of wood on the glue chuck, and made a similar small chuck for the mini faceplate in the multi-head revolving centre to hold the balls for fine sanding without marking the surface. Paint the balls and varnish when dry.

The Handle and Top

8 Turn a 20x20x300mm blank to form an 18mm shaft, with a 12x20mm spigot at the bottom end and a 10x20mm spigot at the top end. Cut a 30x30x100mm blank for the top of the handle and drill the centre at one end with a 9.9mm diameter drill to a depth of 40mm. Mount this blank on the friction drive with the 5 in 1 faceplate still in position, but with the glue chuck removed. Bring up the tailstock, this time with a point in the multi-head revolving centre to support the end of the blank, and turn to the round. Shape the handle with a smooth, rounded top. Move the tailstock back to give access to the top for sanding.

Glue the top to the 10mm spigot already turned on the handle and put to one side.

9 Cut two end pieces to 100x50x10mm and shape

Turning the balls and finishing the handle



07 Use a small skew chisel or spindle gouge to turn the balls. Then gently part each completed ball off the stem



08 Hold the ball between home-made turned chucks for sanding without any risk of marking the surface



09 The handle is held firmly on the stepped friction drive and the tailstock moved away for final sanding



10 The frame and the handle ready for assembly. Make sure the balls are inside before gluing the final piece of dowel

and drill them as in the plan.

Cut the top piece to 165x50x20mm and drill a 12mm diameter hole to take the handle spigot. Assemble the frame using two No 10x1in brass round-head screws each side, but do not use glue as you will need to unscrew one side later.

Finishing

10 Glue the dowels into the discs with PVA adhesive, with the balls inside before gluing in the last one!

Push the axle through the centre and slip a fibre washer over each end. Take off one side piece and push one end of the axle into the frame. Locate the other end of the axle and make sure that the cage rotates freely. Ease up the 10mm hole if necessary.

Replace the side and screw back in position. Glue the handle into the frame.

All change at the centre

Multi-headed revolving centres are designed to take a variety of ends, from different sized points to cones and mini faceplates. Sometimes supporting the work with a point might damage or mark the wood, and the cone shapes and faceplate offer infinite possibilities for overcoming this. If the point is damaged it will not cost too much to replace it.

With the faceplate it is possible to make your own custom-shaped holding devices which can be faced with soft material such as foam rubber. It is always an advantage on small lathes to use a tailstock support where possible and these multi-head centres enable you to do this. They are more expensive than dedicated revolving centres but their versatility is a considerable attraction.

Exminster's **Multihed Revolving Centre** takes tapered accessories which can be removed by rotating a screwed ring using the tommy bars provided. In addition to the three ends supplied, you can buy three others at £7.39 each: a 32mm diameter faceplate, a 90° point and a 31mm conical centre.

Craft Supplies' **Deluxe Interchangeable Revolving Centre** has a solid shank and is chemically blacked to inhibit rust. The removable cone has a 30mm IMT shank, which means it can be used on its own in the tailstock to form a solid centre, providing that the tailstock spindle is hollow to facilitate its removal. The cone can be



Craft Supplies' Deluxe Centre costs £39.95



The Exminster Multihed Revolving centre costs £42.39

replaced by four heads, available separately, so you only have to buy the ones you need.

Turners on show: Alan Cunningham

Alan Cunningham lives and works in a restored railway station in a beautiful position on the banks of the river Wye at Erwood, six miles south of Builth Wells in Wales. He and his wife, Erika, purchased the station in 1985 when he became a professional woodturner after a career as a music teacher.

The buildings form a craft centre, shop and turning workshop, with a restored railway coach used as a gallery to display work produced by Alan and other local craftspeople. A quarter of a million visitors from as far away as Japan have so far visited Erwood.

Disaster struck in 1998 when the whole centre burnt to the ground with the total loss of all the stock, including Alan's winged burr-acia bowl which brought him first prize at the Welsh National Eisteddfod in 1991. Within six months the workshop was re-built and the gallery is now able to present a full programme of exhibitions.

The only salvageable piece of equipment from the fire was Alan's first lathe, a Coronet No 3, which, although quite useable after re-wiring, still looks badly scorched. He is very attached to the lathe which has given him good, reliable service over the years and he says he will be sorry when the time comes to replace it. His other lathe, a Variturn Graduate Shortbed, had to go back to LRE to be completely re-built.

Alan's style is distinctive, artistic and creative, inspired by living and working in such a wonderful countryside environment. I particularly admire his very thin, natural edge bowls. He allows the material to dictate the

dimension and style of the piece he is turning, with knots, burrs, spalting and wormholes sympathetically incorporated in a bowl. There is timber everywhere at Erwood; all the wood he uses is found locally and is carefully chosen from trees naturally fallen or felled for safety.

Alan has taken on trainees to work in his workshop and is rightly proud that he taught

Mark Hancock, whose work is now receiving wide acclaim. He is keen to teach students on short or long courses and will adapt the course to suit their requirements.

Erwood Station Craft Centre
☎ 01982 560674
www.erwood-station.co.uk



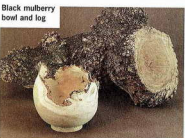
Alan's wych elm fruit bowl and pears



Two fine wine goblets in yew



Alan working on yew end grain at his Coronet No3 lathe



Black mulberry bowl and log

Turn a towel rail



Dave Roberts shows how to turn a towel rail. While you could use any type of timber, Dave has chosen ash for this project

I should think that just about every household has got a towel rail either in the bathroom or kitchen. Most of them are plastic or metal, but there's nothing like having a wooden one.

You can easily stain or lime wax it to match the rest of the decor, or leave it natural like this one.

The choice of timber is up to you, but remember the heavier the grain the better chance you have of getting a good finish with lime wax.

If possible, cut all the pieces of the towel rail out of the same piece of wood so that they will be the same shade. The wood I have chosen is ash.

Turning the backplate

1 Find the centre of the backplate and drill a hole to suit your screwchuck. Mount it on to the lathe and balance it up. There's no need to turn it to the finished diameter at this stage. Face off the front of the backplate and lay a ruler across to make sure it is flat. Then

sand it, working from 180 to 320 grit for the final sanding. Wrap the sandpaper around a cork block and work with the grain.

2 With the backplate still on the lathe, drill a hole to suit your screwchuck. Turn the backplate around and turn it to the finished diameter. You'll need a 9mm gouge and 6mm parting tool for the work.

3 The backplate has two beads. Roll the larger one with the 9mm gouge and use the 6mm parting tool to roll the small one. Use the parting tool to cut the fillets and keep them crisp and sharp. The final cuts should be made with the gouge taken straight off the grinder. Just keep the bevel rubbing and take very light cuts. This will produce small shavings and it

will leave the wood with that almost sanded finish.

4 You will have to drill a hole of 25mm diameter and 30mm deep. This is for the ball with a spigot. Fix a Forstner bit into a Jacob's chuck and put the lathe on a low speed. Wind the tailstock handle in slowly. Stop the lathe occasionally and check the depth of the hole.

Sand up to 320 grit and seal with sanding sealer. Two coats should be plenty, rubbing back with 0000 wire wool in between each coat. To remove it from the lathe, just tap the back of the disc with your hand or use a rubber mallet.

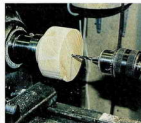
5 I fixed the towel rail to the wall using a 25mm brass plate, fixed in the rear of each backplate. These have a keyhole slot, so with two screws in the wall you simply line up each back and push on.

6 The best way to drill the hole is on a pillar drill. If you are going to use a machine vice, don't tighten too much or you will mark the wood. Fix a 25mm Forstner bit in the chuck and drill to a depth of 5mm. This is plenty and will leave the brassplate and the screwheads below the surface.

You will have to drill a slot to accommodate the screwhead. Use a 9mm drill and drill to a depth of 8mm.

7 The ball is fixed onto a screwchuck so when you make the final cuts you can move the tailstock away and clean up the end. The tailstock will give you a little more support when turning the blank from the square to the round. Cut the blank 80x50x50mm. Drill a hole in one end for the screwchuck and drill a 22mm

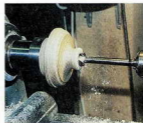
Turning a towel rail



01 Find the centre of the backplate and drill a hole to suit your screwchuck. Mount on the lathe and balance it up



02 Use a firm parting tool to roll the beads and cut the fillets, taking light cuts and keeping the detail sharp



03 Drill a 25mm central hole to take the dowel holder. You could do it on a drill press but the lathe is better



04 After sanding and sealing, rub back with 0000 wire wool in preparation for your final finish

diameter x 25mm hole about 30mm from the other end. This is for the long dowel.

It's best to drill the hole while it is still square to allow you greater control. Fix the blank onto the lathe and turn to the required diameter. Put a pencil mark around the centre of the hole to give you a good indication where the centre is whilst turning.

8 Use the 9mm gouge to shape the ball. If your gouge is sharp and you keep the bevel rubbing, you should have no problems with the wood breaking around the hole.

9 Use the 6mm parting tool to turn the spigot 25mm diameter by 30mm long. Keep checking with vernier calipers. This has to be a good push fit. Remove the tailstock and finish turning the end of the ball. Leave a little button on the end for decoration. Sand and seal, keeping the sealer off the spigot. Part off with the parting tool.

10 Cut the dowel to length and make sure it is straight grained. Start by turning the blank to a cylinder. It will help to keep the toolrest parallel with the dowel, which will be a good guide. Turn it down to 22mm.

When you get near the finished diameter take light cuts and keep checking with vernier calipers. Put a steel rule on the dowel to tell if it is straight.

11 Once straight, it needs to be sanded. Work through the grits up to 320 with the lathe running. Stop the lathe in between each grade and sand by hand, working the sandpaper up and down the dowel, then seal.

12 Gluing should be no problem as long as the spigots are a good push fit. A little glue should do the job.

You have two options here regarding the long dowel. You can either glue it into the ball ends or you can have it free running so that the dowel spins as the towel is removed.

If you go for second option, the dowel needs to be a little smaller in diameter, 21mm would be OK. The first option, meanwhile, will be a stronger job all round.

13 Once the balls are glued in place, lay them on a flat surface while the dowel is being glued and leave them to set. Turning two of anything is not an easy task so don't make the ends fancy. When copying vernier calipers are a must.

14 If you want to make a long towel rail holder you may have to make the whole job a little stronger, especially the dowel to take the

Tools you'll need

- Screwchuck
- Roughing gouge
- 9mm gouge
- 6mm parting tool
- 22mm Forstner bit
- 25mm Forstner bit
- 9mm drillbit

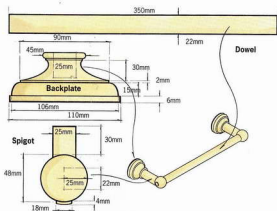
extra weight. A dowel of 25mm or bigger may be necessary.

Although you can buy the dowel in long lengths from DIY shops, the chances are it won't match the rest of the wood. It's your choice whether you stain it or lime wax it, but I have gone for the natural finish. Just two coats of sanding sealer and rub them down in between each coat with 0000 wire wool.

NEXT MONTH

Dave Roberts shows you how to make an elaborate maple and padauk spice tower

Turning details: Towel Rail



12 Gluing should be no problem as long as they're a good fit. Put a little glue on the spigot and push it into place



11 Sand the dowel, first with the lathe running. Stop the lathe and rub up and down to eliminate any sanding marks



10 Mount the dowel between centres and use the roughing down gouge to turn the dowel to the required diameter



09 Remove the tailstock and use a 6mm gouge to finish turning the end of the ball. Include a decorative button on the end



05 With a 25mm Forstner bit, drill to 5mm. This will leave the brass plate and the screw heads below the surface



06 Use a 9mm drill to a depth of 8mm. This is deep enough to accommodate the screw head



07 For the long dowel, drill a 22mm diameter by 25mm hole about 30mm from one end



08 Fix the blank on to the screwchuck and put a pencil mark around the centre to give an indication where the hole is

Weekend Woodwork

Projects you can complete in just a few hours



Cost
£8

Doll's rocking crib



Christmas isn't as far away as you might think, so if you have a young daughter or grand-daughter, why not make this charming rocking crib for her favourite doll by **James Hatter**?

It's reassuring to know that many little girls still enjoy playing with their dolls. One way of adding to their enjoyment is to make them a special rocking crib. The dimensions given are suitable for an average size doll but can be adjusted as required.

When constructing any items, especially for children, safety is paramount. Ensure there are no

sharp edges or finger traps. All materials used must be chosen to minimise risks, such as low volatile organic content products. Water based adhesives and finishes are the best choice.

If nails or screws are used then these must sink into the material, covered with filler and used in conjunction with adhesive.

Cutting list

Part	Qty	Mats	Length	Width	Thkns
A End pieces	2	MDF	290mm	290mm	9mm
B Side pieces	2	MDF	160mm	450mm	9mm
C Rockers	2	MDF	320mm	50mm	12mm
D End supports	2	MDF	180mm	40mm	12mm
E Side supports	2	MDF	450mm	20mm	12mm
F Bottom section	1	MDF	450mm	220mm	6mm

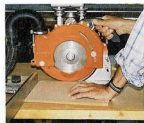
James used a Triton 2000 Workcentre in table saw mode and a radial arm saw for the basic cutting. A small bandsaw was used for cutting the decorative edges. The heart shapes were drilled with a 15mm Forstner bit in a bench drill. Jointing was carried out with a Freud biscuit joiner

A robust structure is a must to ensure that small hands cannot pull it apart and risk injury. Sheet MDF is chosen for this project although ply could be used if preferred. When cutting either material ensure self-protection against dust. Pine could be used for the rockers and supports.

1 First cut out the blanks to the dimensions shown in the cutting list. Next mark out the dimensions to give the shapes and decorative features. A reliable way of ensuring uniformity with these is to use thin card to make a template; make a template for half the feature and flip it over about the centre line. The actual shape you use for the tops of the end and sidepieces is a matter of personal preference. Mark all the relevant pieces clearly.

2 The method of cutting out depends upon the tools to hand. The end angle cuts can be made with a radial saw or a circular saw with a guide. Cut the end and side top features and the rocker with a bandsaw, fretsaw or jigsaw. The heart shape can be cut with a fretsaw although I found it more

Cutting and shaping the panels



01 A radial arm saw is a quick and clean way of cutting the angles required. You could use a power saw against a guide



02 I used a bandsaw to make the shaped details. A jigsaw with a fine blade would be just as effective

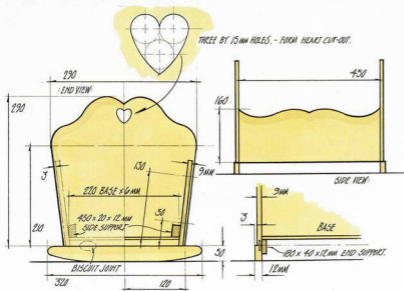


03 The heart detail at the tops of the ends are just three overlapping holes, cut with a Forstner bit and saw to finish



04 I used a biscuit joiner to attach the rockers to the ends. Align them so they are flush on the inside faces

CONSTRUCTION DETAILS: Doll's crib



straightforward to use a 15mm Forstner bit to form the shape, then use a utility knife and file for the finished shape.

The rocker sections use 12mm MDF and, again, a suitable template is used. I decided to limit the rock by the shape of the rocker curvature, in order to make it more stable and protect little fingers.

3 The end panels can now be assembled. I used two size 0 biscuits and adhesive to join each rocker to the end sections so that they are flush on the inside. This gives the rocker a 3mm projection on the outside. If you do not have a biscuit jointer, then countersunk screws through the rocker into the end, plus adhesive will do the job.

4 Form the two sides, again using a flip-over template to mark out the top shape. With the shape cut,

glue a side support strip and pin to the inside bottom of each side.

5 The various parts can now be joined together. Biscuits could be used to join the sides to the end pieces, but with 9mm MDF there is a tendency for the swelling biscuit to open up the MDF. Instead I favour glue and screws.

The end pieces require 3mm holes to be drilled and countersunk deep enough to enable the screw head to be covered with filler.

Joint the sides by lining up the bottom edge of the side to the joint line between the end piece and the rocker, and recessing it by 3mm. Use glue and 3x25mm countersunk screws to secure the two sides to one end, then the other.

6 Place the bottom section and push it down to rest on the side supports. If it seems a bit too snug,

ease the two long edges to a slight angle using a plane or sandpaper. With the bottom resting on the side supports, turn the crib on each end in turn and draw a line to mark where you need to fix the end support strips. Attach with glue and pins. This also reinforces the rocker joint.

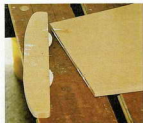
The bottom section can now be glued and pinned to its supports. It's easier to start the pins into the edge of the bottom section before locating it. Punch all pins below the surface and use filler to cover the heads.

7 Give all edges a sanding to soften them and remove imperfections. Sand the filler to give a smooth surface. Wipe over the surface with a damp cloth then decide on the finish. I used one coat of MDF quick drying sealer followed, after a light sanding and two coats of water based primer/undercoat, by two coats of water-based eggshell top coat.

8 Decoration can be added to personalise the crib. A mattress, pillow and covers are best entrusted to someone with sewing skills if you plead ignorance in this!



Assembling the crib



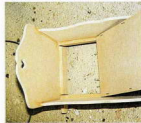
05 Apply plenty of glue into the biscuit slots, but not so much that it squeezes out everywhere



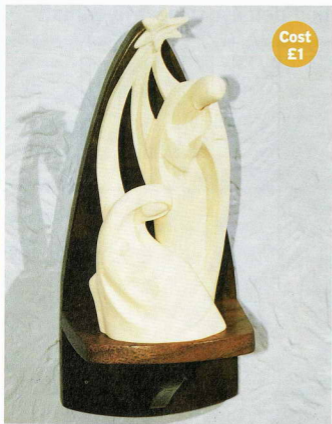
06 Clamp the rockers in place making sure they do not pull out of alignment with the end section



07 Four battens act as support for the bottom panel. The end ones add extra reinforcement to the rocker joint



08 The bottom panel needs bevelling at the edges to give a neat joint line when dropped into place and pinned



Cost
£1

Cutting list

Part	Qty	Mat	Length	Width	Thkns
A Back plate	1	Hardwood	150mm	65mm	8mm
B Shelf	1	Hardwood	65mm	55mm	8mm
B Bracket	1	Hardwood	45mm	30mm	8mm

pale sycamore of the carving.

Very little experience is necessary for this item – indeed you need little more than a few hand tools and a small router – and it can be completed in less than three hours at minimal material costs. The bracket illustrated during the construction stages is not the final one that was used, but construction is the same, so the sizes quoted are for guidance only and can be altered to suit the whatever is to be displayed.

Making the Shelf

1 Plane the wood to 65mm wide for the back plate, 55mm for the shelf and 30mm for the bracket. Finish all three at 8mm in thickness. The lengths are 150mm, 65mm and 40mm respectively.

2 Take the back plate and mark off the length with a knife and square all around. Mark the centre line with a pencil from top to bottom on the face side.

Again using the knife, on the face side mark the top edge of the horizontal housing groove for the shelf 110mm from the top. Mark the bottom cheek 8mm further down again. Square these lines across with the knife and around both edges as well. Set a marking gauge to 3mm and mark the shoulder line of the housing from the face side between the knife lines on each edge.

3 Hold the wood in a vice and cut a V towards each knife line from the waste side of the groove with a chisel. This only needs to be shallow and at an angle of about 60°. Then use a fine dovetail or Japanese saw

The dark African walnut shelf was the perfect contrast for the pale hue of the sycamore carving.

Decorative bracket shelf

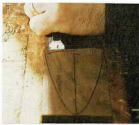


John Bennett shows how to make a simple and cheap shaped bracket shelf to display a unique decorative carving. All it takes is a few hand tools and a small router

Last year my sister made a trip to see the Passion Play performed by the residents of Oberammergau in Bavaria, and while there bought a small but beautiful carving of the Holy

Family. People tend to collect small items such as this and often need a small shelf on which to display them. The result is this small decorative shelf made in figured African walnut which contrasted beautifully with the

Cutting out the shelf pieces



01 Chiseling a V groove on the knife line helps in starting the cutting and keeping the saw on line



02 Use a fine dovetail or a Japanese saw to cut across the line for the groove on the back plate



03 Remove the waste from the groove with a chisel. This should be slightly narrower than the housing



04 Use a router to cut the groove for the bracket support. This is worked to the same depth as for the shelf

saw to cut down to the depth mark of the housing. The chiselled V gives a clear start to the cut for the saw and a good straight edge on each side of the groove.

Using a sharp chisel slightly narrower than the housing, remove the waste between the two saw cuts. Work on an upward angle towards the further edge, then reverse and work to remove more waste from this side, before finishing down to the gauged shoulder line.

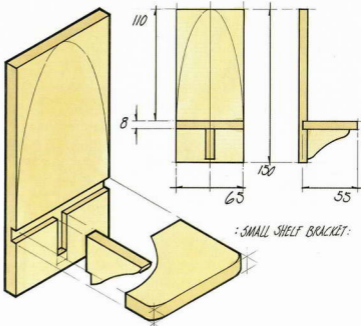
On larger pieces of work a hand or electric router can be used to achieve a flat bottom, but on this size it should not be necessary. Simply pare the bottom while checking for flat with the edge of the chisel or a straight edge.

4 Use a router to cut the groove for the bracket support. This is worked to the same depth for the shelf and should stop short by about 3mm of the height of the bracket.

It obviously needs to be the same width as the thickness of the bracket – 8mm. You are less likely to drift when routing such a groove if you can fence off both sides of the timber by fitting a second fence to your router bars. Square off the rounded end to the groove left by the router cutter with a sharp chisel.



Construction details: Decorative shelf



Two simple housings join the three components together

5 Now cut the small support bracket to match the groove. The aim is to remove a small section of wood from the back bottom corner so that the bracket sits neatly into and over the upright. Mark out the waste using a marking gauge set to the depth of the groove on each side of the bracket at its bottom edge. Reset the gauge so that the length of the groove is also marked. Carefully saw to remove the waste.

6 Mark out the shape of the main upright panel using a pencil and French curves, or by bending a steel straightedge. Similarly, mark the shaping on the shelf. Remove the waste with a jigsaw or fretsaw and finish to the lines using spokeshaves and block, before sanding to a finish.

7 Polish all parts with a sealing coat of wax polish before the final assembly, ensuring that you do not apply polish to sections where glue will be applied. Assemble with glue, holding the parts together with appropriate clamps until the glue has set. Remember to remove surplus glue before it sets.

Finally, apply more polish to finish the project.

8 Because this is a small bracket, it is sufficient to drill a stopped hole in the back to be a dead fit over the head of the screw used for hanging the bracket.

On larger bracket shelves it will be necessary to use other means of attachment, such as mirror plates for extra strength.

Assembling the shelf



05 A French curve is ideal for marking out the shaping of the decorative support bracket



06 A flat-bottomed spokeshave is good for shaping to a line after waste has been removed



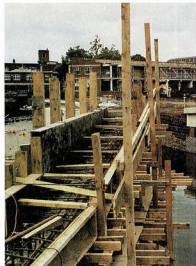
07 Cramping is not easy but can be done with a choice of cramps. Don't apply too much pressure, though



08 The shelf ready to take the support bracket. Remember to remove surplus glue before it sets

End Grain

Barrie Scott is full of admiration for the shuttering carpenters whose work is a central element to any number of successful building projects



Shuttering carpentry is no work for a gentleman – running a sawblade through used shuttering ply, its grain embedded with concrete and rogue 4in nails, whaling away with a 20oz clawhammer or, even more vulgar, a 24oz monster. Dirty, muddy proceedings, lugging around Acrows and column clamps, but exacting and satisfying.

If you're shuttering up floors, columns and beams in a multi-storey building, with concrete pumped or craned up several storeys, your work has to stand the pressure of many tons of one of life's more uncouth substances, slopping rudely into place. This will be followed by a big-booted building operative leaping around your reinforcing

“The circular staircase is what raises shuttering carpentry to an art form”

struts wielding a hydraulic vibrator to take out the air pockets, and - they're not supposed to, but normally do - giving your formwork a hearty wallop with shovel or sledge hammer to show the concrete who's in charge.

If anything gives way, it gives way big time and there is an hour, or two at the most, to clear up the mess before masses of the stuff becomes permanently adhered to places it isn't really required. You will look a chump and may expect some stronger expressions fired in your direction. And talking about fired....

It's heavy, rough work but good shuttering carpenters will have the ability, along with steel fixers, to create motorway bridges, tunnels or tower blocks, where the ready-mix trucks will be queuing up to tip maybe hundreds of tons of the grey muck in the course of a day. Not only will the job need to take the weight, but the specified tolerances for levels and dimensions are fine. All methods of fixing – nailheads, cleats and supports – need to be accessible to be judiciously loosened the following day, allowing for settling processes, and removed altogether a few days later leaving a clean finished slab or beam. Any duff corners or protruding battens will either leave unsightly 'snots' (an official term) or timber bedded into the concrete, and it is an arduous chisel-destroying job to hack it out once the concrete hardens.

In recent years, modern pre-formed shutters are used for larger pours. However, there are still returns, junctions and corners that will require shuttering skills.

Stairway to Concrete Heaven...

Then there are concrete staircases, normally varying in tread and rise dimensions, as staircases do, where a good shuttering chippy will prove his worth. He is basically creating a mould that has to take the action of gravity upon sloppy matter into account. The soffit board, laid to a precise pitch, is the foundation of the device. To this the string (side) shutters are fixed and the steps formed by the positioning of riser boards

battened to the strings. An all important feature is the chamfer on the bottom of these to allow the concrete finisher to get a tidy trowelled junction between tread and riser.

The circular staircase is what raises shuttering carpentry to an art form. The soffits and strings are positioned similarly to the straight flight but in curved sections. The curves for both are formed using hardboard, wedged into position with damp sand and trowelled to precise dimensions.

Interesting effects are possible using architraves and shapings inside the formwork, concrete colouring and textured boards. Londoners may be familiar with the Royal Festival Hall buildings, a 1960's concretion where the shutters were selected sawn boards that left a visible imprint of woodgrain on the finished concrete. I'm all in favour of trying things out, but rough concrete embellished with pollution stains and pigeon droppings has an appeal that may not be universal.

...and Concrete Hell

The most interesting exposition of shuttering skills, in my experience, was on a vast oil company carbuncle nestling exquisitely on the Pembrokehire coast. Those wonderful cliffs, coves and wildlife habitats needed a few oil slicks!

It was a £500m contract with 3000 men on each shift, mostly shuttering carpenters, steel fixers and engineers, creating a monster steel chemistry set. It was an extension to an old installation – a stinking, smoke-hissing, chemical-dripping purgatory.

Some of the foundation slabs could have covered several football pitches. Every pump and massive overhead pipe needed a plinth or column support. One interesting gadget was a computerised industrial chimney shutter. A vast circular clamp constantly, very slowly, moving upwards, tapered the form as it went. Every day a precise measure of concrete was pumped in.

An international financial hiccup closed this place down within a few years, leaving local residents with a modern day sculpture: a monument to the shuttering chippy.



Concrete is poured around the outside of the shutter left and then once it's set, the shutter's collapsed to leave a hole. For the shutter on the right, concrete is poured between the shutters and again, once set, the wooden construction is removed

