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March 2013

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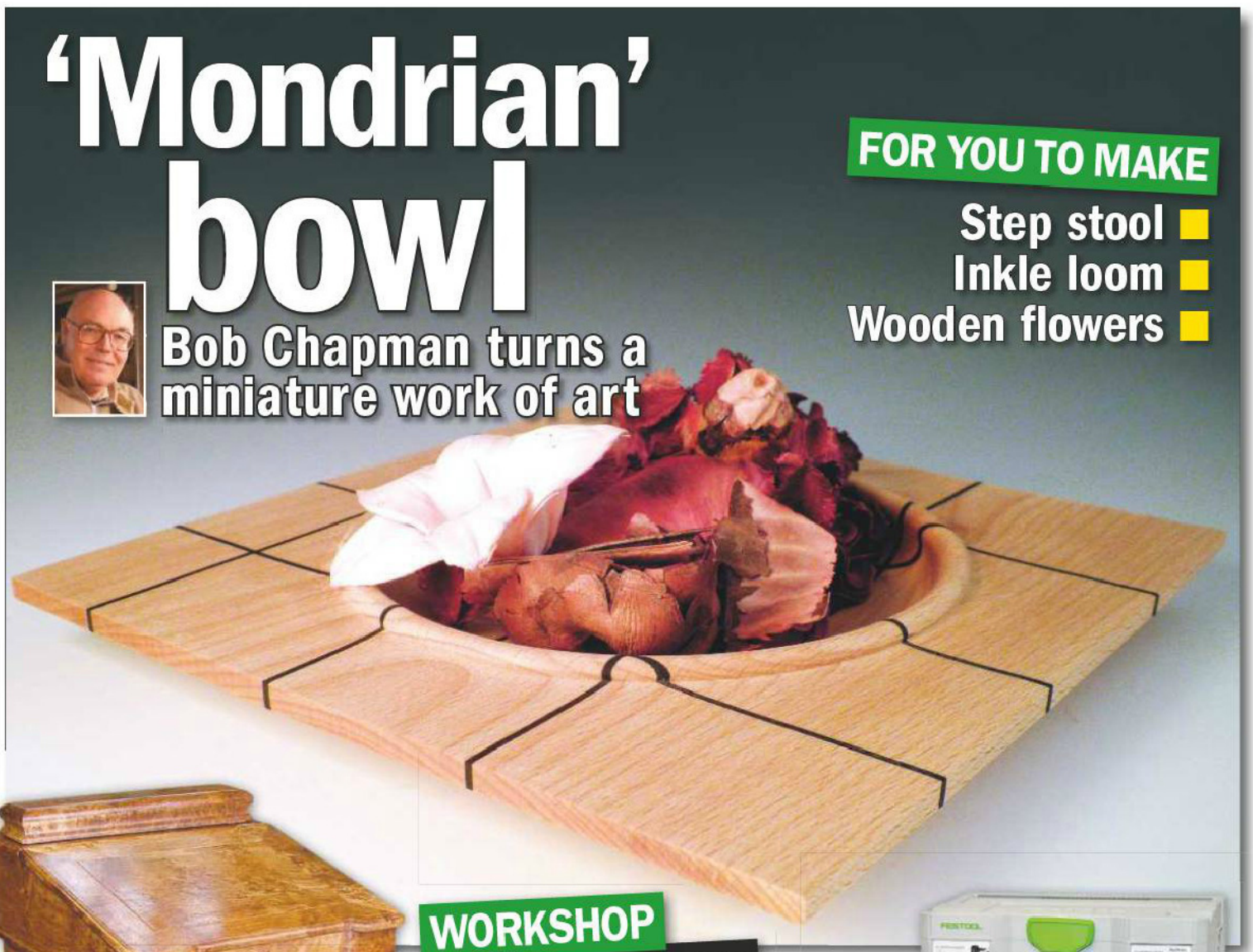

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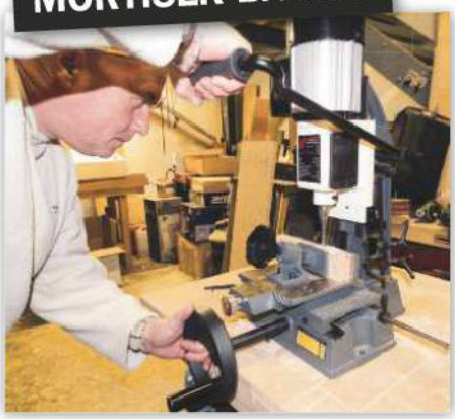

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welcome

This is a very special issue of *The Woodworker*. It might not be immediately apparent to regular readers just what is special about it but, as the first issue with yours truly sitting in the editor's chair, it feels pretty special to me.

The Woodworker has been familiar to generations of woodworkers since it first appeared in 1901. My future intentions are to continue to present as many interesting and informative articles as possible. I'm also hoping to expand the variety of features to be found in the magazine, and to increase its potential as a learning aid for both hobbyist and the professional alike. But don't worry, there won't be any radical changes; it'll still be a magazine that we can all feel we belong to.

I'm hoping that everyone will consider taking part, and will maybe think about writing in, submitting a photo of a recent bit of work, or dropping me an email to let me know your likes and dislikes. The address to write to is mark.cass@mytimemedia.com

My first new contribution to the magazine is the step-up stool project featured on page 21. It came from one of the teaching classes I've been fortunate enough to deliver at West Dean College, Chichester (www.westdean.org.uk) in recent years. I hope some of you will give it a go, and I'll be very interested to hear any comments about it from some of our more experienced readers.

One of the things which never ceases to amuse (and educate) me is the way that many woodworking jobs can be undertaken in a variety of ways. As I tell my students, there's usually a recommended way of doing things but, as long as a task can be carried out safely and the desired result achieved in the time available, then that will do just as well. For me, the most important thing is to give it a go!

See you next time…

mark

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ON TEST

The Woodworker & Woodturner

March 2013

Published by **MyTimeMedia Ltd**
Hadlow House, 9 High Street,
Green Street Green, Orpington, Kent BR6 6BG

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mytimemedia
print & digital media publishers

The Woodworker & Woodturner, ISSN 1752-3524, is published 13 times per year by MyTimeMedia Ltd. c/o USACAN Media Dist. Srv. Corp. at 26 Power Dam Way Suite S1-S3, Plattsburgh, NY 12901. Periodicals Postage paid at Plattsburgh, NY. POSTMASTER: Send address changes to The Woodworker & Woodturner c/o Express Mag, P.O. Box 2769, Plattsburgh, NY 12901-0239.

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MORE DREMEL POWER

Dremel has launched two new high-performance corded Multi-Max tools, for jobs that require extra power. The MM40 uses a new 270W motor, while the MM20's 250W motor has a higher performance specification than the original Multi-Max. The MM40 has a QuickLock feature, enabling tool-free accessory changes, while the MM20 has a Quick-Fit accessory interface. Both models have an oscillation speed of 10,000-21,000spm, and electronic feedback to maintain a constant speed with even the toughest applications and materials.

The MM40 kit (shown) is priced at £159, and the MM20 at £119.99. They're both available from www.dremel-direct.com and www.tool-shop.co.uk now, and also from www.amazon.co.uk from February onwards.

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John Boddy's courses
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23 Woodturning: Simon Whitehead
28-1 Mar French polishing: Ted Vickerman
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John Boddy's demonstrations
16 Wood carving: Peter Berry
Details as above

John Lloyd courses
18-22 Hand finishing techniques
Contact details as for January

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Deneb Puchalski, Lie-Nielsen's tool and sharpening guru, will be visiting the UK this March. He's the recognised authority on how to get the very best from these excellent tools, and can help with advice on sharpening, plane tuning and many more techniques. His passion and enthusiasm for the tools he works with are clear to all who have seen his demonstrations. Here are the dates:

- **March 8-9 Axminster Tool Centre**, High Wycombe (www.axminster.co.uk)
- **March 12 Classic Hand Tools**, Witnesham (www.classichandtools.com)
- **March 13 G&S Timber**, Penrith (www.toolsandtimber.co.uk)
- **March 14 Brodies Timber**, Dunkeld (www.brodiestimber.co.uk)
- **March 15-16 Axminster Tool Centre**, Warrington (www.axminster.co.uk)

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MANUFACTURER: Scheppach
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The CS 55 allows even the amateur home user to achieve professional results. It is ideal for cutting kitchen worktops when used as a plunge saw. It will produce precise parallel cuts when used with the guide track system, and splinter-free performance is guaranteed by the track's rubber strip.

The saw can be used for edge-cutting as close as 15.5mm from the wall, and can perform mitre and compound cuts with step-less angle adjustments. It also has an optional safety device that prevents the saw from tipping when it's in tilt mode. The CS 55 is ideal whatever material you're cutting, including solid natural timbers, chipboard, plywood and even mdf and double-coated boards!

scheppach

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BY ROGER BERWICK

Burr oak beauty

Last month I described how I started making this burr oak Davenport, through to the completion of the basic carcase. I now turn my attention to the finer points, so to speak, beginning with the cupboard door to go on the left-hand side of the piece

I decided to use a traditional panelled construction to make the door, although on this occasion I opted for a horizontal centre rail rather than a vertical muntin, **fig 1**, as the door was relatively narrow. Avoiding a single large panel also meant that I could use two smaller and particularly well-figured pieces of timber. The door was glued and cramped up in the usual way, **photo 1**. When dry it was scraped and sanded before being cut down to fit into the frame of the carcase and hinged on solid drawn brass butt hinges, **photo 2**.

Back to the columns

Last month I made up two sections of timber ready to turn on the lathe for the front columns, bulking up their middle sections with glued-on packing pieces to create the required 85mm diameter, **photo 3**.

After mounting one of the blanks on the lathe, I turned the fatter central section down to a cylinder, **photo 4**, before continuing to shape the rest of the column, **photo 5**. I used a couple of basic turning tools for this (a small spindle gouge and a couple of skew chisels of different sizes), re-sharpening them after every few passes as the burr oak was removing the cutting edge almost as quickly as I could apply it! **Fig 2** on page 15 gives all the relevant dimensions of the columns and the bun feet.

One thing that really surprised me was how the brown oak finished with a simple burnish using the shavings; the shine was amazing, **photo 6**. This leads me to believe that not only does the beefsteak mushroom cause the timber's natural colour to change. It also changes the characteristics of the oak, making it more oily and resulting in the surface sheen I obtained.

Having finished one column, the next challenge was to turn an exact copy for the second one. This is not a problem normally, but the pressure was on because I didn't have any more of the thicker stock left if I made a mistake! However, all went well and the pair matched beautifully, **photo 7**.

Spigot mountings

At the bottom of each turned column I formed a 25mm diameter spigot which I intended to fit into a drilled hole at the front of the foot plate I'd already made.

Using a 25mm diameter Famag saw-tooth bit in a pillar drill, I bored a stopped hole to the required depth in each of the foot plate's side rails, **photo 8**. Having completed these, **photo 9**, I glued the columns into place and strengthened the fixing with a screw driven in through a counter-bored hole in the underside of the foot plate. Then I plugged the holes to hide the screw heads.

At this stage the main carcase of the Davenport was also glued and screwed to

I assembled and cramped up the two-panelled door for the cupboard...

...before trimming it to size and hanging it on brass butt hinges

Timber for front column needed packing out ready for turning to shape

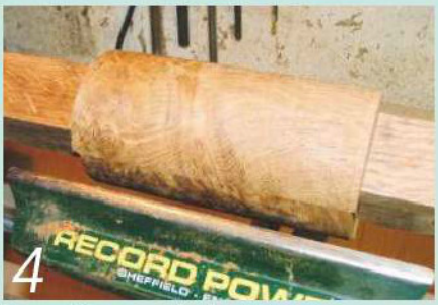
the foot plate to make a permanent fixing, **photo 10**. Once again the screws were recessed and the holes plugged to conceal them.

With the base section now complete, the top writing slope box was then glued and secured to the top of the carcase and to the top of the two turned columns with countersunk screws, **photo 11**.

Fitting the feet

I needed some simple turned bun feet to finish the bottom of the Davenport, so I glued up four groups of three 25mm thick round blanks, **photo 12**. It would have been better to turn these from solid stock, but I didn't have any thick enough so I had no choice but to laminate them. Once dry they were transferred one by one to the lathe and turned to form a simple if somewhat bulbous foot, **photo 13**. I soon had four matching feet, **photo 14**, ready to be fitted.

I had already decided that the feet would be screwed to the underside of the foot plate, so I turned them using a simple screw chuck. I then re-drilled the hole it left to take the longer screw required to fix each one the foot plate.



I started by turning the larger centre section of the column to a cylinder...

...and then turned it and the rest of the column to the required profile

Burnishing the column with the shavings gave it a stunning surface sheen

DAVENPORT 2 CUTTING LIST

Part	Qty	L	W	T
CUPBOARD DOOR (fig 1)				
Stile*	2	550	55	16
Top rail*	1	305	35	16
Bottom rail*	1	305	55	16
Centre rail*	1	305	35	16
Panel	2	210	210	16
* An allowance has been added for cutting joints on these parts				
COLUMNS & FEET (fig 2)				
Main column	2	600	45	45
Wide packing	4	150	85	20
Narrow packing	4	150	45	20
Foot	4	70	90	90
SIDE DRAWERS (fig 3)				
Front A	1	305	95	20
Front B	1	305	110	20
Front C	1	305	125	20
Front D	1	305	140	20
Side A	2	290	95	15
Side B	2	290	110	15
Side C	2	290	115	15
Side D	2	290	140	15
Back A	1	305	70	15
Back B	1	305	85	15
Back C	1	305	100	15
Back D	1	305	115	15
Base (plywood)	4	305	290	6
SECRET DRAWER (fig 4)				
Side	4	180	30	9
Base (plywood)	1	180	180	4
Drawer support	2	400	15	15
GALLERY CASE (fig 5)				
Inner top	1	470	70	9
Inner back	1	470	140	9
Inner base	1	470	90	9
Inner end	4	200	90	9
Strut concealing board	2	200	40	9

Part	Qty	L	W	T
GALLERY PIGEONHOLES (fig 6)				
Top/base	2	400	90	6
Side	2	90	90	6
Divider	6	90	90	6
Door	1	90	60	6
Front top rail	1	400	20	6
Bottom front rail	1	400	30	6
CUPBOARD LINING (fig 7)				
Top/bottom	2	300	170	6
Side	2	515	170	6
Back	1	515	300	6
Shelf	2	300	170	6
Divider	2	170	170	6
DESKTOP DRAWER UNIT (fig 8)				
Base	1	490	200	10
End	2	200	160	20
Divider	2	200	160	20
Upper shelf	2	180	80	8
Lower shelf	2	180	120	8
Central shelf	1	90	120	8
DESKTOP DRAWERS				
Upper drawer front	2	170	50	6
Upper drawer side	4	80	50	6
Upper drawer back	2	170	50	6
Upper drawer base	2	170	80	4
Lower drawer front	2	170	65	
Lower drawer side	4	120	65	6
Lower drawer back	2	170	65	6
Lower drawer base	2	170	120	4
Centre drawer front	1	70	65	6
Centre drawer side	2	120	65	6
Centre drawer back	1	70	65	6
Centre drawer base	1	120	65	6

7

The next challenge was to turn an exact copy for the second column

I used a 25mm bit to drill a socket in the end of each foot plate side rail

Adding the moulding

To complete the top writing box section, I made some 12mm diameter round beading on the router table and fixed it round the bottom edge with headless pins as well as glue, **photo 15**, since I thought this area would be quite vulnerable to accidental knocks and possible damage.

The minute holes left by the headless pins were easily filled with some shellac wax filler stick… and were nothing compared to the number of open knots and holes in the burr timber itself which we had to tackle later on.

Four drawer boxes

Next it was time to construct the drawers. I selected some of the best figured timber for the drawer fronts, and I used some of the less detailed wood for the drawer sides and backs.

With each drawer being a different height, the eight sides were individually marked and paired up, **photo 16**, before having their dovetails cut, **photo 17**. I used lap dovetails at the front, **photo 18**, and through dovetails at the back. **Fig 3** shows the tallest bottom drawer; only the height differs for the other three.

Before gluing up the drawer boxes, I routed 6mm wide grooves in their sides and fronts to accept the plywood base panels. I always like to slide the bases into place when gluing up as it helps to ensure that the drawer boxes are square when they're cramped, **photo 19**.

Turning the drawer knobs

With the drawer boxes set aside to dry, I took the remaining thicker offcuts I'd removed earlier from the ends of the turned columns, and used them to create the drawer knobs. Having turned a sample knob, **photo 20**, I mounted each piece onto a screw chuck, **photo 21**, and turned a further eight knobs – two for each drawer. Because of the highly figured grain in the burr timber I kept the design of the knobs quite simple, **photo 22**; I didn't want to over-complicate their appearance.

Once the drawers were dry I removed them from the sash cramps and lightly skimmed each box with a sharp plane to give a perfect fit in the carcase, **photo 23**. I then fielded the edges of each drawer front using a bearing-guided router cutter in the router table, fitted the knobs and slid the drawers into their appropriate positions in the carcase, **photo 24**.

Secret storage

With all Davenports and bureau-type desks, it's common trade practice to incorporate concealed or hidden storage compartments

within the structure, and I wanted my Davenport to be the same. I hadn't specifically planned where to put these, but there was one space that was just begging to be filled! This was the opening in the middle of the foot plate that sat under the main carcase. As the timbers used to make this were 45mm thick, I constructed a simple 30mm deep drawer with a cherry base panel for contrast, **photo 25**.

I then screwed some 15mm square runners into the centre aperture of the foot plate, **fig 4**. The drawer was half the size of the aperture, so it would slide under the cupboard side of the carcase and be out of sight when the bottom drawer was removed, **photo 26**.

Fig 1

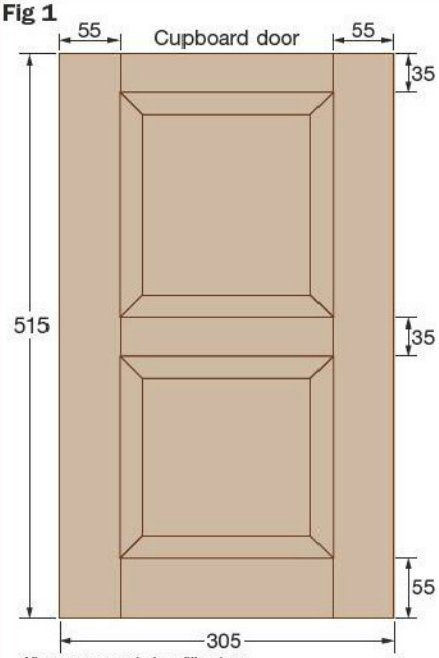


Fig 2

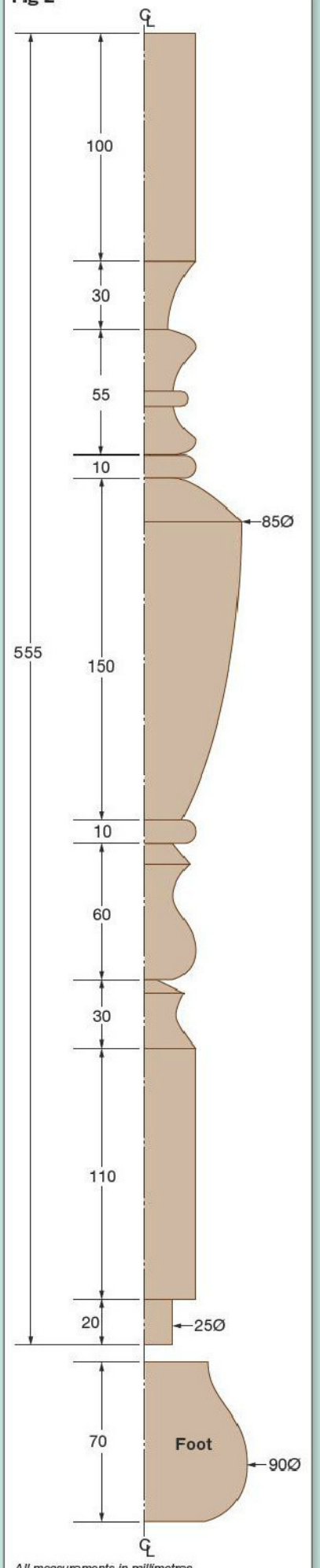
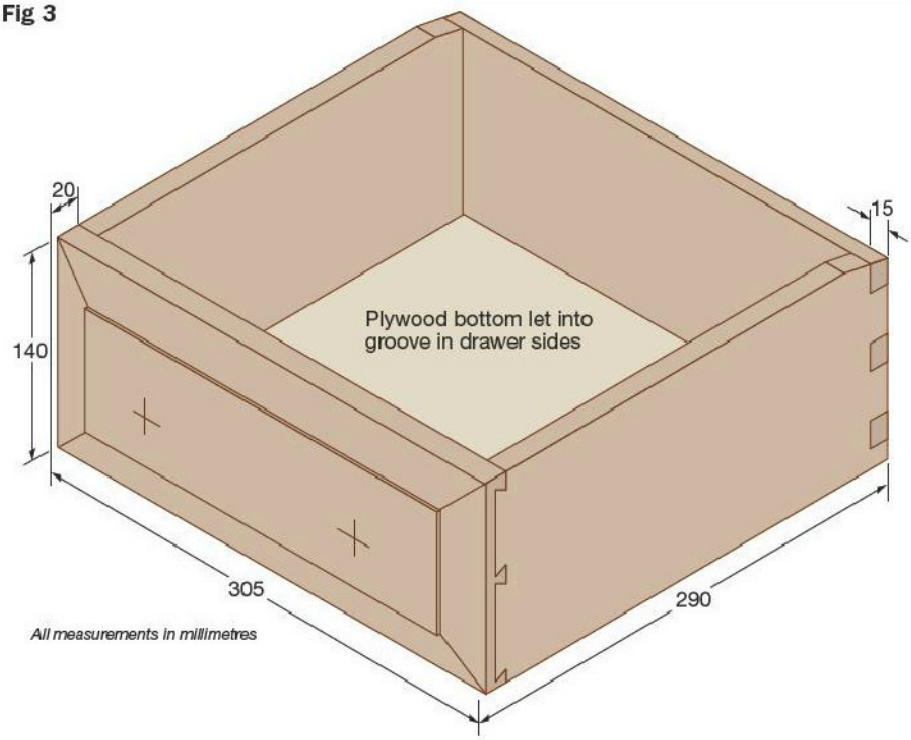


Fig 3



The rise-and-fall mechanism

The next challenge was to make the moving gallery at the back of the sloped writing surface, which I wanted to rise up and drop down out of sight as required. I described making the solid top section of this gallery last month. Now I needed to make it rise and fall, exposing a planned array of small pigeonholes within. **Fig 5** shows the sectional drawings of the rise-and-fall mechanism I designed.

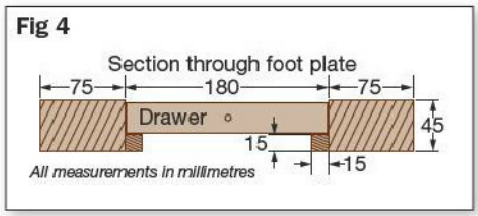
Traditionally a rising gallery like this would be counterbalanced with weights, as a sash window is. However, I had other ideas! I had already bought some small 300mm long gas struts; these varied from 50Nm operating pressure up to 250Nm, and I ordered two pairs (one rated at 50Nm and

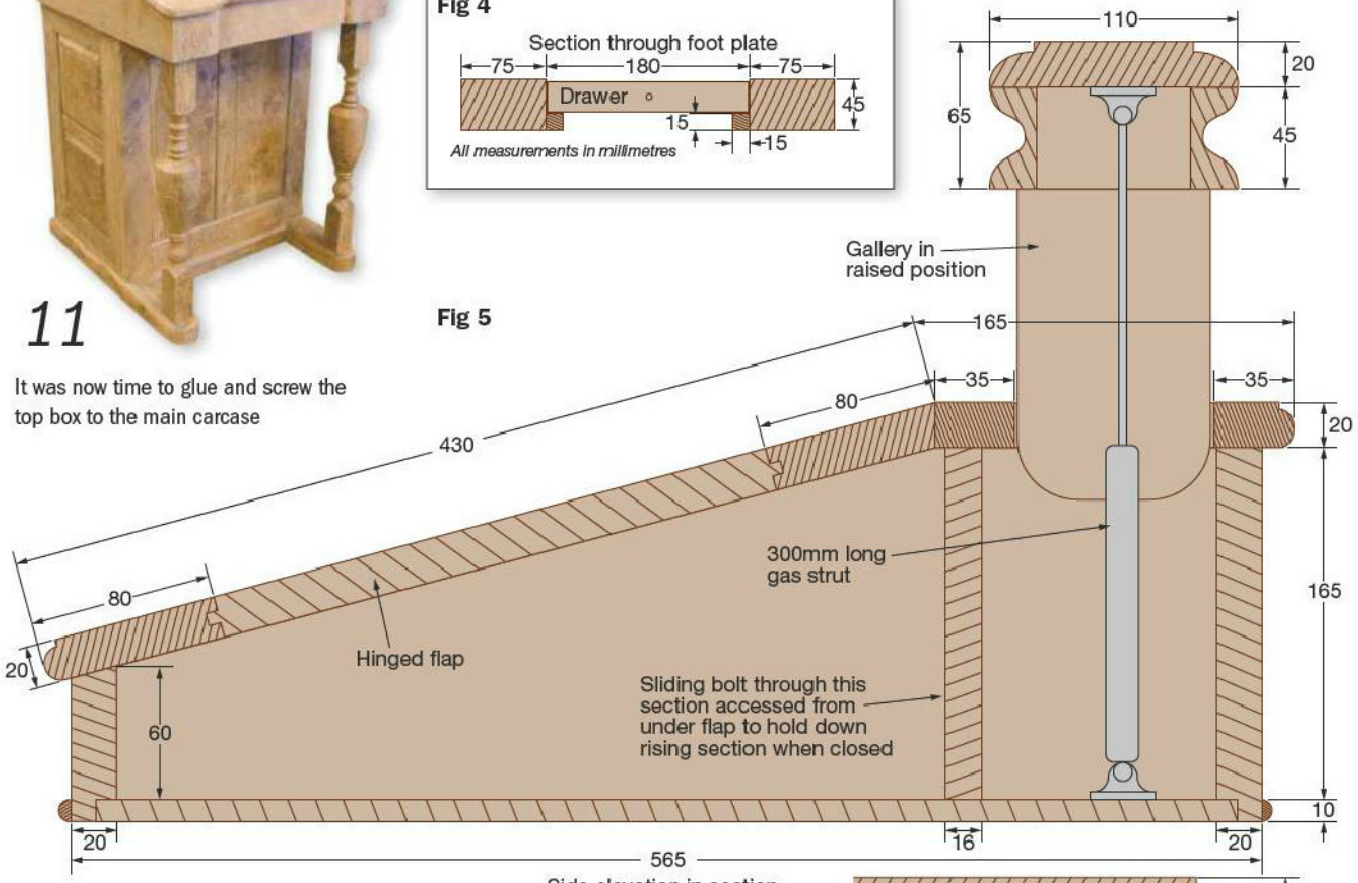
9 The hole will receive the 25mm diameter spigot I'd turned on the end of the column

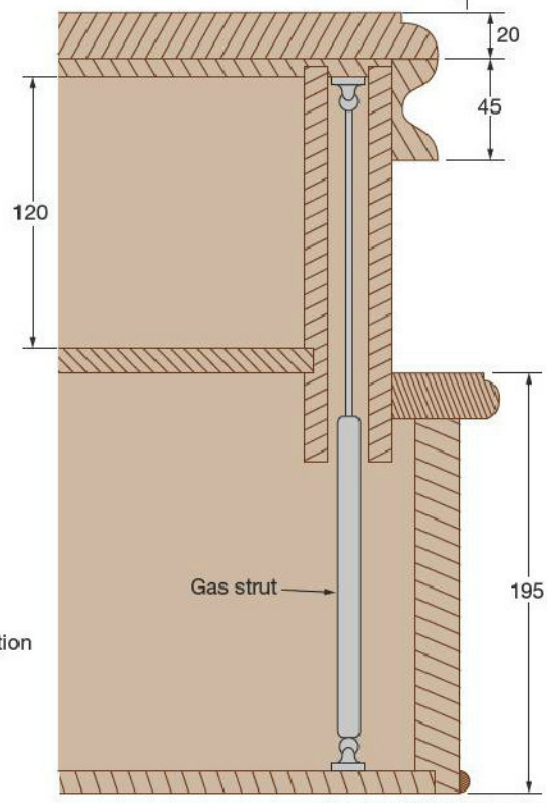
10 The columns were glued into their sockets and secured with a screw driven in from below

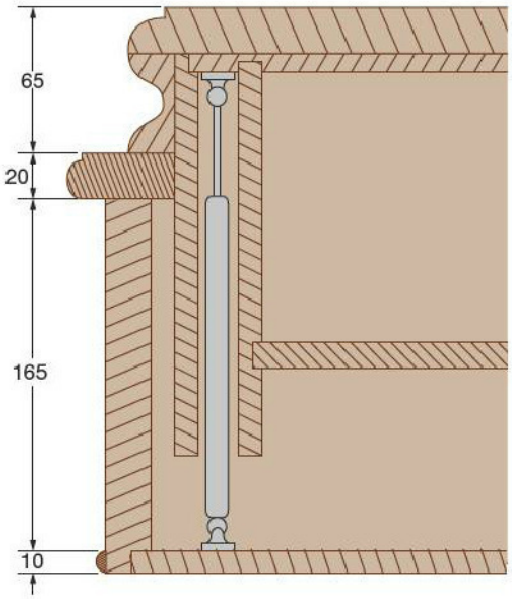
11

It was now time to glue and screw the top box to the main carcase









Front elevation in section

All measurements in millimetres

the other at 100Nm) so I'd have them in stock ready for when I needed them.

A dummy run

I had decided that the inside parts of the Davenport were to be made in lacewood for contrast. However, I first made up the sections for this in birch-faced plywood to check that the design worked as I'd planned it. Once I was happy that it did, I then made the genuine article.

The four uprights stretched from the underside of the top to 140mm under its lower edge. I made these parts to this size to allow a 100mm rise and fall and to conceal the gas struts.

The outer uprights were connected to the inside of the gallery top by fixing them to a piece of plywood that in turn could be screwed into the underside of the top. A solid back and two small front sections then concealed the gas strut itself, the front pieces being reeded to add some detail rather than being left plain, **photo 27**.

Fitting the gas struts

One end of the gas strut was then screwed to the underside of the gallery head, and the other end was screwed to a foot made from a piece of scrap wood – see **photo 28** (photographed out of sequence after the gallery had its finish applied). This foot had three pronged T-nuts inserted into it. Once this assembly was dropped into the aperture at the back of the writing slope, it could be secured by feeding a bolt through the 9mm thick ply base of the top writing box section – access for these was effectively in the top of the cupboard section and above the top drawer on the other side.

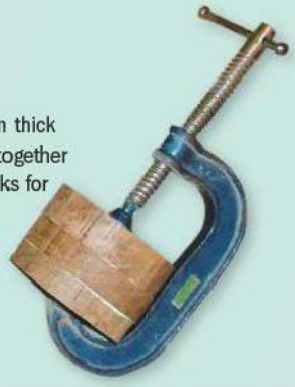
With the unit secured I found that the 50Nm struts were perfect. The gallery could easily be pushed down, and would gently rise again when released, rather like the soft-opening cassette decks on old-fashioned stereos.

With this working well, I needed a means of securing and releasing it. I found a small brass slide bolt left over from a previous project. This proved to be perfect, and was fitted into the divider in the top drawer section through a mortise hole and supported on a small wooden block.

To complete the gallery I made a small set of pigeonholes with a central door in lacewood using simple housing joints, **fig 6**. This was designed to slip into the aperture left for it, **photo 29**.

Lining the cupboard

When the carcase was made you may recall that the drawer and drawer supports only extended half way across the carcase,



12 I glued 25mm thick discs of oak together to make blanks for the bun feet

13 Each foot blank was mounted using a screw chuck and turned to shape

14 The four bun feet are ready for fitting to the underside of the foot plate

15 I decided to apply a half-round beading around the base of the top box

16 The eight drawer sides were individually marked out and then paired up...

17 ...before being dovetailed and grooved to accept the plywood base panels

18 I used lap dovetails in the drawer fronts as they would be visible in use

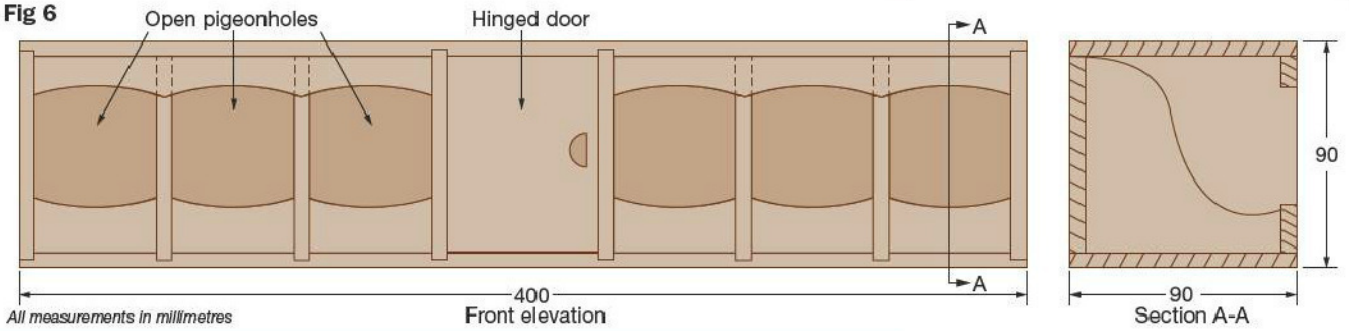
19 The four drawer boxes were glued, assembled, cramped and checked for square

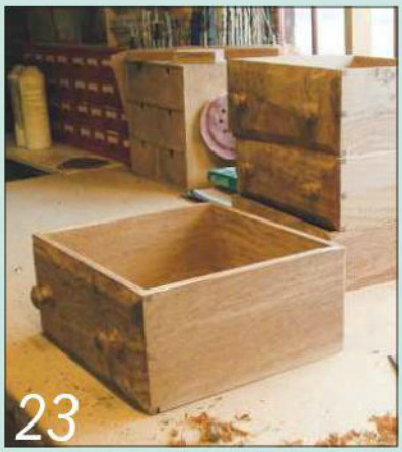
20 I turned a sample drawer knob and prepared enough offcuts for the rest

21 As with the bun feet, I mounted the knob blanks using a screw chuck

22 I soon had eight oak knobs (plus a spare) ready for fitting to the drawer fronts

Fig 6

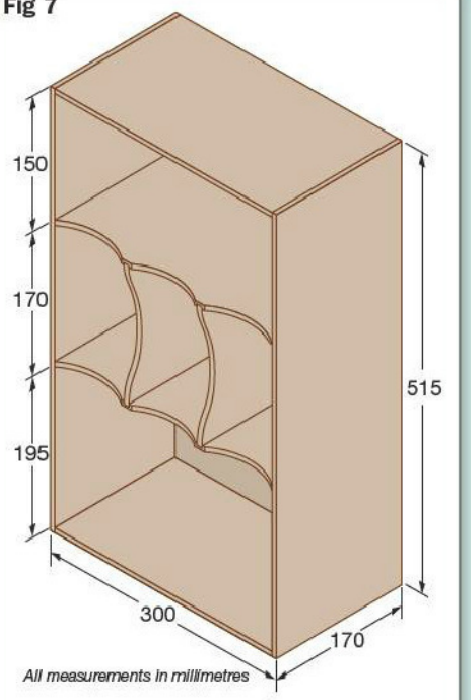




The drawer boxes needed a light planing to ensure a good fit in the carcase

Sliding the drawers into place seemed to bring the whole piece to life

Fig 7



This small secret drawer was designed to be concealed within the foot plate

allowing for a cupboard on the opposite side. To stop the drawers from passing too far into the carcase, I let traditional raised wooden drawer stops into slots cut in the cross rails using a bearing-guided slot cutter, **photo 30**.

With the drawers in place I made up a simple box to line the cupboard, also in lacewood – see **fig 7** and **photo 31**. The components were housed and pinned from the outside as the outer faces would never be seen. I chose to make this with a pair of shelves and twin dividers, curving the leading edges to provide a little additional visual detail within the cupboard.

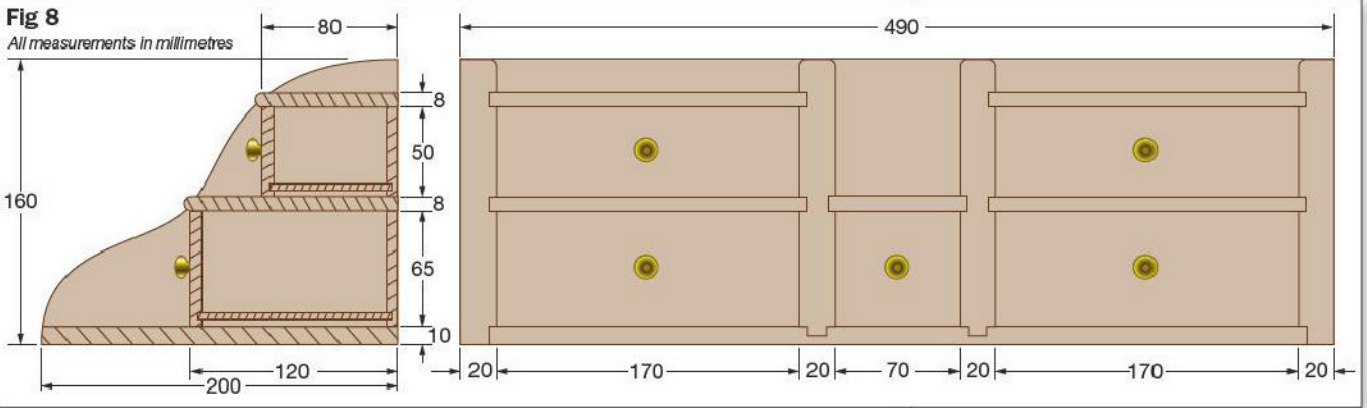
This box slotted into the cupboard and butted up to the back of the drawer runner frames, to which it was secured with a couple of screws. The bottom of this box also concealed the small hidden drawer installed in the foot plate below it.

Desktop storage

The last element of the Davenport construction was to decide on what I was going to make and fit within the top, under the hinged writing slope. After some thought I designed and constructed a lacewood unit consisting of five small drawers set between curved edged dividers – see **photo 32** and **fig 8**. The middle section contained a single drawer, above which sat the brass slide bolt to release the top, **photo 33**. A false panel was fitted behind it for appearance's sake.

I chose the most figured lacewood I could find in my stock to make the small

Fig 8



drawer fronts, and having polished the finished unit I fitted small brass knobs to each drawer, **photo 34**. This unit was designed to slot snugly into place within the writing box compartment, **photo 35**, and needed no additional fixings to hold it in position. Once installed, it covered the screws fitted earlier to hold the top of the Davenport to the main carcase.

A final touch

To conceal the other screws which went into the tops of the turned columns, I acquired a pair of brass-topped glass ink wells which sat beautifully in the front corners of the top. To keep them in place I made a small surround for them incorporating a pen holder at the front, **photo 36**, before veneering the final visible surface of the birch plywood with a piece of lacewood veneer.

Polishing time

The construction was now complete and the polishing was the only thing left to do. Unfortunately, burr oak by its nature has numerous open knots and small cracks. After two days' work my wife and I had painstakingly filled every flaw with shellac filler stick. Once this was done, all the flat surfaces were scraped and rubbed down with successively finer grits until the surfaces were smooth enough to polish.

The brown burr oak was then sprayed with pre-catalysed lacquer, each coat being cut back before the next was applied. After the final rub-down with flour paper, the surfaces were treated with Mylands light brown wax, which resulted in a really deep natural sheen.

All the lacewood parts were finished with Danish oil to bring out the colour in the timber, and after several fine coats they were again finished with the same Mylands light brown wax.

Stand and deliver

With the piece now complete, it was time to deliver it to my customers. They'd seen it several times during the construction so they knew what to expect, but they were truly overjoyed when it arrived. After trying it in a couple of places in their dining room, it now stands proudly alongside a large inglenook fireplace.

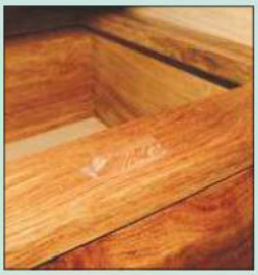
I think that I did the timber justice in making this Davenport, and can honestly say that I doubt I will ever get the chance to work with such beautiful material again. Timber of this quality is getting rarer and rarer, but you never know when another workshop clearance might deliver a similar gem in the future.

26 Removing the bottom drawer reveals where the secret drawer is fitted

27 The gas struts are concealed behind the two narrow reeded side panels

28 The lower ends of the struts were attached to a foot made of scrap wood

29 This set of small pigeonholes fits neatly into the centre of the gallery



30 Drawer stops let into slots in the cross rails restrict the drawer travel

31 This lacewood box lines the cupboard and is secured with a couple of screws

32 This set of five small storage drawers fits snugly inside the top box...

33 ...and contains the brass gallery release bolt inside its central section

34 Each drawer is finished in Danish oil and fitted with a small brass knob

35 The complete unit features two slim pen trays on the top and a false centre panel

36 I fitted two glass inkwells in the front corners to hide the column fixing screws

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Precisa 6.0 PACKAGE 1	Professional	Inc 2m STC & TLE	3.0 / 4.0 / 240v 4.8 / 6.5 / 415v	110mm - 1400mm	£2250.00	£2700.00
Precisa 6.0 PACKAGE 2	Professional	Inc 2m STC - TWE & TLE (as illustrated)	3.0 / 4.0 / 240v 4.8 / 6.5 / 415v	110mm - 1400mm & 1100mm	£2475.00	£2970.00
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STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension.

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BY MARK CASS

One step at a time

This is a great project for anyone just starting out on the woodworking road, and is entirely do-able with only a basic toolkit and a power drill. The end product's pretty useful too...

I don't know how cold it gets in your shed or workshop, but in winter mine takes a good hour or two to get up to my minimum preferred temperature of 10°C. As a consequence I'm always looking for a spot of physical labour first thing in the morning to warm myself up, and there's nothing like sawing a board or two to get things going. Once I started on this simple step-up stool, I couldn't help myself and ended up doing it almost entirely by hand.

The stool consists of four components: two ends or legs, with tapered sides and angled mortises, a middle or connecting rail tenoned at each end, and a seat with a central handhold.

Take a measure

After carefully measuring your timber – I used a readily available 18mm thick laminated pine board, but you can get an oak one which would be even better – cut out a couple of pieces for the legs with a

Fig 1

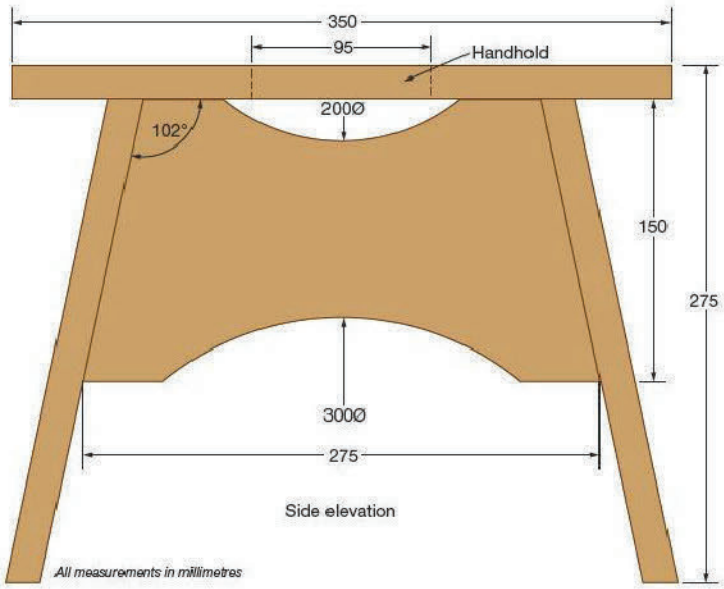
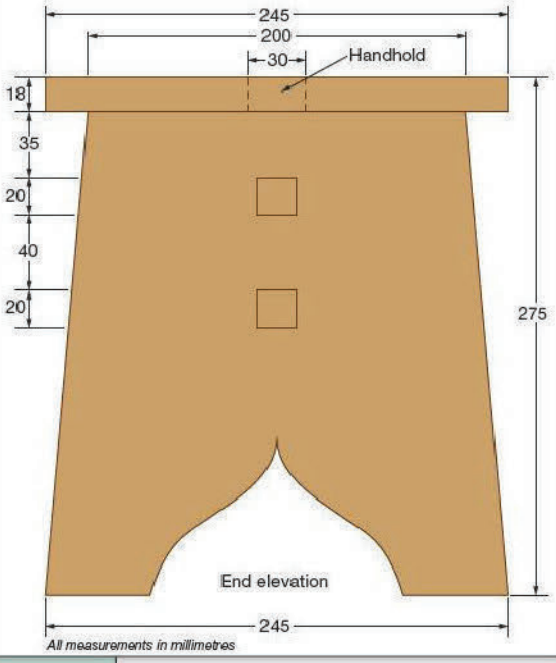


Fig 2



1

Start the day with a spot of sawing, by cutting out the leg pieces

2

Clear and accurate marking out is vital; use the drawings for reference

3

Use a sliding bevel set to 102° to square the mortise lines from front to back

4

Trim the top and bottom of each leg carefully to the bevel angle

5

Chop out the angled mortises in the legs, using the sliding bevel as an angle guide

6

Clean up the mortises carefully, using a smaller chisel to trim the waste

sharp panel saw and a steady hand, **photo 1**. A bit oversize is fine, but try to keep them square and make sure they're both the same finished size.

Mark up both pieces as per the drawing, **photo 2**, accurately measuring the mortises and running your square along the same edge for both faces (front and back) of each leg. Use a sliding bevel set at 102° to 'square' the mortises round to the other face, **photo 3**. Your bevel needs to remain set at this angle for the duration of the job, so don't drop it!

Mark my words

Make all your marking out as clear as possible. I always put 'Left' and 'Right' or 'Top' or 'Bottom' on everything I make; it really pays. So, after you've checked your marking out, the first thing to do is to cut the bevel at the top and bottom of each leg, **photo 4**. Resist the temptation to cut the sloping sides of the legs, but instead begin to chop out the mortises with a sharp bevel-edged chisel.

The tricky part of this operation is to ensure that you maintain the correct cutting angle, and here's where your sliding bevel can help out again, **photo 5**. Don't try to blast your way through in one go, but turn the workpiece over so you can meet in the middle like a tunnel link-up. Be careful on the final undercutting; I needed a smaller chisel to effect this neatly, **photo 6**. Make sure your hand isn't on the other side as you tidy out the final chippings!

The connecting rail

Right, let's put the legs to one side now – still awaiting their final side trim – and turn our attention to the connecting rail. Both ends of this piece need to be cut to match the angle of the legs, and two curved segments have to be removed from the top (to permit hand access through the seat) and the bottom (for looks).

Before you reach for the saw though, these cuts need to be marked out, so sharpen your pencil and proceed with care. The sliding bevel is used again to mark both ends with the inside shoulder line and what will become the tenon-ends line. The curves can either be drawn with a pair of compasses or simply traced around the edge of anything circular of a suitable size, **photo 7**.

Accuracy is always top of my essentials list, and for the next task – transferring the mortise lines from the legs to the middle rail – this is achieved with a steady hand and by ensuring that the top edges of the middle rail and each leg are flush by feel. The mortise lines can then be carefully marked onto the rail ends, **photo 8**, and extended with a marking gauge.

Coping with curves

I'd suggest getting the curves cut next, **photo 9**; use a coping saw and try to keep it moving. If you mark the curve on both faces you can peek over to the back and check that you're keeping the cut square. I used a convex-based spokeshave and then a curved block and abrasive paper to clean my curves up afterwards, but as long as it's safe and you achieve the desired results, you can employ one of any number of methods to achieve a well-shaped rail.

Cut the shoulders of the tenons now. From the top and the bottom edge cut up to the tenon line, then chisel out the waste. It's always a good idea to work down gradually, **photo 10**, just in case the grain takes you under your marked line. Now saw off the remaining stub, cut down the inside tenon lines and then, with your coping saw, cut the centre shoulder. Repeat for the other pair of tenons, then carefully clean up with a sharp chisel.

Making an offer

Now it's time to offer up the tenons to the mortised legs, making sure you've got them the right way round first. Hopefully everything will be in the right place and you can tap the legs on to the rail to check that all is well. Go cautiously here; if it doesn't fit, don't force it, but knock the pieces apart and make a small adjustment before trying again.

Mark out the connecting rail and draw the curves a suitable template

Transfer the mortise lines accurately from the legs to the connecting rail

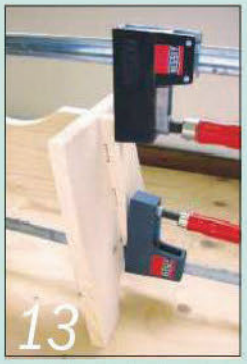
9

Sketch out a shape for the leg cutouts and cut them with a coping saw

Cut the tenons on the ends of the connecting rail with a saw and then a sharp chisel

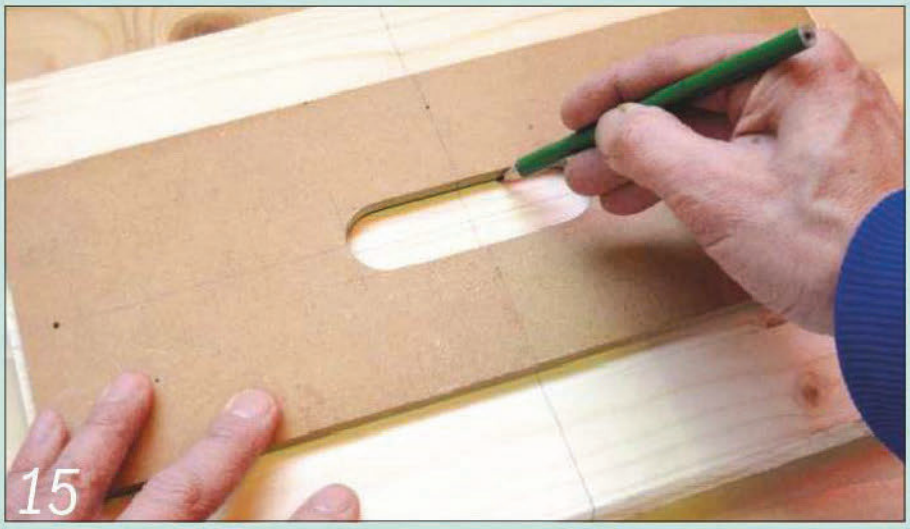
Clean up all base components by hand or with a sander before gluing anything up

Apply PVA glue to the components with a small brush to ensure even coverage



Assemble the rail and legs. Note the angled blocks

When set, remove the cramps and trim the tenons



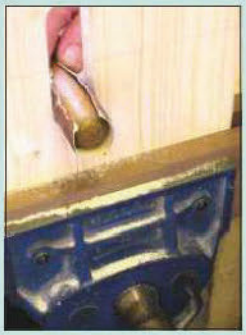
Make a template from scrap mdf and use it to mark out the handhold on the seat

Drill a couple of starter holes and make the cutout using a coping saw

Clean up the inside edges of the saw cut with a chisel and a gouge

18

Smooth the cutout with abrasive paper wrapped round a tool handle



Use a sharp block plane to trim the sawn endgrain at each end of the seat

Use a dedicated plug cutter to produce a batch of cross-grained plugs

Once you're satisfied that all is well, you can finally cut the tapered sides of the legs and plane them smooth. For the leg cutout, either use a suitable circular template or make your own. The coping saw gets another outing here; whatever shape you go for, be sure to keep it tidy and symmetrical.

Right, you've had a dry assembly and everything is cut and jointed. Now you just need to clean the components up, **photo 11**. Then you can get the glue out. I have to confess to using a power tool here – a super cordless Makita sander – but elbow grease would also have done the job... eventually!

Prepare with care

Whenever you're gluing up, make sure you have everything to hand before you start, **photo 12**. In this case you need glue, a damp rag, cramps and blocks or offcuts to protect the job from cramp-inflicted crush damage. I made some custom blocks from notching out the leg side offcuts; being tapered I figured they should keep the cramps on straight, as it's always tricky trying to cramp a sloped surface. They sort of did, **photo 13**, but it would have been better to make two new ones.

When the glue has set, remove the cramps and use a sharp chisel to flush off the ends of the tenons, **photo 14**.

Making the seat

While the leg assembly is going off, you can turn your attention to the stool seat. Cut this out to size as before, then halve each side and square across to find the centre. I made a handhold template from scrap mdf a while ago; it's seen lots of use since, and I'd heartily recommend you make one too. After drawing the handhold on the seat, **photo 15**, you have a few different options when it comes to forming the hole.

I normally jigsaw out the rough shape first; then, using the template and a router with a follower or template cutter fitted, I clean up the ragged edges. This time, however, I wanted to keep the use of power tools to a minimum, but blow me if I could find my brace and bit for the round ends anywhere. I must have mislaid it in my recent workshop move, and I have to confess I don't use it that often.

Still coping

As the coping saw was right there in front of me, I drilled a couple of small holes, fitted the blade and off I went, **photo 16**. It's not the easiest job in the world, as the narrow blade isn't really designed for cutting straight lines, but as long as you keep

inside the handhold perimeter you'll be fine. A spot of cleaning up with a sharp chisel and a gouge, **photo 17**, was followed by a bit of comedy sanding, **photo 18**, and the handhold was complete. Finish the seat off by planing the endgrain with a sharp well-set block plane, **photo 19**.

Final fixing

The last job, fixing the top to the base, is actually quite a tricky one. Again, there are multiple options here. You could glue and nail the seat (especially in soft wood), use a proprietary wooden fixing like a Miller dowel, a screw and plug, or even mortise-and-tenon joints. A note of caution here: I've tried the full tenon job and, while it looks great, it's a very tricky business to glue up and clamp because of the angles. Give it a go if you're feeling brave; you probably won't regret it!

I went for the screw and plug route. Cross-grain plugs can be bought at timber and builder's merchants, or you can make your own with a dedicated plug cutter, **photo 20**. It's much easier in hardwood, but achievable in softwood if you're careful. Just be sure to cut a few extras to give yourself more quality plugs to choose from.

Plugging in

After centring the seat on the base, **photo 21**, use your sliding bevel to mark the centre line of the legs on the edge of the seat, **photo 22**. Continue this line across the top surface of the seat, **photo 23**, and mark out the hole positions along it.

Drill a shallow hole that matches your plug size at each marked screw position, **photo 24**. Then drill a loose clearance hole and reposition the seat. Check everything and cramp the seat to the base, **photo 25**. Carefully drive your screws through the seat and down into the legs – you won't need a pilot hole in softwood. Remember to match the bevel angle. Drive the screws by hand, as it's easier to feel if the screw tip is going to come through the side of the leg below. If you think that could be happening, just withdraw the screw, re-angle your seat clearance hole and give it another go.

Finishing touches

All that remains now is to glue the plugs and carefully tap them into place, **photo 26**, making sure you have the grain aligned. Leave them for at least a couple of hours before trimming them off, either with a flexible backless saw, **photo 27**, or very carefully with a chisel, **photo 28**. The whole job can be sanded up now and a finish of your choice applied. Then just stand back and wait for the compliments!

Centre the seat on the base and check that the overhang is the same at each end

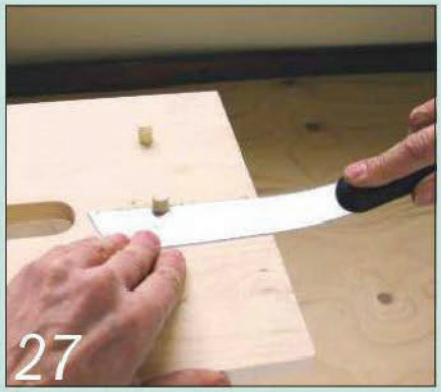
Use the sliding bevel to transfer the centre line of the legs to the seat

Draw a pencil line across the seat in line with the angled edge marks

Mark the screw positions on the line and drill shallow plug-sized holes

Cramp the seat in place, drill clearance holes and drive in the screws

Tap a glued plug into each hole, aligning the endgrain carefully



When the glue has set, trim all the plugs flush with a flexible saw...

...or a sharp chisel. Then sand the top and apply your chosen finish

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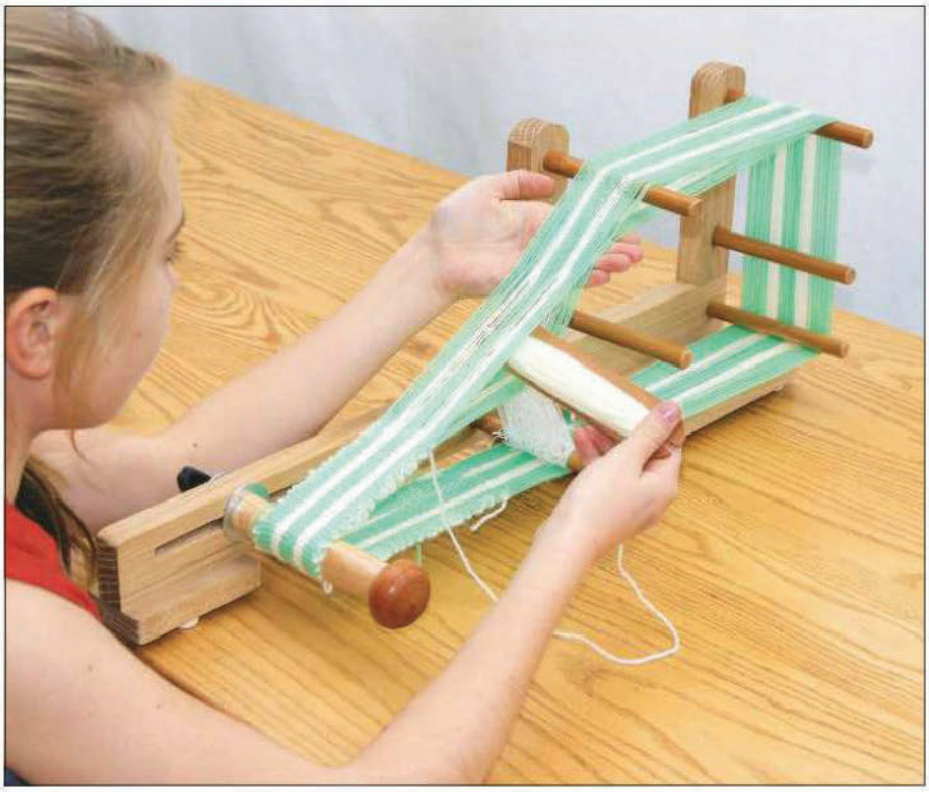


BY IAN WILKIE

Weaving inkles

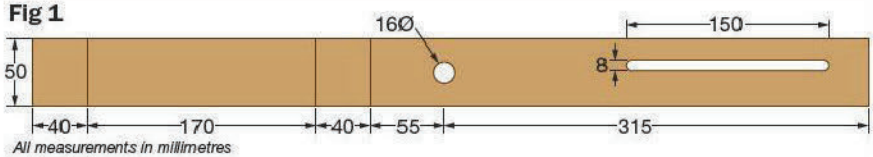
In case you didn't know, an inkle is an obsolete term for a kind of broad linen tape. Inkle weaving is a type of warp-faced weaving that's used to create narrow work such as trims, straps and belts, and an inkle loom is what does the work. Here's how to make one

A few months ago I went to a textile fair and spotted some members of a weaving group demonstrating their skills. I had never seen an inkle loom and was rather intrigued, so when I got home I did some research. There's plenty of information to be found on the subject on the internet, with instructions and videos on how to use the loom.

As this is quite a simple woodworking exercise and not too heavy on materials, I thought I would enjoy making one for my granddaughters to experiment with. I had some reclaimed oak from an old door and some beech dowelling, so all I needed to buy was a Trend knob, a steel bolt and a couple of washers.

The inkle loom is basically a wooden

Fig 1



All measurements in millimetres

Mark out a simple halving joint on one end of each upright

Make the first cut across the grain with a fine-toothed tenon saw

Make the second cut with the grain to complete the joint

Draw a curve on one end of each upright with a pencil and compass

Mark the dowel positions and part-drill a 16mm hole at each point

Turn the wood over, locate the drill in the pierced hole and finish it off

Cut the curved end of each upright to shape using a coping saw or scrollsaw

Shape the curve and then sand it smooth using a disc sander

INKLE LOOM CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Frame	1	620	50	20
Upright	2	220	40	20
Back base	1	255	150	16
Front base	1	100	50	16
Dowel peg	7	150	16 dia	
Tensioning handle	1	120	30 dia	
Shuttle	1 or more	210	40	5

You will also need one 150mm M8 bolt, two 40mm diameter M8 washers and one 40mm diameter M8 Trend knob or similar.

frame with dowels to hold the warp threads. It should be strong, with a simple but robust tensioning system. You can have more dowel pegs if you wish to produce longer lengths of braid, or use fewer to make a shorter length.

Preparing the parts

Thickness the five parts that make up the frame and cut all the pieces to size. Cut the tensioning bar and the seven dowel pegs to length. The warp threads will be looped around six of the pegs, and the seventh is called the heddle bar. Then mark out the halving joints on the ends of the two uprights, **photo 1**.

Make the first cut with a fine-toothed saw, **photo 2**. This is a Veritas saw I reviewed for the magazine last year (see page 81 of the April 2012 issue), and it cuts very smoothly. Then make the second cut to complete the joint and tidy it up, **photo 3**.

Curves and dowel holes

Draw a curve on the top end of each upright, **photo 4**, and mark the positions of the three dowel pegs. Then hold the wood firmly in a vice and drill a 16mm diameter hole at each mark with a saw-toothed Forstner bit, **photo 5**. Drill halfway through and allow just the point of the drill to break through on the underside.

Now reverse the wood, locate the tip of the bit in the hole, **photo 6**, and finish it off to give a neat hole. Drill and countersink two small diametrically opposed screw holes through each upright, next to the bottom dowel holes. These will be used to assemble the uprights to the main frame.

Cut the curve on the end of each upright; I did this on a scrollsaw, **photo 7**. Then shape the ends and sand them smooth with a disc sander, **photo 8**.

Preparing the main frame

Mark out the two joints on the main frame, using the halvings on the ends of the uprights. One is at the end and the other about two thirds of the way along, see **fig 1**. I've highlighted the central waste area in **photo 9** using blue masking tape.

To form the tee-halving joint, make two downward cuts with a fine-toothed saw and chisel out the waste wood in between, **photo 10**. Sand the cut edges to remove any splinters.

Next, measure and mark out the slot for the tensioning bar; it's 150mm long and 8mm wide, and begins about 30mm in from the end of the main frame. Drill a hole at

each end of the slot and mark the waste area to be cut out, **photo 11**.

Cut out the slot, **photo 12**. Once again I've marked the outline of the slot with blue masking tape. A scrollsaw fitted with a No 9 blade will do this job beautifully. Then clean up the inside of the slot with fine abrasive paper, **photo 13**.

Drilling and sanding

There's one more 16mm diameter dowel hole to drill. This is in the main frame, centred on it 55mm away from the tee-halving joint. This will hold the seventh dowel, the heddle bar.

Finally, sand all the parts of the frame thoroughly and round off the sharp edges. I stood the pieces on bench cookies and used a random orbit sander, **photo 14**. **Photo 15** shows all the parts finished and laid out ready for assembly.

Assembling the frame

Glue and screw the uprights to the main frame through the countersunk clearance holes you made earlier, **photo 16**. Then hold the main frame on the front and back bases and mark its position on them, **photo 17**, so you can work out where to drill the clearance holes for the fixing screws. Drill the holes, then glue and screw the three parts together.

Apply a little glue to the end of each dowel and tap it firmly into its hole using a soft-faced hammer, **photo 18**. For this job I used a product called Chair Doctor adhesive, which expands the wood and makes a very tight joint.

Turning the tensioning handle

Mount the prepared blank that will form the tensioning handle in small chuck jaws in the lathe. Bring up a large revolving centre to support the end and turn the blank to round to produce a handle 120mm long and 30mm in diameter, **photo 19**.

Remove the revolving centre and fit a drill chuck with a 20mm saw-tooth Forstner bit into the tailstock. Drill a hole about 20mm deep, **photo 20**; then continue with an 8mm twist drill until you have a hole long enough to take the bolt with the head hidden in the handle – see **fig 2**. Remove the handle from the lathe and set it aside.

Next, mount a small blank in the chuck jaws and turn a round-shaped end cap with a spigot to fit into the drilled hole in the end of the tensioning handle. This part is not absolutely necessary, but I think it looks neater. Don't glue it in place yet.

Mark out the tee-halving joint near the middle of the main frame

Cut down each side of the joint and chisel out the waste wood

Mark the position of the frame slot and drill a hole at each end

Cut out the slot with your coping saw, or use a scrollsaw if you have one

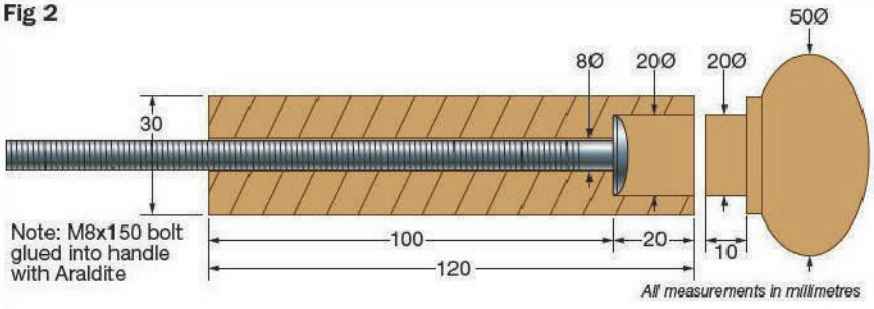
Clean up the inner faces of the slot with abrasive paper stuck to a former

Round over all the sharp edges and then sand the flat surfaces smooth

Lay out all the parts ready for assembly, including the hardware

Glue and screw the uprights to the main frame via the clearance holes you drilled earlier

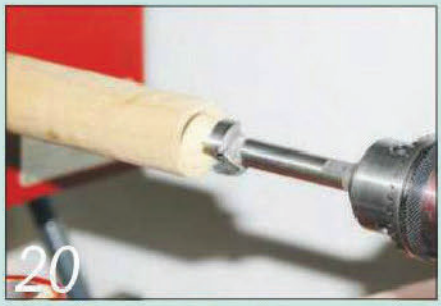
Fig 2



Hold the main frame on the bases and mark its position on them

Apply glue to the end of each dowel and tap it into its fixing hole

Mount the blank for the tensioning handle and turn it to round

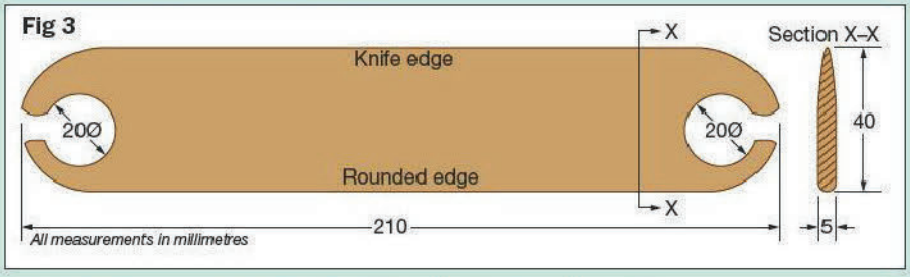


Drill a 20mm diameter hole 20mm deep in the end, then continue the hole 8mm in diameter

Glue the bolt into the handle, fit the end cap and add the washers and knob

Attach the tensioning handle to the main frame through the elongated slot

The loom is now complete and ready to be loaded with warp threads



Fixtures and fittings

Glue the 150mm M8 steel bolt into the handle with its head inside the 20mm diameter hole at one end. There will be 50mm of bolt protruding from the other end of the handle to receive the Trend knob. Try a dummy run, **photo 21**, and when you're happy you can glue glue the turned cap in place to conceal the bolt head.

Slip a washer on to the end of the bolt; then pass it through the slot in the frame, add the second washer and screw on a Trend M8 knurled knob, **photo 22**. I chose this knob because it works really well and is available from most tool shops. I also considered a Trend Bristol lever, but thought this might get in the way. And that's the loom completed, **photo 23**.

Making the shuttles

You will also want some shuttles to weave the weft strand between the warp threads, and there appear to be various designs in existence. The example I've illustrated (**photo 24** and **fig 3**) seems to be fairly standard and traditional. All the surfaces need to be really smooth so that it passes through the 'shed' (the weaving area) without snagging.

The shuttle has one knife edge which is used to 'beat' each thread up against its predecessor and keep the weave tight. You may well need several shuttles if you want to weave different coloured wools and cottons into your braids.

This project was great fun to make. The finished loom can now be threaded up and the shuttles wound, ready to start weaving! You will observe that not all the dowel pegs are being used for this first try as only a short length of braid is planned.

If you want more information on how the loom works, simply key '*inkle loom*' into your favourite search engine.

24 It's a good idea to make up several shuttles (see **fig 3**, left) to carry different threads

BY ANDY STANDING

C is for...

The aim of this series is to provide you with snippets of interesting and, I hope, useful information concerning all aspects of woodworking. It will explain some of the mysteries for those new to the craft, and will I hope inspire and entertain everyone else

The idea of pottering through the alphabet and looking at woodworking topics that begin with each letter in turn generates some unusual entries. But it's an interesting exercise in lateral thinking, because in a curious way one topic seems to lead on to another, even if there's no obvious link between them as you first consider them. Here's my third batch; please read on, and see what useful nuggets you can pick up from my trawl through subjects beginning with the letter C.

CHISEL

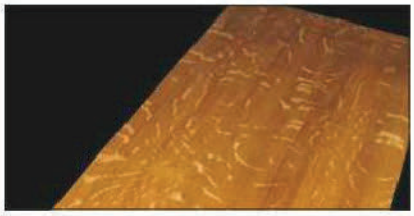
The chisel is one of the most used – and often abused – tools in the workshop. Yes, it does look like a screwdriver and it's so good for opening paint tins, but that's not what it's for. Chisels should always be razor sharp. Strangely it is the blunt tools that usually cut you, because they need more force to cut and then invariably slip out of control. A well-sharpened chisel needs minimal force to make it cut, and can take the finest shavings.

Chisels are mainly used for removing waste when cutting joints such as mortises or dovetails. Hand pressure is usually all that is needed to drive them, though with deeper joints in harder woods a mallet may be needed for extra power.

CONVERSION

Timber is a valuable resource and needs to be used efficiently. This is particularly true of exotic hardwoods, which can take many years to grow. Timber conversion is the process of cutting and conditioning the wood, making it into a stable and usable material. There are various different ways of sawing a log into boards and it's important to use the one most suited to a particular log.

Mobile sawmills mean that logs can be converted on site, or alternatively they can be transported to a local sawmill. The cheapest and simplest method of converting a log into boards is to saw it 'through and through', also known as



'plain sawn', which involves taking horizontal slices along the length. This is simple and cheap to do, but does produce timber of variable quality, with the outer boards being poorly figured and unstable, whereas those closer to the centre will be more stable and desirable.

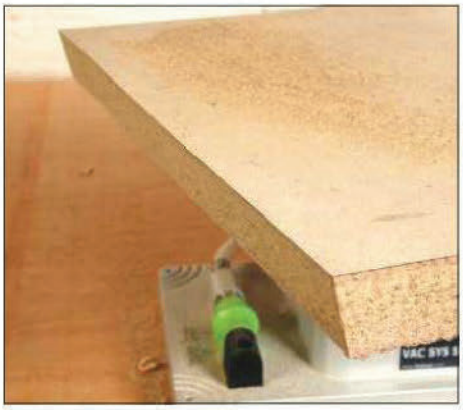
Another conversion method is known as quarter sawing. This produces much more stable and decorative boards, but it's considerably more labour-intensive and wastes more of the log. The essence of this method is that the log is first cut into quarters and then each quarter is divided tangentially so that the growth rings are perpendicular to the board surface. Quarter-sawn boards are usually used in the best quality furniture for making table tops, doors and any other decorative components.

CHERRY

English cherry is one of my favourite timbers. It has a beautiful figure, though it can be hard to work due to its often irregular grain pattern. It's not easy to obtain and boards need to be carefully chosen, as it's prone to splitting during seasoning. It ages well, turning a soft golden colour.

CHIPBOARD

Chipboard is a man-made board (also known as particle board) that's manufactured by mixing wood chippings, sawdust and resins together and then compressing it all to form a flat, dense board. Its advantages are that it's cheap as it's made from waste material. It is also stable, rigid and easy to cut (but blunts tools quickly). The disadvantages are that it has poor screwholding strength, looks unattractive, is inflexible and is seriously damaged if it gets wet. Therefore it must be protected in use, and this usually takes the form of a surface laminate. MFC (melamine-faced chipboard) is extensively used to make kitchen cabinets, shelving and other furniture as the chipboard core is covered by the hard laminate. Chipboard is also used as the core for kitchen worktops as, again, the heavy-duty laminate repels the moisture and the solid core provides rigid support with no chance of bowing or twisting.



COPING SAW

This is a small framed saw that's used to cut curved components. It uses a narrow and fragile blade that can be rotated in the frame to allow it to cut in any direction relative to the frame. The blade can be removed and threaded through a hole in a workpiece so it can produce pierced work.

COMBINATION SQUARE

A combination square is a multi-purpose measuring and marking tool. The simplest version has a movable stock that will mark 45° and 90° angles. More complex models combine the functions of a try square, a mitre square and a depth gauge, and are often also supplied with a centre-finder attachment and an angle finder. You simply remove the attachments you don't need.

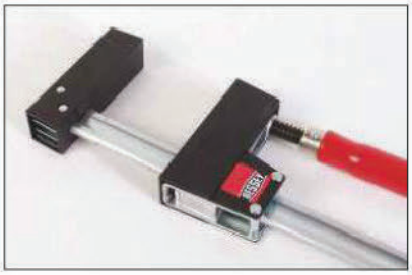
CHUCK

A chuck is the bit holder that is mounted on the front of a drill or lathe. It's used to grip cylindrical objects such as drill bits and sanding drums. A standard chuck usually has three jaws which close together to grip the bit as the chuck is tightened. Older chucks needed special keys to tighten them sufficiently, but most modern designs are known as keyless chucks as they can be tightened by hand.

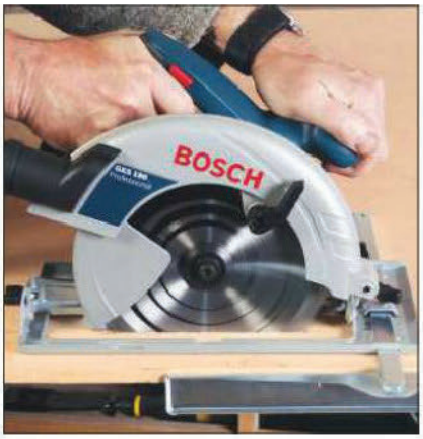
Another chuck variation is the SDS (Special Direct System) chuck. This was invented by Bosch and is used on many hammer drills. The special SDS bit is held loosely in the chuck, and the drill's hammer action operates directly on the bit itself, which is free to move in and out of the chuck to a limited extent, resulting in a highly efficient drilling system that's capable of piercing reinforced concrete.

CRAMPS

Cramps are vital woodworking tools, used to pull joints together and hold assemblies securely while the glue cures. Good clamps must be easy to adjust and accurately made so that they can exert an even pressure on the timber and so produce a strong joint. They are available in a wide variety of designs and sizes to suit all manner of uses, from simple G-cramps to bar cramps and long sash cramps, used for holding large frame assemblies. A woodworker can never have too many cramps!



CIRCULAR SAW



After the power drill, the circular saw is probably the most widely used power tool. It is a hand-held tool used for both ripping and crosscutting solid timber and sheet materials. It can produce remarkably accurate work, especially when used with a guide rail system. Blade diameters range from 85mm on small cordless saws up to 350mm on large professional mains-powered models, giving cutting depths from 25mm up to 130mm. Circular saws are mainly used on site, where there is no access to workshop machinery. They are also useful for dividing up large sheets of ply or MDF which can be difficult to fit onto a table saw.

CROSSCUTTING

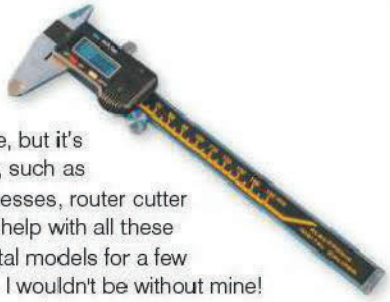
This is not a description of an angry woodworker, but a term used for describing a cut that is made across the grain of a board, as when cutting the board to length. The saw blade cuts across the timber fibres, severing them cleanly. For crosscutting a fairly fine saw blade can be used, as the cut produces far less sawdust than cutting with the grain and so smaller spaces between the teeth are needed to clear it. Hand saws for crosscutting often have a stiffener running the length of the blade.

COMBINATION MACHINE

Sooner or later all woodworkers aspire to some machinery, from a simple table saw to a full range of planers, thicknessers, mortisers, lathes and spindle moulders. The problem in the home workshop is often lack of space (and possibly of cash), but a combination machine can be the answer.

As the name suggests, this is a machine that combines several functions in a single unit. These usually include a table saw, a planer thicknesser, a spindle moulder and possibly a slot mortiser. The advantage is obviously that the unit takes up far less space than separate machines. The disadvantages are that it can be fiddly changing functions, only one person can use the machine at a time and you must be very disciplined in your work; otherwise you will spend more time re-setting the machine than actually making anything.

CALLIPERS



Accurate woodworking relies on precise measurement and meticulous craftsmanship. Using tapes and rulers to mark out boards is fine, but it's often difficult to measure the finer details exactly, such as rebate depths, board thicknesses, veneer thicknesses, router cutter diameters and so on. A pair of callipers is a real help with all these measurements. You can now buy electronic digital models for a few pounds that are accurate and also easy to read. I wouldn't be without mine!

CHAINSAW

The chainsaw is perhaps not a tool generally associated with woodworking. It is usually the preserve of the woodsman who uses it for coarse work such as tree felling and cutting logs. However, in the right hands it's actually a remarkably precise and sensitive tool. It is extensively used for large-scale joinery when constructing timber-framed buildings, for instance. Mortise and tenon joints can be cut with remarkable accuracy and considerable speed.

Chainsaws are also used as carving tools. Special narrow, pointed carving bars are available for them so that they can pick out fine details with the tip of the blade. However, do make sure that you have been properly trained before attempting any chainsaw work, as they can be extremely dangerous tools.

CARCASE CONSTRUCTION

Carcase construction refers to a method of making furniture. It involves joining solid boards together to make the main body of the piece, rather than using the traditional frame and panel technique. It may be used with both solid timber and man-made boards. It is extensively used in kitchen cabinet construction, where melamine-faced chipboard or mdf boards are biscuit-jointed or dowelled together and then a decorative drawer front and door is fitted. Most flat-pack furniture is also manufactured in this way.

CARBIDE

Modern sawblades and router cutters are often 'carbide tipped' or more accurately 'tungsten carbide tipped'. The reason for this is that although HSS (high-speed steel) blades and cutters can be made razor-sharp, they are rapidly blunted by certain hardwoods and especially when used on board materials with a high abrasive content such as chipboard or mdf. So carbide tips are attached to the saw teeth or router cutters, and though they can't take quite such a sharp edge, they are considerably more durable and will hold their edge for far longer. They can also easily be re-sharpened.

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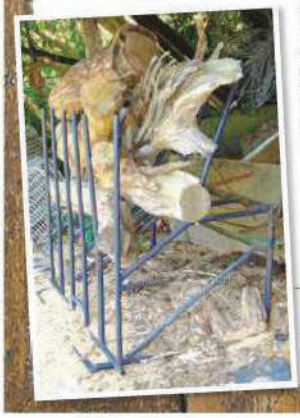
A NEW concept in logging

The Buckingham Woodstation offers a fast, convenient and very safe way of cutting logs with a chainsaw. Portable and versatile, it saves time and money while making cutting logs and firewood a much simpler job than in the past.

Convenient:

The Buckingham Woodstation can be either free-standing, or hung on the side of a trailer or truck body. When mounted onto the purpose-made stand, logs can be cut and bagged without bending your back, and when hung on the side of a truck logs can be emptied straight into the trailer.



Time-saving:

As well as the convenience, the speed will surprise you. One customer told us he easily cuts 150 logs in five minutes using the smallest Garden Model.

Another customer said that using a Woodstation halved his logging time compared to using a Fergie logging bench.

Versatile:

The Buckingham Woodstation allows you to cut stakes and fence posts with the use of a simple attachment that turns the Woodstation into a 'horse' holding the log at the perfect height for splitting and sharpening.

You can also cut smaller diameter wood easily and effectively, which is especially useful for charcoal burning. Even cutting slabwood becomes a pleasure.

Model sizes & options:

Whether logging is your business, or you cut logs for an open fire or wood stove, the Buckingham Woodstation will make cutting firewood faster and easier than before, and there are a range of model sizes to suit your particular need.

Each model includes the basic stand with log cradle and anti-spin bar, and all models can take the optional attachments: log-retaininwg sides (to prevent smaller cut logs from falling out of the cradle); hooks (for mounting onto a truck or trailer); and the stake holder.

Laurie Buckingham: **01892 783152** / mob: **07939 162433**
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BY ANDY KING

The mortiser

A portable chain mortiser is the ideal choice for cutting big mortises and tenons

While dovetailing by hand is a sure-fire way of letting the world know you are a competent woodworker, I doubt whether many people compliment makers on their ability to hand-cut a mortise. But if you have a mortiser, you needn't worry: you'll get perfect results every time

That's not to say that cutting a mortise isn't a skill in its own right. Doing it accurately and consistently takes a good level of competence, but at the same time, having to make a lot of mortises for a basic framework is far too time-consuming to do by hand unless you're a dyed-in-the-wool Luddite...

Man v machine

Those who do consider hand-cutting as an option can incorporate time savers such as drilling away the majority of the waste, but it will still need good hand skills to complete the job, and there's often little to show for that with this type of joint.

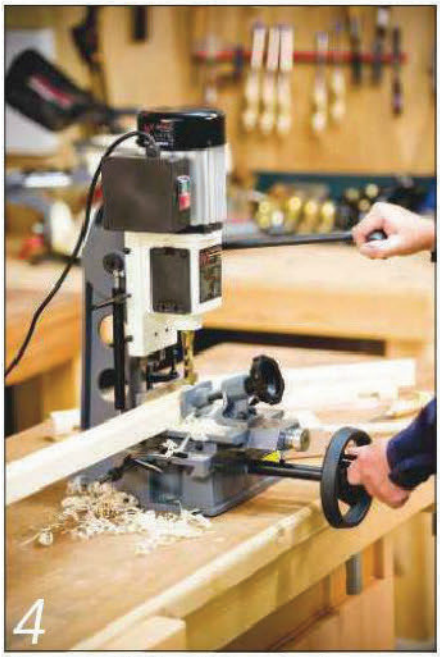
It's therefore common sense that a labour-saving option in the case of the mortise part of the joint is the way forward. As with pretty well every workshop machine used at industry level, there are low-priced budget options that will do the same job, so we can all bang out mortises in a fraction of the time of a few years back.

The right angles

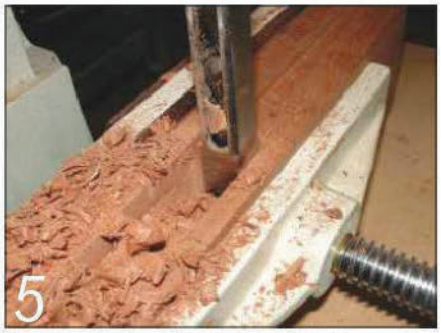
In general terms, a mortise normally runs parallel to a particular part of the stock. The tenon is cut at a splay should this need to

The chain mortiser is essential when putting together heavy-duty timber framing jobs such as this

The machine is invaluable for cutting lock mortises on doors and the like



The standard hollow-chisel mortiser is the one we're all more familiar with



Try to ensure that chip ejection doesn't obscure your layout marks

The simplest hollow-chisel mortisers have a basic fork to hold down the work

be introduced – in the case of a chair for example, where the rails connecting the front legs to the back are often angled.

There could be an argument for running the mortises at the desired angle instead, but the final assembly could be compromised if you start to introduce splays that don't allow the last components to slip easily into place.

I recall watching a guy making the crow's-nest for *The Matthew*, a boat I worked on in Bristol many years ago. He did just that, splaying the mortises rather than angling the tenons, despite a few of us saying it would mean assembly was not an easy option. To see a half-ton oak crow's-nest being 'assembled' later with the help of sledgehammers, mauls and ratchet straps was not the best advertisement for good craftsmanship on such a prestige job!

Therefore it's normally the case that the need to keep the walls parallel to the outer face of the component is paramount, and this leads inevitably back to good stock preparation and the use of face and edge marks so that the fitting of the joints is easy and accurate as the job progresses.

Machine options

That brings us on to the easiest way to achieve this without resorting to mallet and chisel. The real options available fall into two main categories; the chain mortise and the hollow-chisel mortise. There is a further type in the guise of a spiral bit mortiser that allows the use of a planer block on a combination machine to do the job.

This particular type is favoured in Europe, but isn't a popular choice here in the UK, although it is capable of dealing with some more challenging pieces. So the only real, readily available stand-alone options are the chain and hollow-chisel models.

The chain mortiser

For speed, the chain mortiser is undoubtedly the perfect choice, leaving clean-walled slots in double-quick time. The pitfall however is certainly the outlay; a chain mortiser with its chains is very costly indeed when compared to a hollow-chisel type.

The chain could be said to be similar to the one on a chainsaw, and it does work in the same way. The tooth design on the chain is ganged in a proper tooth format to give a far cleaner cut than a chainsaw, and it used to be the case that differing tooth pitches were available for hard and softwoods and extra-clean cutting.

Like a chainsaw, the mortiser operates with a continuous chain running around a drive sprocket, with a stiff bar to support the chain as it cuts.

However, you have to hold the work against the fence and move it along by hand

A front clamp such as this makes life easier, especially on heavier-duty work

Wheel adjusters are essential if you want to work quickly and efficiently

Stops for setting mortise positions and lengths are a useful option...

...as are similar settings for cutting haunches and blind mortises

Adjustable plunge arms allow you to select the best leverage position

Some benchtop models have riser blocks to allow deeper stock to be cut

SETTING UP

Providing the right clearance between chisel and bit is essential, with a 2p coin the perfect spacer to provide it. The chisel should be lightly clamped within the collar, using the coin to set the clearance, **photo A**. The auger is then pushed up tightly to the chisel and the chuck is tightened with its key, **photo B**. Its position is now set correctly.

Loosen the chisel and push it up tight to the collar, taking up the initial space the coin provided. This now gives enough clearance for the bit to rotate freely and also lets the chips from the auger pull up through the flutes. However, it is also essential that the chisel itself is set square to the fence before it is clamped off tightly, **photo C**.

That is a mortiser in a nutshell when it comes to setting the chisel, and there's little to go wrong in that respect, but there are additional stops and positional wheels to set up, depending on the model and budget you have.

SHARPENING THE CHISEL

The pin is fitted to the reamer and has to match the inside diameter of the chisel, **photo A**. Driven by a brace or drill, the reamer removes a small amount of metal to sharpen the chisel, **photo B**. Any burrs are then removed on a fine stone, **photo C**, keeping the chisel flat. Finally, the cutting edges on the chisel auger are touched up with a fine file, **photo D**.


A


B


C


D


14

This particular machine has a tilting table for cutting compound mortises


15

Its heavy-duty rack-and-pinion mechanism allows very fine tuning


17

It also features positive stops to set it up for standard mortise work

Chain pros and cons

There are limitations with a chain mortiser, the main one being the chain and bar size which will restrict the mortise length. Chains are available in various widths, so common sizes should be covered in much the same way as a with a hollow-chisel model, but where a hollow chisel has a square profile, the bar on a chain dictates the smaller mortise length you can cut. For this reason a floor-standing chain mortiser is ideally suited to a workshop that is predominantly joinery-based.

Another consideration is the cutting of stub or blind mortises. The curvature of the bar is replicated on the floor of the mortise; either this has to either be squared up with a chisel, or the tenon has to be rounded to gain maximum insertion strength.

The alternative, if the stock allows it, it to make the mortise deeper than required and to use a square-bottomed tenon of sufficient length that won't foul the rounded mortise floor.

Second-hand only

Cuts made with a chain mortiser can leave some breakout on a through mortise, but the cut can be kept crisp if you flip the work as you would for a hollow chisel type.

If all of this sounds tempting and you fancy getting one, finding a workshop model is like finding a needle in a haystack. There don't seem to be any manufacturers still making them. So you'll have to turn the second-hand market for this particular type.

Portable alternatives

Portable chain mortisers are more common, although equally expensive (Axminster offer one model, costing around £1170). For the timber framing business especially they are all but essential. They can be cramped to the timber and work with a spring plunge similar to that of a router to make the cut.

Working with such big lumps of timber, it's not prudent to take the timber to the machine. Therefore the portable mortiser which can be clamped vertically as well as horizontally makes perfect sense. The longer cutting depth a chain mortiser offers is also in its favour for deeper stock.

But the portable mortiser also gives additional jointing functions, allowing tenons as well as housing or halving cuts to be made, so for big framing work it's the only real choice.

The hollow-chisel mortiser

For small workshops up and down the country the standard hollow mortiser is the one we are all familiar with. Whether you spend £100 or £1000 on this particular style, the set-up is identical, and it's important that you get this right if the machine is to do its job correctly. The panels here and overleaf give all the details.

BY KEITH SMITH

Shop notes

Such is the delay in publishing schedules that spring will be just around the corner (I wish) by the time you read this, but it's the middle of January as I sit here writing this issue's Shopnotes on my shiny new iPad! Santa Claus was very kind to me this year...

For a while now we've been thinking about getting a tablet to use as a tool for showing off our portfolio of work to prospective clients, but the cost – about £500 – has put us off. However, it's become increasingly obvious that the A4 folder we've been using (with about fifty photographs in plastic sleeves) is less than impressive as a marketing tool. Technology has moved on and we've had to move with it!

A Christmas ukulele

I'm sure many of you will have been following the recent ukulele project by Paul Bodiam with interest. In November's Shopnotes I featured my neighbour's father Alan Morton, who since retiring from teaching some twenty years ago has spent a considerable amount of time making all sorts of musical instruments. I showed him the ukulele articles in the magazine, and he was so impressed that he said it would be his next project and a present for his granddaughter. Well, true to his word, they arrived on Christmas Eve to sing us a chorus of 'We wish you a Merry Christmas', accompanied by a brand new tenor ukulele, **photo 1**!

Santa delivers

We've just finished our last job for 2012; an island unit in oak for a client who runs a catering business from home. We promised that it would be fitted before Christmas, and had the cabinet work installed with two days to go, but we then had to fit the granite worktop as the installers couldn't come until the New Year.

The granite slab weighed some 200kg and, as the house has garages underneath, we had to get it up a flight of steps! We set off early on the morning of Christmas Eve with some trepidation about the task in hand, but we needn't have worried. Our Secret Santa had arrived in the form of the client's brother with his Teleram machine!

The big lift

The granite was raised easily to first-floor level on its steel frame, **photo 2**, and we were then left with the comparatively simple task of moving it into the house. The worktop had been pre-drilled with a large hole to take a pop-up electrical socket, and this certainly made handling it easier, **photo 3**. By the way, granite should always be transported vertically; if it's laid flat it's likely to crack.

All went well and we got the slab up onto the island, **photo 4**. Then I managed to trap the end of my finger under the worktop as we were sealing it to the cabinets. Crush injuries are very painful and this was no exception. I barely caught my fingertip, but it crushed the nail and later that day my finger looked like one of ET's! My advice is now to get the experts to fit them.

Standard units

Adding an island to a kitchen has become really popular, and for some larger kitchens it can make a lot of sense. It can be relatively inexpensive to make a simple island unit from standard kitchen units. If you have the space, the usual method is to

make it 900mm wide; that way you can use standard base units together with 300mm deep, 720mm tall, wall cupboards to make up the width. The only extras you need are four cabinet legs per wall unit to make up the basic frame.

If space is tight it's possible to make a 600mm wide island with just base units, although this will need a long back panel. Alternatively you could use two wall units back to back, which saves the problem of making a back panel, but precludes fitting any really practical drawers. All you need then is to add a couple of end panels which you can normally buy to match the cupboard doors, and a length of matching plinth to finish off the cabinet. That just leaves the choice of worktop to be made.

Stone or timber?

Granite worktops can be made to almost any size you require, but if you want to keep the cost down and use laminate or timber worktops then 600 and 900mm wide worktops are the most readily available and practical to fit. Bear in mind that you will need to get double bullnose worktop, which is available from Magnet. It's possible to make the island 1200mm wide by using two base units back to back, but the choice of suitable worktops is very much more restricted and the worktop will be very heavy and unwieldy to fit.

Added extras

The island we've just made needed to house an integrated fridge, a 300mm wide base unit (**photo 5**), a double waste bin unit (**photo 6**) and an 800mm wide drawer unit (**photo 7**). As the unit could be only 1400mm long we had to make it 1200mm wide. We started out by making all the base units. The island was to have oak legs and there is normally some wasted space between them, but this time we made a bookcase to fit at one end (**photo 8**) and shallow unit to hold spice jars and kitchen foils at the other (**photo 9**).

Fitting an integrated fridge can be a problem in an island as there is nothing to tie the adjacent legs together. If they splay apart even slightly, it will show in the gaps between the doors. We solved the problem here by fitting a length of builders' band (perforated steel tape) between the two legs in such a way as to be able to adjust the spacing between the legs with a screw.

Getting power to an island can be a problem. In this case we were lucky that the builders had fitted two sockets in the floor, which allowed us to fit a pop-up socket in the worktop. This one sits flush when it's closed – a neat finishing touch.

Alan Morton's tenor ukulele was to be an early Christmas present for his granddaughter Carmen, who demonstrated how easy it was to play

The granite worktop came on a steel frame which could be lifted over the steps by the forks on the Teleram. We couldn't have managed without it

The heavy slab had been drilled to take a pop-up socket, so we put a piece of timber through the hole and used that to lift it at one end

We were all elated to get it into position on the island without incident; this was before I trapped my finger underneath it!

We made the carcases for the base units from 18mm birch ply which was edge-banded with a 2mm oak strip to match the cabinet doors

The waste mechanism for the twin waste bins comes as a complete unit, with full extension runners and a soft-close mechanism

The drawer fronts were grain-matched from a single piece of timber. The masking tape allowed the knob positions to be marked accurately

We had to step the back of the bookcase unit to take up the difference in the cabinet lengths, but the discrepancy is hardly noticeable

Normally this would be a wasted space, but we made the legs slightly deeper and managed to squeeze in a spice and foil rack

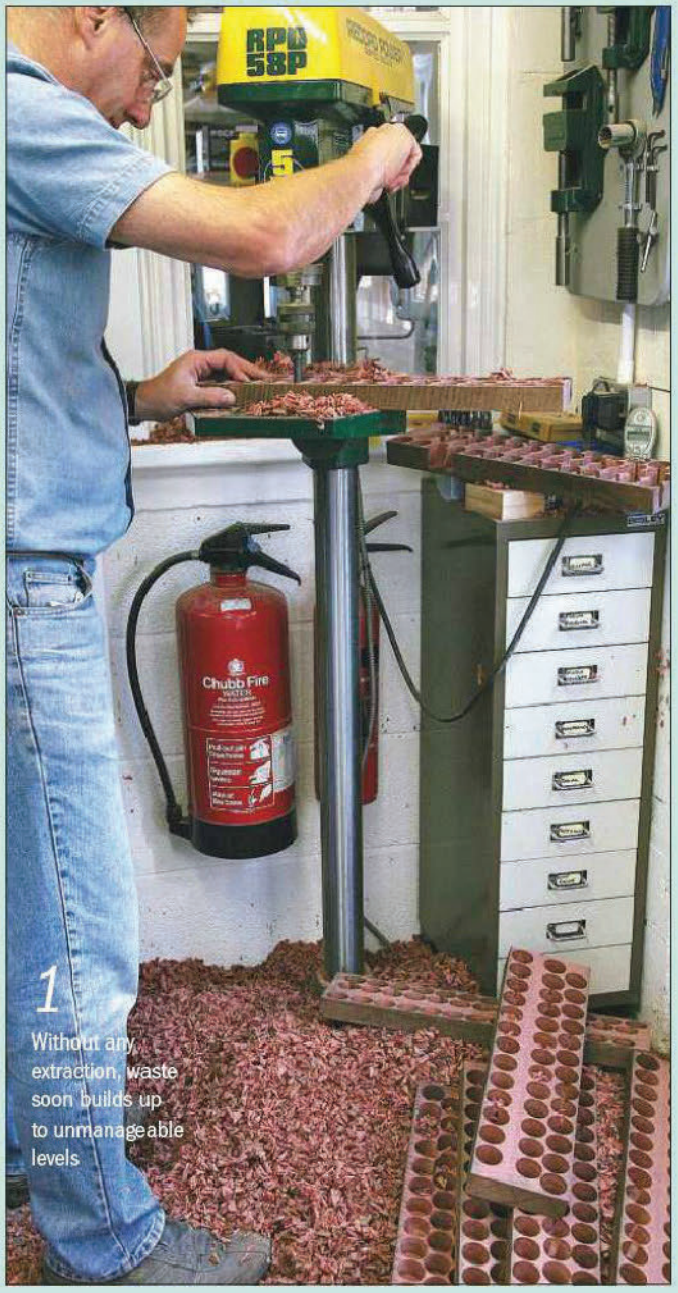
This clever pop-up double socket outlet sits flush with the worktop when it's not in use – a neat and very practical finishing touch I could play with all day!

BY ALAN HOLTHAM

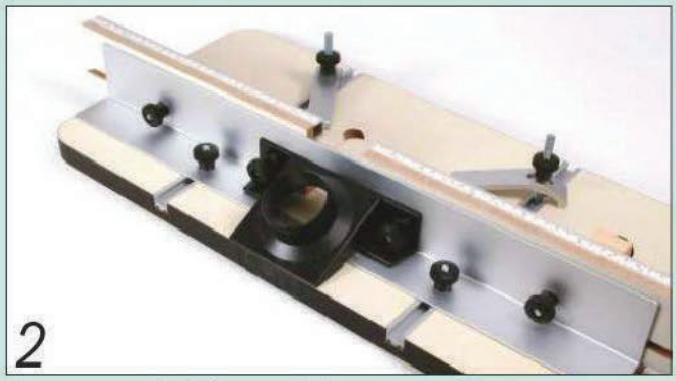
Drill & extract

The ripple effect can be quite amazing, as I discovered after a recent trip to an Axminster store. I only called in for a look, but a few relatively minor purchases triggered a major reorganisation of the workshop, mainly centred around my drill press

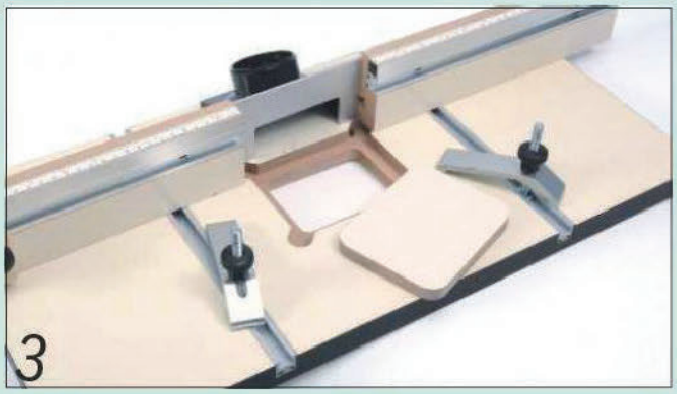
This stands quite happily in a corner right by the main entrance, but for some time I'd been toying with the idea of linking it up to the main extraction system. For small jobs it's fine without a link, but if there's a lot of drilling to do the swarf soon builds up on the floor, **photo 1**. This blocks the entrance and it also then tramps all over the workshop if you do eventually manage to open the door.



1 Without any extraction, waste soon builds up to unmanageable levels



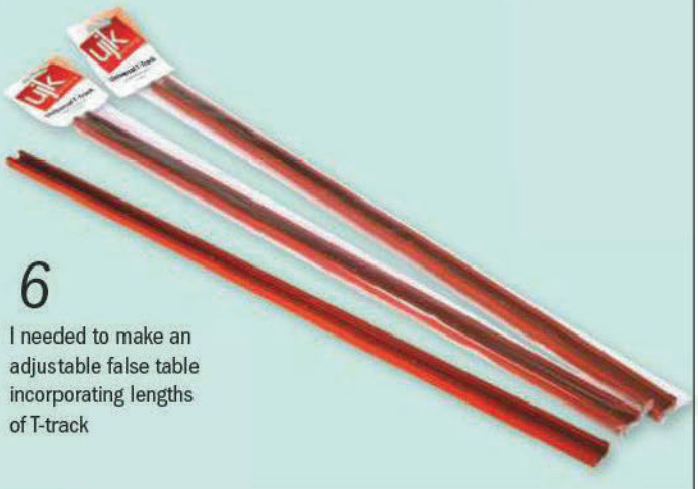
2 This purpose-made drill press table features a rear dust extraction port



3 It also has sliding fences, integral hold-downs and a sacrificial centre insert

4 The new table is designed to fit with two bolts through the insert recess...

5 ...but the slots on my existing table are diagonal, effectively preventing any fore-and-aft movement of the new one



6 I needed to make an adjustable false table incorporating lengths of T-track

Built-in extraction

Imagine my delight at finding a purpose-made drill press table in the Axminster store that featured a dust extraction port at the back, **photo 2**. I've been using a home-made table for years, having found that it increases the versatility of the drill press dramatically, so it felt a bit extravagant to be buying one. However, I was seduced by the sliding fences with stops and the integral hold-downs, **photo 3**. The table also incorporates a sacrificial centre insert that you can easily renew, but I did draw the line at buying any replacements in the shop; after all, they're only small pieces of mdf!

First amendment

The new table is designed to clamp to the drill press table via two bolts through the insert recess, **photo 4**, but here I hit the first snag. The locating slots on my drill table are on the diagonal, **photo 5**. This didn't allow for any fore-and-aft movement of the new table, making it virtually useless unless I drilled a whole series of additional locating holes in the existing table. Even then there would be no fine adjustment.

I reckoned the only way to overcome this was by making a false table to fit on the old table and act as a mount for the new one. Fortunately the same shopping trip had resulted in the purchase of some T-track for just such an eventuality, **photo 6.**

I make a lot of jigs, and I'd also picked up a boxed selection of jig-making hardware, **photo 7**. This handy kit contains a tasty selection of T-bolts in various sizes and a variety of locking knobs, both male and female, making it a very useful (and thoroughly recommended) purchase.

Make do and mend

I used an offcut of 25mm thick mdf to make my false table, plus a length of the T-track and a couple of the shorter bolts and locking knobs, **photo 8**. The first job was to rout a slot in the underside of the new table at either end to take the track, **photo 9**. I found that a 19mm bit allowed for a snug fit. Purely by chance a length of the track cut in half was exactly the right length to span the table. Each section is held in place with three countersunk screws, **photo 10**.

Mounting up

The false table could now be attached to the drill press table using a couple of coach bolts and two more of the knobs, **photo 11**. You could bolt it on permanently if you wish. However, I could envisage situations where I would want it removed, so I kept my options open and made it easy to take off.

7 This kit of jig-making hardware contained everything I needed for the job

8 I made my table from an mdf offcut, a length of T-track and two bolts and knobs

9 Rout slots in the underside of the new table to take the track sections

10 Each section of track is secured in its slot with three countersunk screws

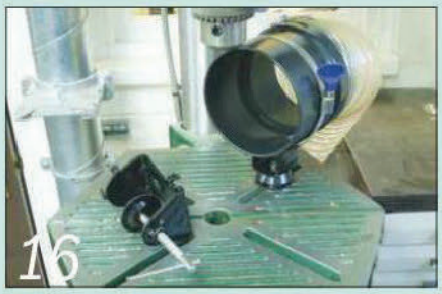
11 The false table is attached to existing one with coach bolts and knobs

12 Two T-bolts fitted through the false table allow the new table to slide freely

13 Unfortunately with this set-up the drill pillar blocks easy access to the extract port

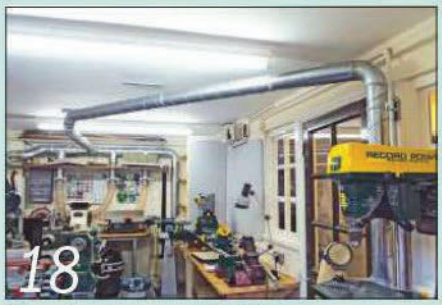
14 This hose support with its adjustable cramp promised to come to the rescue

The support cramp can be attached to the table and will hold the hose horizontally or vertically



You can remove the cramp and rely on the magnet to hold the support on the table

The table outlet is held in place by the fence locking screws, so is easily removed



To get the pipe over to the drill press I cut a tee into the existing ducting

A blast gate and a short length of flexible hose completed the installation

The new drill press table is easy to position on the false table below

Its fence, cramps and stops make jobs such as repetition drilling simple

The removable centre insert allows quick conversion to a bobbin sander

THE PARTS YOU NEED

Axminster pillar drill table	£63.50
T-track (600mm length)	£5.86
148-piece jig-making kit	£36.35
Universal dust port support	£14.15

FURTHER INFORMATION

- Axminster Tool Centre
- 03322 406406
- www.axminster.co.uk

I fitted a couple of T-bolts through the false table, spaced on the centre lines of the track, and these allow the new table to slide backwards and forwards and lock easily from the underside, **photo 12**.

Unfortunately, what now became apparent – and I should have picked on this before – was that access to the extraction outlet was now totally blocked by the pillar of the drill, **photo 13**, making it unusable. The whole purpose of the conversion job seemed in jeopardy!

Mister adaptable

Fortunately, with another job in mind I'd also picked up a hose support with an adjustable cramp, **photo 14**. This is another excellent piece of kit that can be configured to hold a 100mm extraction hose either horizontally or vertically, **photo 15**. It fits onto the edge of any table, though the tommy bar seems a bit flimsy. Even better is the fact that you can slide it out of the cramp and just rely on the powerful magnet in its base to hold it in place on any ferrous surface, **photo 16**.

This then neatly overcame the extraction problem on my drill press table, and in fact provided a more flexible solution. The integral table outlet is held in place with two of the fence locking screws so is easily removed, **photo 17**, allowing the table to slide back further if needed.

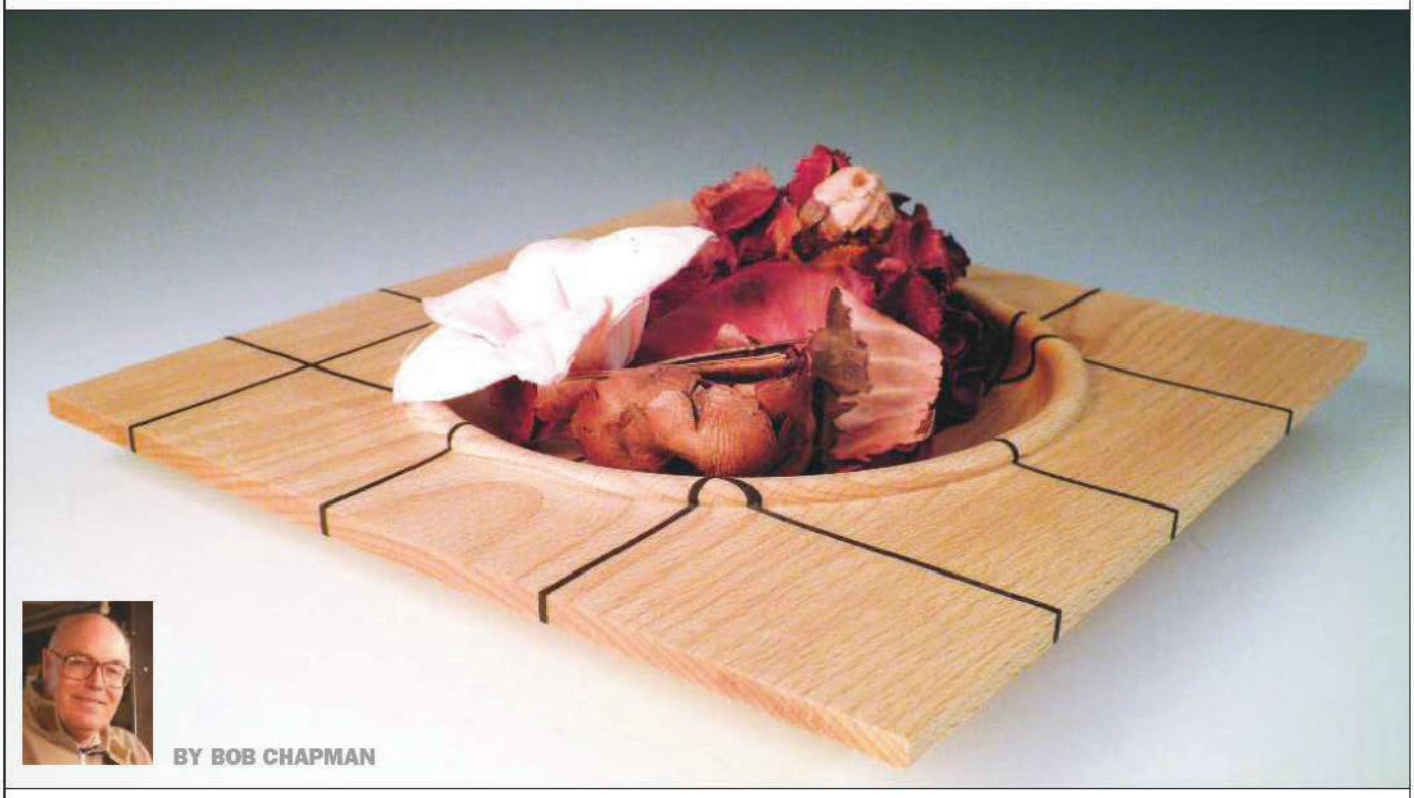
Connecting up

The only problem now was to get a pipe over to the drill press, and for this I cut a tee into the nearest accessible ducting, **photo 18**. I know that straight tee joints in ducting are not ideal; they're far better going in at 45°, but that wasn't possible in this case. Anyway the ducting is large and the extractor unit has plenty of power, so it still works well. A blast gate and a length of flexible hose completed the installation, **photo 19**, and I'm now relatively free from dust and swarf.

Using the table

The new table has proved to be excellent to use. It positions so easily on the false table below, **photo 20**, and the fence, clamps and stops make jobs like repetition drilling a breeze, **photo 21**. The removable centre insert also allows the drill to be quickly converted into a bobbin sander, for which the new more flexible extraction capability works perfectly, **photo 22**.

Although this eventually turned out to be quite a major job I'm well pleased with the result, and for a relatively modest expenditure I've now cracked the dust problem on another machine. My SCMS is next, and I have a cunning plan for that as well!



BY BOB CHAPMAN

Four by four

I like the bold geometrical paintings of the Dutch artist Piet Mondrian, whose canvases were filled with blocks of bright colour separated by black lines. It's a style that lends itself to an unusual turning challenge

1

Mondrian liked geometrically shaped blocks of bold primary colours, strikingly imitated here

I sometimes create Mondrian-type pieces by cutting up a block of wood and incorporating layers of black veneer before gluing the segments back together. After turning, the areas between the black lines can be stained or painted to create the Mondrian effect, **photo 1**, and that was the plan here… initially, anyway.

Back to square one

In this instance I wanted to make a square bowl, so I started with a steamed beech block approximately 200mm square and 35mm thick, cut from a flat board. Using a try square I marked three parallel lines across the block and another three at right angles to the first three, **photo 2**. The spacing of these lines isn't critical but I wanted them to be unsymmetrical; the dimensions I used are given in **fig 1**. **Fig 2** shows the approximate dimensions of the finished piece, but these can be modified to suit whatever timber you have available.

The first cuts

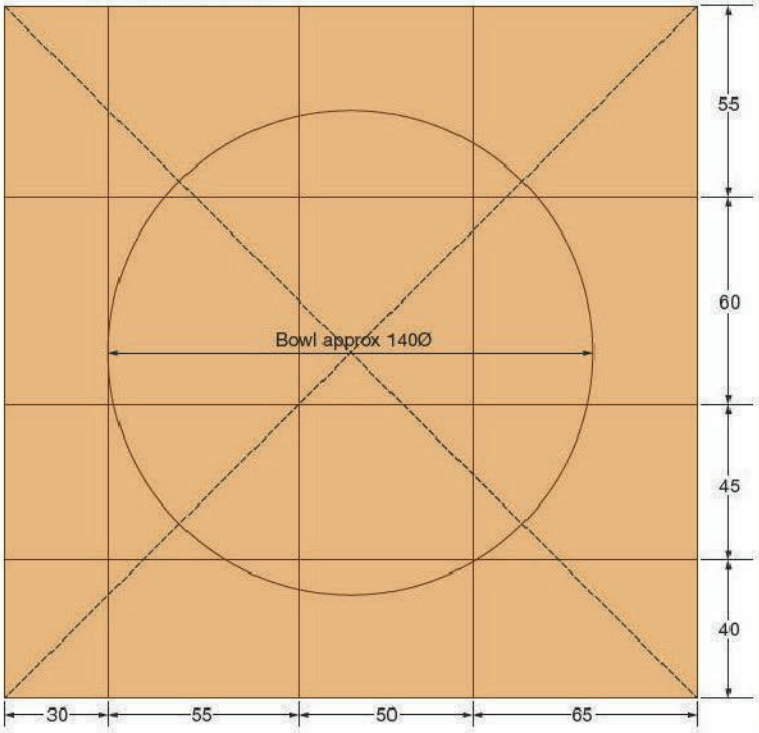
I cut the first set of lines on the bandsaw, dividing the block into four unequal strips, **photo 3**. At the same time I cut a piece of 2mm thick black veneer into six strips, 36mm wide and slightly over 200mm long. This is called 'constructional veneer', and was actually sycamore which had been pressure-stained black all the way through.

Incidentally, the firm I bought it from no longer sells it and, although I've trawled the internet, I can't locate another stockist. I can buy 2mm thick ebony constructional veneer, but the price is prohibitive. So if anyone out there knows where I can get stained sycamore, about 2mm thick, please get in touch. Meanwhile I plan to experiment with staining my own under reduced pressure, and I'll let you know if it's successful.

Making a sandwich

So long as your bandsaw blade is in good condition, you should get a reasonably flat cut. I made no attempt to plane the sawn surfaces smooth before gluing them back together with the veneer strips sandwiched between them, **photo 4**. It's essential to use a good-quality glue for this. The last thing you want is for the glue joints to fail when the piece is spinning on the lathe. I used Titebond III and clamped all the pieces together, **photo 5**, before leaving them overnight for the glue cure properly.

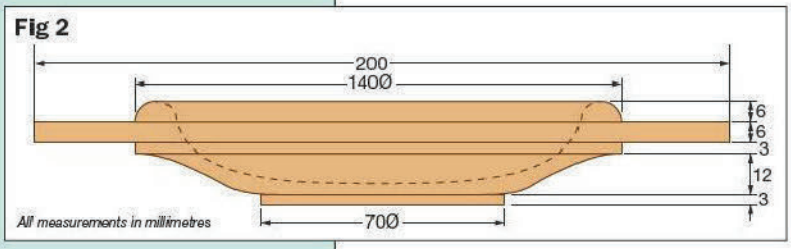
Fig 1 *All measurements in millimetres*

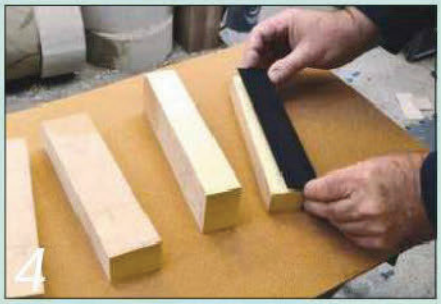


Mark out sixteen irregularly-shaped squares on the blank with a pencil

Cut the first set of strips on the bandsaw to create four strips of unequal width

Fig 2





Glue the strips back together, sandwiching the pieces of black veneer between them

Use a good-quality glue and cramp the strips together securely while it sets

Cut the resulting block into strips again, at right angles to the first set

Glue and cramp up the strips, making sure that the veneer lines all align

Repeat where necessary

The following day I cut the block into strips again, this time at right angles to the first set. Inserting the veneer had increased the width of the block slightly because the veneer was wider than the sawcut, but this didn't matter and I simply cut approximately to my pencil lines, **photo 6**.

Gluing up, with the veneer strips inserted, was a repeat of the previous day's work. However, I was conscious that I was now gluing the end-grain of the beech to the side-grain of the sycamore. I wasn't sure how good these end-grain/side-grain glue joints would be, so I was careful to use plenty of glue and not to clamp the block so tightly that I squeezed it all out again.

It's also essential to make sure that the joints match up and that the first set of veneer lines are straight, **photo 7**. Any discrepancies in alignment will be bound to show in the finished piece. The block is again clamped and left overnight.

Ready to turn

When you're confident that the glue has cured properly and that the joints are secure, you can prepare the piece for turning. I find the centre by crossing the diagonals, and then drill a single 8mm hole to take the screw chuck, **photo 8**. A small faceplate could be used instead provided the screws are not too long.

In view of the number of glue joints holding this piece together, and the fact that some of them are end-grain joints, I very strongly recommend that you wear full-face protection. Remember also that as turning proceeds, and wood is removed, the area of these glue joints will get smaller and smaller, increasing the likelihood of them failing.

Start at the corners

With the workpiece mounted on the screw, mark the size of the spigot required for your scroll chuck. In my case this is around 45mm diameter. Using a 13mm bowl gouge, begin to cut in from the corners towards the centre, **photo 9**.

When working on a square piece, intuition suggests that it might be safer to use a low lathe speed, but in this instance intuition is quite wrong. The problem with a square

piece is that the tool can slip into the gap between the corners, causing a heavy – and potentially dangerous – catch. The faster those corners come round, the less chance there is of getting between them and the more the piece behaves as if it were round.

Cutting with care

Another feature of turning square pieces is that the corners are in contact with the gouge for only a brief instant and so offer very little resistance to the tool. The consequence of this is that it's very easy to remove more wood from the corners than you intended, leading to a curved edge. To combat this, pressure must be increased gradually as the cut becomes heavier nearer and nearer the centre of the piece. The tool control needed to get a perfectly straight edge comes with practice. Stop after every cut and study the edge you're forming, adjusting the tool pressure as necessary to make it straight.

Spigot and foot

Continue until a raised spigot about 5mm deep is left. I then use a skew chisel, held on its side, to make the spigot into a dovetail shape which can be held in the chuck jaws, **photo 10**. This spigot is *not* the foot of the bowl, and will be removed when it's no longer needed. The foot of the bowl is best at about a third of the bowl's width – in this case around 70mm diameter. Mark a circle of this diameter with a pencil, **photo 11**, and cut in about 3mm deep with a parting tool.

The shaping begins

Use the 13mm bowl gouge to remove wood down to the bottom of the foot, and then remove more material to set out the underside of the actual bowl. Stop every so often to see how this is going and to check the straightness of the edge. In this instance I made the bowl a little bit smaller than I originally intended in order to avoid a black 'smudge' caused by cutting part-way into one of the veneer sections, **photo 12**.

Creating a curve

Shape the underside of the bowl into a smooth curve using the bowl gouge, **photo 13**, finishing with the gouge held well over with the flute at about 8 o'clock and using the lower wing to shear-scrape the curve to a smooth surface. Stop occasionally to examine the surface, and continue until the shape is satisfactory, **photo 14**.

I usually begin sanding with 120 grit and work through 180 and 240 grits, finishing with 400 grit. The circular bowl section can be sanded with the lathe running, but don't even attempt to sand the corners with the

Find the blank's centre and drill an 8mm diameter hole to take the screw chuck

Cut in from the corners towards the centre to leave a spigot 5mm deep

Use a skew chisel to form a dovetail shape that will fit your chuck jaws

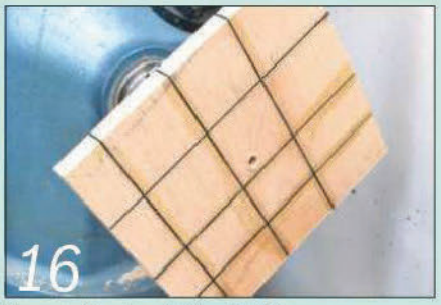
Mark out the bowl's foot, which is usually significantly bigger than the spigot

Mount the blank in the chuck and set out the dimensions of the piece

Shape the underside of the bowl in a curve using a 13mm bowl gouge

Stop regularly to check your progress, aiming for this final profile

Sand the curved areas with the lathe on, and the corners with it off



Reverse the piece in the chuck jaws and check that it turns true

Try to maintain an even depth of cut as you work towards the centre

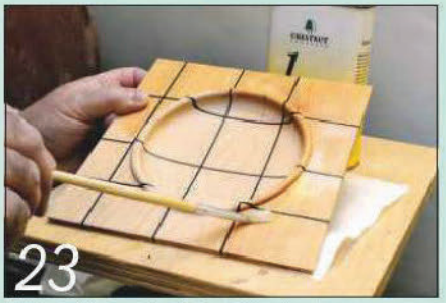
Hollow out the centre of the bowl, aiming to leave a raised rim about 8mm wide

Smooth out any remaining ridges with a broad round-nosed scraper

Sand the interior of the bowl down to 400 grit, then tackle the corners

Remove the spigot and tidy the foot, leaving its centre slightly concave

Sand the square edges smooth to remove any remaining bandsaw marks



Finish with lemon oil if you want a matt finish, or with polish otherwise

lathe switched on. *Always* stop the lathe to work on them, **photo 15**. Apart from the obvious danger to your fingers, you will almost certainly round over the corners – the very thing you've been trying to avoid. At this stage the thickness of the remaining square section should be around 12-15mm.

Back to front

Reverse the piece in the chuck, gripping it in the jaws by the dovetail spigot, **photo 16**. Take care to make sure it seats properly against the front of the jaws and that the underside of the bowl turns true when the lathe is switched on. If it doesn't, the square section of the finished bowl will have a thick edge opposite a thin edge and this will spoil the piece. Adjust as necessary, but don't proceed until you have it right.

Matching diameters

Using the 13mm bowl gouge, start cutting in at the corners as before. Despite the vagueness of the corners, you should be able to see the depth of the cut you are making at the tip of the tool, **photo 17**.

Try to maintain the cut at a constant depth as it progresses towards the centre. Stop when the diameter of the section in the middle matches the diameter of the bottom of the bowl on the other side of the square section.

Continue taking cuts until the square section is about 6mm thick and the raised section in the middle is 6-8mm deep. This raised section will become the rim of the bowl, and the aim is to make it look as if the bowl penetrates the square section. To do this successfully, the diameter of the rim above the square must match the diameter of the bowl below the square.

Under control

Start to hollow out the bowl, leaving a raised rim about 8mm wide, **photo 18**. The flute of the gouge should be at about 2 o'clock (imagine a clock face on the end of the gouge) and as you push the tip into the wood, pull the handle back towards you to keep the bevel in contact with the surface you have just cut. It's this bevel contact which gives a smooth cut and increased tool control.

When the thickness of the bowl is around 8mm, switch to a broad-bladed round-nosed scraper to smooth out any slight ridges or imperfections there might be in the surface, **photo 19**. Unlike many other turners I hone off the burr that scrapers are 'supposed' to have, and I then use them horizontally with the cutting edge at centre height. I find this gives an excellent finish which requires very little sanding.

Colour decision

The interior of the bowl can now be sanded down to 400 grit as before, **photo 20**; again switch off the lathe before tackling the corners. It was at this stage that I was struck by the clean simplicity of this piece, and I made the decision not to colour it after all. The natural pinkish brown colour of the steamed beech, set off by the straight black veneer lines, seemed elegant enough and I thought that anything else I might do would only spoil it. But by all means colour yours if you want the full Mondrian effect!

Finishing touches

I have a vacuum chuck which I used to hold the bowl while I removed the dovetail spigot and tidied up the foot with a small 6mm bowl gouge, **photo 21**. Use a scraper again to ensure the foot is slightly concave so it will sit without rocking, and sand to 400 grit.

If you don't have the luxury of a vacuum system, mount a piece of scrap mdf or similar and turn a recess to take the rim of the bowl. If this is a close fit it will centralise the bowl for you and the square section should lie flat on the surface of the mdf. Use masking tape or something similar wrapped over the corners and around the mdf to hold it in place while you work on the foot.

With the foot finished, all that remained was to sand the edges of the bowl gently to remove any remaining bandsaw marks. This was easily accomplished with a sanding disc attached to the lathe and a table held in the toolpost banjo, **photo 22**.

Oil or polish?

In order to preserve the simplicity of the piece which had so appealed to me earlier, I decided not to polish it to a shiny surface and, instead, I gave it a coat of Chestnut's lemon oil which I know dries to a matt finish. I applied one generous coat with a brush, **photo 23**, returning about an hour later to rub off the excess with a soft cloth before leaving it to dry overnight.

BY CHRIS CHILD

Smooth operator

There used to be a common saying in the turning world that a good craftsman shouldn't need to use sandpaper. Never having taken this statement too seriously, I usually explained it away by adding that it was the apprentice who did all the sanding!

Whatever the truth, for most of us sanding is high up on the list of really unpopular tasks, causing uncomfortable dried-up fingers and clouds of irritating dust filling the air. We can at least be thankful that as the workpiece is rotated for us, the physical exertion is taken away by the lathe, which also positions the workpiece at a comfortable working height.

Ancient and modern

Today the quality of abrasive has changed considerably since my father's day, when garnet paper and something called glasspaper was all that was available. These used to dull almost immediately they came in contact with a hard wood surface. Much tougher and quicker-cutting abrasives can be recommended now, such as aluminium oxide or silicon carbide, which are coated onto a flexible cloth backing. Grit sizes in these products range from as coarse as 24 grit to the finest 1200 grit, and are made to be anti-clogging and resistant to heat.

Aluminium oxide abrasive

I use standard brown J-Flex aluminium oxide cloth for most sanding tasks. The secret of this long-lasting abrasive is the resin coating which holds the grit in place even when a heavy sideways force is applied. This, combined with the hard-wearing cloth backing which is specially processed to be very flexible so it can conform to the most intricate profile, makes it extremely effective for most of my general woodturning. The standard brown J-Flex cloth comes in short metre-long roles with a grit range from 80 to 600, which is ideal for most woodturning needs.

J-Flex cloth is also available with a grey stearate coating which lubricates, cools and minimizes clogging. There is even an abrasive cloth made by Hermes called Blue J-Flex; this has an advanced high-performance self-sharpening ceramic grit which some woodturners maintain cuts best of all.

Abranet mesh abrasive

There is another abrasive product called Abranet which I've started using recently. This is an aluminium oxide abrasive which is held on a super flexible mesh backing and comes in all the standard grits from 80 to 600. The mesh allows the dust to be knocked through to prevent clogging, **photo 1**, and comes in handy-sized 125 x 70mm rectangles which can be stuck onto a Velcro sanding arbor if needed. I find the 600 grit particularly effective in the final stages of sanding, when removing the fine scratches on some dense-grained hardwoods can be a problem, **photo 2**.

Abranet mesh abrasive is easy to unclog; you simply knock out the dust

600-grit Abranet is particularly good at removing scratches from dense-grained wood

Position a vacuum extractor nozzle close to the dust source

Keep your fingers trailing in the direction of the rotation to prevent snatching

Use a smaller square of abrasive to sand the inside curve of the bowl

Coping with dust

Sanding on the lathe produces masses of dust which, if breathed in, can be very damaging to your long-term health. The majority of dust can be sucked away using a drum or bag dust extractor, which will also slow down the general build-up of dust on workshop surfaces. You can even use an old domestic vacuum cleaner by rigging up the nozzle of the hose close to the source, **photo 3**.

However, no dust extraction system will get rid of all the dust, and to be safe you will also need to wear a good dust mask. The disposable dust mask which I use has a valve in the front to allow exhaled air to pass through without making the body of the mask soggy. It also helps to prevent my spectacles from steaming up! For a more effective method of combating the dust problem, invest in one of the latest battery-powered respirators. These offer complete respiratory protection from dust, and also shield your eyes and face from flying wood chips and splinters.

Working safely

When you're holding the abrasive against the work, make sure that your fingers are trailing with the rotation and not pointing into it, **photo 4**. Remove obstacles such as tool rests from around the work and avoid placing your hands near any narrow opening which may exist between the workpiece and the lathe – the base of the headstock, for instance. Never bind the abrasive around your fingers or wrap it tightly round the work, and take extra care when sanding off the sharp edges of the workpiece because if too much pressure is applied they can cut through the abrasive into your hand.

Sanding technique

For general purpose-sanding, tear the abrasive into 150mm pieces and fold it into three. This creates a handy-sized sanding pad which holds itself together and can be re-folded so that all the surface area of the abrasive is used. For the inside of bowls, make half-size pads which can bend smoothly into the compound curve of the bowl's wall. Hold the pad with the tips of your fingers, **photo 5**, remembering to trail them in the direction of rotation. Place the abrasive on the centre of the bowl and draw it out up the sides to the lip… but not over it unless you want a rounded rim.

For most woods you'll need to start with 80 grit to remove any gouge ripples and bruised or broken grain, although when the wood is fine-textured it's not always necessary to start off with such coarse abrasive. With a fine-grained wood such as cherry, I start off with 240 grit and work my way through 320 grit, then finish off with 600 grit. Keep stopping the lathe periodically and dust off the surface so that you can check the progress of the sanding.

The point of sanding

Sanding is not about making the surface smooth. It's done to remove possible unevenness and tool marks; then you have to clean up the scratches made by the previous coarser grade abrasive. It's only after sanding with the finer grades that the

Roll the abrasive into a tube to sand small coves

figure of the grain appears and the full beauty of the wood is realised.

Unfortunately only too often scratch lines and bruised grain are also revealed. These will show up even more if not removed before the polishing stage. It's quite routine to have to go back over your work again with a coarser grit to remove some stubborn blemish which is too deep to be removed with the fine or medium grit abrasive.

Staying sharp

Don't be tempted to use your abrasive when it gets blunt, as the friction created can often cause the fine end-grain cracking which spoils an otherwise perfect piece of turned work. Watch the stream of dust which should accompany your sanding. As soon it disappears, change your abrasive to avoid burnishing the wood, which should have a light chalky appearance.

The two areas inside the bowl where the grain runs against the rotation are often a problem to clean up. This endgrain is caused by the fibres of wood being bent back on themselves by the edge of the tool when the inside of the bowl is hollowed out. It's much more resistant to sanding than the rest of the inside surface, and you may find that your bowl ends up with an uneven wall thickness if you simply apply heavy sanding overall.

Lastly, bruised endgrain is worse in some woods than in others, and often there is no remedy but to stop the lathe and sand it away by hand.

Coping with spindles

When sanding spindles, start off with the same coarse abrasive to remove the last traces of tool marks, which may include quite heavy gouge ripples on shallow curves and tapers. Fortunately they don't represent a problem because on side grain these faults vanish in a second or two with the application of fresh abrasive.

If your spindle contains steep concave hollows and convex curves which expose endgrain surfaces, these are much more difficult to clean up. In fact they should have been sliced cleanly with the tools in the first place; no amount of sanding will remove side gashes, torn grain or an uneven radius.

Continuous heavy sanding on these endgrain areas is almost as likely to cause added faults such as friction splits, especially if the abrasive is allowed to go blunt.

Maintaining detail

This principle of maintaining crisp corners and sharp detail is just as applicable to moulded spindle work as it is to the rim of bowls. I avoid sanding the fine beads and fillets until the later stages when finer grit abrasives are applied. I roll the cloth into a tube to get into a tight radius, **photo 6**, and use small square-cornered blocks to clean up the surface of the fillets, **photo 7**.

Fold the abrasive round a small scrap of wood to sand the fillets cleanly

Stretch a sheet of abrasive beneath the work to sand tapered spindles

Use an angled sanding disc on an arbor. The rotating workpiece drives the head round

I use a selection of polishing applicators, including clean cotton and old woollen socks

Woods such as elm can be finished off with 240 grit, but for finer-grained timbers a light rub with 360 or 400 grit is required. There are some exotic rosewoods which will need even finer grades of abrasive to be certain of obtaining a finish, where the only marks visible on the work are the natural figures of the timber.

Blocks are also useful for flattening off a project like a bread board, while for straight tapered spindles a wide sheet of abrasive can be stretched out against the underside of the work, **photo 8**. Be careful not to let it pull your fingers underneath. As well as small square sections and dowels, I make thin wedge-shaped sanding blocks for working in between the rows of fine beads.

Power sanding

There are several sanding disc systems available for woodturners which have interchangeable abrasive discs held onto foam-faced arbors by Velcro strips. When fitted into a power drill and held against the revolving workpiece, the combined rotations create a powerful scouring action which swiftly cuts away tool marks and smooths out an uneven profile. On bowls they have to be used with care because it's very easy to produce an uneven wall thickness, especially when the coarser grits are used.

There are also systems which are less aggressive in action. In **photo 9** the disc is mounted on a freely rotating arbor which fits onto an angled handle. The motion of the workpiece itself drives the head round when it's pressed against the work face. These are especially useful on the edges of natural-edged bowls, and are a convenient alternative to power sanding.

Polishing on the lathe

Wood is polished to seal the surface so it's protected against dirt and stains, and also to bring out the colour and full beauty of the grain. Obtaining a lasting high-quality finish will depend on how thoroughly the work is prepared beforehand. Sandpaper scratches and rough areas of broken grain will actually become amplified by the application of a coat of wax or varnish, but once the surface is perfectly free from tool and abrasive marks it's a relatively simple matter to select and apply the appropriate wax, oil or plastic finish.

Soft waxes

One of the most effective finishes to apply is paste wax. These waxes are a blend of beeswax, carnauba wax and a quick-drying solvent. You can use Briwax, or one of its equivalents, straight onto the bare wood and get excellent results.

I use paste wax on fairly coarse-grained woods such as elm, oak and pine which don't suit a high glossy finish. Apply it straight from the tin with a thick soft cloth,

Rub on the carnauba wax using a stick

Buff it up to a bright sheen with a soft cloth

Brush on the cellulose sealer as quickly as you can

Remove the surplus before it dries with a towel

photo 10; a worn woollen sock is ideal, but make sure it's clean! Rub the wax on while the lathe is stationary and then buff it up with the lathe running, using a soft clean cotton cloth; don't use wool for this as its fibres can get caught in the grain.

Wax polish isn't heatproof or water-resistant and will mark quite easily, but with repeated waxings the wood will take on a rich patination which gets deeper and richer with age.

Solid wax sticks

With a lathe, you can generate glossy finishes very quickly using wax sticks, which are a made from a blend of softer waxes and carnauba wax, or from pure carnauba wax alone. For a deep, shiny finish which is harder and more resistant against finger marks, you should try the pure carnauba wax.

It's ideal for dense-grained woods and is best applied in two stages. First, with the lathe running, rub the tablet against the work to melt a layer of the wax all over the surface, **photo 11**. You may have to increase the lathe speed to create enough friction. Carnauba wax is very hard so when you're working it, keep the corners of the stick away from any flat surface as they can dent the workpiece.

Next, use a tightly-folded cloth to rub the wax and melt it into the grain so hardly any wax is left on the surface, most having been absorbed by the cloth. This buffing warms the surface of the workpiece and enables a second application of the wax to melt more easily and evenly. For the second and final burnishing, use a piece of flannelette cotton cloth if you can get it as this has a fine pile. Gradually reduce the pressure so the wax smoothes out to produce a dazzling bright finish, **photo 12**.

Oil finishes

These are simply wiped onto the work with a cloth and burnished with the lathe running, as the friction will accelerate the drying of the oil. They tend to darken the wood a shade. Natural drying oils such as tung oil slowly oxidise and harden in the air without the need for artificial drying agents. The oil is simply wiped onto the bare wood and gives a very durable waterproof finish. It's slow to dry and you will need to apply a great many coats to build up a deep sheen. You can wax on top of it, but if you want a waterproof finish this rather defeats the object.

Proprietary finishing oils such as Danish oil contain chemicals which act as catalysts to accelerate the drying process. They need at least 24 hours so that the solvents (which are added to aid the penetration of the oil) have evaporated before the finish is safe for use with food.

Surface sealers

Cellulose sanding sealer is fast-drying and provides a stable base for other finishes such as wax polish. Apply it quickly with a brush, **photo 13**, or a rolled up scrap of old towel so that the whole workpiece is covered in one wet coat of cellulose. Then wipe away the surplus cellulose with a clean piece of towel before it dries so a smooth even layer remains. This can then be waxed as soon as it is touch-dry, or can be left for a few hours so that another coat of sealer can be applied.

Cellulose sealer doesn't raise the grain like other sealers, so you don't need to rub it down after each coat. Shellac sealer, which is more compatible with shellac-based friction polish, takes longer to dry and tends to fluff up the grain.

Other sealers

Melamine sealers are chiefly cellulose sealer with a melamine resin additive which gives a more durable and water-resistant finish. You can use it as a superior top coat on cellulose sealer, but make sure your workshop is warm and dry when you apply it, because this is another finish which cures only in a warm temperature.

Another very durable finish is Rustins Plastic Coating, which can be thinned down to give the exact effect you want. Unthinned it will give a glossy heat-resistant washable coating. You can thin it slightly to give a more matt finish, or thin it right down to give an imperceptible but protective seal which is safe for toys and food utensils.

Fixing faults

In the past, many woodturners were interested only in turning faultless pieces of seasoned timber, and any knots would be cut it out by re-shaping the workpiece. If this wasn't possible, they would try to hide the offending flaw as much as possible by filling it with stopper made from glue and sawdust.

Today turners tend to be much more experimental and will specifically select twisted pieces of timber which are often full of deep holes and crevices. The work they produce is often more sculptural than useful, and the open spaces are either left open and carefully sanded around and polished by hand, or filled with a variety of coloured epoxy fillers.

There is now a whole range of products for filling cracks and holes in wood. Cellulose stopper is made in different colours so it blends in with the wood. It is simply packed into small holes and, when dry, is sanded smooth before polishing.

You can also use shellac sticks for the same purpose; these are melted into the holes using the heated blade of a knife. Lastly, two-part plastic padding, commonly used for minor car body repairs, can be mixed with metal powders to create dramatic contrasts with the wood.

WIN!

A CHUCK & JAWS SET

WORTH £190

AXMINSTER® TOOL CENTRE

We have a super prize from Axminster Tool Centre to give away this month – an Evolution SK114 woodturning chuck and a set of Type G large gripper jaws. Together they'll make a very useful addition to any woodturner's toolkit. All you have to do to win this superb package is to complete the coupon below and send it in. We will then draw one lucky winner from the postbag, and arrange for Axminster to deliver the prize.

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The new Evolution chuck features a super-slim stainless steel body incorporating newly designed longer accessory mounting jaws. These low-profile jaws offer a greater contact area within the slideways of the chuck, minimising vibration during use. The ultra-compact design keeps the workpiece as close as possible to the lathe headstock to lessen the load on the bearings and prevent unwanted vibration during heavy stock removal. Indexing is achieved by 24 peripheral slots and 36 holes within these on the chuck backplate, giving the option of 10° or 15° indexing.

The Evolution is fully compatible with all accessory mounting jaws and is the first of a new series of chucks and jaws from Axminster. It comes complete with a chuck key, and is available in a range of thread options. Please specify which you would like on the coupon below.

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Type G jaws are specially designed to give a massive grip, particularly on large-diameter parallel pieces. They have a large dovetail on the outside for turning large platters and bowls, and a serrated grip on the inside specially designed to hold large hollow forms and end-grain pieces.

For more technical information on Axminster chucks and accessories, or to view the entire Axminster catalogue, visit www.axminster.co.uk. Call 03332 406406 to order a copy.

HOW TO ENTER

Fill in your personal details, then cut out the coupon (or photocopy it) and send it to:

Axminster Competition 313
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The first entry drawn at random will win the prize

The closing date for entries is 8th March 2013

Only one entry per person; multiple entries will be discarded. Employees of MyTimeMedia Ltd and Axminster Tool Centre Ltd are not eligible to enter this competition.

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Please tick your preferred thread option:

☐ T01 ¾in x 16tpi ☐ T04M 1in x 8tpi ☐ T38 M33 x 3.5mm
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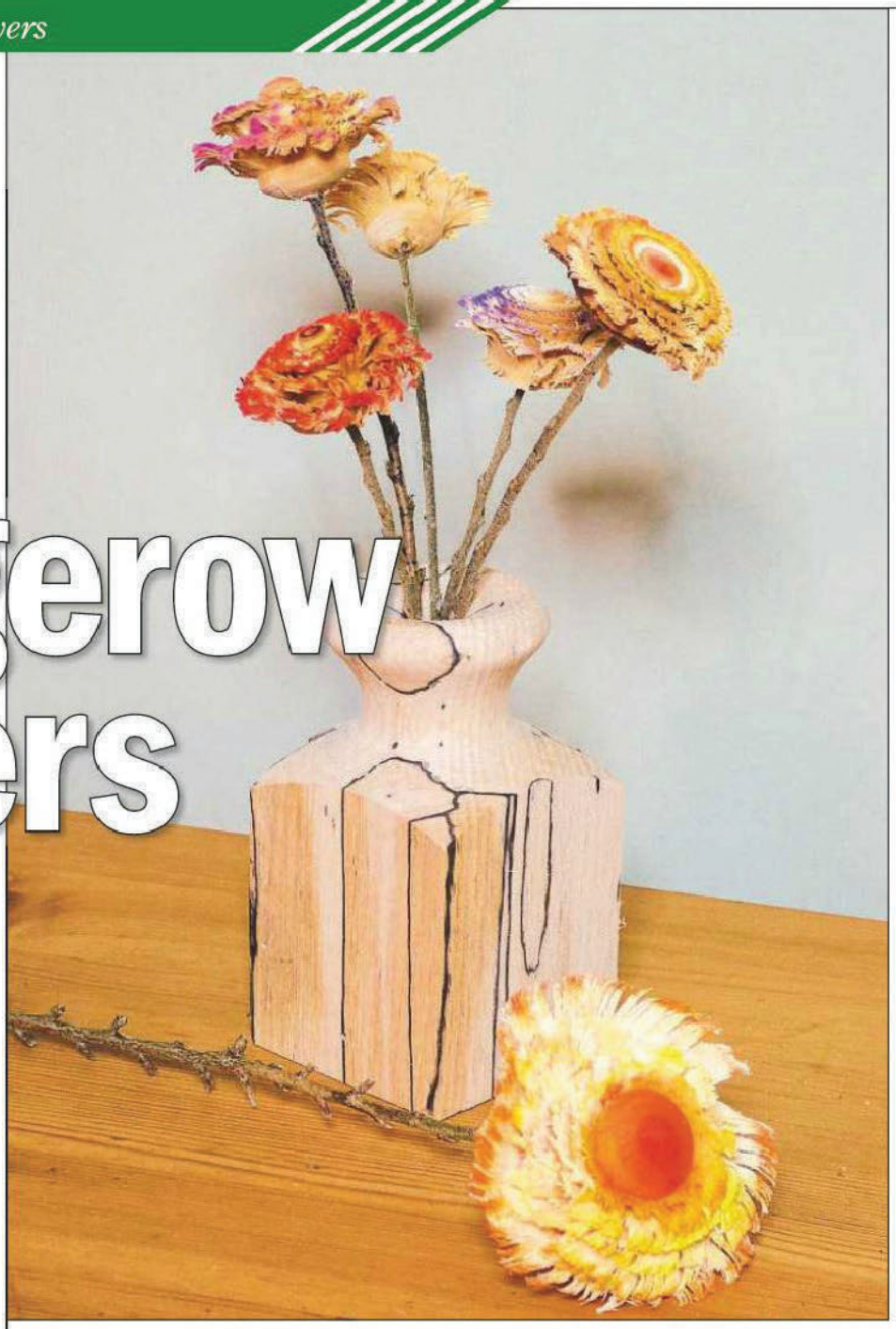
BY COLIN SIMPSON

Hedgerow flowers



This project uses small offcuts of hedgerow wood – timber that's absolutely free. Better still, you can use it soaking wet. This is a great project for beginners to practise their skills with both the spindle gouge and the skew chisel

I've always said that there's no such thing as free timber. Even if you don't have to part with your hard-earned cash to obtain it, the chances are there will be travelling costs involved and you may have to spend time converting it into usable blanks. But this wood really is free...

Taking your pick

Almost any wood will do for your first flower. Yew would be a good choice, but I had some hornbeam and blackthorn cut out from one of my boundary hedges recently so I used that. Cut a small length of about 100mm of any diameter up to about 70mm. Don't worry if it's not perfectly round; I think odd shapes can look better. Mount the wood between centres and cut a spigot on one end to fit your chuck, **photo 1**.

The first cut

Remount the spigot in your chuck and square off the open end with a spindle gouge, **photo 2**. Take care with the entry cut, particularly if the piece isn't round. Keep the tool well over on its side and enter the wood using just the tip of the tool.

Repeat this cut, but this time start to hollow the end by swinging the handle away from you. I know this movement is cutting against the grain a little, but with a sharp tool and wet wood, I find it works well. You don't have to take this cut all the way to the centre. Just go down far enough so that the cut is into solid wood all the way round, **photo 3**.

Digging deeper

To cut with the grain you should start in the centre and work towards the edge, **photo 4**,

to blend in the curves. You can hollow it out as much or as little as you like – I think a shallow ogee shape works well.

When you're happy with the inside shape, turn your attention to the outside, using a spindle gouge to remove the waste wood below the 'rim' of the flower, **photo 5**. These flowers look best if they're very thin, so work the cuts gradually back up to the remaining bark. Aim to leave about 1mm of bark and a wall thickness of 1mm for the petals.

Light fantastic

I find it useful to shine a light through the wood to help get an even wall thickness, **photo 6**. Here you can see that the wood below the cut is a little darker than what I've just cut, which means it is thicker. When you get the same depth of colour throughout you'll have an even thickness. If, however, you get white light shining through you know you've gone too far!

It's vital not to push hard with the bevel of the tool. Wood that is this thin will flex away from the tool so remember to gently caress the bevel on the wood; don't rub it.

Photo 7 shows a little detail I am cutting with the spindle gouge behind the flower to attach the stem. Don't part it off just yet – it still needs sanding.

Wet sanding

The wood is very wet and will clog the abrasive in no time, so I use a method called 'wet sanding'. This means using water to act as a lubricant and wash away the slurry that's produced. Lower the lathe speed to prevent water spraying everywhere and be careful with the bowl of water – it doesn't go well with the electric parts of your lathe! You also need a good quality cloth-backed abrasive, or silicon carbide (wet-and-dry) paper.

Cut and dried

Wet the abrasive and start to sand the flower. The piece is quite fragile so I'm using my other hand to support it while I sand it, **photo 8**. Mind your fingers on the flower's natural edge as you work. **Photo 9** shows the slurry clogging the abrasive, but a quick wash in the water bath will soon have it looking like new.

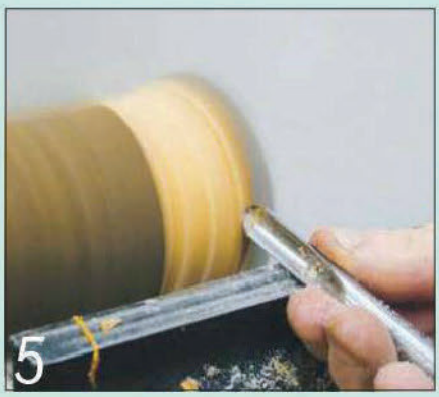
Cut the flower off after you've finished sanding it. Use a spindle gouge or, if you prefer, a fine-toothed saw with the lathe stationary, **photo 10**. All that remains is to drill a small hole in the bottom and glue in a suitable natural twig to act as a stem, **photo 11**.

Use the tip of the skew chisel to cut a spigot on one end to fit your chuck

Remount the blank and square off the end with a spindle gouge, taking care with the entry cut

This cut is made slightly against the grain, but it helps to keep the bark on

Start cutting in the centre and work out with the grain towards the edge



Start shaping the outside of the flower below the rim with the spindle gouge

A bright work light shining through the wood helps you to judge an even wall thickness

Cut a small detail behind the flower so you can glue in the stem

Support the work with one hand while sanding it; mind the sharp edge!

Wet wood quickly clogs the abrasive, but a process I call wet sanding is the answer

Stop the lathe and cut the flower off with a spindle gouge or a fine-toothed saw

Drill a small stopped hole in the turned detail you created in step 7 and glue in the stem

Remove the bark from a small branch and true it up with a skew chisel

Square the end of the branch off sliver by sliver with a fine slicing cut

Use the small point of the skew chisel to make the first row of petals

Repeat the cut for the next row, stopping just short of the first one

After several passes you should end up with something like this

Perfect petals

The next flower will give you great practice with a skew chisel. I first saw this technique when I visited Sieffen, a small picturesque town in Germany known for its woodturning. Professional woodturner Stuart King has made a DVD showing the technique. Here's what's involved.

Start by mounting a piece of wet branch wood about 30mm diameter and 75 to 100mm long in your chuck. It doesn't have to be perfectly straight, but it's better if it doesn't have any knots. Remove the bark and true the piece to a cylinder with the skew chisel, **photo 12**. Then square the end of the branch off using a slicing cut, **photo 13**. With this slicing cut, aim to take just a small sliver off at a time – it doesn't pay to be greedy here – and use only the long point of the tool. Don't let the cut come up the cutting edge.

Slow turning

To create the petals, place the toolrest parallel with the work and about 12-15mm away from it. You will need this gap. Reduce the speed of the lathe to around 600-700rpm. I use the short point of the skew chisel as if I were planing the wood, but unlike the planing cut I'm just using the short point of the cutting edge to lift the wood fibres, **photo 14**. Now you can see why you need the gap between the wood and the toolrest: it's to accommodate the petals as they're formed.

Repeat as necessary

It's important to make this cut parallel, so try not to swing the handle as you slide the tool along the toolrest. Keep the cut going for about 10-12mm along the wood. Then start again making a second cut, **photo 15**, but stop this cut just short of the first cut or you'll remove all the petals you've just created. After several passes you should end up with something like **photo 16**.

Plain or fancy

You can either leave the flowers plain or colour them. **Photo 17** shows me applying colour using a felt-tipped pen, gently brushing the petals as the work revolves. Finally, as with the first flower, cut a small detail behind the flower head to mount the piece on a stem, **photo 18**. These flowers look their best if three or four of them are displayed in a small rustic-looking pot.

Turning a tulip

The third type of flower I'm making could also be made from wet wood, but, as it's supposed to represent a tulip, I think it

looks better made from more decorative woods. Any of the exotics work well, but I'm using yew here.

Cut a piece about 35mm square and 65mm long. Mount it between centres, rough it to a cylinder and cut a spigot on one end to fit your chuck. Remount it in the chuck and cut it to a tulip shape using a spindle gouge, **photo 19**. Don't reduce the diameter of the wood behind the tulip too much at this stage – we need some extra strength here in order to be able to hollow out the flower.

Hollow centre

Drill a hole up the centre of the flower, either with a twist drill in a Jacobs chuck in the tailstock or by using your spindle gouge. Now hollow out the flower with the spindle gouge, starting in the hole and moving the tool towards the top of the flower, **photo 20**. Aim to make the final wall thickness about 2mm.

Next I carved the petals using a mini Arbortech cutter in my small Proxxon angle grinder, **photo 21**. If you don't have one, the carving can be done by hand. I then refined the carving using needle files, **photo 22**, and a little hand sanding, **photo 23**. Finally I cut the detail for the stem, **photo 24** and parted the flower off. Glue in a stem and add it to the bunch of flowers you've already made. By all means turn a few more if you have the time...

Gently brush the rotating petals with a felt-tipped pen to add some colour

Cut a stem mount behind the flower head as you did before and part the flower off

Shape the outside of the blank to a tulip shape with the spindle gouge

Then drill a hole down the centre of the flower and start to hollow it out

Carve the petal shapes; I used a mini Arbortech cutter in my small angle grinder

Refine the detail of the petal carving with small needle files

Sand the flower head smooth, working down through the grits

Finish shaping the outside with a stem mount as before; then part it off

Kaizen Bonsai

The cutting edge of UK Bonsai

Right at the cutting edge

Power Carving has in recent years rocketed in popularity.

It is true that in these so-called austere times, a skill and hobby like this is a very cost effective skill or hobby!

More and more manufacturers are seizing this opportunity and are developing a whole range of new tools for the carving enthusiast.

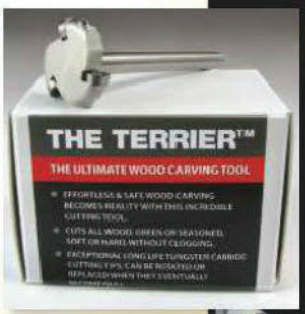
Kaizen Bonsai which as it name suggest is actually a company specialising in Bonsai, but in recent years they have arguably become a market – leader with their comprehensive range of carving tools.

Having spent over twenty years using carving tools to create Bonsai, Graham Potter the owner of Kaizen Bonsai then spent two years researching and developing his own tools after experiences with other tools which were just ok, reasonable or even dangerous!

His idea was to make a tool that was versatile for working both large and small projects. The cut rate needed to be exceptional but with a very long cutting tip life and above all the tool needed to be safe.

And so Terrier™ and Little Terrier™ where born!

Their **Terrier™** and **Little Terrier™** ranges are receiving much acclaim the world over being CNC machined from 3032 high carbon stainless steel from a solid Billet with tips which are replaceable. They are created from polished Tungsten carbide which allows a much faster cutting rate, a shortened loading time and an enhanced lifetime of the tools themselves *(which are not to be confused with cheaper less effective imitations that are made in parts).*



Behind the cutting edge of both the **Terrier™** and **Little Terrier™** is a groove which serves to present it at a positive rake to the project making it a faster and cleaner cut. Conveniently, once the cutting face becomes dull, you simply loosen the retaining screw and rotate the tip to a sharper new section. It is reckoned by the manufacturer that the tip should last for a continuous 20 hour drilling session, so these pieces really are at the cutting edge!

The 27g **Terrier™** is the larger of the two Overall with a length of just 65mm and designed with a 1/4″(6.35mm) shaft primarily for the tools safety. This allows use in an array of die grinders and flexible shaft machines. It really does remove wood effortlessly and cleanly and its 25mm head removes wood effieciently at higher speeds A chip limiter prevents the tool from 'digging in' to the work.

Unlike some larger tools the **Terrier™** has a responsive cutting action that is very pressure sensitive. A light action by the user produces a fast delicate cut but with a little more pressure the tool bites harder without fear of it 'grabbing' or kicking back like some other tools.

For more confined areas the 15mm **Little Terrier™** which weighs just 23g just seems to get in anywhere with much greater control and is a solid and robust as its brother and delivers an equally clean job. It's not difficult to see why this tenacious, robust piece of kit which works well at both high and low speeds gets its name!

Both cutters work well at most speeds but the manufacturers recommend best results are achieved at between 1500 & 2000 rpm.

Economically priced at just £44.95 inc VAT and p&p, the Little Terrier™ is a great little investment which should, when used correctly last a good few years and its big brother the Terrier™ at just £54.95 inc VAT and p&p represents equally good value.

Replacement cutting tips and screws are available separately.

All can be purchased from:

www.kaizenbonsai.com

or by telephoning them on:

0800 4580 672

Exceptional tools for exceptional woodworkers. Call for a free catalogue 0800 4580 672 or 0044 (0) 1493 781 834 or see our web site. Fast worldwide delivery.

www.kaizenbonsai.com

Although there is a good choice of router tables on the market, one can be made for a fraction of the cost with the aid of the Trend router table insert. *This will accept most routers of all wattages, but of course for the larger cutters a router with adequate power is essential*

Trend router table insert

The insert, catalogue number RTI/PLATE, is a kit of parts. The main plate is made of thermoset phenolic plastic measuring 306 x 229mm, and is 9.9mm thick. There are two snap-in rings (which with the main plate give centre apertures of 32 to 68mm and 68 to 98mm respectively), a corner clip fixing kit, and a lead-in pin with alternative locations in the plate. Although a lead-in pin is the simplest of devices, not all router tables currently available have this feature, which is essential for curved work. The underside of the plate is scored with concentric rings and radial lines as aids to the accurate mounting of the router.

Fitting the plate

The top of the table needs to be 19mm thick; if it's too thin then it won't be rigid enough. The plate is recessed into a rebate in the table top. It is of course essential that this rebate is accurately formed so the top surface of the plate is exactly flush with that of the table. The required rebate size is 6.35mm deep and 12.7mm wide.

The router is secured to the plate by drilling and countersinking holes in the plate to align with those in the router base. There are normally threaded holes in the router base for this and similar purposes. If not, then the router can be mounted by using small machine screws and nuts. There are very adequate instructions on the rear of the pack which are easy to follow. By the way, it's essential that the router is fitted with a fine height adjuster or similar device.

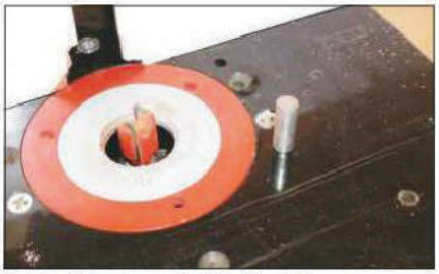
Extra components

Trend are leaders in all aspects of router technology, and to maximise the use of the router when mounted in a table they offer a no-volt release switch, a trigger lock, feather boards, two mitre fences, and a pushblock designed for use when scribing the ends of rails.

When we made up a table using one of these Trend kits, we designed the fence so it could be adjusted laterally to control the gap in the centre between the two halves. However, the outfeed table can't be adjusted in a forwards-backwards direction. On the odd occasions when it needed to be set slightly forward of the infeed table, we simply introduced small pieces of veneer as packing, and this arrangement has worked totally satisfactorily.

The insert plate must fit flush with the table surface, as mine does

The underside is scored with concentric rings to aid router positioning



The lead-in pin can be fitted in either of two locations to suit the work

The rear of the router plate's packaging carries comprehensive instructions. Don't throw it away!

VERDICT

The quality of this router table insert kit is excellent. Mine has certainly passed the test of time.

PROS ■ Precision engineering
■ Ease of fitting
■ Useful lead-in pin included

CONS ■ None

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

FURTHER INFORMATION

■ Trend
■ 01923 249911
■ www.trend-uk.com

The Festool OF 1400 is a mid-size router with constant speed control, a large plunge range and an excellent dust collection capability. *The cutter depth and side fence can be adjusted to 0.1mm and it comes complete with a range of high-quality accessories*

Festool OF 1400 EBQ-Plus GB router

£450

This router has a good power-to-weight ratio and is considered by many to be one of the finest routers on the market today. The design looks slightly unusual as it has a familiar grip knob on the left but an extended handle on the right. This combination works well and makes it much easier to pick the tool up and put it down. It's about half the weight of its big brother the OF2200, but shares many of the best features.

What's supplied

The machine comes in a sturdy Systainer box with a generous set of accessories. There are three collets: 8mm, 12mm and ½in. A ¼in and several other metric sizes are available as extras, and are interchangeable across the Festool range.

The side fence, complete with dust adapter, has a micro adjuster accurate to 0.1 mm. The single clamping knob in the centre of the router allows the complete fence, guide rods and dust adapter to be removed in one piece.

A 30mm copying ring (or template guide) is supplied and many other sizes are available. These clip in and are released without the need for tools. You can also buy a special copying ring and guide bush for the Leigh dovetail jig for under £25.

Dust collection has been a key factor in the design of this router. The machine is supplied with a sturdy extraction adapter for freehand and edge-guided work. In the latter case the addition of the chip deflector enhances the capture of dust and chippings that might otherwise escape from below.

Standard adjustments

The OF1400 has an on/off trigger with a side button to keep the power on. The motor is electronically controlled and will maintain a constant speed even under load. It comes to a complete halt very quickly when the trigger is released.

Cutter mounting and release is quick and easy. You simply press the green rocker control on the appropriate side and, using the supplied spanner, tighten or loosen the collet. The spanner does not need to be repositioned after each turn due to the spindle lock ratchet – a thoughtful feature.

The cutter depth can be set to less than 1mm by eye and then adjusted to within 0.1 mm using the calibrated and extremely accurate height adjustment mechanism. The desired height can be set prior to a plunge operation without the need to invert the tool.

The side fence can be adjusted to 0.1 mm using this green adjuster knob

The 30mm copying ring clips in and is released without the need for tools

The chip deflector can be rotated as required to facilitate the collection of chippings

The guide fence features a dust adapter and a large clamping knob positioned between the guide rods

The left grip twists to apply a lock on both guide columns, which gives superb torsional rigidity.

Using the router

The OF 1400 starts gently and runs smoothly, maintaining constant speed, and makes even my oldest and dullest cutters appear to perform better than before. There is no doubt that this machine has been built to take the cruellest of abuse and still deliver years of service.

The combination of rapid cutter changes, micro height adjustment and quick release copying rings makes switching from dovetailing to template work very straightforward. The router can be set up for dovetailing in less than two minutes using measurements recommended in the Leigh jig manual. Our first practice attempt was so good that we've photographed it for this review!

Summing up

The price of this router kit may seem relatively high, but it is certainly justified when you see the superior results that can be achieved with it and discover that it is a complete joy to use. Many amateur and professional woodworkers make a surprisingly high investment in router cutters. It's therefore logical to use them to best advantage in a suitable tool.

The machine will work all day doing kitchen template work, even tackling difficult jobs like solid surface kitchen worktops, yet producing very little dust. The OF1400 will be equally at home in the professional and hobby workshop but will cope, perfectly well, in the back of a tradesman's van.

All Festool tools come with an initial one-year guarantee and, if registered soon after purchase, this is extended to three years free of charge. That guarantee also includes insurance against theft and a comprehensive (and free) collect from customer warranty repair service.

We have no hesitation in recommending the OF1400 to anyone with an eye for quality and a need for reliable service.

SPECIFICATION

MOTOR	1400W
NO-LOAD SPEED	10,000-22,500rpm
COLLETS SUPPLIED	8 mm, 12 mm and ½in
ROUTING DEPTH ADJUSTMENT RANGE	70mm
FINE HEIGHT ADJUSTMENT RANGE	8mm
WEIGHT	4.5 kg

ACCESSORIES parallel side fence, 30mm copying ring, extraction hood, chip deflector, Systainer case

VERDICT

This is a magnificent router, built to the high quality expected of this outstanding German manufacturer, and is worth every penny.

PROS
- Soft start and quick-acting brake
- Ratchet shaft lock for cutter changes
- Copying ring changes without tools
- Precision adjustment to 0.1 mm

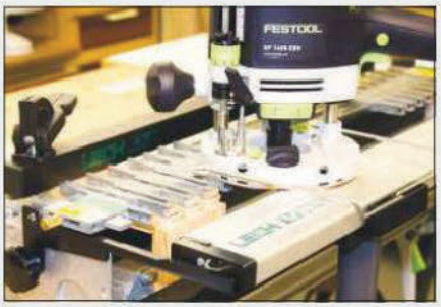
CONS
- Instruction manual is precise but could be improved

VALUE FOR MONEY

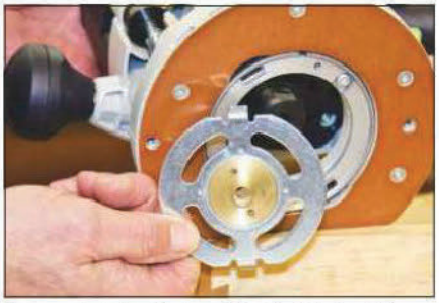
PERFORMANCE

FURTHER INFORMATION

- Festool UK
- TTS Tooltechnic Systems
- 01284 760791
- www.festool.co.uk



You no longer need a dedicated router for dovetail work as this router's role can be changed quickly



The copying ring designed for the Leigh guide bush makes perfect dovetails

Cutter changes are quickly and easily made thanks to the clever ratchet control

Cutter depth adjustments are accurate to within an amazing 0.1 mm

Biscuit jointers are simple tools. *There's little you can do to improve them apart from working on the fences to make things more accurate and consistent. So does this new model from Makita cut the mustard?*

Makita PJ7000 biscuit jointer

£265

Makita already has a pretty consistent and accurate model in the long established 3901 model, so our initial thought was: why bring a new one into the fold? Pick it up, and it immediately becomes apparent that it's well worth doing so.

Pretty well every biscuit jointer out there has the same design and subsequently the same problem. The design is such that it's basically a small angle grinder with a fence and a suitable blade, and that means the motor sits inside the grip area of the casing, making it bulky and awkward to hold.

The PJ7000 has come up trumps on this. It has to be the slimmest and most comfortable one we've used, and is all the more impressive as it has packed in an extra 110 watts of motor power over the old model.

Standard features

Comparing this to the older 3901 model, the external brush caps have been dispensed with, but losing the occasional easy-access maintenance option in favour of a long-term ease-of-use option is an advantageous trade-off.

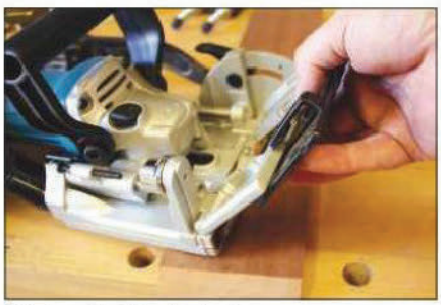
The sliding power switch is to the left, so it's better suited for right-handed operators, and has the usual 'deadman' type operation so it switches off at the lightest of touches, but engages and locks off well during operation.

The business end.

There are a couple of cosmetic changes here over the old model. The baked enamel finish of old is now satin aluminium, and the

Registration made directly from the base is very accurate

Adjustment of the slide-on shoe is with a single rack and pinion



Clipping this thin plastic shoe onto the tilt fence...

The tilting fence locks positively with a single lever

locking lever for the tilt fence is now to the outside of the tool. That seems an improvement over the old model, and both this and the slide-on shoe lock lever work fluently.

Equally free running is the rack-and-pinion adjustment for the front shoe. This is adjusted to set differing depths as required, setting up to 40mm on centre from the registration face.

You also use this face for jointing 45° mitres, a small undercut on the fence registering from the acute face. You can of course register from the obtuse face of the mitre, using the tilting fence, which has indented settings at 0, 45 and 90°. While the adjusters are all positive and work admirably, they seem a little inferior to the rest of the build.

Cutting slots

Depth setting is via the usual rotating turret, and it has a full range of settings – the usual 0, 10, and 20 biscuit sizes, plus a 'Max' setting for full plunge as well as the additional 'S' and 'D' settings for anyone wanting to use the specialist Lamello Simplex and Duplex fittings.

Checking the jointer is simple enough. We made a series of cuts using the various reference options – direct from the base, using the tilting fence and the slide-on shoe – and checked the cut for parallel from the respective reference surfaces.

Controlling the tool is really easy with the slim grip, which allows the user to concentrate more easily on keeping the front end positioned correctly while making the cuts. On the models that have bigger body grips, it's hard to keep the back end in check.

One small grumble

That certainly aids consistency, and while we were happy with the majority of the results, the slide-on shoe can lock out of parallel if you aren't careful. Adjusting with just the rack-and-pinion knob seems consistent enough, but holding the shoe as you adjust can introduce a twist into the fence so it cuts a little out of alignment.

The rubber studs on the front help keep slippage to a minimum once you plunge, and the red indication lines make it easy to align to your reference marks.

All in all, the Makita is certainly a jointer that hasn't changed the way we biscuit, but by virtue of the slim motor casing alone, has made life that bit better for anyone who uses one often and is looking for a comfortable drive with consistent results.

SPECIFICATION

MOTOR	700W
NO-LOAD SPEED	10,000rpm
BLADE DIAMETER	100mm
BLADE TICKNESS	4mm
MAX GROOVING DEPTH	20mm
FENCE ADJUSTMENT	0-90°
WEIGHT	2.5kg

ACCESSORIES dust bag, angle guide, set plate, wrench, carry case

VERDICT

This is an improvement on the old 3901 model with its slim grip, and gives very consistent results.

PROS
- Slim body for improved grip
- Accurate from the base and flip fence
- Easy blade change

CONS
- Slide shoe may need checking
- Configured for right-hand users

VALUE FOR MONEY

PERFORMANCE

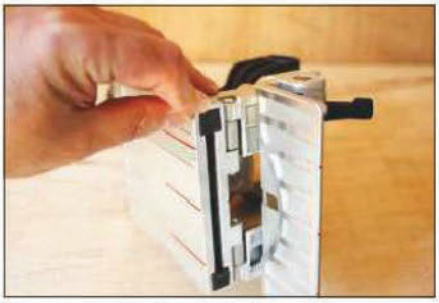
FURTHER INFORMATION

- Makita
- 01908 211678
- www.makitauk.com

Cutter access is simple, and a pin spanner is supplied for changing blades

...lifts the cutter up for mitres so they don't cut through the back

The usual multi-position turret covers all common biscuit sizes



These two rubber buttons help prevent slippage as the cutter engages

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Coming in at around the same price as a decent entry-level induction-motored table saw with a cast-iron table, *you could be forgiven wondering why you would want to shell out on this brush-motored saw with a cast-alloy one. Here's why*

Bosch GTS 10XC table saw

After setting the saw and stand up in the workshop, assembly involved putting on the riving knife, unpacking the supplied accessories and, most importantly, releasing the perforated dust plate on the underside to remove a foam block and allow the blade adjustments to work.

The stand is an accessory and there are two available; a standard scissor type for more static applications, or, as here, a neat fold-down wheeled one to which the saw can remain bolted. It's a simple enough operation to lift or fold down. A big red lever operates the lock to disengage the retaining pins, allowing the frame to drop down. It's excellently balanced as well, so there's no strain wheeling it around.

Standard features

If you want good cutting capacity and performance with a portability factor – accessories are stored in the casing – then Bosch certainly seems to have come up with a decent solution in the GTS 10XC. The fence, mitre fence, crown guard and auxiliary fence facing all have special homes and there's also a spare blade storage bay.

This allows the blade to wind down below the top, keeping it free of obstructions, and with a couple of built-in handles, makes it very easy to transport from the workshop to the van.

Cutting capacity

With a table size of 584 x 759mm you could easily be fooled that actual cutting dimensions are limited, but with an integral slide-out side table on the right of the blade the saw will rip up to 635mm wide, so standard sheet stock can be converted economically.

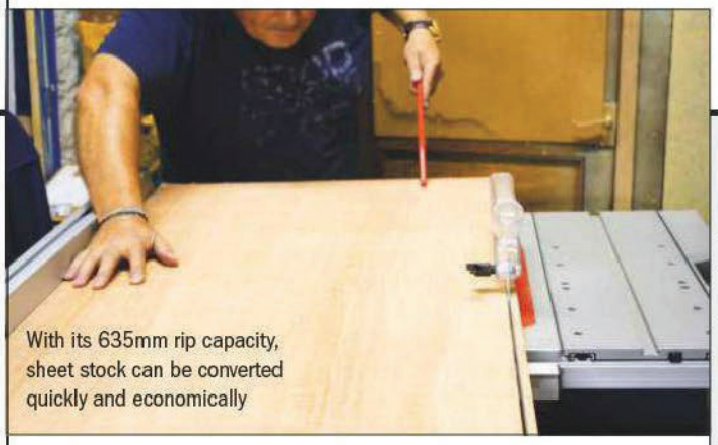
The fence will also reposition to the left of the table for rips up to 250mm wide, although ripping in this set-up may feel a little alien. However, for smaller repeat cuts from longer lengths using the fence as a reference point and the supplied mitre gauge in the T-slot, there is better support for the work using the pull-out extension. For safety the saw has a retractable fence facing, but this only fits with the narrow edge usable, which is normally the one required when ripping thin or narrow stock.

The fence clips onto the rear rail and secures firmly at the front using a large easy-to-operate paddle via what Bosch describes as

A built-in spindle lock makes changing or replacing blades a simple job

Only one central wheel is needed for making blade adjustments

The paddle lock on the fence is positive and locks rigidly in place



With its 635mm rip capacity, sheet stock can be converted quickly and economically

'Squarelock'. Designed to eliminate toeing in or out on the fence, it seems to work perfectly; everything we put through was accurately dimensioned without pinching.

Routine adjustments

Blade adjustments are simple, reliant on a central wheel to raise and lower the blade and a large paddle lever to set the tilt. This paddle lock does make it a bit tricky to hit a specific angle and tweak it slightly, but it locks solidly, and the rise and fall are pretty fluid in their action.

In common with Bosch's usual design parameters, it's as tool-free a machine as possible for these adjustments. The extensions for the table lock have levers, and even the blade change is halfway there with a neat built-in spindle lock lever, so all you need is a single spanner to release the nut (and, of course, the spanner stores on-board).

Summing up

The motor never faltered ripping 60mm thick hardwood, so cutting standard sheet stock is a cinch. The sliding carriage is neat, and the supplied mitre fence makes it useful for on-site mitre jobs such as cutting skirting and architraves so long as you support the free end safely. It's equally useful for compound cuts so a site worker will have first- and second-fix options well catered for, but it will still do a decent job in the workshop for joinery jobs too, so it's a good all-rounder in that respect.

If there's a downside, it has to be the price. Its main rivals are likely to be the DW745 or the Makita MLT100, and both retail for around £250 or so less than the Bosch. The Makita at 1500W and DeWalt at 1700W are less powerful than the Bosch, which could work in wet, deep stock in a first-fix situation; this alone may cause people to choose it over its rivals. It certainly has many plus points (apart from the high price).

SPECIFICATION

MOTOR		2100W
NO-LOAD SPEED		3200rpm
TABLE SIZE		584 x 759mm
TABLE SIZE WITH EXTENSIONS		885 x 759mm
BLADE DIAMETER		254mm
MAX DEPTH OF CUT	at 90°	79mm
	at 45°	56mm
MAX RIPPING WIDTH		635mm
WEIGHT		35kg

VERDICT

This saw has lots of good points including plenty of power, and is a good all-rounder.

PROS
- Compact size
- Sliding carriage
- Good on-board storage

CONS
- No separate tilt adjuster wheel
- A bit pricey

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- Bosch
- 01895 838743
- www.boschpowertools.co.uk

An integral pull-out extension keeps things compact while increasing capacity

The sliding carriage is a great feature for smaller crosscutting operations...

...and with the supplied mitre fence, compound and mitre cuts are easy

The latest type of saw to go cordless is the sabre saw, otherwise known as the reciprocating saw. *They're not as big as their mains cousins and use shorter blades, but they can be extremely versatile tools*

Metabo Powermaxx ASE cordless sabre saw

£143.95

Sabre saws are generally thought of as site tools. They are particularly popular in the refurbishment business where they are used for jobs such as cutting out rotten window frames and sawing through old piping. Recently smaller cordless versions have begun to appear, and these turn out to be remarkably handy little tools that can be used in many tricky situations, especially where no mains power supply is available. The Powermaxx ASE is the latest offering from Metabo and is one of the most versatile we've come across.

There are some tools you never knew you needed until you have one, and this is just such a tool. Like jigsaws, sabre saws can be fitted with a range of blades to cope with cutting a variety of materials. Though generally not regarded as precision tools, they're extremely useful for all kinds of fiddly jobs. This miniature cordless version is especially good, as its small size means that it can be used almost anywhere.

Design features

The Metabo has a straight body with a rubber-padded grip. There's a variable-speed trigger with a three-LED battery charge indicator in front of it. Above it is a safety lock to disable the trigger. The small motor is angled upwards, with the battery fitted at the rear of the tool in line with the blade. On the left-hand side of the machine is a button to adjust the setting of the saw's foot (the baseplate). The front of the tool houses the quick-release blade holder and a very useful LED worklight.

Using the saw

The Metabo is an eager little machine with a powerful motor and a readily controllable trigger. Its ability to use both sabre saw blades and jigsaw blades is a real bonus. It can plunge-cut too, and the adjustable baseplate means that the depth of cut can be easily

The adjustable baseplate allows the depth of cut to be controlled easily

The saw can take sabre saw blades as well as regular jigsaw blades

The three-LED battery charge indicator is located just above the trigger

controlled and therefore the full length of the sawblade can be used when necessary.

It's not a tool simply for woodworking, but really is a kind of general maintenance tool. It cuts timber quickly and will slice though piping, bolts and threaded metal rods with ease. Of course it can also cut sheet and solid plastic. Its short blade and compact body mean that it can be used in confined areas where it would be difficult to operate any other tool.

Summing up

The first time we used one of these tools, we thought that it was just a bit of a toy, until we realised just how useful and capable they are. Buy one for yourself and you'll discover how invaluable it is. This Metabo version is especially good with its dual-blade capability and adjustable baseplate. It's an excellent tool.

SPECIFICATION

BATTERY	10.8V 4.0Ah
NO-LOAD SPEED	0-3100spm
BLADE STROKE	13mm
WEIGHT	1.4kg (with 4.0Ah battery)

ACCESSORIES 2 blades, 2 batteries, charger, storage case

VERDICT

This is a powerful and versatile saw with some highly innovative features.

PROS
- Small size
- Good performance
- Ability to use jigsaw blades

CONS
- None

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

FURTHER INFORMATION

- Metabo
- 02380 732000
- www.metabo.co.uk

The saw can also plunge-cut using the saw's foot as shown here

Keep the saw's foot pressed against the surface you're cutting

A range of different blades is available for cutting metal and plastics

Joseph Marples have been making hand tools in Sheffield since 1840, *and are continuing that heritage by producing a new range of marking tools to a traditional pattern last seen 70 years ago*

Marples Trial 1 marking tool set

£133.35

Joseph Marples has just reintroduced an old corporate mark – the Trial 1 mark – on their flagship range of marking tools.

Available as individual items, this set of five tools includes a sliding bevel, a dual mortise and marking gauge, mitre and try squares and a marking knife, and the rosewood and brass materials used are certainly an eye-catcher. The tools are also available individually, along with matching 150mm (6in) and 305mm (12in) try squares.

Four out of five

There is one slightly inferior item in the very posh presentation box: the marking knife. This one seems to be Marples' standard rosewood knife (list no 25). Unlike the other tools it doesn't carry the 'Trial 1' mark, and the rosewood used is certainly not as good as the wood in the other four tools; nor is the finish. This doesn't stop it from doing its job, but in a set you do expect everything to match (especially at this price).

Quality craftmanship

The other four tools feature a consistency of elegance and style. Both the mitre and try square have chemically blacked spring steel blades fixed to the stock with brass diamond washers and steel rivets. The brass stock facings are fully 3mm (⅛in) thick, and are perfectly accurate, as proved using the traditional flipping method. BS3322 is the required accuracy parameter for carpenters' squares, and Marples' tools match this.

Gauge and bevel

The sliding bevel and dual-purpose gauge both have extensive brasswork, with a full brass face on the gauge instead of the more common strip inserts, as well as brass adjusters. The marking pins are long and very sharp so a very light mark can be made, and there's loads of life in the pin length. The screw slide gives fine and precise adjustment of the mortise ands marking pins.

The sliding bevel gets top prize. Its rosewood stock is sandwiched within two brass facings and features a knurled brass thumbscrew and protective pressure pad.

Both classic and traditional, these marking tools are lovely to use as well as to look at, and aside from the slight inferiority of the marking knife, would be a great set for any workshop – to be used, not simply looked at!

SET CONTENTS

T09 230mm (9in) try square
T14 Screwslide mortise and marking gauge
T15 255mm (10in) mitre square
T20 230mm (9in) sliding bevel
(25) Marking knife

VERDICT

This set does exactly what you would expect it to do, and does it beautifully!

PROS
- Superb craftsmanship
- Accurate to BS3322
- Long gauge marking pins

CONS
- An inferior quality marking knife
- A bit pricey (but a great gift!)

VALUE FOR MONEY ■■■■■□
PERFORMANCE ■■■■■

FURTHER INFORMATION

- Joseph Marples Ltd
- 0114 250 11666
- www.marples.co.uk

The wide blade of the try square sits rock solid on the stock

Using the marking knife with the bevel is an absolute pleasure

The long pins give loads of roll room for mortises and scratch marking

A tenon saw is a staple tool in every woodworking shop. *You can buy one on the high street for a few pounds, or pay a king's ransom for this beauty. But is the high price justified?*

Pax 1776 18in tenon saw

£172.81

At 125mm deep, the blade on this saw will tackle a standard joinery door stile around 95mm thick with ease. What's more, unlike the panel saw you'd normally use for the job that can whip and wander, this one has a rigid brass back. So as long as you start the cut on track, it should stay there.

It's a pretty stunning looking saw as well, and it's British through and through – made in Sheffield, with hand-filed teeth and an English elm handle. That filing makes a big difference, as good hand-filing lifts a saw beyond the machine-filed ones and makes it seriously sharp.

This particular saw is rip-filed, and has a bigger tooth pattern than is found on most standard-sized tenon saws at 9 teeth per inch. Its variable pitch tooth pattern starts at 10tpi and finishes at 20tpi.

Deeper and longer

With such a deep blade, the saw must have the ability to cut relatively quickly but also cleanly, and this is a compromise as it has similar teeth spacings to a panel saw. Also, with a blade length of 18in, it's only 4in shorter than a typical panel saw.

This does make it more difficult to use if you aren't used to handsawing as it's front-heavy, but the advice to 'let the saw do the work' certainly rings true here. With its additional weight, you don't need too much pressure to get this one to cut.

The quality of the saw certainly can't be faulted; flick the blade and the tension of the back gives it the resonance of a bell. Traditional split nuts help to give it an understated but classy look.

Using the saw

Some tenon rips done to test the saw were brilliant and the cut was quick, but whether that's justification enough to buy one is a moot point. The aggressive tooth pitch and size make it very difficult to attempt any crosscutting. It was hard to start successfully when trying to remove a tenon cheek after ripping it, so you'll need a dedicated smaller saw for such work.

That said, this is a traditionally built saw, so you can actually tweak it very easily should it need it, and if you want capacity, ability and quality for finer ripping purposes then look no further: here it is!

Starting the cut is best taken slowly until it engages a little

Ripping is fast and fluid, with the stiff back keeping the saw on track

The deep blade takes cutting a standard door-sized tenon in its stride

The finish from the saw is clean enough to assemble for joinery work without sanding

VERDICT

This is a beautifully-made saw that rips more successfully than it cuts across the grain.

PROS
- Excellent quality that will last many generations
- Powerful cutting performance

CONS
- May be too specialised for most woodworkers
- May be too expensive as well!

VALUE FOR MONEY ■■■■■

PERFORMANCE ■■■■□

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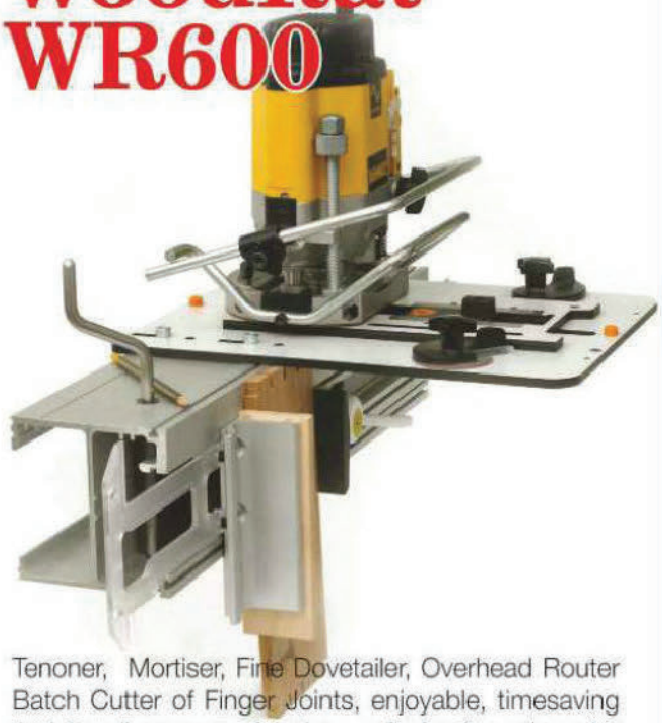

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APRIL 2012

PROJECTS: Nest of tables, Wooden models, Carved name plaque, Bathroom cabinet, Chisel plane
FEATURES: Kitchen worktop jig, Portable power tools 5 – jigsaws and reciprocating saws, Gadgets for the router, Shop notes
TURNING: Elm vase with waterproof liner, Creating barley twists, Kitchen scoops
TESTS: Bosch plunge saw and guide rail, Supertuff bandsaw blades, Axminster oscillating belt sander, Skil multi-tool, Bosch cordless drill driver, Colt Forstner bits, Veritas saws and plane, Festool work table

MAY 2012

PROJECTS Mackintosh-style dining chairs, Embroidery stand, Games table restoration
FEATURES: Tuning a budget bandsaw, Preparing your stock, Portable power tools 6 – multi-cutters, Shop notes
TURNING: Elm bowl with a scorched rim, Double barley twist candlestick, Tool handles
TESTS: Bosch cordless nailer, Scheppach saw bench, Quangsheng spokeshave, Makita drill/driver kit, Bosch multi-cutter, FAMAG lip-and-spur drill bits. Japanese mitre square, Trend router cutter sets, Axminster drill guide, Festool extractor

JUNE 2012

PROJECTS: Cherry dresser 1, Jewellery chest, Pedestal side tables, Guestroom towel rail
FEATURES: Marking and setting out, Portable power tools 7 – routers & router tables, Using a vertical panel saw, Shop notes
TURNING: Banksia nut projects, Metalworking tools for turners, Two-tier tripod spice rack
ON TEST: Trend combination router base, Famag Forstner bits, Dremel compact saw, Makita cordless circular saw, Trend goggles, Axminster table saw, Einhell multi-tools, Trend hex key set, Mafell circular saw with guide rail

SUMMER 2012

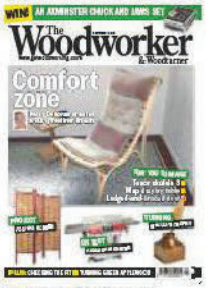
PROJECTS: Cherry dresser 2, Outdoor dining table, Glass-topped lounge table, Patio side table
FEATURES: Preparing tools, Tailor-made bench 1, Choosing machinery, Shop notes
TURNING: Hollow cedar gourd, Silvered candlesticks, How spalted wood occurs
ON TEST: Makita router/trimmer, Axminster pillar drill table, DeWalt laser, Trend depth gauge, Veritas palm plane, Trend sharpening stones, Axminster drum sander kit, DeWalt camera, Robert Sorby Micro modular tool system, Axminster compressor

JULY 2012

PROJECTS: Veneered DVD cabinet 1, Tenor ukulele 1, Oak blanket chest
FEATURES: Making mechanical joints, Building a tailor-made bench 2, Routing with templates, Shop notes
TURNING: Techniques for turning spalted wood, Three ways to shape small boxes
ON TEST: Festool circular saw, Draper bandsaw, JCB plunge router, Flexidisc sanding system, Elmer's glues, Makita combination table/mitre saw, Draper bench-top spindle moulder, Veritas miniature planes, Axminster double bevel marking knife

AUGUST 2012

PROJECTS: Children's outdoor climbing frame, Tenor ukulele 2, Open cherry bookcase, DVD cabinet drawers
FEATURES: Making interlocking joints, Using profile-scribing and panel-moulding cutters, Shop notes
TURNING: Desktop companion, Cutting screw threads, Dowsing pendulum
ON TEST: Axminster Stayput worklight, Mafell cross-cutting system, Axcaliber mitre trimmer, Festool Surfix oil finish system, Makita cordless biscuit jointer, Proxxon bench drill, Axminster squirrel-tail palm plane



SEPTEMBER 2012

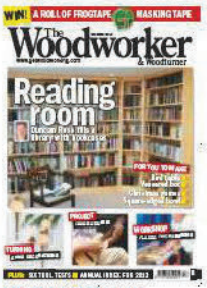
PROJECTS: Curvy ash reclining chair, Interwoven room screen, Tenor ukulele 3, Glass-topped map table
FEATURES: Shaping your work, Getting components to fit together well, Making a ledged-and-braced door, Shop notes
TURNING: Writers' Circle trophy, Multi-centred wall plaque, Green bowl in applewood
ON TEST: Makita cordless jigsaw, Intelligent Workshop and Qwas bench dogs, Osmo oil finishes, Hammer planer thicknesser, Numatic workshop vacuum cleaner

OCTOBER 2012

PROJECTS: Oak front door, Child's tricycle, Tenor ukulele 4, Curved mantelshelf
FEATURES: Letter and numeral templates, Cleaning up your work, Making a bench hook and shooting board, Shop notes
TURNING: Three easy-make pincushions, Involuted turning
ON TEST: Lie-Nielsen shooting board plane, Veritas chisels, Hitachi cordless combo kit, Radian router cutters, Axminster flexible drive unit handpieces, Liogier rasps and rifflers, Makita workshop/site radio, Wera screwdriver and bit sets, Dremel cordless drill/grinder, Lie-Nielsen tenon saw

NOVEMBER 2012

PROJECTS: Curved-top bookcases, Bentwood ash footstool, Tenor ukulele 5, Oak futon base, Adjustable-height workbench
FEATURES: Shop machines 1: The table saw, Restoring a bench plane, Shop notes
TURNING: Cedar wood moth-proofing medallions, Long-hole boring: making a base for a table lamp
ON TEST: Veritas optical centre punch, Bosch GSS orbital sanders, Parkside vacuum cleaner, Dremel 3000 multi-tool, Veritas sliding square, Woodster Divar saw system, Jet mini lathe



DECEMBER 2012

PROJECTS: Library bookcases, Veneered hardwood box, Tenor ukulele 6, Bird table, Traditional table games
FEATURES: Workshop machines 2: The planer thicknesser, Shop notes
TURNING: Christmas tree decorations, Square-edged yew bowl
ON TEST: Einhell circular saw, Japanese adjustable boring bits, Makita cordless random orbit sander, Axminster lathe, GemRed digital callipers, Gedore Magic shear cutting set
INDEX: Full contents listing for the January to December 2012 issues

JANUARY 2013

PROJECTS: Five-bar pedestrian gate, Small workbench, Tambour-fronted chest of drawers
FEATURES: A woodworker's ABC 1: the letter A, Shop notes, Workshop machines 3: Singles or twins?
TURNING: A selection of bowls, Combined clock and table lamp, Hourglasses
ON TEST: Axminster Evolution chuck, Einhell jigsaw, Osmo wood fillers, Mafell circular saw, Dremel Moto-Saw, Osmo PolyX-Oil wood finish, Hitachi cordless combi drill, Veritas marking gauge, Einhell workshop vacuum cleaner

FEBRUARY 2013

PROJECTS: Burr oak Davenport 1, Kitchen shelving units, Gadget carry case
FEATURES: A woodworker's ABC 2: the letter B, Shop notes, Workshop machines 4: The bandsaw
TURNING: Two-stage tall vase, Toy cakes and tarts, Spinning wheel bobbins
ON TEST: Einhell circular saw, Axminster reversible air drill, Tuff Saws Vari-tooth bandsaw blades, Bosch site radio, Hitachi bench planer, Metabo TurboTec orbital sander, Makita circular saw, Festool cordless jigsaw, Jet workshop extractor

Music and craft

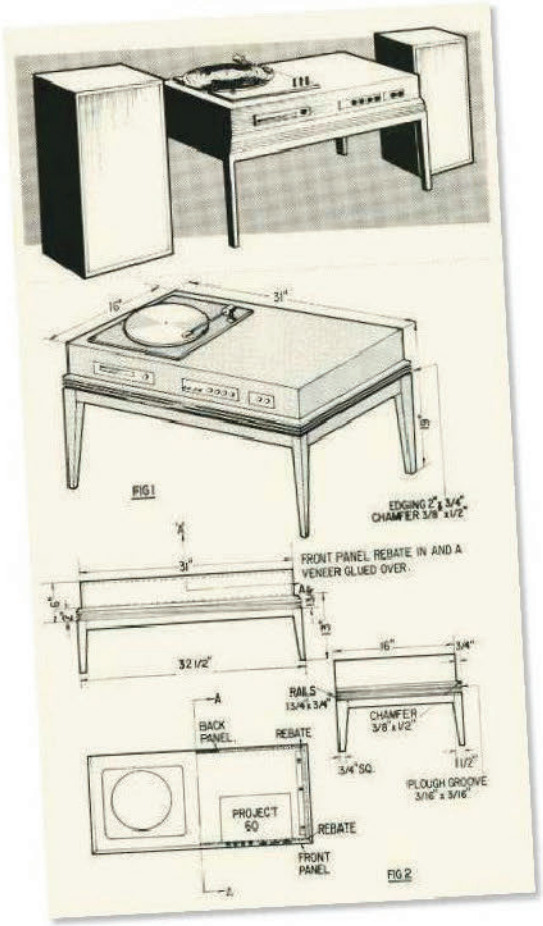
As I settle into the editor's chair, I'm beginning to suspect that the contents of our extensive archives are going to provide me with endless pleasure, considerable amusement, and not a little education too over the coming years

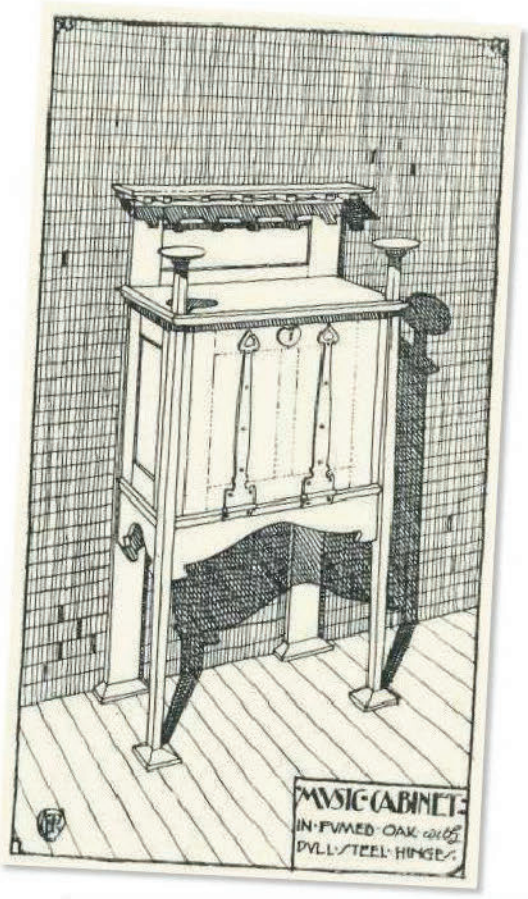
As well as containing no end of technical advice and encouragement, *The Woodworker* archive provides us with a clear window into the past. When we look back, we often see a foreign country which we can hardly recognize, but at the time, all would have been absolute normality. So it was I'm sure back in March 1903 for T Frank Green, the creator of the stylish music cabinet – for the storage of sheet music – pictured below. The whole page epitomizes the new century era, and both the drawing and the design itself couldn't be more Art Nouveau if it tried.

Compare and contrast this classic with the compact hi-fi system featured in *The Woodworker* in December 1972. Again, this work is a product of its time, and displays in its simple lines the rejection of unnecessary decoration and adornment that was prevalent at this time in all aspects of interior design. Even though the main carcases are constructed of veneered chipboard – yet to achieve nostalgic popularity today – there is an actual timber frame involved, and even some mortises and tenons. This will come as something of a comfort to those of us who have feared for the future of woodworking standards on a regular basis throughout the years. It's something that must regularly tax the minds of senior woodworkers everywhere.

Both of these pieces are of their own time and, had their creators' places in time been reversed, would likely have followed similar paths 70 years apart.

However, some things do remain unchanged through time. Music in particular can retain its freshness over the years, as well as providing an immediate ticket back to a past moment. What, I wonder, are the chances of the makers of the compact hi-fi system from 1972 listening to the same music – albeit through a different medium – as may once have been stored in T Frank Green's elaborate fumed oak cabinet?





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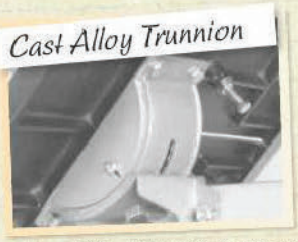
Steel Rack & Pinion Trunnion  This type of trunnion allows one-handed operation, giving excellent support and accuracy.	**Cast Alloy Trunnion**  More difficult to adjust accurately, requiring two-handed operation.

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