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welcome

Despite the shortcomings* of site work, I don't expect I'm alone in relishing the opportunities that working away from the safety and security of a fully kitted workshop present. I do know some tradies – probably all ex-boy scouts – who manage to arrive fully prepared but, unless you have a very large van full to bursting with useful stuff (plus a crystal ball in the glove box), the chances of having everything you need on every job are very slim indeed.

Occasionally I come close to pulling off a slick and professional operation, as I've encountered plenty of variations on the same problems over the years. I still don't really learn, though; it surely can't be just me, can it? The biggest danger of all is when I try to think ahead to what I won't need.



Excess baggage

Lately I've simply been chucking every power tool that I had on the previous job into the back of my little van (a white Suzuki Carry, for those who are interested), in the vain hope that it will be enough to see me through. I'd very much like to know what sort of problems other woodworkers have encountered on a job, so please share your stories if you've got a good 'un. After all, we're all part of the same practical community and can all benefit from each other's experiences (not to mention getting a bit of amusement along the way).

Seeing it through

I'm hoping that this issue of *The Woodworker* will encourage the reader to maybe start a new project or perhaps finish one off that was begun a while ago. I think it's essential to finish a job; there can be few things more disheartening than seeing a pile of

components slowly disappear under a layer of workshop dust. A great idea or project plan will remain but a fleeting thought unless it's acted upon, and if it doesn't work out quite as you planned then at least you gave it a go... and the next one will be better!

The gallery is open

You'll also be pleased to see that I've finally got round to putting a page of readers' work photos together, and I'd like to take this opportunity to extend a big thank you to everyone who has taken the trouble to write in with photos or stories. I welcome all your input, and am endeavouring to reward all those who contribute to the mag in some way with one of our exclusive *Woodworker* badges. Why not give it a go and get involved? Some of the stuff may also appear on our website (www.getwoodworking.com), which has recently been overhauled and is rapidly increasing its readership. It's definitely worth a look-see.

You can get in touch with me any time at mark.cass@mytimemedia.com, and I'll reply to everyone, although it might take a day or two. Phew! See you next time...

* These include irascible customers – some of whom should surely be blacklisted on www.checkacustomer.com – angry pets, random family members who pull up a chair purely for the entertainment factor, ill-prepared rooms stuffed with expensive breakables, other trades who insist on pulling up floors and knocking down ceilings, houses that don't seem to possess a working kettle, multiple flights of narrow stairs: I could go on...

mark



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CONTENTS

*What's in store for
you this month*

**NEXT
ISSUE**

THE NOVEMBER 2013 ISSUE
IS OUT ON OCTOBER 18TH

page
76



page

12

**CABINET
SAUVIGNON**

FREE!

6

**EINHELL
MITRE SAWS**
SEE PAGE 43
FOR DETAILS

page
27



page
79



page
37



page
33



REGULARS

- 3 Welcome
- 8 News & Diary
- 11 News
- 70 Subscriptions
- 88 Marketplace
- 89 Real life
- 90 Archive

WOODWORK

12 Cabinet Sauvignon

Richard Hardy describes a stunning elm drinks cabinet that includes space for bottles, glasses and accessories and features a secret serving shelf

19 Scary sharpening

Michael Forster continues his guided tour of the world of honing, and reaches his destination with a system that lets him sharpen and go

27 Congraduations!

Peter Bishop revisits an ash specimen chest he made a while ago and adapts it to create a personalised graduation day present for a friend



page
52

33 Perfect tenons

Andy Standing takes the drudgery out of cutting repeat tenons by designing a simple jig that guarantees perfect results over and over

37 The Tale of Bunny Bookcase

Peter Parfitt celebrates the arrival of grandchildren by presenting each family with a unique tailor-made bookcase full of Peter Rabbit books

45 A woodworker's ABC

Andy Standing continues his light-hearted series with a look at woodworking terms beginning with the letters Q, R and S

51 Readers' gallery

Mark Cass introduces a round-up of projects that *Woodworker* readers have made recently, and invites more contributions

page
64



TURNING

52 Catching the train

Ian Wilkie finishes his toy train set by making and fitting the wheels, building the carriages and wagons and creating some toy people to ride in it

59 Playing the flute

Colin Simpson explains how his versatile home-made router jig can be used to create perfect parallel flutes on tapered table and chair legs

64 Ten steps to heaven

Bob Chapman spells out ten simple steps that will help you to turn better hollow forms, and even encourages a bit of cheating into the bargain!

ON TEST

73 Trend KWJ700 worktop jig

74 Einhell TH-MS2112 mitre saw

76 Lamello Classic X biscuit joiner

79 Bosch GLL 3-80P laser level

80 Black & Decker KW712 planer

81 Mitre Fast pen kit

82 Einhell TH-SM2131 sliding mitre saw

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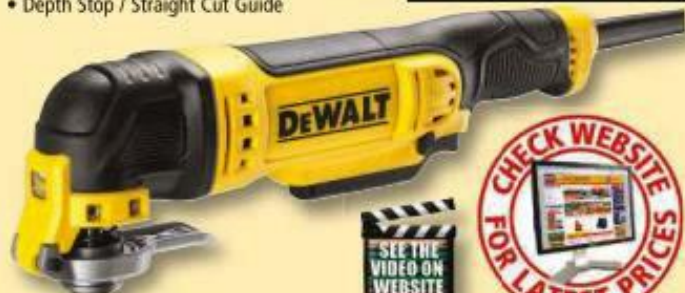


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Autumn catalogues

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CAR & VAN	695-758
CLEANING & HYGIENE	889-939
ELECTRICAL	257-372
FIXINGS & FASTENERS	36-68
FLOORING	135-136
HAND TOOLS	789-802
HEATING & COOLING	373-393
IRONMONGERY	199-244
KITCHENS	650-679
LANDSCAPING & OUTDOOR	575-609
LIGHTING	245-296
PAINTING & DECORATING	139-181
PLUMBING	294-306
POWER TOOL ACCESSORIES	893-944
POWER TOOLS	858-951
SAFETY & WORKWEAR	627-677
SCREWS	14-35
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SECURITY	162-189

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BY RICHARD HARDY

Cabinet Sauvignon

Drinks cabinets are usually bespoke projects. Connoisseurs tend to have very specific requirements, and are prepared to commission a piece of furniture to match. This was one of my early pieces, designed to show at exhibitions...



1
The wild beauty of the elm's grain and the pippy knots were irresistible

This elm drinks cabinet has all the storage and features the discerning drinker might need, but at a size that suits the smaller spaces we live in. The upper cabinet consists of a main storage space for bottles and two shelves above for glasses. The shelf heights were carefully calculated to accommodate bottles, wine glasses and tumblers. The lower cabinet consists of a waist-height sliding shelf on which to prepare drinks, a wide drawer for the storage of general drinking paraphernalia and a lower cabinet with two wine-rack shelves.

First thoughts

The original sketch for the cabinet was made on a paper napkin in a pub. I worked this concept up into several scale pencil sketches in my notebook, each with varying widths and depths and slight differences in the proportions between the upper and lower sections. To make a final decision, I produced a full-scale drawing of the front and side elevations on a sheet of mdf, and adjusted the dimensions until I was happy. I then produced final working drawings in AutoCAD from which to build the cabinet.



2
I cut all the constructional dovetails by hand, ready for assembly



3
Lots of cramps and packing pieces held the carcass together while it dried



4
I cut all the hinge recesses by hand – a job for a very sharp chisel

Soul and Inspiration

My sources for the design details were eclectic. I'd seen a photo of a James Krenov cabinet with giant tensioned dovetails and fancied having a go at them; I like making features of construction elements. Also, it's early in my career and I'm trying to establish some recognisable aesthetic styles. I'd built a coffee table with very shallow, subtle curves, and wanted to include similar lines in the cabinet. I actually ended up re-using two curved templates I'd made for a coffee table, so curves could well become my 'signature' style!

Other details developed more haphazardly. I'd carefully sketched some curved recessed handles, but when it was time to make the template I ended up relying on the radius of a tin of oil, which gave a pleasing D shape. I think good design is often like this: a mixture of the careful planning and happy accidents.

Going with the grain

I generally use native or European timber, and once I found this elm with such a strong grain, **photo 1**, the whole concept came together. I decided to create an overall shape and profile that was simple and inspired by 20th century classics, but to bring constructional elements to the surface as design features. The refined design and traditional cabinet-making would showcase the natural, wild beauty of the elm, making features of the strong grain and the pippy knots.

Natural resources

My elm came from Vastern Timber in Royal Wootton Bassett, Wiltshire. I'd found a lot of air-dried stuff advertised online, but a friend of mine had some experience of working with this and warned me against it: the timber had moved significantly and caused him real problems. Vastern seemed to be one of the few places offering kiln-dried elm, which would ensure a practical level of dimensional stability for the cabinet.

The yard kindly allowed me to go through a stack of boards, turning and examining each one to find the grain I wanted. I eventually chose three boards with wild grain for the main carcass and one with some fairly straight grain for the legs. As we were leaving I spotted a short, thin board of rippled sycamore right on top of a stack so I took this too, thinking it might make an attractive drawer. The bill came to about £600.

Apart from using the elm for the cabinet and the sycamore for the drawer sides and back, I made the drawer base and the back panel of the upper cabinet from mdf veneered with poplar, which is pleasingly





5 The smooth D shape of the recessed handles reflects the curves on the cabinet itself



6 The three deep panels forming the lower cabinet's carcass are biscuit-jointed



7 Three tenoned-in panels and a dovetailed front rail form the lower cabinet



8 The storage drawer has an elm front dovetailed to sycamore sides



9 The drawer's base panel is 6mm thick mdf veneered with book-matched poplar

complimentary in tone to the elm and the sycamore. The sliding tray is a leather-covered mdf panel held in an elm frame.

Starting work

The upper cabinet is basically a large box with a slightly curved profile to the front. The sides, top and bottom are each constructed from three boards. To provide consistency of grain combined with durability and strength, these were cut from adjacent areas of the planks and then reassembled using biscuits.

The curve on the top and bottom of the cabinet was cut to a templated line on the bandsaw, then shaped by hand with my trusty Qiangsheng No 5 jack plane (reviewed in *The Woodworker* in December 2011). There's some pretty wild grain throughout this cabinet, but my £90 Chinese takeaway was rarely found wanting in the preparation.

Giant's causeway

The sides, top and bottom are joined with giant tensioned dovetail joints, which needed careful positioning to avoid the joints within the three panels. I cut them entirely by hand using a Veritas dovetail saw and my 3, 6 and 19mm Ashley files chisels. This was a largely therapeutic process,



10 The groove under the drawer's front edge is accessed via this D-shaped cut-out

although the speed with which the elm blunted chisels sorely tested my patience.

One thing I noticed when paring was the variation of texture, even within the same plank. One minute the wood was crumbling like a stale biscuit – easy to get through, but hard on the chisel. The next it was dense and firm, paring in lovely curls like butter – albeit extremely hard butter! As the timber darkened, it was sometimes so tough that I'd really have to lean into the chisel to make an impression.

People have asked me why I didn't make a jig to remove the majority of the waste with a router, or even cut the dovetails using a proprietary jig. I simply feel that when working on a handmade piece, particularly on such prominent aesthetic details, doing the work by hand introduces a degree of character and individuality, intimately connecting the maker to the finished piece.

Starting the assembly

I assembled the upper cabinet in two stages. Firstly the sides and bottom were tapped together carefully, **photo 2**. Then the back panel – 6mm mdf veneered in book-matched poplar – was slid into position and the top was added. The large dovetails took quite a bit of persuasion to come together (and a lot of cramps to hold everything square, **photo 3**), but the effort was worth it.

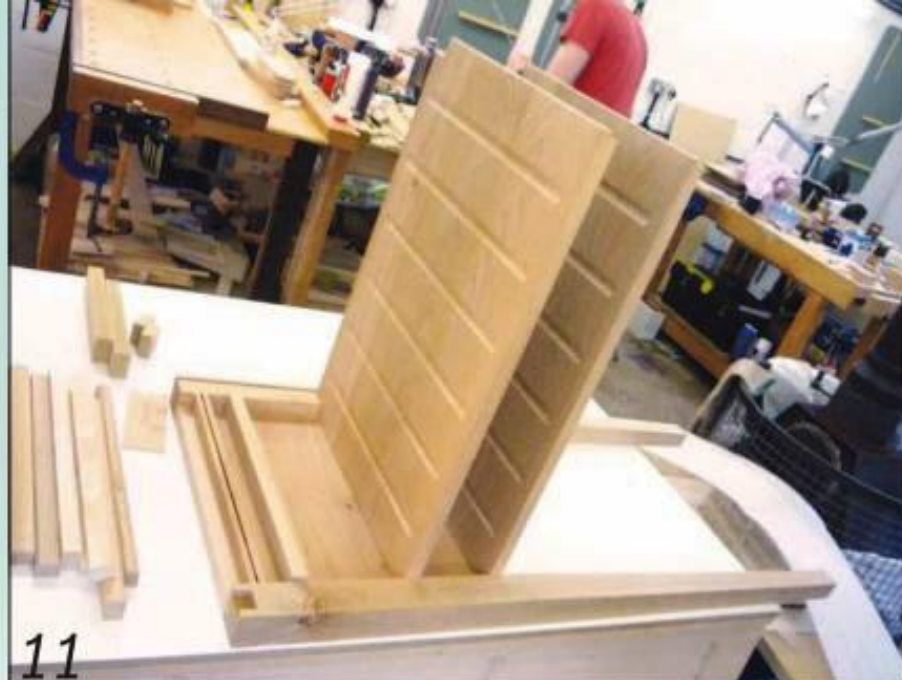
The internal shelves rest on brass shelf pegs so they're fully adjustable. I used a gouge to carve small locating notches for the pegs in the shelves. One of the shelves had warped slightly between construction and assembly, but by adjusting the depth of the notches I was able to make it sit securely and level.

Tackling the doors

I chose the timber with the wildest grain and most pippy patches for the doors. Both doors came from the same large board. I cut three panels for each door from consecutive parts of the board, then rejoined them in the same order with biscuits. This is a slightly risky strategy.

On the plus side it maintains the continuity of the pippy patches and wavy grain, resulting in great-looking doors. Cutting and biscuiting the panels mitigates the risk of movement, but such a large area of continuous grain will always be prone to cupping and twisting.

I've fitted battens to the back of the doors to add stability, but will keep an eye on them over time to monitor the effects of any changes in temperature and humidity.



11

The two wine shelves have shallow routed grooves. Each will take a half a dozen bottles



12
The carcass became much more rigid once the two wine shelves had been fitted

The doors close using hidden magnets, concealed behind leather to provide a 'soft' closing action.

Creating the curves

The whole cabinet has a slight curve on the front face. The doors were by far the biggest surface on which I had to create this curve, and the wildness of the grain made the challenge even greater. I was really keen to do all the shaping work by hand, but as my exhibition deadline loomed I had to speed up the process of removing the waste timber somehow.

A power planer was too risky as it might well have ripped the pippy patches apart, but putting the doors on the belt sander at a series of angles enabled me to remove a lot of the waste quickly while maintaining the board's integrity... and I still got to finish them off with a hand plane, working along the grain with my Veritas No 7.

I fitted the hinges, **photo 4**, and hung the doors by hand, starting with a tight finish and then using a block plane to create about a gap of about 0.5mm all round. This should be sufficient to cope with any swelling in humid environments.

Shaping the handles

The door handles were a key feature, and not just to open the cabinet. I'd designed the front face to be very clean and smooth in order to show off the grain to the best effect. It was therefore important that the handles didn't stand out and dominate too much. However, they did need to break up the smooth lines somehow, or the piece might look like a featureless monolith.

I felt that recessed handles would achieve this. They have very little impact on the cabinet's lines or the continuity of the grain, but their shapes and the shadows they



13

A brief marriage of the two halves showed that the design looked right

create break up the doors beautifully.

I designed a slightly curved shape, **photo 5**, reflecting the smooth curves of the cabinet. The handles were routed using a dovetail cutter, which provides just enough of an undercut in the recess for the fingertips to get some purchase on the doors. I ran the router off a simple mdf template clamped to the finished, curved door profile.

The bottom half

The lower part of the cabinet has a traditionally constructed frame. The legs are square where they meet the rails, and are then tapered down to the floor. They're joined to the side and back rails with mortise-and-tenon joints, while the front rail braces the structure and is jointed into the tops of the



14

The shelf runs on waxed nylon strips let into a runner in the carcass, and the drawer is mounted on concealed runners

front legs with lapped dovetails, **photo 6**.

The legs were cut on the bandsaw and tapered by hand with a No 7 plane. The mortises were cut into the square sections at the top with a mortiser. The sides are very deep, as they continue the lines of the sliding tray, drawer and cabinet from the front. They were cut in sections equivalent to the sliding tray, the drawer and the wine-rack cabinet, then re-joined into single panels with biscuits as before, **photo 7**.

I cut the tenons on a router table. The majority of the waste was removed with a large rebate cutter, but I made the final pass with a 12.7mm twin flute cutter to provide a clean-cut shoulder. I glued the mortise-and-tenon joints using PVA adhesive, as its flexibility will allow for any subsequent movement in the wide boards and joints.

15

The single wine cabinet door is hung on two concealed Soss hinges



16

The face of the doors, shelf, drawer and wine cabinet all follow the same curve...



17

...while the giant tensioned dovetails top and tail the upper cabinet



The storage drawer

The drawer is built traditionally with hand-cut dovetails to the front and rear, the pale sycamore providing a lovely contrast with the darker elm, **photo 8**. The base panel is 6mm thick mdf veneered with book-matched poplar, **photo 9**, and is rebated and spot-glued into its grooves.

The drawer front is curved to match the cabinet's profile, and is opened using a small fingertip groove underneath the front. This groove is accessed via a scoop in the top of the wine cabinet door, **photo 10**, which was chiselled by hand to match the recessed handles in the main doors.

The wine cabinet

This section has two shelves, each with six routed grooves in which the bottles rest, **photo 11**. The shelves are rebated and let into grooves in the rails and legs, **photo 12**, but are glued along only about two-thirds of each side, to allow for potential movement. I also left a 2mm gap in the rebates and

grooves where cross-grain movement could occur. Note the loose drawer runners in this photo, waiting to be fitted into their slots in the front and rear legs.

I decided at this stage to bring the two halves of the assembly together to make sure everything matched my plans, **photo 13**. It was looking good...

The drinks shelf

This

mortised-and-tenoned elm frame containing a panel of 9mm thick mdf, **photo 14**. A leather skiver would be applied to each face at the finishing stage. The mdf is rebated and let into a routed groove in the frame.

To keep the front of the cabinet looking clean, the shelf doesn't have a handle. Instead it's released and retracted simply by pushing the front, using Hafele mini-latch spring catches fitted to each side of the back rail. The shelf runs on nylon strips let into a runner in the carcass and a groove in the shelf. The shelf is well supported as it fits very snugly between the runners, while a little wax on the nylon strips guarantees a smooth running action.

More assembly

The wine cabinet door is hung using two concealed Soss hinges, **photo 15**, and closes with concealed magnets. The hinges are set into the leg of the cabinet, and this was where I made one of the biggest mistakes: I should have routed the recesses prior to assembling the cabinet. As a result, I had to make a jig to guide a drill bit and drill out some of the waste, before carefully finishing the job with a chisel. Anyone who has tried this will know that it's quite a fiddly and time-consuming process.

I'd never used Soss hinges before, and was unprepared for quite how much they can drop. In the day or two after fitting, the door dropped by several millimetres, so the top hinge was let a millimetre further into the leg, while the lower hinge was packed out with 0.6mm thick veneer.

Finishing touches

Where practical I sanded most components with P180 and P280 abrasive paper before starting the assembly. For the larger panels I used my Festool ETS150 rotary sander, fitted with a hard pad and P180 and P240 discs. After assembly, all exterior faces were

interior of the carcass had two coats, hard-wearing and visible internal surfaces four coats, and exterior surfaces eight coats, which resulted in a very smooth look. This should provide a hardwearing and long-lasting finish that can cope with the rigours of heavy bottles and wet glasses.

Final thoughts

Overall I'm very happy with the design, build process and finished product, which was well received at the first exhibition to which I took it. However, I've learned a few things along the way...

■ Be aware that beautiful, wild grain can be too much of a good thing. I had swirling crown grain and dark knots on the sides, pippy patches on the doors and strong straight grain on the legs. I think I got away with it here, but I certainly underestimated the overall effect of bringing the various components together.

■ Elm moves a lot. In particular, one of the upper doors warped slightly during the final stages of construction. Fitting rear battens to them will add stability, but movement between the seasons may still occur. The lesson here is that despite working to extremely precise tolerances during construction, you need to embrace the fact that solid wood will move, and that's just part of the piece.

■ Plan where hinges will go, and fit them before gluing up the carcass. I like working by hand and the four butt hinges were fine, but fitting two Soss hinges as my deadline approached was a little stressful. It would have been much easier if I'd routed the recesses first!

■ Always check that your fence is true. It may have been straight the last time you used it, but it doesn't hurt to check it again; it could save you a lot of time.

■ Know your limits and be inventive. Although I wanted to shape the doors by hand (a process I really enjoy), using the

18

The cabinet was finished with up to eight coats of oil on the exterior



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BY MICHAEL FORSTER

Scary sharpening

You know, I worry about me sometimes. For someone who likes to think of himself as a free-thinker, untrammelled by the past, always ready to question assumptions, I can be a real old stick-in-the-mud... especially when it comes to sharpening tools

When I did my bit of training in the 1960s, everything was very cut and dried. Tools were honed on oilstones. Wet-and-dry was for engineers, painters and decorators, while chippies used glasspaper (none of this new-fangled aluminium oxide stuff, thank you). That was how the world was, and in my eagerness to be accepted in the glorious company of traditional, time-served craftsmen, I soaked up all these assumptions willingly.

All change

I still like traditional tools and methods, but it's not nostalgia – well, maybe just a little. However, when it comes to sharpening all my traditional tools I become a rampant iconoclast, eager to embrace the new methods. That's because essentially I'm a lazy tyke, I'm quite happy to spend hours working at things I enjoy, but sharpening isn't one of them. As you just might remember my saying before, sharpening is a means to an end. I want to enjoy the



1 It took me a long time to imagine a place for wet-and-dry in a workshop...



2 ...and even longer to discover that it might be used for sharpening tools!



3 A sheet of 10mm thick float glass makes a good backing for the abrasive sheets, but handle it with care... and don't drop it!



4 A film of water applied to the glass using a plant sprayer will hold the paper still and also provide lubricant

traditional way of doing things, and that means I need sharp tools. Show me a way of sharpening them with minimum hassle and in the shortest possible time, and I'll happily throw over my traditional values for the sake of making a fast burr.

Getting to grit

That's why you now find me coming over all evangelical about abrasive sheets. Their advantage is that you can get them in a huge variety of grits. The obvious issue with them is flatness – but paradoxically that's their strength, as sticking them on a thick piece of float glass guarantees the best flatness you're likely to find anywhere.

There's no need to maintain the flatness so long as the glass is cleaned every time the abrasive is changed.

There are just a couple of safety points to bear in mind where glass is concerned. Firstly, get your glass merchant to polish the edges. Secondly, don't drop it. Although thick float glass is quite robust in day-to-day use it isn't toughened, so if dropped onto a

hard floor it will shatter – and that won't be good for anyone in the area.

Sticky solutions

I know a number of people who use wet-and-dry paper in this way. They stick the paper to the glass using low-tack SprayMount adhesive – a method I tried for flattening water stones years ago, and couldn't get on with at all. Since then, though, I've received some advice that might have helped. For starters, you should spray the adhesive on the paper rather than on the glass. It's also a good idea to leave it under weights for a while to press it flat and bond it well.

Now if I'd known that when I first tried this method, I might have got on better; who knows? The other difficulty I had was in actually removing all the residue and cleaning the glass when replacing the worn sheets. This could be circumvented by a trick I learned from a David Charlesworth DVD – well worth getting, incidentally, if you choose the water-stones route as per last month's article.

Water surprise

David recommends putting a thin film of water onto the glass with a plant sprayer, and letting the surface tension act as glue to hold the paper still while the stone is flattened. I don't really see why the same method shouldn't work for sharpening directly on the paper. The disadvantage of it, of course, is that you can't just stick the sheets down and leave them – they have to be stored loose, and if your untidiness is like mine will probably end up strewn all over the sharpening area of the shop. C'est la vie... or, to be more honest, c'est moi!

Grade expectations

A great benefit from using abrasive sheets is that you can have an enormous range of sharpening and polishing grit grades available for very little financial outlay. I know one craftsman who maintains his edges with four grits – 240, 400, 600 and 1000 – attached to both sides of a sheet of float glass, but you can play around with different combinations and find just the right one for you at very little cost.

With this system you can use water plain and simple for lubrication, but you need less of it than for water stones, so there's nothing like the mess they create.

Of course the disposable concept may not appeal to some, but it's worth remembering that water stones work on a throwaway principle too. The difference is that their waste dissolves in water which is then flushed down the sink, rather than being peeled off and thrown in the bin, but it's still waste.

We're now getting pretty close to my perfect 'sharpen-and-go' system, now. For me, abrasive sheets on float glass have become the gold standard of sharpening, giving me convenience, tidiness (yes, me – really, folks!) and cost control all in one. However, I don't use wet-and-dry...

Peel and stick

3M, the clever people who gave us the Post-it note, have developed a range of products known as abrasive lapping films. These work in a very similar way to wet-and-dry paper, but the sheets are self-adhesive, which in my case makes a difference that's worth paying a little more to get.

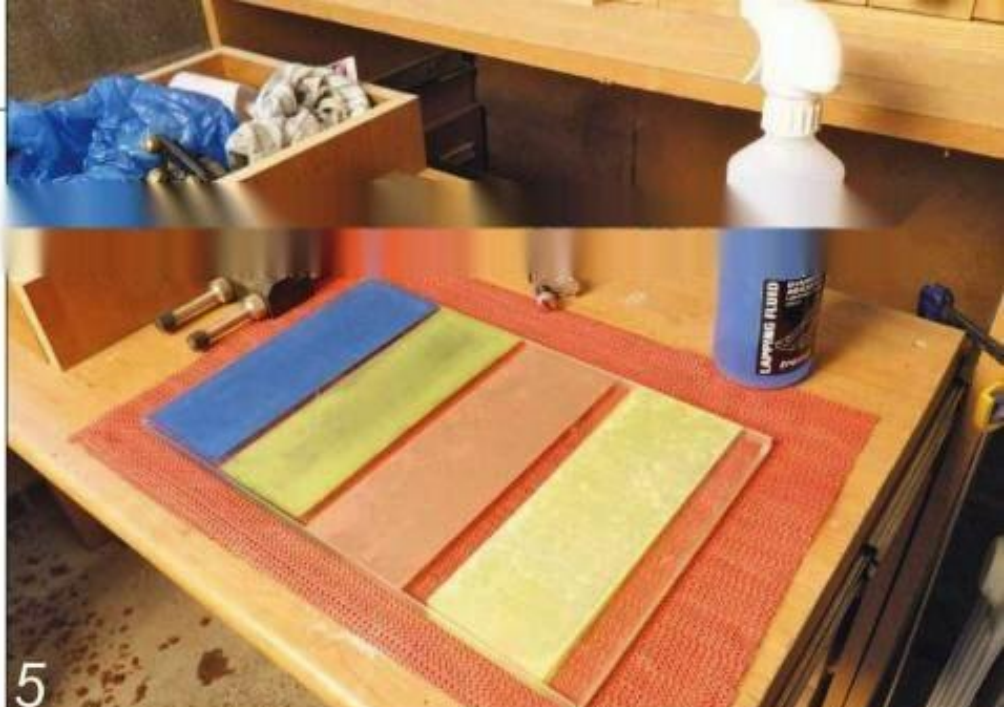
Sticking the film onto the glass is simplicity itself, and I've had no trouble getting it on perfectly flat with no trapped air bubbles. Then when it's worn it simply peels off – usually leaving no residue, or at most a few smears that are also easily removed. I then clean the glass with a household glass-cleaner spray, dry it and apply the new film, all in just a few minutes.

Ready to roll

In general use I have all my films stuck to the glass, and I just give them a quick spray with lubricant and sharpen away. Starting at the coarsest grit, a few strokes on each film quickly produces that tell-tale burr that indicates even sharpness, and the burr is then polished away with a stroke or two on the back of the blade. There's a choice of lubricants, including water. At present I'm using up a rather large spray bottle of Trend diamond stone lubricant which should last me a long time yet.

Beware the tear

The downside of this is that the film is more delicate than standard wet-and-dry paper, and can easily be torn by careless use. Always use a pull stroke on the honing guide, never a push (that's good practice with water stones and abrasive sheets generally), and don't use it without lubricant. You'll easily tear the film, as I did in an absent-minded moment ju



5 Creating a dedicated sharpening station makes regular honing much less of a chore



6 Mine slides away beneath the bench when it's not in use – a great help in a small workshop



7 3M self-adhesive abrasive film is my choice: a few quick strokes and the chisel's keen to go again

For the same reason, take care when removing the burr from the back of the blade. Ensure that it's lying flat on the film and just pull it back once, lifting off by pressing down on the top of the blade so that the sharp edge lifts clear. Check that the burr has gone and repeat the process if

For actual shaping of blades, a coarser grit with a much more resilient backing is available. It's not self-adhesive, but can be glued to a scrap of mdf and then thrown away when used up.

Ancient or modern



Just don't forget the lubricant, or your blades will quickly tear the film to shreds!



You can buy the various items separately, but this starter kit is a good way to get going

on with SprayMount adhesive better than I did, then by all means give wet-and-dry a go. Whichever of these two you use, there's a real benefit in having all the grades stuck down to a single piece of float glass. This makes the entire system much more portable and easy to set up than a water stone.

Scarily sharp

For those wanting to go down this route, Workshop Heaven's Scary Sharpening System will kick things off neatly. The kit contains a sheet of float glass, a non-slip mat, various grades of film, lubricant and full instructions. WH will also, at extra cost, include a very upmarket honing guide. See the panel below for contact details. I know people who love this system, but I haven't tried it myself. All I can say is that my basic Axminster guide, as mentioned last month, serves me very well.

Maximum convenience

Finally, it might be worth saying a word about the general sharpening set-up. I've found it of immense value to have a dedicated space for sharpening, rather than having to unpack the kit every time I want to use it. That was particularly helpful with water stones, and the same basic set-up now serves me well with the films.

I've incorporated a pull-out shelf in my tool cabinet. The glass sheet sits there permanently on a non-slip mat, while things like honing guides and cloths are kept in a compartment to the side. The whole thing is mounted on sturdy full-extension drawer runners and is held firm when extended by a quick-action clamp.

Summing up

One thing I've learnt is that the simpler sharpening is, the more willingly and often I'll do it. For some common tasks – chopping dovetails, for example – I just leave the shelf extended where I can walk over to it, set the chisel in the guide and refresh the edge with a couple of strokes on each grade of abrasive, all in a matter of seconds.

Sharpen and go. Little and often. As that ghastly little puppet on the beach used to say: 'That's the way to do it!'

FURTHER INFORMATION

- Axminster Tool Centre
- 03332 406406
- www.axminster.co.uk
- Workshop Heaven
- 01295 678941
- www.workshopheaven.com

MICRONS & GRIT GRADES

With 3M aluminium oxide lapping film graded in microns (and colour-coded) and other systems using grit grades, this conversion table will give you an approximate comparison.

Microns (µ)	Grit no	3M sheet colour
0.3	50,000	off-white
1	14,000	light green
3	8000	pink
5	4000	brown
9	1800	blue
12	1200	yellow
15	900	grey
30	600	green
40	400	blue

flog a Suffolk Punch round Aintree because neither of them would do very well at all. So it is with sharpening kit too. The old-style double-sided stone (carborundum or diamond) might suit a chippie on the move, wanting to travel light with something that can be taken from the toolbox, used and put away again.

The carborundum stone also has the benefit of being cheap and relatively uncomplicated to use, for which reason I often suggest one to people putting a first toolkit together as it will tide them over until they see where their woodworking is going. More expensive and complex systems are better considered after that. It might also be perfectly adequate for someone wanting to do just some fairly basic DIY, but without any real interest in the finer aspects of serious woodworking.

It's easy, in the dazzling light of modern developments, to lose sight of the fact that centuries ago craftsmen were producing

amazingly fine work, even by modern standards, using what we now would consider extremely primitive kit. An occasional tour of a stately home is a valuable humbling experience, I find.

Final choice

Water stones certainly have their merits if you don't mind the flattening and the cleaning up, but I found that this became irksome and encouraged me to put off sharpening, and all the more so in a workshop without plumbing. However, they're not to be dismissed: my first experience of really sharp tools – and a commensurate improvement in my woodworking – was brought about using water stones, so they still have a place in my heart if not my workshop.

For me the abrasive-on-glass method works, and I like the self-adhesive backing on 3M film as it means I can just stick it down and forget it until it wears out. If you can get

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BY PETER BISHOP

Congraduations

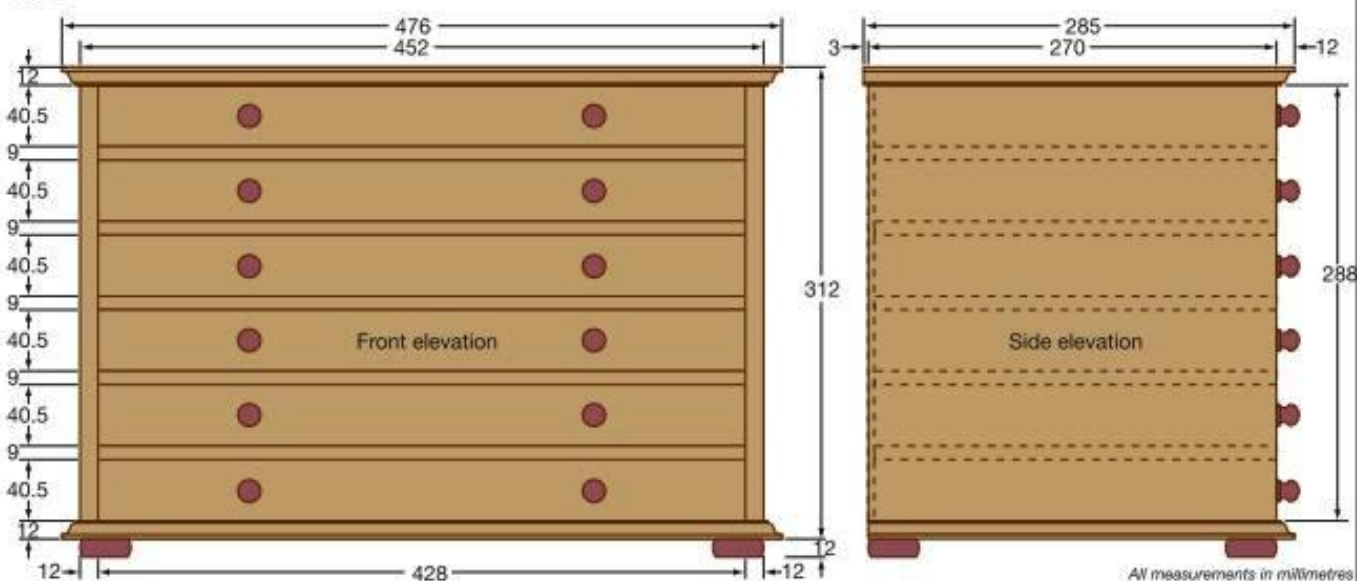
What goes around comes around. I'd unsuccessfully tried to coerce a friend into buying an ash specimen chest a few years ago, but it must have made an impression. He rang recently and asked if I could make something similar as a graduation present. So I did...

The basic idea was to make a small oak chest of drawers that could be used as a jewellery or collector's cabinet. It was designed to be as flexible as possible and to have a slightly antique feel to it. I factored in some precision cutting, a bit of fuming and some simple turning to keep it interesting.

Natural selection

As usual the stock I used was kiln-dried. However, being cautious and fully aware that artificial drying is an art rather than a precise science, I'd cut the nominal stuff out and put it in my office for a few weeks before I started. The aim here, as I'm sure you will be well aware, is to try to bring the wood's moisture content into equilibrium with its eventual environment, thus avoiding any further shrinkage or possible distortion. The stock was selected with care to produce fully quarter-sawn, figured stuff for the top and as many of the drawer fronts as possible.

Fig 1



GRADUATION CHEST CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
CARCASE				
Top / base	2	500	285	12
Side	2	325	270	12
Back (oak-faced mdf)	1	500	300	4
Drawer divider (plain mdf)	5	450	266	9
Bun foot	4		25 dia	12
DRAWERS				
Front	6	450	39.5	12
Side	12	300	39.5	9
Back	6	450	28	9
Base (plain mdf)	6	450	260	4
Knob	12	15 dia	30	

You will also need some thin straight-grained wood for the loose drawer inserts, some oak offcuts to edge the five mdf drawer dividers, and some self-adhesive baize to line the bases of the drawers before the inserts are fitted.

Plane sailing

Making the four main carcass pieces was the starting point. Each consists of two pieces joined edge to edge to create the necessary width. Having decided which went with which, I faced them all on one side, planed them flat and true, and then planed the adjoining edges square to these. To avoid any of the grain picking up during planing when these pieces had been joined, I marked each with a 'direction of grain' arrow and made sure each pair had these pointing the same way.

Always set out to have any slope in the grain trailing down at the back from the leading edge when you're planing on a machine, or up and away from you when finishing by hand. Follow this simple rule and you won't lift the grain unnecessarily.

Of course, sometimes, with stuff that has variable grain this will be difficult; just try to get it as close as you can.

Edge to edge

I like to use Cascamite, the powdered resin glue, for rigid edge joints like these, as it creates a bond stronger than the wood itself. PVA glue can move under stress. With the first piece of the carcass held in a vice, I applied the glue to the edges and rubbed the board edges together, **photo 1**. This technique thins and spreads the glue evenly and also works it into the wood pores; this is what gives such a strong joint. Each pair was cramped up as flat as possible and left for the glue to cure.

Later on I belt-sanded the excess glue off and then planed each piece to its finished

cross-sectional dimension, **photo 2**. These pieces are only 12mm thick, so I stacked them on edge, **photo 3**. This stops them picking up any moisture on just one face, which could lead to distortion. They stayed like this until I was ready to start work on them again.

Into the trenches

Cutting housings in the top and bottom pieces to take the two sides is not too difficult so long as care is taken. The tricky bit is cutting out the housings on the inside of each side panel to take the drawer dividers. If they are slightly out of line or there are variations in the gaps, then the difference will stand out like a mile!

They need to be marked out in pairs. The position of the front part of the housing is the critical bit. Some slight (but only slight) variations can be allowed further back because the drawers can be trimmed to fit later if necessary.

I was using 9mm thick oak-edged mdf for the dividers. The trick is to make the drawer openings a regular size – 40.5mm in my case. Each drawer front could then be made 39.5mm high to fit snugly. The sides were then marked out, the housings cut (I used a cross-cut saw, **photo 4**, but a router will do the job just as well) and the ends cleaned up and squared out.

Five divisions

I made up the five drawer dividers next, gluing some 9mm thick strips of oak to the front edges of the mdf panels, **photo 5**. These were then notched at their front corners to fit into the stopped trenches.

Next, I cut a shallow stopped rebate into the rear edges of the main carcass pieces

to take the 4mm thick back panel, **photo 6**, and applied a moulding to the three edges of the top and bottom panels.

Putting it together

After a dry assembly run, the whole carcass was glued and cramped up. I started with the side panels and the drawer dividers, and then added the top and bottom. I find it difficult to hold the protective packing pieces in place sometimes. A trick I've learned over time is to fix them in place with masking tape before you begin, **photo 7**. Then they stay in place as you assemble the carcass from the bottom up, **photo 8**.

Once the glue had dried I cleaned off the excess and sanded the exterior to a 180 grit finish. Then I cut the back panel (a piece of 4mm oak-faced mdf) to size and glued and pinned it in place.

Simple joints

The drawers come next. No dovetails are needed for these slim-line trays. The sides are rebated into the front and the back is housed into each side. The drawer base, a piece of plain 4mm mdf, is let into a groove routed in the front and sides, **photo 9**, and slides under the bottom edge of the drawer back.

Before they all go together, drill two knob holes in each drawer front while the wood can be got onto a pillar drill; it's more precise that way. After the drawer boxes are made up, **photo 10**, you can slide the bases in and pin their rear edge to the bottom edge of the drawer back. This gives the whole drawer its strength and stability.

Chemistry lesson

I've probably said this many times before, but you get some great, deep nut-brown oak out of stuff that has come from old cow sheds! The ammonia fumes given off by farm animals' muck react with the tannins found in oak to darken the wood. If it's old enough you don't need stains, and the colour change can be very deep, **photo 11**.

Replicating this is nearly possible by acquiring a concentrated solution of ammonia (known as .880 ammonia), and treating your wood to a process called fuming. You can buy .880 ammonia from some hardware shops or search for it on the internet.

Fuming

You'll need a sealed chamber (made from polythene sheeting and Gaffer tape on a simple wooden frame) into which you can put the item to be fumed, plus some saucers or small containers into which the ammonia solution can be poured. Take great care with



1 Rub the glue into the joint of each main carcass board to create a good bond



2 Leave the cramped boards to set overnight, then surface-plane each one to its finished size



3 Stack the thin boards on edge to stop them picking up moisture and warping



4 Cut the five housings in the side pieces with a crosscut saw (or a router if you prefer)



5 A piece of mdf with a solid wood edge strip glued on forms each drawer divider



6 Use a straight cutter in the router table to form a rebate for the back panel



7 Stick packing pieces to the top and bottom of the carcass with masking tape



8 Fit the drawer dividers, add the top and bottom and cramp everything up square



9 The drawer fronts and sides are grooved to accept the mdf base panels



10 I used a couple of frame cramp sets to hold the drawer boxes together



11

Fuming the components with ammonia in a sealed chamber darkens them dramatically



13

...which I then cut through and held in a chuck to complete the shaping



15

I stained the knobs and feet to a dark shade, and screwed the feet to the base of the chest



17

This simple jig makes light work of routing all the grooves in the drawer inserts



12

I turned the knobs in pairs, leaving a shaft in the centre of the blank...



14

I tackled the bun feet in one length so I could check they were a uniform thickness



16

Measure twice and cut once if you don't want to waste the self-adhesive baize lining



18

I used my router and some hand tools to cut the recess for the commemorative plaque

this noxious chemical. Make sure you're not in a confined space when pouring it out, and avoid being exposed to its fumes for any length of time. It's best to site your fuming chamber out of doors if possible.

The effects fuming creates can be dramatic. The longer you leave the oak in the fumes, the darker it gets. Overnight or 24 hours is normally long enough. Once the process has gone as far as you want, the treated surface can then be sealed and waxed to a lustre finish.

The end game

Just to keep things interesting, I finished making the chest with a bit of turning – 12 walnut drawer knobs and four matching bun feet, to be precise. I turned the knobs in pairs between centres, **photo 12**, then cut through the shaft in between and finished them in the chuck, **photo 13**. I created the bun feet in one length with spaces in between so I could make them all the same thickness, **photo 14**. I then cut them off, stained them, centre-drilled them and screwed them on, **photo 15**.

I sized the shafts on the knobs to fit the pre-drilled holes in the drawer fronts, and cut a slot in the end of each shaft so I could tap in a small wedge from inside the drawer after gluing the knobs into their holes.

Fine tuning

Having found a supplier of self-adhesive baize I bought some in and lined the bottom of each drawer with it, **photo 16**. It looked very smart!

To create the flexible divider system, I square-planed some stock that was about 12mm wide and 6mm thick, and cut 12 pieces of this to length to fit in the front and back of each drawer. These were then V-grooved about half way through using an appropriate cutter in a router mounted on a home-made sliding jig, **photo 17**. The final stage was to cut the front-to-back dividers to length, to form a V shape on each end and slot them in place in their grooves.

The personal touch

My last task was to set small engraved brass plaque (ordered from a trophy supplier) into the top of the chest for the lucky graduate. After careful marking out, I used a straight cutter in my router to remove most of the waste. Good old hand tools finished the job of cleaning out and squaring up the recess, **photo 18**, and a drop of epoxy adhesive on the back secured the plaque in place. Then a final dust and wax had the job finished, to the great satisfaction of all.

FURTHER INFORMATION

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BY ANDY STANDING

Perfect tenons

There are several different ways of cutting tenons. Here's a design for a simple jig you can use with your router. You may need to modify some of the measurements to suit your particular machine, but the basic design shouldn't need changing

If you're working on a project that calls for a lot of tenons to be cut to the same dimensions, the time taken to make this simple jig will be repaid with interest once you start work for real.

Start by preparing the two softwood side rails. These are 20mm square, **photo 1**, and about 600mm long, **photo 2**. Then cut out two pieces of 12mm thick mdf for the support plates. One is 200mm square and the other measures 200 x 120mm.

Lay the rails side by side and use a square to mark the position of the two mdf plates on the rails, **photo 3**. The gap between the two should be about 70mm.



1 Start work by cutting some 20mm square softwood stock on your table saw



2 Switch to the cross-cut saw to trim off two pieces, each about 600mm long



3 Place the rails together and use a square to mark the mdf plate positions on them



4 Position the first mdf plate and check that it's perfectly square to the rails



5 Cramp the plates in position, drill clearance holes and screw them to the rails



6 Use the dimensions of your router base to position the two mdf guide bars



7 Place the router against the back guide bar and trim the front of the first mdf plate



8 Let the cutter bite into the side rails to form an alignment mark for the tenon shoulders

Place the first plate in position and make sure it sits exactly square on the two rails, **photo 4**. Screw it in place, then position the second plate to the line you marked in **photo 3** and attach that too, **photo 5**.

Fitting the router guide bars

The position of these guide bars (cut from mdf offcuts) is directly related to the dimensions of your router's baseplate. To get the correct measurement, fit the router with the cutter you intend to use for tenoning. A 12.5mm straight cutter is a good size to choose. Measure the distance from the edge of the cutter to the edge of the base (preferably its straight edge if your router has one). Now add 1mm to that measurement and set the rear guide bar

that distance back from the edge of the mdf plate. The front guide bar is positioned to stop the cutter cutting into the front plate. Cramp the bars down and screw them into position, **photo 6**.

Calibrating the jig

Cramp the jig to the bench and place your router against the back guide bar, **photo 7**. Start the router and plunge the cutter a little deeper than the thickness of the mdf plate. Trim off the front of the plate working from right to left, and let the cutter bite into the two side rails. You now have an accurate point on which to line up your tenon shoulders, **photo 8**.

Setting up the jig

To cut a tenon, first mark the shoulder on your workpiece and then clamp it to the workbench, **photo 9**. Slide the jig over the workpiece and line up the edge of the rear mdf plate with the marked shoulder line, **photo 10**. Cramp the jig to the bench.

With the workpiece and the jig held in place, fit a stop block to locate the tenon. This is pushed up beneath the jig to butt up against the end of the workpiece, and is held in place with a screw driven down through a hole drilled in the front mdf plate, **photo 11**.

Cutting the tenon

Carefully set the cutter depth on the router, using a fine adjuster if you have one. To make the perfect tenon you may need to test your settings on a scrap piece first. Machine one side of the workpiece, **photo 12**.

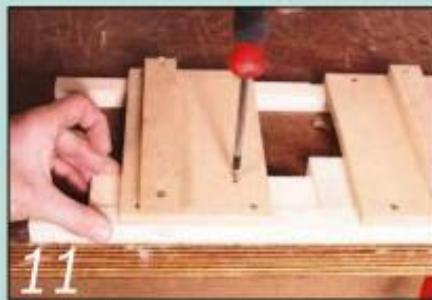
Here's the first cut completed, **photo 13**. Turn the workpiece over and cut the other cheek. Then test it for fit in its mortise and make any necessary adjustments. You can see that the router cuts into both the side rail of the jig and the end stop as you finish the cut. The result is a perfectly clean-cut tenon, symmetrical on both sides, **photo 14**. Simply lift the jig aside, **photo 15**, ready for cutting the next tenon.



9 Mark the position of the tenon shoulder on the workpiece and clamp it to the bench



10 Slide the jig over it and align the edge of the mdf plate with the shoulder line



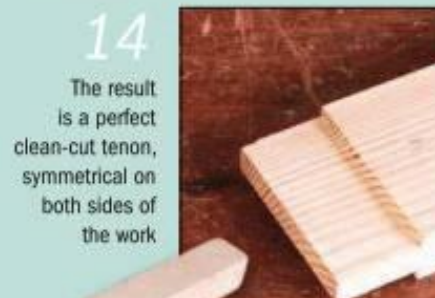
11 Fit a stop block to locate the tenon. Secure it with a screw driven through the mdf plate



12 Set the cutter depth to match the required tenon shoulder depth and make the first cut



13 Here's one side of the tenon completed. Turn the work over and cut the other one



14 The result is a perfect clean-cut tenon, symmetrical on both sides of the work

15

Simply lift the jig and stop block aside, ready for cutting the next matching tenon





BY PETER PARFITT

The Tale of Bunny Bookcase

The Peter Rabbit books, written and illustrated by Beatrix Potter, are a delight for young children and parents alike. Here's how this woodworking grandfather presented three gift sets, each in its own special bookcase

Our elder daughter gave birth to our first grandchild not long ago, and our son will become a father very soon. Even though our younger daughter has no plans for children just yet, we decided to give each family a set of Peter Rabbit books, so I set about making a presentation bookcase for each of them.

The complete set consists of 23 small books, and our daughters will be given new sets. My son's bookcase will house the well-read collection given to him by his uncle 32 years ago, which also includes an extra volume – in Latin!

Mass production

With three bookcases to make, I wanted a simple design which would lend itself to mass-production. For a one-off I'd have considered using stopped housing joints or even sliding dovetails, but armed with modern glues and my trusty Festool Domino jointer I came up with another plan, as shown in **fig 1**.

The opening required for the standard set of books measures 262 x 160 x 116mm. This allows about 7mm extra on the width and 15mm on the height, making the books easy to slide in or out. The set with the extra book needs an opening 270mm wide, but every other detail is the same.

Fig 1

All measurements in millimetres

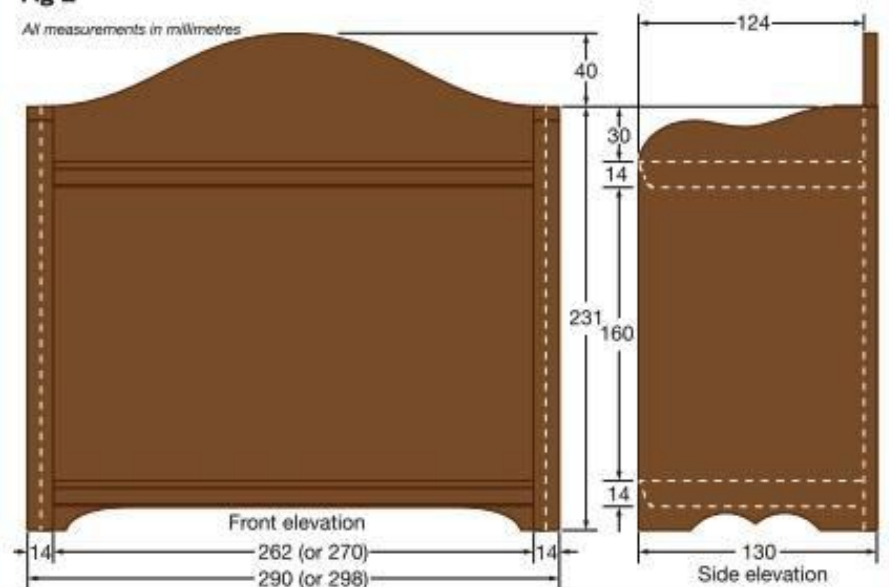
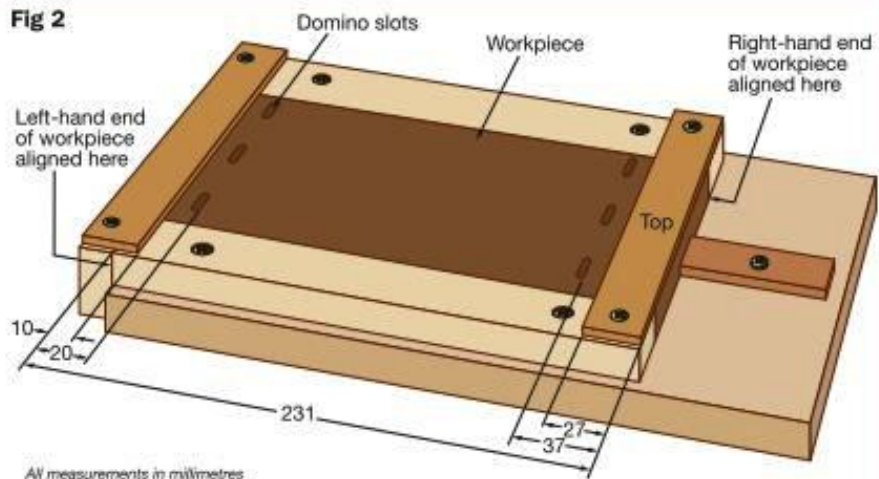


Fig 2



All measurements in millimetres

Playing dominos

My design uses three 4mm domino tenons per joint, **photo 1**. These are 20mm long and so extend 10mm into each piece of wood – more than enough joint strength for a small set of books. The glued and pinned backing panel will provide some additional strength in case the bookcase becomes an adventure toy on a wet winter's afternoon.

I thought that a little curved detail to the sides and the top of the back would look just right, and a few coats of Osmo PolyX oil should protect it from anything that might be spilled in a child's bedroom.

I started work by making a template for the side panels from a scrap piece of 19mm mdf, cut as a 231 x 130mm rectangle on the mitre saw. I then marked out the curves using a couple of paint tins and a bit of freehand adjustment, cut them on the bandsaw and finished them with my home-made sanding drum – see the panel on page 41.

Two simple jigs

I designed a pair of simple jigs to speed up production. All six bookcase sides are identical, so I made up the first jig to their exact size and shape, **photo 2**.

The blanks for these six panels need to be located in the jig, so I added edges of 6mm plywood which are shallower than the combined thickness of the mdf template and the stock being shaped. The edges were added on the long sides and at the base end, and were cut short enough to ensure that they didn't interfere with the template router work.

I designed the second jig, as shown in **fig 2**, to aid the location of the domino joints on the inner faces of the bookcase sides. Again, the base was made from an oddment of 19mm mdf to which I added a softwood frame the same thickness as the bookcase sides.

I then positioned two plywood crosspieces to act as stops for the Domino joiner's soleplate. The inner edge of the left-hand crosspiece was 10mm from where the bottom edge of the bookcase side would be when inserted in the jig. The inner edge of the right-hand piece was 27mm from where the top edge of the bookcase side would be (see **fig 2** again). I then scribed three lines on each of these crosspieces, **photo 3**, to indicate the centre line for each of the mortises.

Preparing the panels

I made the two standard-size bookcases from walnut, but I didn't have enough material to make their back panels in solid wood. I therefore decided to make them in



My bookcase design uses three 20 x 4mm dominos in each joint



2 This simple jig is designed to hold the bookcase sides securely for routing

3 The second jig (shown in fig 2) was designed to help position the dominos accurately



two pieces, with the join concealed behind the upper shelf. The visible upper part was solid walnut, and I veneered a piece of 6mm mdf for the lower section (this will be hidden by the books most of the time).

I don't have a vacuum press, but with such small pieces it was easy to cramp the veneer while the glue set, **photo 4**. I used Cascamite, adding a small amount of powdered filler to colour the mix in case of edge seepage. I brushed it on evenly and used a roller to ensure a bond free from air pockets. When the glue had dried, I sanded the two panels down to 180 grit and set them aside.

I decided to make the third bookcase from lacewood. It's a difficult wood to finish well, but the beauty of the grain makes it worth the extra effort on a small piece like this. The two shelf pieces were to be 28mm longer than those on the other bookcases because of the extra book in the set.

I planed all the stock down to a thickness of 14mm, and ripped the bookcase ends to a width of 130mm and the shelf pieces to 116mm. I then set up my home-made saw stop – another useful mass-production aid – to cut the various pieces to length on the mitre saw, **photo 5**.

Adding edge details

Next, I machined an ogee detail on the lower front edge of each shelf on the router table, **photo 6**. As I was worried that the lacewood might be tricky to get right, I used a brand new cutter. The result was perfect.

I shaped the bookcase sides next. I first placed each piece in the shaping jig with the mdf template on top and drew a pencil line to mark the outline, **photo 7**. I then took them to the bandsaw and removed the majority of the waste, cutting on the waste side of the line.

Now I returned each piece to the jig (on top of the template this time) and completed the curves using a bearing-guided flush cutter, **photo 8**. The bearing simply followed the shape of the template.

To finish this stage I sanded the panels down to 180 grit, and applied a single coat (brushed on and wiped off) of Osmo PolyX oil to the shelves, avoiding the ends which were to be glued later. This initial coat would make finishing much easier later on. I then did the same with the sides, after applying narrow strips of masking tape to keep the joints clear of oil.

Rebates and mortises

Before tackling the domino jointing, I cut a rebate 7mm wide and 8mm deep on the inside rear edge of each bookcase side to



I used wooden cauls and lever cramps to glue the veneer to the mdf



A home-made length stop on my mitre saw makes a series of repeat cuts easy



The router table made light work of ogee-moulding the shelf edges



Use the template in the shaping jig to mark the curves on the bookcase sides



The template in the jig guides the router when finishing off the curves



Go back to the router table to cut rebates in the edges of the bookcase sides



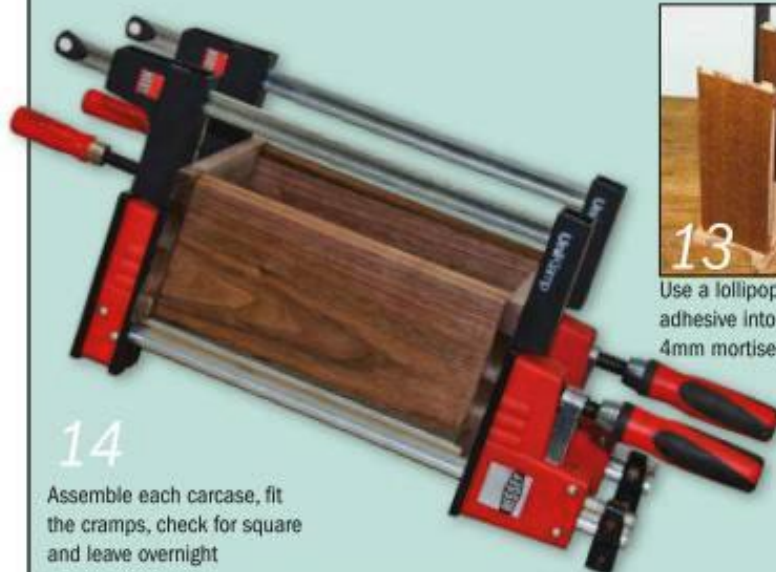
Align the jointer's centre mark with each line in turn and cut the mortises



11 Transfer the lines on the jig to a try square blade for marking the shelves



12 Set the jointer fence at 90° and cut the matching mortises in the shelf ends



14 Assemble each carcass, fit the cramps, check for square and leave overnight



13 Use a lollipop stick to spread adhesive into those narrow 4mm mortises



15 One of the lacewood shelves needed its rear edge skimming for a perfect fit



16 Sand the bookcase sides and apply a coat of oil. Keep clear of the rebates



17 I planed and sanded the back for the lacewood bookcase to a thickness of 8mm



18 Mark the curves along the top of the back panels and cut them on the bandsaw

take the rear panel, **photo 9**. This helped to remind me which was the inner face where the domino mortises would be cut.

I fitted my Domino jointer with a 4mm cutter, and set the depth of cut to 20mm. As the 4mm cutter is 10mm shorter than the other cutters, this gives an actual depth of cut of 10mm.

My jointing jig made cutting the domino mortises very quick and accurate. I fitted a side piece into the jig, ensuring that the rebate was uppermost, and secured it with a scrap of wood held in place by a screw. I then aligned the Domino jointer's centre mark against each marked line on the jig crosspieces, and cut the six mortises in each panel, **photo 10**.

Matching the shelves

To mark the positions of the mortises in the ends of the shelves, I transferred the three marks on the jig to the blade of a try square, **photo 11**, and used this to mark each end of the shelves. The datum lines for these measurements were the back edge of the shelves and the forward edge of the rebate in the side pieces.

I set up the Domino jointer with the adjustable fence at 90° and positioned for a cut with a centre line 7mm below the fence face. This put the mortise in the centre of the 14mm thick stock. The depth of cut was left at 20mm, which produced a 10mm deep mortise using the 4mm cutter, **photo 12**.

Assembling the boxes

Before gluing up the carcasses I hand-sanded the edges gently using some 320-grit abrasive paper. I then applied glue sparingly to avoid unnecessary squeeze-out, **photo 13**, fitted the cramps and checked for square. I left the cramps on overnight, **photo 14**.

One of the lacewood shelves needed a tiny skim taking off at the rear to bring it flush with the rebate at one side. I tackled this using a small shoulder plane with the front section removed, **photo 15**, creating an easily controlled chisel plane.

I like to apply finish as I go along, especially on parts that won't be easy to access after assembly. After removing the cramps I sanded the bookshelf sides at 240 grit and then applied a coat of PolyX oil, **photo 16**, avoiding the inner faces of the rebates.

Preparing the back panels

The next task was to cut and shape the pieces for the back panels. As mentioned earlier, the two walnut bookshelves had veneered mdf in the section below the top shelf and solid wood above. The lacewood

version had one complete piece of solid wood which I planed and sanded to a thickness of 8mm, **photo 17**.

To get the top curve right, I cut a piece of cardboard half the width of the finished panel and experimented, using various sized tins as patterns, until the shape looked right. I then carefully cut this out and used it to mark out each side of the curved top. I also added a curved detail at the bottom.

I cut all these curves on the bandsaw, **photo 18**, and tidied up with my home-made drum sander, **photo 19**. I didn't round over the top of the panels until after they were fitted. I then sanded the panels and gave their inside faces a coat of PolyX oil, **photo 20**.

Final assembly

I used a small amount of glue and some panel pins to secure the back panels in place, **photo 21**. I drilled pilot holes for them at a slight angle to make sure they went into solid wood, I then punched their heads below the surface and stopped the holes with an matching coloured filler.

When the glue and filler were dry, I sanded the backs to leave a smooth join between the top edges of the panels and the rear of the bookcase sides. I also rounded over the panel tops. Then I gave the rear and tops of the panels their first coat of oil and wiped it off carefully with a lint-free cloth, **photo 22**.

Osmo recommends that PolyX oil is brushed on and left to dry. A second coat can then be applied with no need to sand in between. I've found I can get a beautiful satin sheen by brushing on and wiping off the first two coats, **photo 23**, with a light rub with 0000-gauge wire wool in between. When this is completely dry, I put a little PolyX on a lint-free cloth and use this to apply a light third coat.

I used my method, stopping after the second coat on the inner surfaces, but going on to apply the third rubbed coat to all the outer surfaces and edges, **photo 24**. I left the finish to dry for another 24 hours and then gave it a final light buffing with a clean cloth.

And finally...

Little bookcases like these will look great no matter what wood is used. Accurate joints, care with the curved detail and a good finish will make them stand out. The sizes can be adapted to suit any set or random collection of favourite books. Above all, a piece of woodworking like this will be treasured for many years to come, and its way to becoming a family heirloom certainly make the books la



19 Smooth the sawn curves down to the pencil lines using a drum sander



20 Sand the back panels and apply a first coat of oil. Protect the rebates with masking tape



21 Glue and pin the back panels in place. Angled pilot holes help avoid splitting



23

A HOME-MADE SANDING DRUM

I turned a 50mm diameter hardwood cylinder, bored a 12mm diameter hole through the centre and cut a 10mm deep groove 3mm wide along its length. I then glued a 12mm shaft (mine was some threaded rod) into the hole.

I cut some abrasive paper to size, wrapped it round the cylinder and held it in place with a piece of 3mm threaded bar pushed into the long groove. Then I mounted the drum in my pillar drill.



22 Round over the edges of the top panels slightly and apply oil with a soft lint-free cloth



24

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BY ANDY STANDING

QRS are 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 latest batch; please read on, and see what useful nuggets you can pick up from my trawl through subjects beginning with the letters Q, R and S.

QUARTER SAWING

There are various methods of converting logs into usable sawn boards. The simplest and cheapest is to take horizontal slices, which is fast and easy to do. This is known as through-and-through sawing. However, this doesn't produce the best or most stable timber. The most valuable boards are always the quarter-sawn ones, of which there will be just a few in each log.

The log is first quartered along its length to produce four wedge-shaped pieces. Boards are then sawn from each flat face in turn. The reason that quarter-sawn boards are preferable is



because the growth rings run perpendicular to the surface of the board, making it much less susceptible to cupping and warping. Also boards cut in this way display the most attractive figure of the timber. This is especially true of oak, as only the quarter-sawn boards show the characteristic silver grain of the medullary rays.

REBATE

A rebate, or rabbet as the Americans like to call it, is a square-edged recess cut into the edge of a piece of timber. As it only has one closed side, it effectively forms a step. Rebates are much used in woodworking, particularly in framing. Window frames are rebated to accept the glazing, and picture frames are rebated to accept the picture. There are also several types of rebated joint. Rebates are simple to form. They can be made using a hand plane, a power plane, a router, a spindle moulder or a table saw.



RUBBER

In wood finishing, a rubber is a small cloth pad that's used to apply French polish. To make a rubber, a pad of upholsterer's wadding or cotton wool is wrapped in a piece of fine cloth. The polish is poured into the cotton wool and can then be gently squeezed out through the cloth as the rubber is moved across the surface. It takes skill and a delicate touch to apply the polish evenly, and the secret is to apply many thin coats rather than one thick one. A rubber can also be a convenient method of applying oil or thinned varnish as a finish to a project.



RIP SAWING

Sawing parallel to the grain is called rip sawing. This can be done by hand, but more commonly a table saw is used. Rip cutting puts a fair amount of strain on the saw as the blade has to split the wood fibres rather than sever them. Boards are also prone to twisting and closing on the blade as internal stresses are released. The process also generates a considerable amount of sawdust. For these reasons the saw must be equipped with a blade with a few large teeth and wide gullets between them to clear the sawdust. A riving knife (see below) must also always be fitted to the saw to protect the operator.

RIVING KNIFE

A riving knife is a metal plate that is mounted behind the blade of a circular saw. It should be thicker than the blade itself, but thinner than the saw kerf, and its function is to hold the cut open during rip sawing.

Without it the timber can close on the back of the blade, causing it to jam and throw the workpiece back at the operator. On many saws the riving knife is also used as a mounting for the crown guard. For crosscutting it's course the crown guard is.



RADIAL ARM SAW

This machine is primarily used as a crosscut saw. It's a remarkably versatile workshop machine that can be especially attractive to the user with limited workshop space. The saw hangs on a bracket beneath an arm that's mounted on an adjustable column. The arm can be angled to form mitres and other angled cuts. The bracket can be tilted to allow the saw to cut bevels, and even turned on some models so the saw can do rip cuts as well. Some radial arm saws also allow accessory brackets to be fitted so that a router can be attached for moulding and overhead routing work. Radial arm saws should be fitted with blades incorporating a negative rake on the teeth, to help to press the workpiece down onto the saw table.



ROUTER

The router is an extraordinary tool. It's very simple but extremely versatile, and is invaluable to any woodworker. The design of a standard plunge router is straightforward. A motor is mounted vertically on a base with a pair of spring-loaded columns that



allow its height to be adjusted in relation to the workpiece below. A cutter is mounted on the motor shaft and can be plunged into the work and moved as required. A side fence can be fitted to the base so the work edge can be used to guide the cutter.

The huge range of cutters, jigs and router

tables available give the router its massive capabilities. Jointing, moulding, rebating, drilling, carving are all possible, and there are many helpful books available on the subject.

STILE

A stile can be a section of fencing with a built-in step to allow walkers to cross the fence without the need to open a gate, or it can be the vertical member of an upright framed panel. Panelled doors have two stiles, connected by horizontal rails. One is referred to as the hanging stile and is the one to which the hinges are fitted. The other is known as the lock or latch stile, to which the handle and closing mechanism is fixed.



SKIVER

This sounds like someone who stands about in the corner of the workshop trying to avoid doing anything useful. It's also the name given to the pared or split leather insert that's often inlaid onto the top of a traditional writing desk, and is pronounced to rhyme with diver, not shiver. Skivers can be ordered from specialist suppliers,



and are often inlaid with decorative gold tooling. They are fixed in place with a diluted solution of PVA glue, and can be set in a shallow recess created with a router, or fitted flush and then surrounded with a suitable lipping.

RUB JOINTING

Whilst most woodworking assemblies need to be cramped while the glue is curing, there are certain joints that can be left to bond without additional support. These are rubbed joints. To make a rubbed joint



you need a perfectly made butt joint – for example, between two boards that are to be jointed edge to edge. Coat both faces with a thin layer of glue; then press them together and rub them against each other to squeeze out any excess glue and air bubbles and force the glue into the wood pores. This then sets up a kind of suction between the components that will hold while the glue sets. Rubbed joints are generally very strong.

REED

A reed is the opposite of a flute. On the face of it, that statement doesn't make much sense, but here's the explanation. Both are decorative features primarily used on furniture. A flute is a round-bottomed groove which echoes the decoration found on



a Corinthian stone column. A reed is a convex moulding which stands proud of its surrounding surface, and is effectively a mirror image of a flute. Both can be cut with a router, plus a lathe if the reeds are being cut on round components.

SHOULDER

Cutting a tenon on one end of a workpiece exposes two new surfaces. The flat sides of the tenon are known as the cheeks, while the short cross-cut surfaces at right angles to the cheeks are the shoulders. They butt up against the edge of the joint's mortised component.





SCRAPER

A cabinet scraper is a simple but extremely useful tool that can produce a faultless finish on the most difficult surfaces. It's a rectangular piece of tempered steel which can be bought for a few pounds. However, you need a fair amount of skill to sharpen



and use a scraper correctly. The tool doesn't actually scrape; instead it shaves like a plane. To achieve this you need to polish the edge and then raise a tiny burr on it which acts as the cutting edge. The scraper is held in both hands and flexed slightly against the thumbs. It is

then pushed across the work and, if properly sharpened, should take a very fine shaving. Cabinet scrapers are also available with curved edge profiles to suit concave and convex surfaces.

SPIRIT LEVEL

When installing shelves, cabinets, worktops and the like, it's important to make sure that they're level. The simplest method is to use a spirit level. This is a metal or wooden beam with a small glass vial inlaid into it. The glass vial is filled with a viscous liquid and contains a small air bubble. Two vertical lines are marked on the vial. The beam is put on a surface which is adjusted in position until the bubble is between the two lines. The surface is then level.

Spirit levels containing extra vials across their ends can be used on vertical surfaces too, and some have adjustable vials that can be set to any angle required. Digital spirit levels are also available, often with integrated lasers so that levels can be easily transferred across distances.

SCRIBE

To scribe, in woodworking, means to shape a workpiece to fit up to an uneven or irregularly shaped surface. This technique is used for such jobs as installing a fitted cabinet against a wall. The simplest way to do this is to position the unit against the wall and measure the largest gap between them. Cut a small piece of timber a fraction wider than the gap. Now place the block against the wall with a pencil held against it and run it along the length of the edge, marking the wall profile on it ready for cutting – ideally with a jigsaw that can follow the wandering line. Instead of a wood block you can use a compass set to the correct width, or you can buy proprietary scribing tools.



SPLINE

This is a small piece of wood used to strengthen a joint. The spline can be as simple as a piece of veneer inserted in a saw cut across a joint; in this situation it is also known as a slip key or slip feather. The term can also refer to a loose tongue used to join two components with grooved edges. Alternatively splines can be used as a decorative feature, such as reinforcing a mitre joint with dovetail splines.



SANDERS

Rubbing down woodwork with a piece of abrasive paper can become a bit of a chore, which is why there are lots of different sorts of powered sander available. From large industrial drum and belt sanders right down to miniature detail sanders, there is a suitable machine for almost every job. Perhaps one of the woodworker's favourites is the random orbital sander with its powerful rotary scrubbing action, which leaves a very high-quality finish.



STEAM BENDING

There are several ways of producing curved wooden components, one of the most traditional ways is steam bending. This is a tricky process, but can be successfully achieved in the home workshop. All you need is to make some kind of chamber in which to steam the wood, and create a way of generating

steam. One of the easiest ways of doing this on a small scale is to use a steam wallpaper stripper attached to a plywood box. The steam softens the wood fibres and the wood can then be bent to the required shape. However it needs to be held tightly in shape as it dries, so a precise former must be made to which it can be cramped.



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Readers' gallery

After a rather long delay (courtesy of yours truly), I'm very pleased and proud to present the first page – hopefully of many – of readers' work. In these days of digital cameras and email communication, it couldn't be easier to share your skills with your fellow woodworkers, so why not give it a try? And, as if you needed any further encouragement, everyone featured will get an exclusive Woodworker badge! Please send your images and a short description of what you've been doing to mark.cass@mytimemedia.com



Retired mechanical engineer... staircase for his daughter, Luc



After completing a full-size guitar, Jeff Plowman from Birmingham made himself this nifty baritone ukulele. Play up Jeff!



Inspired by a previous article in *The Woodworker*, here's a very elegant woven laundry basket in sapele and sycamore made by Robert Winter



Dan Munday, who hails from High Wycombe, the old furniture-making centre of England, turned this wool dispenser from green hornbeam. Dan says: give it a try!



Wooden pens and pencils by Robert Winter

**MATERIALS CHECKLIST**

Carriage/wagon bodies	6mm birch plywood
Wheels	10mm hardwood
Small parts	hardwood offcuts (contrasting colours)
Wheel bushes	brass tube (6.35mm outside diameter)
Brass screws	countersunk 20 x 3.5mm round-headed 26 x 5mm
Dowel	22 x 8mm hardwood



BY IAN WILKIE

Catching the train

A push-along train set is a perennial favourite with children, especially if they've had a chance to see the real thing in action. This month I'll complete this colourful and attractive toy by explaining how to make and fit the wheels, build the carriages and wagons and create the figures



THE LOCOMOTIVE WHEELS



Draw out six 40mm diameter and two 30mm diameter wheel blanks on 10mm thick hardwood, **photo 1**. Drill a 6.35mm ($\frac{1}{4}$ in) diameter hole through the centre of each blank and cut them all out with a scrollsaw, working on the outside of the drawn line, **photo 2**.

Make a DIY mandrel with a 6.35mm diameter thread to be held in the headstock. Turn one of the larger blanks to 40mm in diameter and use this as a guide. Slide all six blanks onto the mandrel and fit the guide wheel, **photo 3** – it's coloured red in **photo 4** for clarity. Tighten the nut at the tailstock end of the mandrel to hold them securely and bring up a revolving centre for support. Gently turn the edges of the blanks to match the diameter of the guide wheel,

photo 4. Make a similar guide for the smaller wheels and turn them using the same method.

Fitting the wheels

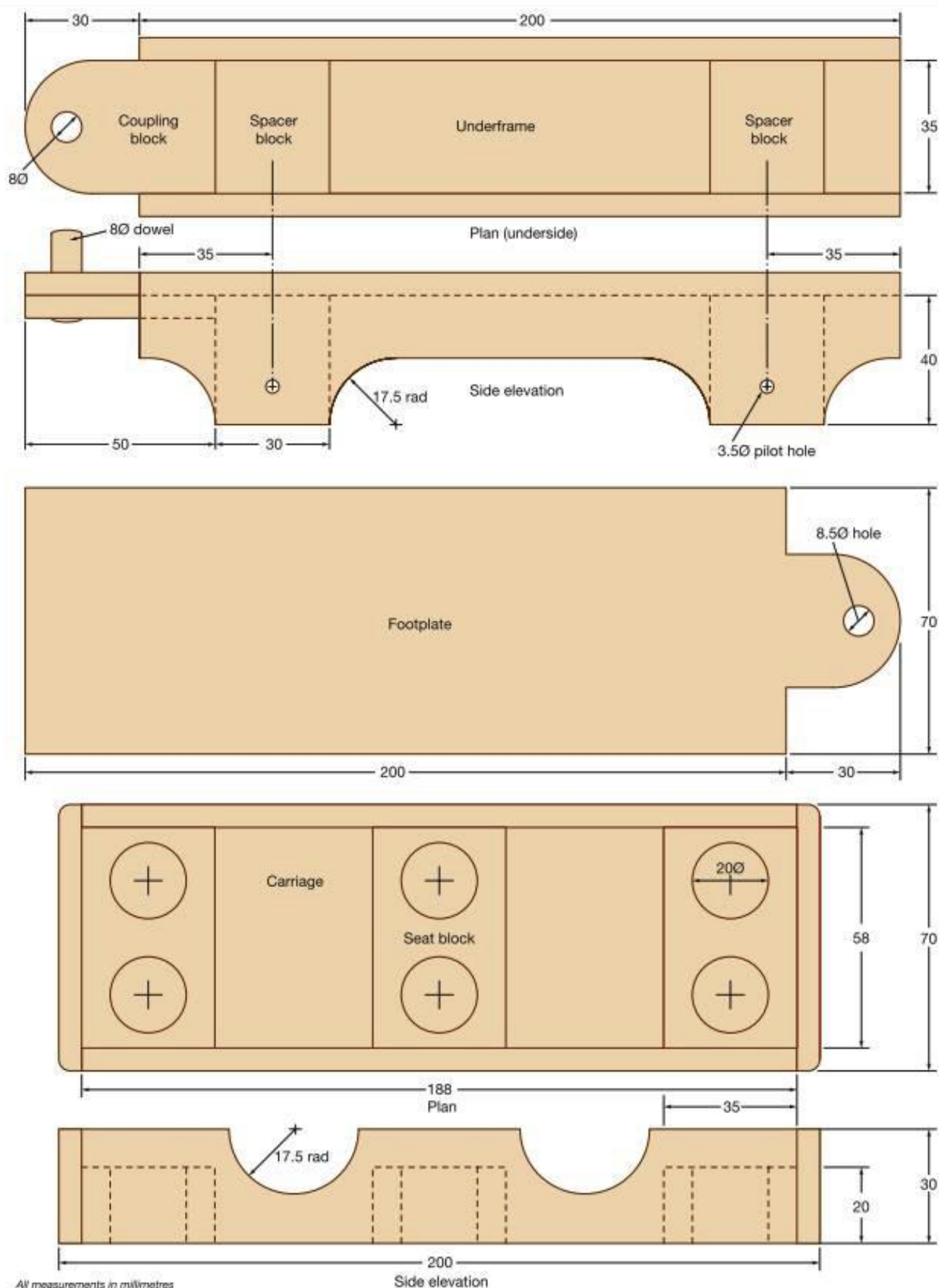
Cut 10mm lengths of brass tube to form a bush in the centre of each wheel, **photo 5**. Without bushes, there's always a tendency for wooden wheels to seize up. The inside measurement of the bush is slightly larger

than the wheel screws, and this will ensure smooth running. Tap the bushes into the pre-drilled holes in the wheels, **photo 6**.

Screw the wheels to the underframe using brass roundhead screws with a parallel shank section, **photo 7**. Check that the wheels are all aligned accurately and that locomotive runs smoothly across the floor, **photo 8**.



Fig 1



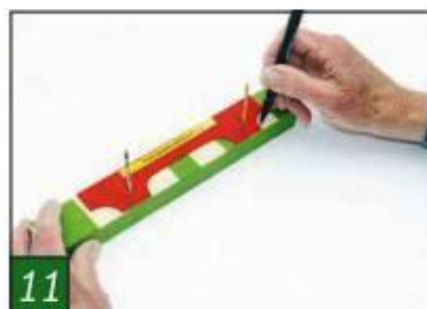
CARRIAGE & WAGON UNDERFRAMES



9



10



11



12



13



14

If you intend to make several carriages or wagons, it's well worth taking the trouble to make a small template for the underframe sides to ensure that they'll all be the same shape and have the wheel screw positions aligned accurately. All the measurements you need are given in **fig 1**. Tape up several pieces of 6mm plywood to form a stack, **photo 9**; you can do as many as six pieces in this way.

Centre-pop the positions for the wheel screw holes and drill 3.5mm diameter pilot holes right through the stack, **photo 10**, protecting the drill table underneath with scrap wood. Then locate the template on the stack and put something rigid (I used a couple of twist drills) in the holes to stop any movement while you draw round the shape, **photo 11**.

Cut out the frame sides on the scrollsaw

with a good-quality sharp No 7 blade, **photo 12**. Then peel off the tape, separate the pieces and sand off any whiskers, **photo 13**.

Assemble the underframe with its top piece and spacer blocks (see **fig 1** again), as you did for the locomotive in part 1. Add a coupling block at the square end of the frame, **photo 14**, and glue an 8mm dowel into the hole.

THE OPEN WAGON

Construct an open plywood box 200mm long, 70mm wide and 30mm high, and glue it to a footplate. Now is as good a time as any to paint these various components, as this is easier to do before they're all assembled. Then screw the footplate to its underframe, **photo 15**, and attach the 30mm diameter wheels, **photo 16**. These are turned in the same way as the locomotive wheels.

I glued two 8mm Wolfcraft dowels into holes drilled in the base of the wagon, so various loads with matching drilled holes could be located on them, **photo 17**. This feature offers extra play value, and means that the loads will stay put.

There are plenty of load options, such as the simple tanker body shown in the photo through to stacks of timber, a car-carrying pallet, drums of wire or an empty container with higher sides to put things in. All these items can be drilled to fit onto the dowels.

The wagon is coupled to the locomotive (or to another wagon or carriage) by fitting the hole in its projecting footplate over the dowel in the other wagon's coupling block, **photo 18**.



15



16



17



18

THE PASSENGER CARRIAGE



19



20



21

The carriage uses the same underframe, footplate and open box structure as the open wagon, but the carriage sides are taller at 50mm and have semi-circular cut-outs in line with the footwells (see **fig 1** again). The design allows the passengers to be located easily in the 20mm holes drilled in the seat blocks. It would be quite a simple matter to add a roof to this design if desired.

Mark out the plywood sides, cut them out on the scrollsaw and

sand them smooth. Prepare three hardwood seat blocks measuring 58 x 35 x 30mm, and drill a couple of 20mm diameter holes in each one. Then glue them to the plywood sides and clamp up the assembly, **photo 19**.

When the glue has dried, check the assembly's fit on the footplate, **photo 20**, then paint it. When it's dry, screw it to the footplate and the carriage is ready for boarding, **photo 21**

PASSENGERS AND CREW

I've created these very basic peg figures to show how easy they are to make. They can then be painted and suitably accessorised, depending on your artistic skills!

Turn a length of hardwood to a 20mm cylinder, cut it into 70mm lengths and fit the first one in your chuck jaws. I made a small gauge with a 20mm complete hole and a half hole so I could check the diameters easily as I worked, **photo 22**.

Turn the figure's head on the blank using a skew chisel, **photo 23**, and sand it smooth. Check that the blank will fit in the 20mm diameter holes in the rolling stock by passing the end of each figure through the gauge, **photo 24**. The bodies can have different shapes, but the lower end of each blank must have parallel sides so it slides easily into its hole.

Now all that remains is to paint or varnish the figures as you wish, **photo 25**, add any decorative detail you want and set them in place in the locomotive and the carriages.



22



23



24



25



SCROLLSAW SPARES

Owners of Hegner scrollsaws may be interested to know that all parts for the machines are still available and can be identified online at www.hegner.co.uk (now part of Technology Supplies Ltd, tel 0845 567 0000). I recently had to replace the bellows on my Hegner Multicut saw, and the new part arrived very quickly. These are now very expensive machines to



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All Dust is Dangerous to your Health

For any workplace you have to get rid of airborne dust and any potential harmful fumes from your work or work related storage areas. Microclene's different range of air filters are custom tailored to remove fine floating dust making your workplace a far more pleasant and safe place to be in.

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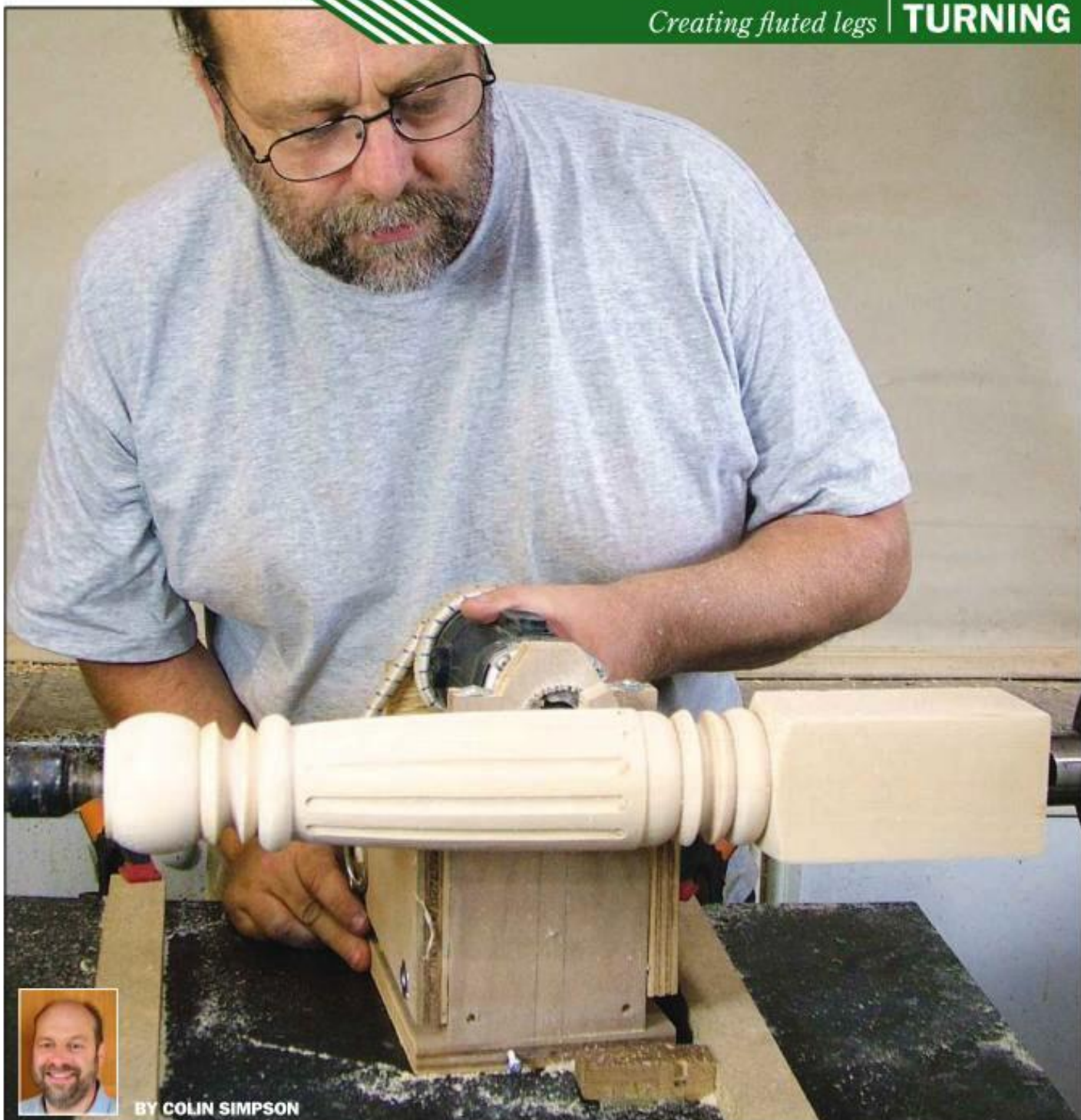
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BY COLIN SIMPSON

Playing the flute

Fluted legs on furniture add a touch of class on traditional tables or chairs. The fluting reinforces the vertical nature of the leg and adds a pleasant note of refinement, yet they're surprisingly easy to create

If you want to do a project with fluted legs you'll be in great company. There are examples of all sorts on many pieces of classic Chippendale, Sheraton and Hepplewhite furniture. In this article I'm going to show you how to turn just one leg and then flute part of it using the router jig I described in the August issue of *The Woodworker*.

My leg is 450mm long – a suitable length for a coffee table – but the dimensions can



1 Mark the centre of each end of the blank accurately and pop-mark it



2 Square a line all round, 125mm from one end, to define the pommel



3 Use the long point of the skew chisel to start cutting the pommel, taking alternate V cuts



4 This is what you should see after the first two V cuts are completed



5 Deepen the two cuts and work one side back towards your pencil line



6 Rough down the rest of the blank with a spindle roughing gouge

easily be scaled up or down. It's turned from a piece of pine 75mm square. It's extremely important to have very sharp tools when cutting soft wood like this, so spend a little time at the grinder getting a good edge on your tools before you begin.

Start in the centre

When turning pieces where part of the work remains square, it's important to locate the centre of the stock as accurately as possible. I use the corner-to-corner method, **photo 1**, and then pop-mark the centre point with an automatic punch. Do this at both ends.

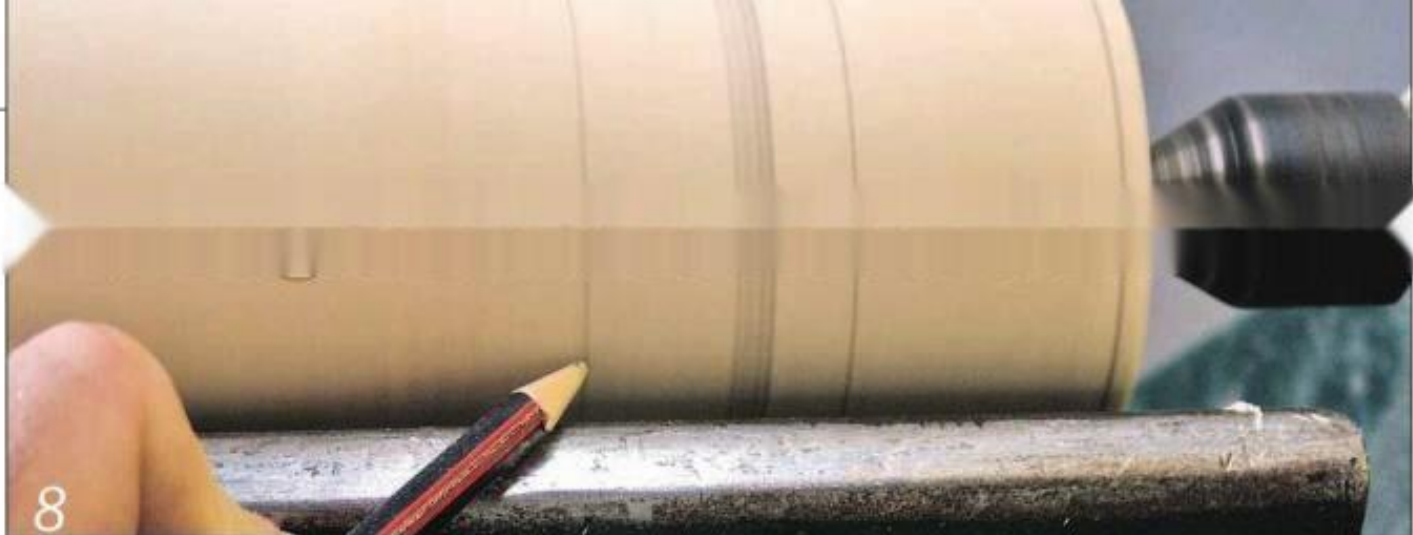
Load the blank on the lathe with the top of the leg at the headstock end. Measure 125mm down from the headstock end and use a try square to square a line round all four faces, **photo 2**. This section will remain square; the rest of the blank will be turned.

Form the pommel

The transition between the square part and the round part is called a pommel. Cut this first, using a series of V cuts. Start the cut about 12mm away from the squared line, **photo 3**. I'm using the long point of the skew chisel to do this, and it's important to use just the tip of the tool. Don't let the cut ride up the cutting edge. Don't try to take too much off at one time with these cuts – **photo 4** shows the piece after the first two cuts have been started. Open up the V by cutting the left and right side alternately, going a little deeper each time until you're cutting into solid wood all round the blank;



7 Use the roughing gouge on its side as shown here, to avoid making contact with the square section



Measure and pencil-mark locations for the spindle's various bead and cove details

SETTING UP THE JIG

My router jig is a simple affair made from plywood offcuts to suit my small Trend T4 router, **photo A**. See pages 59-62 of the August issue of *The Woodworker* for more details. For this job I've fitted a $\frac{1}{4}$ in fluting bit, **photo B**. The bolt you see next to the bit is the follower. It will run against the surface of the blank behind the bit, acting as a depth stop to prevent the router bit from cutting too deeply. The router bit is 3mm proud of the bolt head in this case, so the flutes will be 3mm deep.



A
The router is held securely in the jig by a short length of bungee cord



B
The projection of the bolt is adjusted to control the depth of cut



9
Cut the pad section of the foot using a peeling cut with the skew chisel



10
Cut the half-bead above the foot with the skew or a spindle gouge



11
Then use a spindle gouge to form the curved profile of the foot



12
Cut a deep cove above the foot next using a $\frac{1}{4}$ in spindle gouge

13
Follow this up by cutting another half-bead and then a full bead





16
The turned leg should now look like this, ready for fluting to start



17
The battens cramped to the table limit the sideways travel of the jig



18
Cut the first flute, then move the indexing system on to cut the next. Repeat until they're all done...



then work the left-hand side back to your pencil line. **Photo 5** illustrates what you should be aiming for.

With the pommel cut, use a spindle roughing gouge to convert the rest of the leg to round, **photo 6**. Take care when cutting near the pommel; you don't want to damage it. Use the spindle roughing gouge on its side to avoid making any contact as you approach it, **photo 7**.

Creating beads and coves

Next, measure and mark the positions of the beads and coves that will form the details framing the fluted section, **photo 8**. Start by making a peeling cut with the skew chisel to form the slim pad of the foot, **photo 9**. Next, cut the half-bead just above the foot using the skew (or a spindle gouge if you prefer), **photo 10**. Now you can shape the foot itself into a simple shallow convex curve with a spindle gouge, **photo 11**.

A deep cove comes next, **photo 12**. Cut this with a $\frac{3}{4}$ in spindle gouge, then follow up with another half-bead and then a bead, **photo 13**. Repeat this process to cut the details just below the pommel, **photo 14**. Finally, make planing cuts with the skew chisel to create a gradual taper on the blank centre section, **photo 15**. **Photo 16** shows the piece with the turning finished. Now for the fluting.

Cutting the flutes

Photo 17 shows the set-up. The router table is cramped to the lathe and the router jig slides smoothly from side to side on this. Note that there are two battens cramped to the table. These limit the amount of travel of the jig so each flute is the same length.

It's a good idea to unplug the lathe from the power supply so you can't turn it on accidentally when doing the routing. Use the indexing system of your lathe to lock to lathe spindle. Switch the router on, position the jig against the left-hand batten and push it towards the blank so the cutter enters the wood. Then move the cradle from left to right to complete the first flute, **photo 18**. You may need to take a couple of passes along each flute to get to the final depth you want.

Moving swiftly on

I'm going to cut a total of 12 flutes in my leg. When you've cut the first one, move the indexing system on by 30° and cut the next one. Continue in this way until all 12 have been cut and you're back to your starting point. Once they were done, I found that a little light sanding was all that was required to remove a few small wisps of wood fibre from the cuts. Now I just have to turn and flute three more legs for my coffee table!

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BY BOB CHAPMAN

10 STEPS TO HEAVEN

Hollow forms are enclosed turnings where the internal material has been removed through a relatively small hole. They're the woodworking equivalent of eating a boiled egg while leaving as much shell intact as possible...

Working through a small hole increases the difficulty of the task, largely because it prevents you from being able to see what the tool is doing as it's cutting. It also restricts the movement of the tool within the form. Almost all the cutting is done by the feel and sound of the tool as it cuts, together with frequent measurements of the wall thickness to avoid cutting right through it from the inside. It's keyhole surgery without the camera!

1 DECIDE ON THE SIZE OF THE OPENING

Obviously the larger the starting hole is, the easier the hollowing will be. I generally advise beginners to go for a hole about 25mm in diameter. This is big enough to give plenty of clearance around the tool and may allow the cutting edge to be seen inside the form, at least while working near the opening. It also makes it easier to put a finger inside to feel the surface... but you

should *never* attempt this with the lathe switched on. Any prominent ridges inside can be felt, their positions noted, and an effort made to remove them.

Coping with disaster

Try to avoid damaging the edge of the opening as you work. If it does occur, you can always make the hole a little larger by cutting away the damaged part. However, there is a limit to how big you can make the opening without beginning to lose the concept of a hollow form, **photo 1**. Eventually you'd end up with a form with no attempt at enclosure, which might more properly be called a vase, **photo 2**!

Another downside of creating a form with a large hole is that other turners, when examining it, will invariably stick their fingers through the hole and make suitable (usually good-natured but sometimes adverse) comments on the quality of the inside surface (but see **step 6**).

2 WORK WITH THE TOOLS YOU HAVE

Don't rush to buy any special tools for this. Everyone thinks of using only specialised deep hollowing tools to create hollow forms, but a surprising amount can be achieved with some fairly ordinary turning tools.

Photo 3 shows a number of tools I use for hollowing. The top one is home-made by fastening a scraper tip to a length of 16mm



Hollow forms are enclosed shapes with a small hole through which they've been hollowed out



round steel bar. It's an effective tool, and although the size of this tip demands a fairly large opening, smaller tips can be used with it too. The next two scrapers are cranked to allow them to reach more easily around the shoulder of the hollow form. The fourth is simply a narrow 6mm (1/4in) straight scraper, and the fifth a slim bowl gouge.

A narrow scrape

Scrapers are straightforward tools to use inside a hollow form. The cutting edge is kept well down on entry and then lifted until cutting commences. Scrapers don't clog up and waste removal is quick and effective. A broader scraping edge will span the bumps and take them down to a relatively smooth surface. Generally speaking, small scrapers make excellent hollowing tools.

Playing the flute

A bowl gouge also makes a surprisingly effective hollower. Enter the form with the flute of the gouge pointing down and to the left (the 8 o'clock position), and allow the

top to rub the internal wall. Rotate the tool clockwise until eventually the lower wing of the gouge makes contact with the wall and begins to cut, **photo 4**. More clockwise rotation increases the depth of cut but may cause catches, and rotating anti-clockwise reduces the cut again. The main problem is that the waste material may build up in the flute of the gouge, clogging it up and preventing it from cutting cleanly. The only remedy is to remove the gouge and clear the flute at regular intervals.

Digging deep

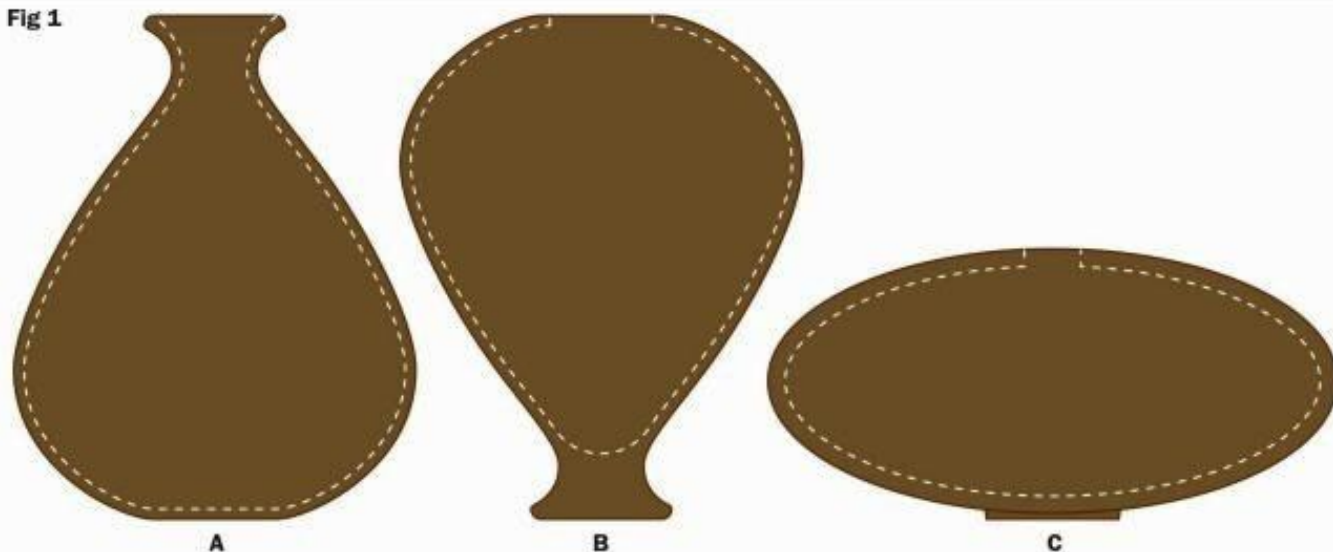
The last tool shown in **photo 3** is a specialised deep-hollowing tool which cost well over £100. When it cuts well it does so very well indeed, but I find that on dry timber the cutting tip clogs every couple of minutes or so. Withdrawing it to clear the blockage becomes very tedious, and I soon give up and revert back to using my scrapers.

When these tools are demonstrated at woodworking shows, they're almost always used on newly felled timber. The lubricating



Although it required a lot of hollowing, this is now a vase rather than a hollow form

Fig 1



This selection of hollowing tools ranges from home-made at the top to '£100 special' at the bottom



A bowl gouge can be a surprisingly effective hollowing tool. Note the position of the flute

3 DESIGN FORMS TO SUIT YOUR TOOLS

Simple designs for three hollow forms are shown in **fig 1** above. Design B is simply design A turned upside down, but this simple change makes a vast difference to the tools needed for the hollowing. Design A (**photo 5**) can be hollowed entirely with a straight-bladed tool. Every part of its interior can be reached by a straight line through the opening. Hollowing is straightforward, especially if the opening isn't too small, and it can be done with either a bowl gouge or a straight-bladed scraper.

Cranking up the volume

Design B (see the main photo on page 65) requires a cranked tool to reach around the shoulder of the form. This area simply cannot be reached with a straight blade, and without the correct tools the form would have to be left with thick walls at the shoulder which would make it top-heavy.



A simple shape such as this yew hollowed with a single straight se



A cranked scraper such as those shown near the top in **photo 3** would do the job fairly easily.

Design C (**photo 6**) requires a much longer crank to reach across to the sides. The hollowing tool shown at bottom of **photo 3** would be the best of those shown to accomplish this task. However, a scraper with the necessary length of crank at the correct angle would do the job as well.

4 SHAPE THE OUTSIDE FIRST

It is much easier to get the internal shape right if you have an external shape to mimic and to measure from. Shape the outside to



Shape the outside of the form first to act as a guide for hollowing the inside

the approximate shape of the final form, **photo 7**, but leave enough wood to support the piece during the stresses imposed by the hollowing process. Once the bulk of the hollowing is done, the shape is gradually refined both from the inside and from the outside. The outside is what will be seen, and it's much more important that this, rather than the inside, looks right. Over-enthusiastic removal of material from the inside in order to maintain wall thickness can force the outside to look bulky or alter the proportions of the piece. Avoid this at all costs.

5 PRACTICE MAKES PERFECT

The difficulty is that, inside a hollow form, you can't usually see what the tool is doing. However, you can make it visible for practice purposes. While your turning blank is still square, drill a large hole through the side of the wood, **photo 8**. Set the lathe to the highest speed you're comfortable with, and turn it roughly to shape on the outside. Then drill a hole down into the end so you can start the hollowing, **photo 9**.

As you're drilling it, you'll see that the drill becomes visible through the hole in the side. The same is true of the hollowing tool, **photo 10**, shown here with the lathe rotating. In this way you can see what you're doing while you develop a feel for manipulating the tool inside the hollow form.

As your skills improve, you'll probably

want to make hollow forms from irregular lumps of wood, and these often develop holes in the sides. Contrary to popular belief, the holes make it easier to do the hollowing, **photo 11**, not more difficult.

6 MAKE LARGE OPENINGS SMALLER

One way of preventing the inquisitive turner from passing judgement on the interior of your hollow form is to make the opening too small for a finger to reach inside. This would of course make it too small for successful hollowing, but the answer is to make a larger hole and then fill it in with a contrasting timber with a much smaller hole through it. This makes a feature of the neck of the hollow form... and momentarily wrong-foots your critics! The two hollow forms shown in **photo 6** have both received this treatment – one with a piece of ebony, and the other with an insert of beech, painted to make it look like aluminium.

7 KEEP THINGS SMALL

The largest of the hollow forms shown so far is only about 130mm high. This is the size of the largest example in the main photo. Large hollow forms are not only tedious to create. Generally speaking they're not very saleable because people don't have spaces in their homes big enough to



Then shape the exterior of the blank and drill a hole into it so you can start the hollowing



The presence of holes in the side of the work actually makes the hollowing easier



Make the interior visible for practice purposes by drilling a large hole through the blank

display them. So don't waste your effort turning wooden replicas of the Portland Vase; stick to little Ashes urns instead!

8 CHEAT THE SYSTEM

There are ways to make the hollowing of a hollow form quicker and easier. One popular method is to cut the blank into two pieces and to hollow them separately like two bowls, before joining them back



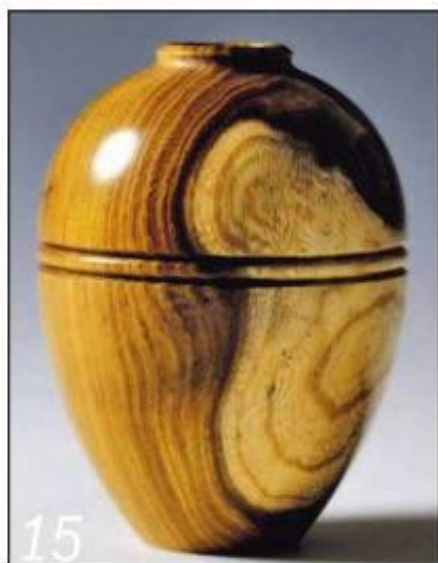
With the lathe running, you can now view the progress of the tool through the side window



If you fancy cheating, you can use a narrow parting tool to cut the piece in two



13 It's then a simple matter to hollow the two halves with a bowl gouge...



15 You can disguise the join with a feature such as a bead, but it will always look suspicious



17 One solution is to make a zigzag cut round the piece with a jigsaw after doing some hollowing

together again. To avoid a large mismatch in the grain pattern, use a narrow parting tool to sever the blank, **photo 12**. The hollowing is then easily accomplished in a few minutes with a bowl gouge, **photo 13**.

Unfortunately, no matter how carefully you match the grain, the join will always show as a permanent, and obvious, reminder of your cheating, **photo 14**. You can try to disguise the join by making it into a feature such as a decorative bead, **photo 15**. The problem with this method is that although it may fool



14 ...before reuniting them. Unfortunately the grain mismatch is clearly visible



16 You need to learn new tricks if you want to turn something like this 350mm tall hollow form

the uninitiated, most other turners will know exactly what you've done. I'm always deeply suspicious of any hollow form with a feature round its middle...

9 THINK BIG

Despite my own advice to keep things small, like everyone else I sometimes get the urge to do something big, and in my case it was to make a large hollow form about 350mm tall and a little less in diameter, **photo 16**. Hollowing such a large piece through a small hole would take forever, so I needed to cheat... but how to avoid it looking obvious?

The answer I came up with was to make the separating cut as a zigzag around the piece, similar to that shown on the much smaller piece in **photo 17**. I partially hollowed the piece through the hole in the top first. Then I used a jigsaw to join up a series of holes drilled into the cavity.

Once separated, each piece could be hollowed with a bowl gouge, taking care to avoid contact with the whirling corners of

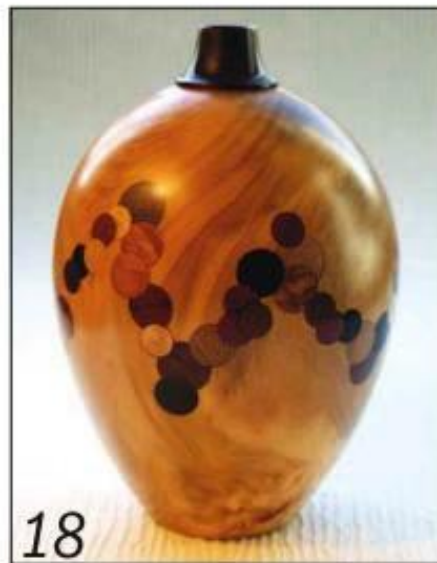
the zigzag edges. I then glued the two pieces back together and disguised the cut by inserting a series of contrasting wooden dowels in holes drilled over the zigzag line. The result is a hollow form that very few would suspect of being a cheat, **photo 18**. Incidentally, although I use the word 'cheat' I don't really regard this as cheating. You can only cheat if you accept that there are rules to be obeyed in the first place. What rules?

10 DON'T BOTHER!

I'm not serious, surely... but it's a fact that hollow forms would look exactly the same if they were solid. Many years ago I used to sell my work at craft fairs, and whenever anyone picked up a hollow form their first comment was always amazement at how light it was. Almost without exception people expected them to be much heavier. In that case, I had to ask myself, why was I bothering to hollow them out?

Sarah Thirlwell has become known for her large turnings made from reclaimed and recycled materials. Looking at them, most turners would assume they are hollow forms, but they're not. They're solid objects and are very, very heavy... yet Sarah appears to have no trouble selling them, and why should she? They look just as good as they would if they were hollow.

With a simple hole drilled down the middle, your solid forms will look just as good as hers, be just as saleable and be a lot easier to make. In fact, one of the photographs in this article shows a piece which isn't hollow. Passing it off as such really is cheating, but can you tell which one it is? Answers to the editor, please!



18 After reassembling the form, you can disguise the joint with a series of contrasting inserts... and even add a narrower neck

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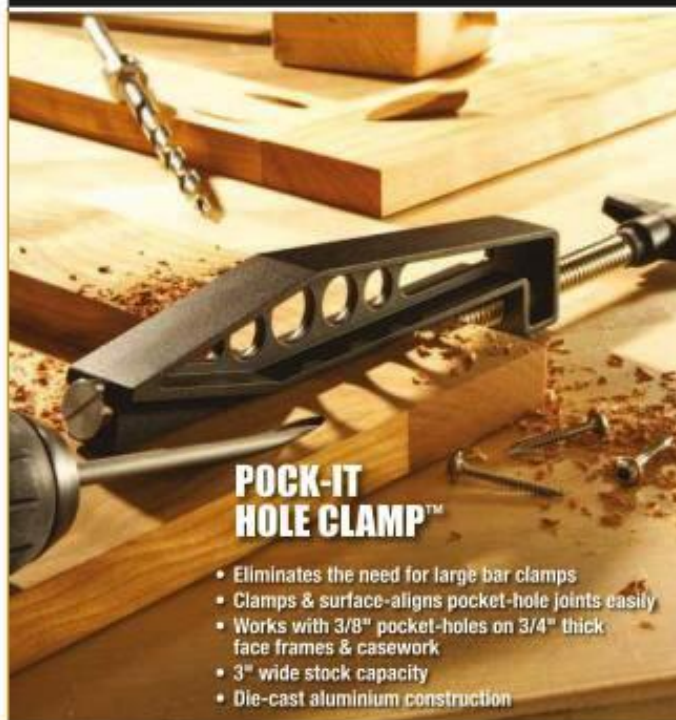
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Fitting kitchen worktops can be a fraught operation, so having a decent jointing jig makes all the difference. One that can cope with the many different worktops on the market is a big bonus

Trend KWJ700 worktop jig

The Trend KWJ700 jig covers worktop widths of 250, 300, 400, 500, 550, 600, 616, 650 and 700mm. It measures 985 x 390mm, and is 12mm thick. It's designed primarily for cutting a range of 90° corner joints in post-formed worktops. It also features apertures for routing the cut-outs for worktop connector (dog-bone) bolts, and offers a variety of positions to cover 45° mitred corner joints, corner radii of 40 and 100mm, and a 400mm radius peninsular joint for fitting breakfast bars. There's even a hole for routing the aperture for kitchen unit door hinges and sink mixer taps.

Setting up the jig

Each function revolves around the use of indexing pins that set the jig in the correct position for the cut you want to make. You then secure it with suitable cramps to the piece you're routing.

The jig is etched with the correct positions for the width of worktop as well as the other settings, including one that allows you to cut a worktop square. It comes with

a set of six tough ABS plastic indexing pins which you fit into holes in the jig to locate it accurately on the worktop you're cutting. An excellent manual is supplied to show how the various cuts are made.

Additional diagrams etched on the jig ensure you get the jig clamped to the correct surface, as one part of each joint is cut from the face side and the other from the underside to ensure that the cutter engages the workpiece without chipping the joint face.

Using the jig

You'll need a plunge router rated at 1300W or more with 1/2in chuck capacity, a 30mm guide bush and a 1/2in TCT cutter with a

cutting length of 50mm to make the cuts. It really is easy to make a very clean, tight joint. The jig is big enough to give good cramping room without restricting the path of the router, which can be a problem with budget-priced jigs.

Trend claim that the jig allows you to set up and cut a joint in 15 minutes, and that's a claim we agree with. Once the various components were cut and bolted up, the results were first class.

At just over £100, this is a jig that's built to last. Unless you work beyond the standard worktop widths found in most home kitchens, bathrooms or bedrooms, this jig is very easy to get to grips with, has loads of scope in what it does and therefore represents excellent value for money. **AK**

£106.80



Insert the index pins to suit the cut you're making; then clamp the jig to the worktop



Take several passes to ensure a clean cut. Then reverse the worktop and make the mating cut



Use the index pins again to position the jig for routing out the connector bolt holes



The resulting bolt holes are crispy and precisely cut, ready for installation

VERDICT

This is a well-made, professional jig that covers the majority of work involved in fitting standard kitchen and bathroom vanity unit worktops.

- PROS**
- Solid and durable
 - Multiple applications for jointing and profiling
 - Accurate and easy to use

CONS ■ None

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

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

Small mitre (chop) saws are ideal for many less demanding jobs such as cutting mouldings, picture framing and general cross-cutting, as they're light, portable and easy to use. This Einhell model seems to tick all the boxes...

Einhell TH-MS 2112 mitre saw



£70

Chop saws are really useful tools. They're simple to set up and use, and are capable of producing high-quality work very quickly. Before the advent of the larger sliding mitre saws, no self-respecting site carpenter would be without one. However, they're not just site tools; they're excellent workshop tools too. They take up little bench space, are easy to store and are ideal for mitring picture frames and architectural mouldings and doing any general small-dimension cross-cutting work. This Einhell model is a perfect example of the genre; it's very straightforward to set up, easy to operate, and has an eager motor and a quality finish... all at a real bargain price!

Form and function

This is a well-made and workmanlike tool without any unnecessary bells and whistles. The saw base is wide and stable, and incorporates fixing holes so it can be bolted to a bench if required. The table is smoothly machined and turns easily, with click stops in all the most-used positions. The table is turned using the saw head itself, and is then locked in position with a small knob located just behind the fence. This is a single-bevel saw, so the head only tilts to the left. Once the required angle setting has been selected, it's locked in place with a large adjusting knob mounted on the rear bracket.

The saw head itself has a solid alloy upper blade guard, and a transparent plastic lower guard that retracts as the saw is plunged.

There's a sturdy carrying handle on the top, and a horizontal front handle that's fitted with the power trigger and plunge release lever.

The rear fence is a little on the small side, but there are two side extensions, and a solid material clamp is fitted.

Using the saw

Accuracy is all-important with any woodworking tool. This Einhell saw is particularly good because all the settings are adjustable. If



The saw table is well finished and features clear scale markings



This is a single-bevel mitre saw, so the head tilts 45° to the left only



The table is locked in position with a small knob just behind the fence

6 FREE SAWS!

See page 43



The 210mm diameter 48-tooth TCT blade delivers crisp, clean saw cuts

they become inaccurate in use due to wear or rough handling, they're very easy to re-set. The test sample supplied didn't cut quite square out of the box, yet it took only a moment to re-adjust the vertical setting for perfect accuracy.

This is a rewarding tool to use. The plunge action is smooth and the return spring is properly balanced. There is a little play in the rear mounting bracket, and rough handling will result in inaccurate cuts. However, when used with care, this isn't a problem. The material clamp is sturdy and reliable, and the side fence extensions are supportive.

The only minor complaint concerns the motor. At this price you get a brush motor which is quite noisy and starts with a bit of a jolt, but this is to be expected and you soon get used to it.

Summing up

This is a good, unpretentious tool. It needs to be used with sensitivity, but will return excellent results. It's easy to use and the quality of cut it delivers is high. It all adds up to a very attractive package, and is available on the internet for as little as £60. **AS**

SPECIFICATION

MOTOR	1400W
BLADE DIAMETER	210mm
NO-LOAD SPEED	5000rpm
MAX CUTTING CAPACITY	at 90° 120 x 55mm
	at 90° x 45° 80 x 55mm
	at 45° x 90° 120 x 32mm
	at 45° x 45° 80 x 32mm
MITRE RANGE	0-45°
WEIGHT	7kg

VERDICT

This is a small but competent and efficient chop saw that's convenient and easy to use.

- PROS**
- Small and light
 - Good cutting performance
 - Bargain price

- CONS**
- Small amount of play in saw mountings

VALUE FOR MONEY

PERFORMANCE



FURTHER INFORMATION

- Einhell
- 0151 6491500
- www.einhell-uk.co.uk



The upper blade guard is solid alloy; the lower one is transparent plastic



The solid material clamp is fully adjustable and very easy to position as required



If any of the settings become inaccurate in use, they're very easy to re-set

Biscuit jointing was the most significant new woodworking technique to arrive in decades, and Lamello was the Swiss company that developed it. A dedicated biscuit jointer is essential if you're to get the most from the method

Lamello Classic X biscuit jointer

Lamello's entry-level biscuit jointer has been around for some time. However, there's been some evolutionary progress in the last few years that has led to other tools such as their revolutionary Zeta machine, and this has clearly played a part in developing this particular model, the Classic X. If you own an earlier model such as the Lamello C3, then this replacement model will seem very familiar; at first glance you could easily be fooled into thinking that it's the same machine.

A slimmer model

It has been through the design mill though, and if you found that older models suffered from an over-chunky body you'll

be pleased to know that the Classic X has a slimmer profile – only 195mm at its widest point – making it easier to grip and ultimately to control.

Control is important as any biscuit jointer can be back-heavy, so having a grip that allows you to hold the machine more comfortably means that you can concentrate on positioning and holding the fence or shoe on the work firmly to achieve consistent, accurate plunges.

An improved fence

Moving on to the fence, this is where the changes from original Lamello models come in. The shoe tilts through 90°, with indents at common angle settings of 22.5°, 45° and 67.5°. A single locking lever holds these indents – or

any other setting you select, read against the clear scale. The same type of lever is fitted on the slide-on shoe.

This shoe has two purposes. The first is for setting a depth from the top face of any work, so thicker stock can be biscuited centrally or at a depth to suit your needs. It can also be reversed to act as a stabilising foot for working to an edge of a board – a very useful function for ensuring accurate square slots.



The tilting shoe is indexed to control the depth of the slot. The single locking lever holds the shoe in place.





A jointer is useful for aligning a wide joint such as on this kitchen worktop

Easier set-ups

These are no different to earlier Lamello fence set-ups, but now there's no protrusion to the side of the plunge base. Instead there's now a small milled edge to either side that allows you not only to reference from it, but also to operate tight to a vertical face. To aid positioning there are also reference points picked out on the base and the fence, so it's highly intuitive to get to grips with.

The shoe allows the jointer to centralise a biscuit easily on thinner stock, as well as letting you set the slot position closer to the internal edge of a mitre to prevent it driving through the back face.

Little grumbles

While this is all very useful we found couple of negatives. A left-handed user will be disappointed that the switch is set in the ideal position for a right-hand thumb to engage it, but an agile index finger on the left hand can still operate it.

The bigger problem is the omission of a dust bag. With the tool selling at just under £400 this is an oversight, especially as the old C3 version had one. Although a dust port spigot is supplied, a dust bag is very useful for the occasions when you need to make a few joints quickly and don't have extraction facilities to hand.

Beyond those criticisms, Lamello continues to innovate in other areas while retaining the crown as manufacturers of the best biscuit jointers on the market. **AK**

SPECIFICATION

MOTOR	780W
BLADE DIAMETER	100mm
NO-LOAD SPEED	10,000rpm
CUTTING DEPTH PRE-SETS	6
TILT RANGE	0-90°
DUST EXTRACT OUTLET	36mm
WEIGHT	3kg
ACCESSORIES	dust extract adaptor, stop square, 4mm spacer, tool set

VERDICT

Lamello jointers are a hard act to follow, and they still occupy the pinnacle for this particular tool..

PROS

- New slim body profile
- CNC-machined fences
- Flawless performance

CONS

- No dust bag supplied
- Switch awkward for left-handers

VALUE FOR MONEY 
PERFORMANCE 

FURTHER INFORMATION

■ Brimarc
 ■ 03332 406967
 ■ www.brimarc.com

Once positioned, the biscuit joints will fit flush across the full width of the work



The kit supplied with the jointer includes a pin spanner for easy blade changes



The new design allows the jointer to sit tight to an edge for easy referencing



A secondary function of the shoe is to stabilise the jointer when working close to an edge

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Laser levelling is here to stay, and although this model is expensive its three beams mean that it's far more powerful than a standard rotary laser of similar price

Bosch GLL 3-80P laser level

Laser levelling is one area where technology can be a huge help. However, any setting-out work can require more than one level to do the job, and owning the correct lasers can be expensive... but not any more with this versatile model.

Rotary lasers are ideal for setting out a room for suspended ceilings, floor joists and so on. Some have a vertical and a horizontal beam for additional diversity, but Bosch have gone the extra mile with this one.

It's a solid-beam model, so there are no moving parts except for the pendulum that self-levels the unit. It has three separate lasers, each with a prism that splits the beam and fires it through a protective window. The three beams cover an XYZ framework, giving you level, plumb at 90° to the level line, and a further plumb at 90° to the first plumb line, allowing you to fire beams in three dimensions and set out a whole room.

Multiple uses

Put the level on a tripod, and setting up partition walls, built-in cupboards and so

forth becomes quite straightforward; by firing all three beams into a corner you immediately have a reference for square and plumb.

Putting this to the test, we set out a run of partition walling with a 90° return, as well as installing a row of kitchen units with a cupboard above. The kitchen unit set-out was made easier by using the laser on the optional BM1 wall mount. Its magnetic or direct screw fixing option makes it simple to set the height to where you need it and then to fine-tune the position with its rack-and-pinion adjustment.

Points to remember

In some situations there's a downside if you need to use the beams directly, as the

prisms and lens offset the beams away from the laser body so they can intersect each other. You may find that you have to measure back from the beams to set the actual line you want to build to.

Like any red-beam laser, bright lighting is its enemy, but there's a simple red target card supplied to aid long-range sighting.

To sum up, this is a very powerful unit that will prove invaluable for countless applications, especially where the three beams can come into their own. **AK**

£399



SPECIFICATION

POWER SUPPLY	4 x 1.5V AA batteries
LASER	Class 2
WORKING RANGE	40m
SELF-LEVELLING RANGE	4°
LEVEL ACCURACY	± 0.2mm per metre
ACCESSORIES	batteries, tripod, laser target card, carry case

VERDICT

This versatile laser has the three-dimensional levelling capability that's essential in so many jobs nowadays.

- PROS**
- Three-axis beam projection
 - All the levels you need generated by one unit
 - Extremely accurate

- CONS**
- Some setting-out has to allow for the offset beams

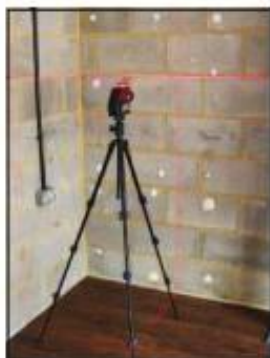
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PERFORMANCE

FURTHER INFORMATION

- Bosch Power Tools
- 01895 838743
- www.Bosch.co.uk

With all three beams working, you can see the full potential of the level



It can be tricky to pick up the beams if the lighting is too bright, but the red target card can help



The beams are offset, so you have to measure back from them to set the actual work position



The wall mount has a height adjuster to allow for accurate high-level work

A power planer is such a useful tool to have around, particularly on site. While it's not as precise as a hand plane, in skilled hands a planer can produce an excellent finish

Black & Decker KW712 planer

£50
(web price)



SPECIFICATION

MOTOR	650W
NO-LOAD SPEED	17,000rpm
PLANING WIDTH	82mm
MAX DEPTH OF CUT	2mm
MAX REBATE DEPTH	8mm
FLEX LENGTH	3m
WEIGHT	3kg
ACCESSORIES	storage case, side fence, dust bag, extract adapter

VERDICT

This is a good solid and dependable planer at a bargain price.

PROS

- Reversible blades
- 0.2mm depth of cut increments
- V groove for chamfering edges

CONS

- No parking foot
- Plastic fence
- Dustbag won't fit in storage case

VALUE FOR MONEY 

PERFORMANCE 

FURTHER INFORMATION

- Black & Decker
- 01753 511234
- www.blackanddecker.co.uk

– the maximum cutting depth. Unusually, this planer doesn't have a hinged parking foot on the sole to hold the cutterblock off the workbench when the tool's not in use, so before setting it down the control knob must be turned to the P position to avoid any damage to either the blades or the workbench.

Performance factors

A planer relies on the quality of its soleplate for accurate performance. The KW712 has a solid steel soleplate with an alloy front section featuring a V groove for chamfering edges. It's well finished and robust, with a smooth polished surface.

Two standard 82mm long disposable TCT blades are fitted in the cutterblock, and a small spanner is supplied for easy blade changes. The blades are reversible for longer life – a useful feature. Replacement blades cost about £10 a pair.

A large plastic side fence is included which gives additional support when planing narrow workpieces, and is also needed when rebating. It looks somewhat insubstantial but performs well.

Dust extraction

Planers produce a large volume of chippings and can rapidly create a huge mess. Ideally they should be connected to a workshop dust extractor. The KW712 is

Power planers can remove several millimetres of stock in one pass, greatly speeding up the job, but they must be used with care as clumsy handling can ruin the workpiece. This Black & Decker model is quite a wide tool with a bright orange body and large round front handle. This doubles as the depth-of-cut control and there are click stops every 0.2mm from zero to 2mm

A dustbag is supplied for use on small jobs or when working on site



The plastic side fence looks somewhat insubstantial but performs well



The solid steel soleplate has an alloy front section featuring a V groove for chamfering



The depth-of-cut control offers 0.2mm increments and a 'park' setting

parts can easily slip out of alignment. Now you can do the job perfectly in a few seconds

Everbuild Mitre Fast glue pen kit



£9.60

There are several two-part superglues and activators on the market. Most rely on an aerosol spray to apply the activator. This isn't a problem in most instances, but on pre-finished goods such as mdf cornices and lighting rails, overspray from the activator aerosol can cause stains on certain lighter shades.

The magic pen

To get round this problem, Everbuild have cleverly put the activator into a small pen with a large felt tip so you can be very precise in where you apply it. The 10ml pen in this kit contains enough fluid to activate the 50ml of adhesive, and a little goes a long way.

Applying the glue is simplicity itself. You apply the activator to one surface and the adhesive to the other. Use a lollipop stick or a piece of card to spread the adhesive evenly. Then align the components and press them together to form a bond. This takes place inside 10 seconds, so you have to get the alignment perfect first time.

The adhesive is quite thick, so it doesn't soak into end grain as some runnier superglues do, and it will therefore fill small gaps too. The resulting bond isn't waterproof, however, and isn't intended to be load-bearing.

Last but not least, the kit can also be used to bond plastic and metals, so it isn't just a one-trick pony! Keep it in the workshop fridge to maximise its shelf life. **AK**

VERDICT

This glue pen kit is the perfect solution for bonding mitred joints on picture frames, architraves, skirting boards and the like.

PROS ■ Easy and clean to apply
■ Gives a strong bond in 10 seconds

CONS ■ It bonds fingers too!

VALUE FOR MONEY
PERFORMANCE

FURTHER INFORMATION

■ Everbuild Building Products

supplied with a good vacuum adapter that's ideal for the purpose. There is also a large dustbag which is supported by an internal wire frame – a useful accessory for smaller jobs, or when you're working on site without access to workshop extraction. Unfortunately you have to dismantle it before it can be fitted into the storage case, which is a bit of a nuisance.

Using the planer

When power planing it's important to keep the pressure on the rear of the tool to ensure that it doesn't tip forward at the end of a pass and take a chunk out of your workpiece. This planer is perfectly designed to avoid this. The main handle is mounted right at the rear and the whole balance of the machine makes it sit securely on the workpiece. It's a pleasure to use and performs well.

At full cutting depth the motor can struggle a bit, but it's much safer and produces a finer finish if you take shallower cuts anyway. Once you get used to it, the lack of a parking foot is not a great problem either, but if it irritates you there is always the option of putting a small support batten on the bench top to do the same job.

This is an impressive tool at a realistic price. While not intended for professional use, it's ideal for more occasional work and performs extremely well. **AS**



A special adaptor is supplied if you prefer to use workshop extraction



The planer is well balanced and easy to control, even on narrow stock

Use the pen to apply the activator all over one surface of the joint



Squirt the adhesive onto the other surface and spread it out evenly



Align the two parts precisely and bring them together to make



Double-bevel sliding mitre saws tend to be large and heavy tools that are great to use, but less fun to carry around. This compact Einhell model has excellent capacities and good performance, yet is light enough to be carried with one hand

Einhell TH-SM 2131 Dual double-bevel sliding mitre saw



Sliding mitre saws have been available in a variety of sizes for some time, but those with a double bevel capability have always tended to be the large, heavy expensive models. These have tremendous capabilities, but they often exceed the needs of non-professional users. This Einhell model offers all the advantages of a double-bevel saw in a neat, easy-to-use package that's ideal for the average user.

Pared-down design

The design of this saw is refreshingly straightforward, with no fiddly little knobs to break off... or any other superfluous features for that matter. It has a small revolving alloy table with a long front extension. This turns to 45° in both directions and has click stops in all the

usual positions, plus a locking knob to secure it anywhere on the scale. There are two side extensions and a simple workpiece clamp which can be used on either side. The rear fence is fairly small, but does have extending upper sections for additional support. The rear bevel scale is clearly marked with silver on black markings and a red pointer.

The sawhead is supported on a pair of hardened steel bars that run through bearings in the rear bracket. It can be locked in position when the sliding facility isn't needed, and there's also a depth-of-cut adjuster to allow partial cutting for housings or tenons. A dustbag is supplied, and the saw can be connected to a workshop vacuum if preferred.

A dusty laser

Like the majority of machines these days, a laser is fitted. This is, thankfully, mains-powered and has its own switch on the end of the



The depth-of-cut adjuster allows partial cutting of housings or tenons

The rear bevel scale is clearly marked in silver on black and is very easy to read



The saw head is supported on a sturdy pair of round hardened steel bars

6 FREE SAWS!

See page 43



The weak return spring makes it easy to plunge the saw into the work

operating handle. It's easy to adjust so it shines along one side of the kerf, and it produces a clearly visible bright line. Unfortunately it tends to become blocked with sawdust, particularly when cutting resinous timbers like pine, so it needs regular cleaning.

Using the saw

The saw needed a little attention before use to set it up accurately. The rear fence is designed to be adjusted, however, so this was easy. Once set, this was a very pleasing machine to use. Because the cutting head is small and light, it has a fairly weak return spring that makes it easy to plunge down into the workpiece. The sliding bars also run extremely smoothly, giving a fluid cutting action. The depth-of-cut adjuster is a bit fiddly to use as it can't be swung out of the way, as on the majority of similar saws. To use it, it must be wound down and locked in place and then wound up again when not needed, so you can't retain a setting.

Summing up

Apart from a couple of minor niggles, this is a great saw that's both accurate and easy to use. This is certainly one of the best Einhell machines I've used recently. It means that you can have the convenience of a double-bevel action without the need to buy an excessively large and expensive machine, and you won't suffer a hernia moving it around! AS

SPECIFICATION

MOTOR	1500W
BLADE DIAMETER	210mm
NO-LOAD SPEED	5000rpm
MAX CUTTING CAPACITY	at 90° 310 x 62mm
	at 90° x 45° 210 x 62mm
	at 45° x 90° 310 x 36mm
	at 45° x 45° 210 x 36mm
DUST EXTRACT DIAMETER	36mm
WEIGHT	10.5kg

VERDICT

This is a sturdy and effective tool with good capacities and solid controls. Its modest size and light weight make it an ideal site saw for the less demanding jobs.

PROS

- Good design
- Smooth and accurate operation
- Easy to transport and store

CONS

- Poor depth-of-cut adjuster
- Laser easily blocked with sawdust
- Noisy motor

VALUE FOR MONEY 
PERFORMANCE 

FURTHER INFORMATION

- Einhell
- 0151 649 1500
- www.einhell-uk.co.uk

The saw will happily make a wide range of compound cuts single-handed



The saw has a spindle lock button and comes with an Allen key for changing the blade

The simple but sturdy workpiece clamp can be used on either side of the saw



The rear fence is fairly small, but has extending upper sections for additional support

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Stanley No. 5 'before & after' photo courtesy Peter Hemsley - The ToolPost

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The battle of the blades

BY MICHAEL FORSTER

It's always a good feeling when a ghost that's been lurking in the background gets finally put to rest, and that happened for me just recently. The name of my ghost was *Folding Bandsaw Blades*, and it had been haunting me relentlessly ever since I upgraded from a mid-range bandsaw to a bigger, industrial one.

That in itself might seem an odd thing for a box-maker to have done – taking a sledge-hammer to crack a nut – but it's actually well justified. With a quick and easy blade change, this new machine does everything I want, from deep-ripping thick hardwood boards into smaller components to cutting tight curves on little band-sawn boxes, and leaves an excellent finish. It's also, paradoxically, better at small-scale precision work than my bench-top machine. But I digress: folding the blades is what I set out to tell you about.

Ready to strike

You know how they come – neatly coiled up, looking all harmless and submissive and 'butter-wouldn't-melt-in-my-gullets' –

and then you cut the ties and the things take on a will of their own. I'd learnt to cope with that with my previous machine, and had confidently mastered the technique for unfolding and then re-folding the blades for storage when I needed to change them.

Now maybe it was just me – I'm told that the same technique should work for longer blades, too – but I simply couldn't get them to behave, and ended up with a large area of the workshop wall dominated by fully-unwound monster blades. This wasn't very convenient, and didn't feel all that safe either.

Getting a grip

So last week I decided that it was time I reasserted my authority. I am the master in my workshop – my wife has authorized me in writing to say that – and it was time to make that authority felt. So I did a web search, and that's how I came to be in my study wearing PPE (personal protective equipment) and doing a *pas de deux* with the aforementioned vicious metal band (not to be confused with a heavy metal band, which is much less scary) in an attempt to

imitate the gyrations of the expert I was watching on screen.

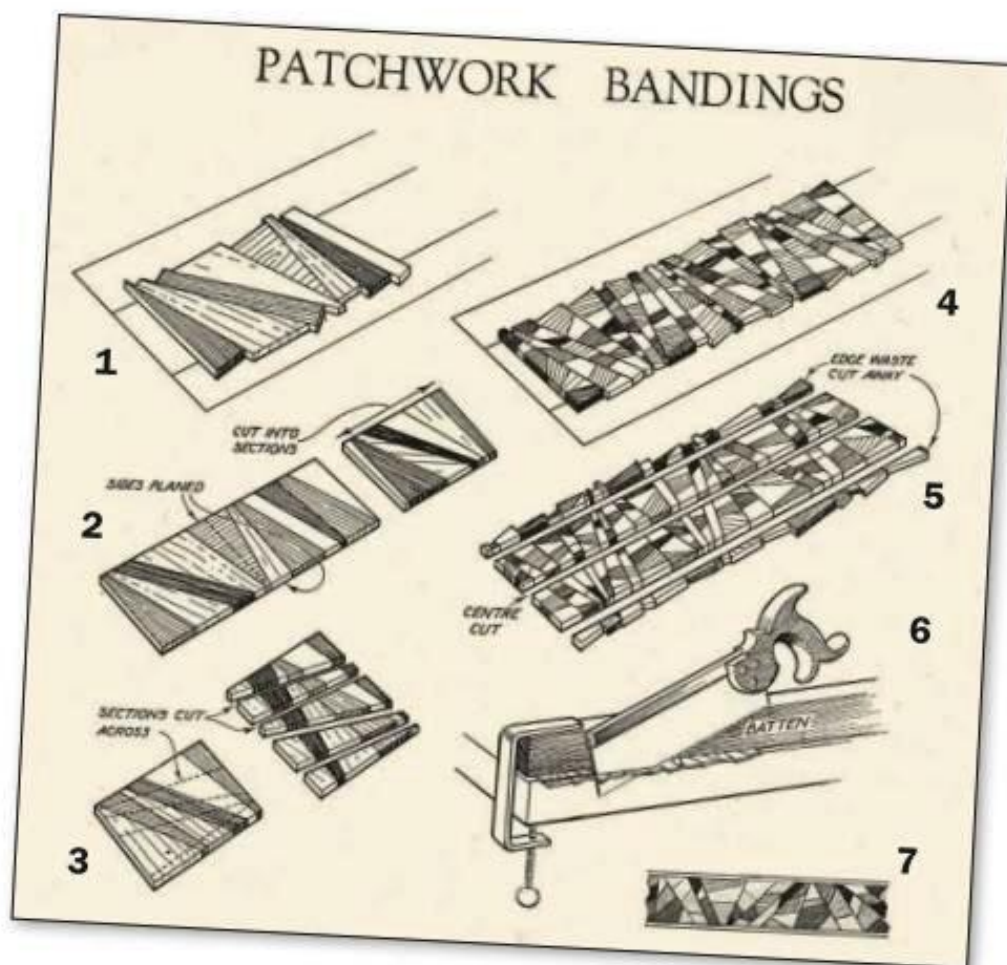
All the presenters were very convincing, and their various techniques self-evidently worked for them. All I ended up with was a figure of eight when I'd wanted a nice round coil. However, eventually I found one I could do, courtesy of Warwickshire College (go to www.youtube.com/watch?v=N_hhrRLy9ac)

Beaten into submission

Maybe I'm just a simple soul who should get out more (maybe? – Ed), but the buzz I got was amazing when the long, malevolent band of toothy steel at last descended submissively into a small coil at my feet and meekly allowed me to wrap a wire tie around to secure it.

In its own little way, it's life-changing... seriously! Swapping blades on the machine is dead easy in itself, and the only thing putting me off had been the prospect of the battle for supremacy with the spare blade. Now I can change the blade at will, without the need for medication. Don't you just love to be in control?

1 Plane the edges of 50mm long scraps square on the shooting board, and arrange them on paper over two parallel lines 38mm apart
2 Saw off the waste along the lines (see **6**), plane the edges and cut the strip into sections
3 Make angled cuts across each section to produce a second set of random shapes
4 Repeat **step 1** to assemble a second strip of scraps
5 Trim the edges as before and saw down the centre to produce two banding strips about 20mm wide
6 Cramp the strips to the bench edge using a batten to minimise splitting
7 The finished banding is ready to be glued into its groove in the workpiece



Very little to be thrown away...

With austerity the overriding theme, post-war Britain saw everyone doing their best to conserve materials and make savings wherever they could

Woodworkers were no exception to this, and the simple yet highly decorative and pleasing banding technique reproduced here encouraged our woodworking forebears to use up those scraps of timber that nearly everyone's workshop would naturally generate.

The same issue of *The Woodworker* (June 1948) continued to bemoan the shortage of timber, and suggested a number of other materials as a substitute. High on the list were aluminium sections which could be pressed into service as trims, mouldings and edgings, "giving a distinctive modern touch

to a piece of work". A helpful guide to working this light and soft metal was featured to help the woodworker along. Would this aluminium have been surplus from stocks acquired for airplane manufacture, I wonder?

Ancient and modern

With regards to the decorative banding, I expect I'm not the only person to have seen a variation of this technique applied to current designer furniture. Now utilising larger offcuts glued up into a mass and then worked into chairs and tables, the visual effect relies on the same seemingly random conglomeration

of differing and contrasting timbers to create a pleasing contemporary style.

Although the *Woodworker* version shown here was used for a decorative border, in these days of (comparative) plenty there's nothing to stop the keen and experimental woodworker from giving it go on a larger scale. And I for one would be very interested in seeing the results...

Mark

More from *The Woodworker* archive next month...

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