

WOODWORKING CRAFTS

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WOODWORKING CRAFTS

Issue 78



Winter is a special time for woodworkers as we can take refuge from harsh weather in our cosy workshops. I hope this Christmas has been good to you – I travelled around 5,000 miles to be with my UK family this year, which made it extra special. Perhaps you made your loved ones some wooden gifts this year? If you're still looking for some inspiration, we have a couple of toymaking articles for you. We show you a traditional German ring turning technique commonly used for toys and our scrollsaw mobiles are perfect for little ones.

For those of you who like to make accessories for the home we have some super projects for you, and we start off with traditional shelves made with a router; another project that utilises the abilities of the router is the simple plywood stool – why not make a few so you have a set! To decorate your hallway the W-style pegboard project will be perfect for your winter hats and scarves. If you have a damaged supper table or find one at a boot sale you will like our feature on how to restore one.

Venturing outdoors, we have a project for looking after our bird wildlife with a project on how to make a birdhouse inspired by a

Korean TV drama. Blending colour with pyrography will encourage you to experiment with your project decorations and our lovespoons will help you make a charming gift for your loved one.

Out in the workshop there is also plenty to do – you might want to stoke up the fire in this chilly weather though. Our guide on pillar drills will help you get the most from this essential tool. We also show you all you need to know about cabinet scrapers, an often-forgotten tool that does more than you think. If, like me, you have an abundance of tools you will enjoy our article on how to build a tool cabinet and our vintage toolbox features the London pattern hammer. Another useful shop accessory is the right-angle bracket, and we show you how to make this versatile joinery jig.

Finally, Randy Maxey and I took a trip to Atlanta, Georgia to visit the first International Woodworking Fair since the pandemic. Randy's roundup may make you want to visit it next year, there is so much to see, and your mouth will water coveting all the new tools.

Enjoy your winter woodworking! Alan Goodsell

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Woodworking Crafts magazine
(ISSN 1365-4292) is published every eight weeks
by Guild of Master Craftsman Publications Ltd,
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To subscribe online go to:
gmcsubscriptions.com

Cover photograph:
Derek Jones, GMC Publications

Welcome page photograph:
Derek Jones, GMC Publications

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Woodworking is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines, and all readers should observe current safety legislation.



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WOODWORKING CRAFTS

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HANGING BIRDHOUSE

Inspired by a Korean TV drama, Mitch Peacock builds a hanging birdhouse for his garden

I can't explain what it was about this birdhouse that made me want to recreate it, although each time I saw it on the television in *Start-Up*, it made me smile. Whether the birds in our garden will appreciate the bright colours is something only time will tell.

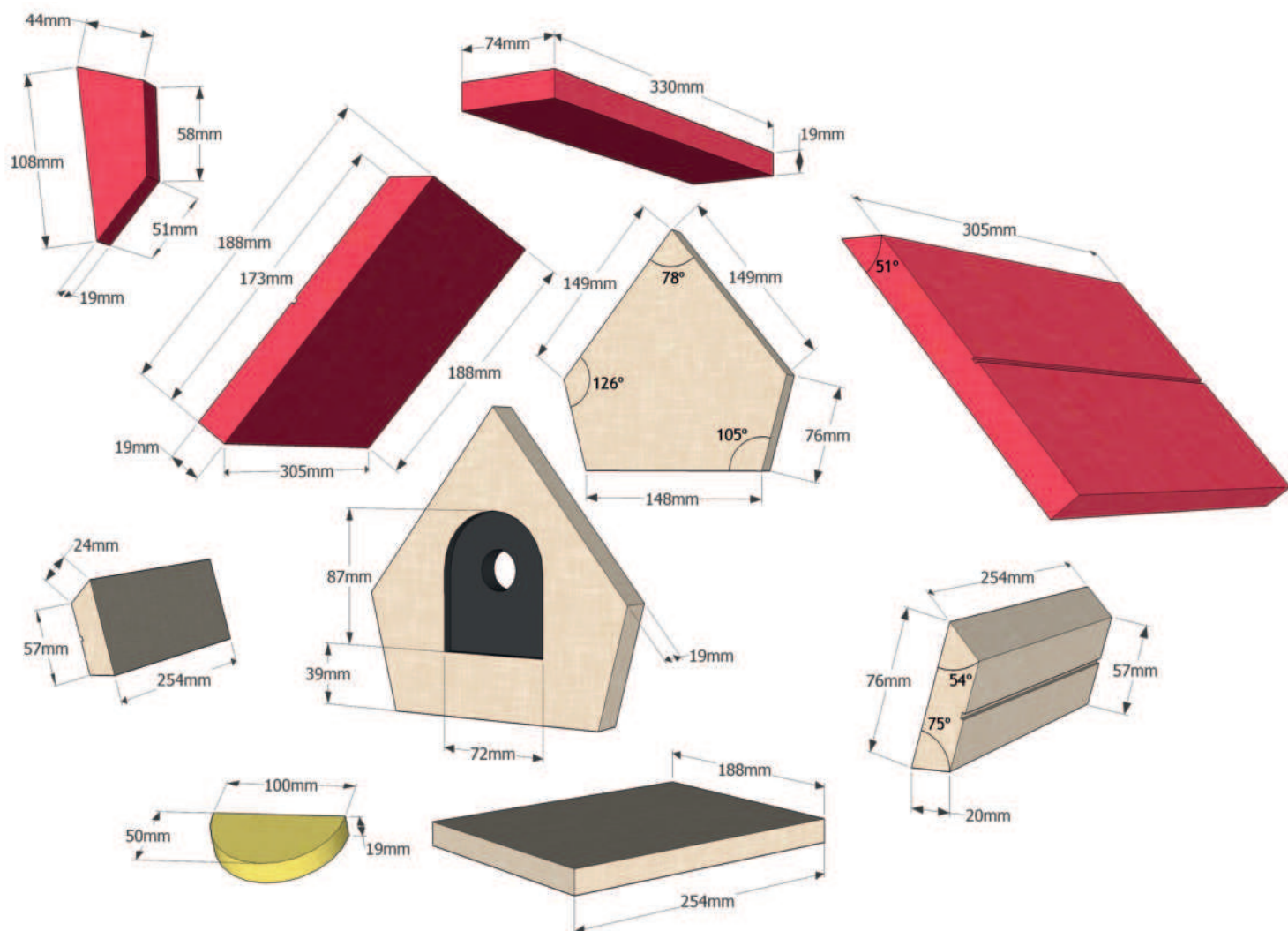
Now is a good time to make birdhouses. As daylight hours shorten and the weather becomes less clement, we need to find projects that can be constructed inside the workshop. Odours from wood treatments, adhesives and decorative finishes, all need a few months to dissipate, and the birds need to become accustomed to the new arrivals ahead of the nesting season.

The overall size of this birdhouse should be adequate for most small garden birds, and the hole size can be chosen to attract specific species (mine is designed for blue tits). There is plenty of information available on sizing the opening for different species online.

Making the birdhouse

1 This is a good opportunity to use up some workshop scraps, or in my case some slats from packing cases and pallets. Trust me, the birds will not be too fussy, and this also goes for the joinery, making this a good beginner's project.





- 2 Most of the panels were wider than my material, and consequently I started by edge gluing some pieces together. Here I'm clamping panels to make the front and rear of the birdhouse, both at the same time in one pair of clamps; remembering not to apply glue between them.
- 3 The narrow boards for the birdhouse sides were planed to



- the appropriate angles, top and bottom, to meet the roof and base. Planing them together gives a wider area for the plane to balance on, making the job easier.
- 4 Once the glued-up panels were cured, I planed them flat and smooth, which will help paint application, and shedding of water in use. Exact thickness isn't important; remember, the birds aren't too fussy.



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- 5 The shape of the front and back was marked in with an angle finder, although a protractor would be fine.
- 6 The original birdhouse had a large opening which I wanted to reflect while restricting access to blue tits. I achieved this by marking in a large recess ...



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- 7 ... that was excavated to a few millimetres. I removed most of the material with a 1in chisel, and regularised the surface with a router plane. On reflection, a textured finish might have looked nice.
- 8 A through hole of 25mm was bored within the recess, suitable for blue tits.
- 9 With all the major detailing work complete on the front of the birdhouse, it was sawn and planed to shape, along with the identically shaped back.
- 10 One of the details from the original that I wanted to recreate were the mid-panel grooves that make them look built-up. These were easy to run through using a small plough plane.
- 11 With the front, back and sides prepared, the exact size of the base was checked, and the panel for that sawn to size.
- 12 Nails or dowels are both good permanent fixings for the birdhouse parts, and should be pre-bored for. Alternately angling the fixings will help stop the parts from separating.



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13 The semi-circular perch was rough sawn and then planed to the line before boring for fixing dowels.

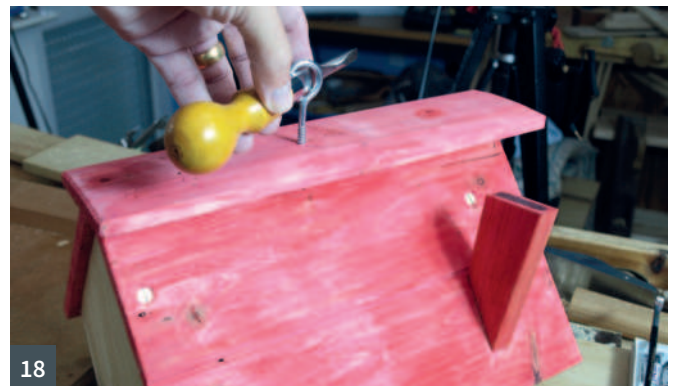
14 Dowel 'pops' were used to transfer dowel positions to the front, so that the perch could be fitted centrally below the recess.



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15 Both sides, one roof panel and the top board, were through fixed with glued dowels.

16 I thought the second roof panel should be removable, to allow for cleaning out, so countersunk through holes were bored in the roof, and pilot holes bored into the front and back panels.

17 Brass screws, wiped with a little grease or wax, ensure that access will be easy for the life of the birdhouse.

18 In order to hang the birdhouse, its balance point was found with a finger, by experiment, with the removable roof off, and a large screw eye installed from above. A hardwood backing block was added below the roof for the full length of the screw eye to bite into.

I hope I've inspired some of you to build a birdhouse this autumn, whether a slightly quirky one like this, or something more traditional.



SMALL ROUTER TABLE

Kevin Alviti comes up with a smart, space-saving solution for his busy workshop

My workshop is small but almost perfectly set up to make the small batches of the items I sell. I have to be quite clever with space at times, so lots of areas have to have multiple functions.

Many of my machines are wheeled: my tablesaw, large router table and bandsaw all have to jostle for space and get swapped about when needed. Having them all easily available for me makes a huge difference to my workflow, especially when making multiple items. But one thing I have learnt, even with limited space, it's sometimes worth having machines dedicated to one task.

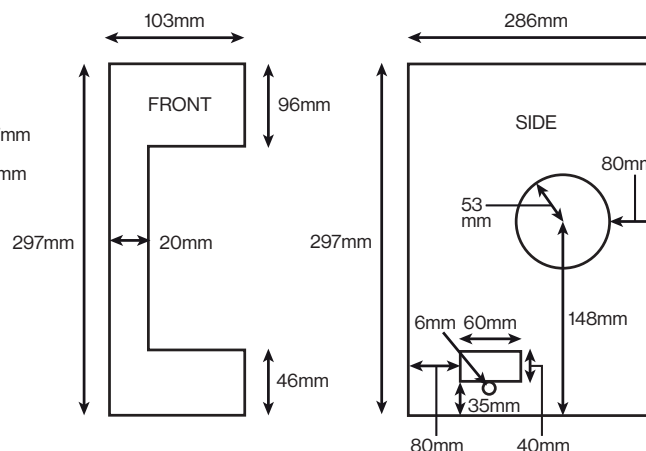
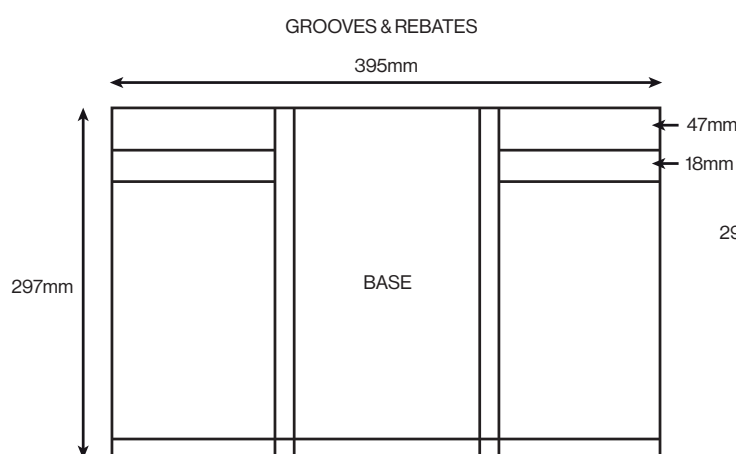
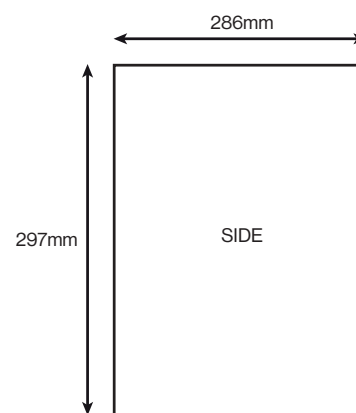
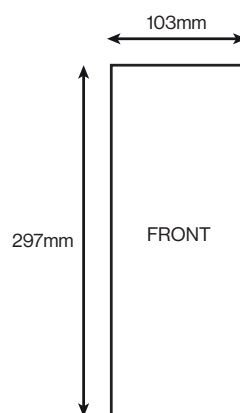
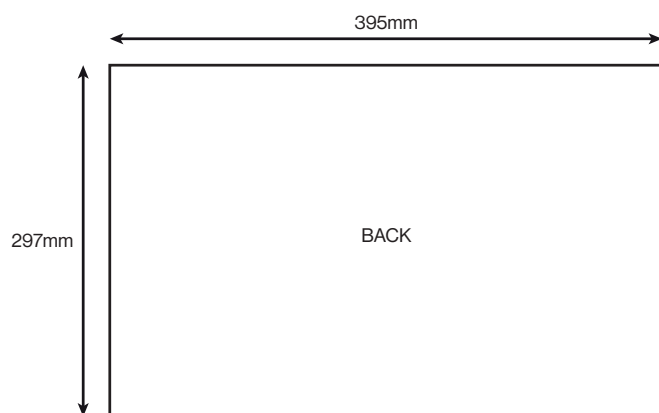
I used to think it was decadent to have multiples of the same tool, but when each extra action costs you time, which in turn costs you money, you soon learn it's worth doing. Not having to change a blade or cutter, adjust the height or swap sandpaper makes a massive difference to workshop efficiency.

The router is the perfect example of this. I love routers for their hundreds of functions. I have one large old router, which I was given as my 21st birthday present many moons ago, that I have set up purely in

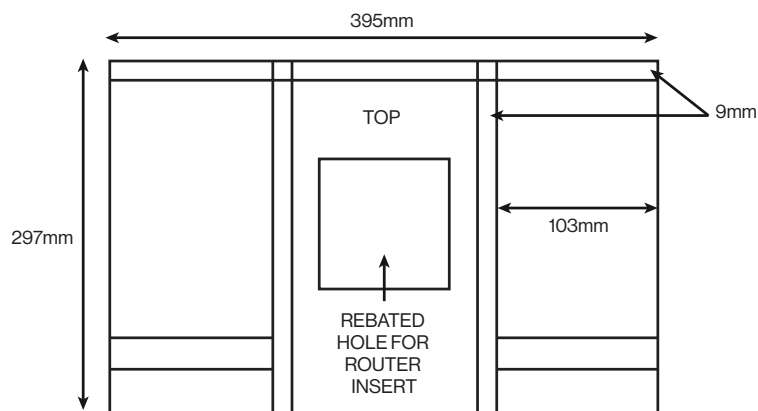
my large router table. This has a huge rebating bit and is used almost exclusively for this purpose. I then have another large router for day-to-day use or if I go out on site and fit a kitchen worktop. I also have three smaller palm routers, the cordless one is ideal when routing out hinges or using bearing-guided bits.

But one activity I do a lot of is using a small router to round over corners using a bearing-guided bit. When I make a batch of 10 items, each with four routed curved components, rounded over both sides, that's 80 passes of the router. For this action, it would be easier if I could pass the timber over the router rather than the router over the timber, especially as dust collection on a hand-held router is never ideal, with a hose getting in the way.

So, I decided I wanted to make a small router table, one that could be put away if I needed to, with decent dust collection and an emergency stop should I ever need it. Also, the ability for it to be clamped down to a workbench and to clamp a simple fence to it should I ever need one. The router I chose to use is one that I already have a lot of accessories



CUT PERSPEX DOOR TO SUIT



for and has an interchangeable base with my cordless router. This router also has a cheaper version online which makes it quite affordable. I wanted to use electric as I wanted a No Volt release switch on it so the router had to have an on/off switch and not be a 'smart' switch, as found on many cordless ones, to prevent it from accidentally switching on. The small switch on a router, especially when under a table, can be a fiddle, especially if you want to turn it off in a hurry. But it's very easy with a big button on the front.

I also wanted it to be modular with my other tool boxes, so that everything fits on the shelves easily. Having the ability to clamp it safely down to the workbench is also really important. So although there are ready-made router tables on the market, I wanted this one to be fit for my purpose.

YOU WILL NEED

MATERIALS:

- Router insert plate to fit your router – mine was unbranded, made in aluminium and purchased from eBay
- 9mm ply
- 18mm ply
- No-Volt release switch
- Dust extraction nozzle (optional)
- Two M6 coach bolts 40mm long
- Two M6 wingnuts and washers
- 3.5 screws 20mm long
- Two hooks (optional for holding the spanners on)

TOOLS:

- Screwdrivers
- Small palm router – 9mm straight cutting bit
- Tablesaw
- Track saw
- Guide rail

- Router plate for guide rail
- Bandsaw (optional)
- Jigsaw
- Drill
- Impact driver
- No.6, 14mm carving gouge
- Hammer
- Guide bushes for the router – I used 32mm



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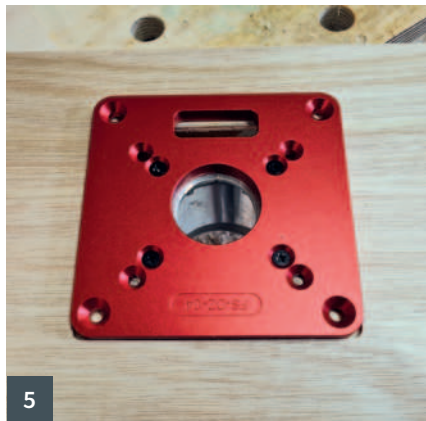
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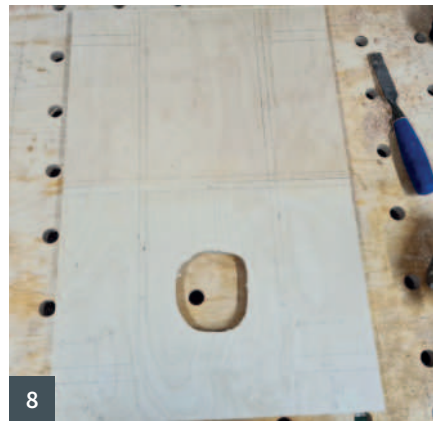
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Materials

When you see that I've built this from birch plywood most of you are going to assume that I'm either now walking around with one kidney or I've cashed in the children's college fund (sorry kids, there isn't one). In truth, this was left over from some kitchen units I made for a customer a few months ago. I built the drawers and carcasses with 18mm ply and the base and backs with 9mm ply.

One thing I will say is that I spend a lot of time in my workshop, it's how I earn a fair chunk of my living so I like the things I make to be as good as they possibly can be (check out my carved workbench in *Furniture & Cabinetmaking* issue 299). I have a Paulk MFT style workbench built with birch ply and I've no regrets about my choice of material, but it's doubled from being £60 a sheet to nearly £120 now

and justifying the cost would be tricky. I'd recommend making this router table from whatever you have to hand, a good quality hardwood-faced ply will work just as well as one built from anything else, just avoid the lower grades, some shuttering ply isn't even good enough for shuttering in my opinion.

Don't be afraid to sort through the sheets of ply at the merchants – the top sheet is often damaged, and depending on how it's been stored it can be twisted and bent, which makes everything difficult when cutting and routing.

Making the router table

- 1 Cut all the component pieces to size. I use a track saw with a rail square on the end to make sure I get accurate cuts. Obviously, you



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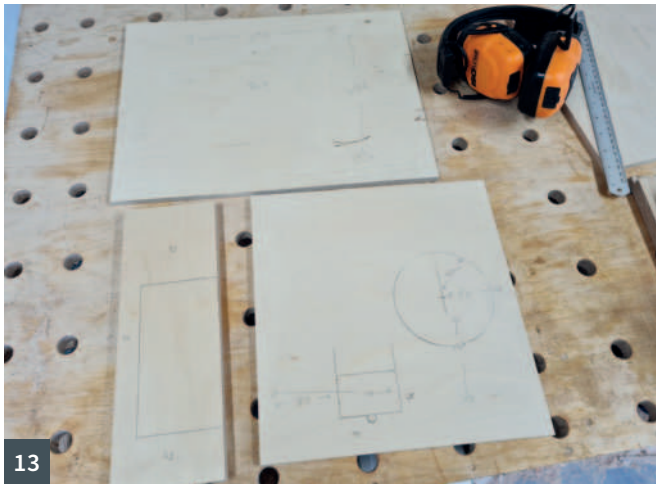


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can use a tablesaw here but I don't have the room for one that can manage sheet materials. If you don't own a track saw then you can get the same results by using a circular saw, clamping a piece of wood to the ply, allowing for the offset to the blade then making sure you run the saw smoothly alongside the wood to guide you.

- 2 To build this project I used a fairly generic aluminium insert plate for my router. This has mounting holes already in it to fit my brand of router (Makita in this case). This gets fixed to the router base. Alternatively, you could make an insert from good-quality plywood or even acrylic.
- 3 To set this insert into the top of the router table I made a jig that I could use with a router with guide bushes. I first needed to work out the offset between my largest guide bush (I had a 32mm bush) and the 9mm cutter I was using. The offset was approximately 11mm.
- 4 Using a scrap piece of 9mm ply for the template I marked out the insert, squared it to the sides, then added the offset all the way round. It's essential when you cut this out you cut it accurately, any mistakes will show up when you use it. I used a combination of my mitre saw and a jigsaw.
- 5 I'd then suggest routing out the recess for the template on a scrap piece first. As you can see with mine, the radius of the corner was slightly different to that on the actual insert. Instead of making a new template, I knew not to use the router tight into the corners.
- 6 Position the template in the centre of your top and clamp it down. To cut in the rebate for the insert to sit on it is easier to make the cuts in multiple passes. My insert was 10mm deep, to try and do that in one go was too much strain for my little router – although easily possible if I had used a bigger router here.

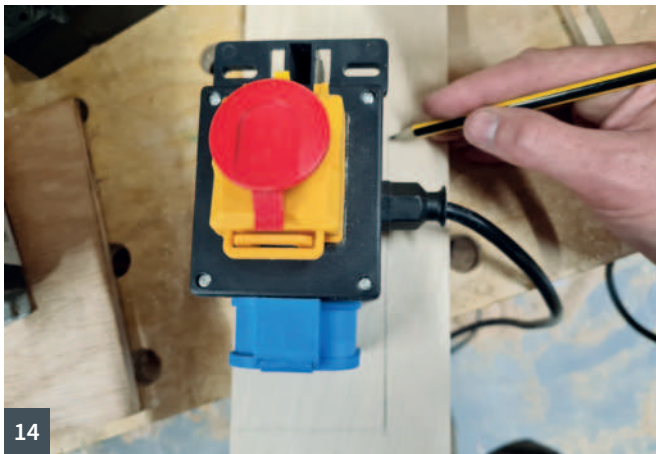
- 7 There is no need to use the router on the whole area of the insert as we need to cut some away to let the router through. I drilled a hole and then just used my jigsaw to cut it out, stepping in about 12mm all the way round. Here I also sorted out the issue with the corners, I found a No.6, 14mm carving gouge was the perfect radius to make them a nice tight fit. Make sure when the router insert slips in, it is perfectly flush with the top of the plywood.
- 8 Flip the top over and line it up next to the base, both being 18mm plywood. Mark up where you are going to cut the grooves and rebates. They are mirror images of each other so setting them up like this makes the marking out easier.
- 9 To cut the grooves, I have a router base that slots over the guide rails to my track saw to keep it steady and in line. This is another one of those times where you can simply measure the offset, clamp down a piece of wood and hold onto the router well and keep it straight. I used a 9mm straight cutter and made the cuts 9mm deep in one pass.
- 10 Where the grooves/dadoes are 18mm thick, I just made two passes with the 9mm cutter to save changing bits.
- 11 With the grooves and rebates routed out, make sure they all match up and are in line.
- 12 A cheat's way of working out the height of the sides and back is to put the top and base together, then hold the tape at the finished height you'd like, and just take the lower measurement. As I wanted mine to finish the same height as a Tanos systainer I need it to finish at 315mm, so I cut all the other ply pieces 297mm high.



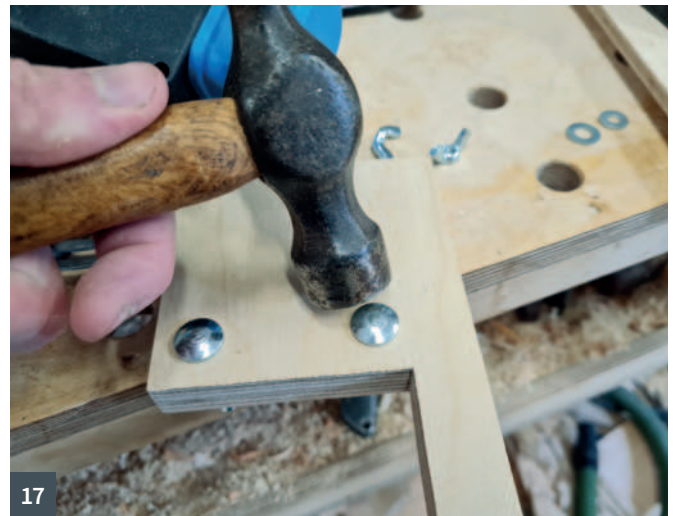
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- 13** Using the track saw again, I cut out all the other pieces. The back and two sides are in 9mm ply and the two front pieces are in 18mm. Mark out the right-hand side piece with the measurements to accept the plug socket and the port for dust extraction. I plan on using my big extractor so marked it up for 100mm pipe, but it's just as easy to add a smaller hose here.
- 14** I also marked out the one front piece to accept the No-Volt release switch. I want this to sit in the ply, but allow enough room under it to accept the plug.
- 15** Cut everything out that needs to be cut. I used a jigsaw on the 9mm pieces, but did use the bandsaw on the 18mm front piece as it was harder to hold.

- 16** Mark and drill the holes for the bolts on the No-Volt release switch. Make sure you plan to use bolts and not screws as screws won't be strong enough to take the pressures needed when pressing the switch.
- 17** Knock in the heads of the coach bolts and make sure the switch fits. Ensure you can get the plug on and off easily as well.
- 18** Dry fit it together. It should all slot together nicely and hold quite well without clamps. Check everything fits.



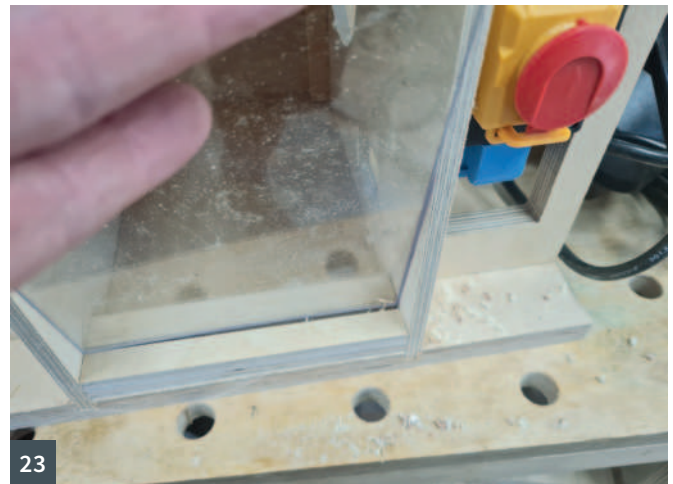
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- 19** Make sure the router table is square then mark and measure the back. Here we'll add two small 25 x 25mm pieces of batten to help hold it together while we glue it. Take the table apart and sand it all down.
- 20** Fix the battens to the two side pieces so they will be on the inside of the router area.
- 21** Apply glue to all the rebates and grooves then assemble the table. Screw through the back into the battens on the side pieces. Once you're happy it's square, clamp it all together and let the glue cure.

- 22** On the bandsaw, out a piece of Perspex the same size as the opening to the router area. Take the cut steadily, and wear goggles. Sand up the cut edges afterwards.
- 23** Fix two offcuts of 18mm ply at the base, leaving a gap big enough to slide the Perspex into. Fit one at the top in line with the one at the back for the screen to rest back against.
- 24** With another offcut of 18mm ply make a small handle for the screen. Drill a 4mm pilot hole then fix the handle with a screw.



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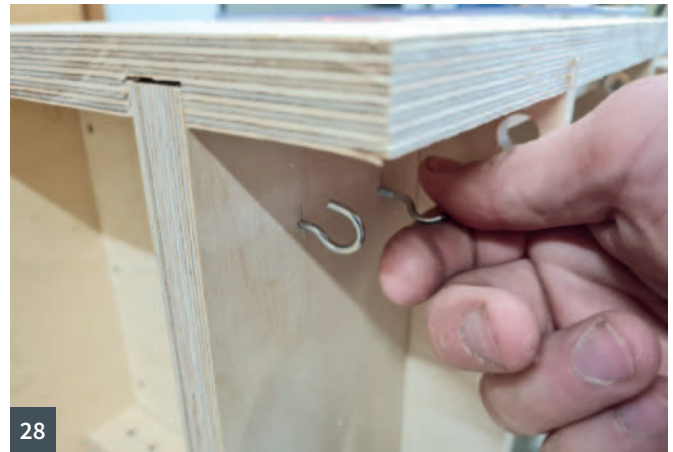


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- 25** Measure and mark out two 12mm holes for a dowel to slide through at the top of the screen. This will slide in and hold the screen in place.
- 26** Drill a 12mm hole into another piece of 18mm plywood to act as a handle for the dowel. Taper the one end of the dowel to make it easier to fit through both holes.
- 27** Create some router bit storage with a narrow strip of 18mm ply. Drill 6.5mm holes at regular spacings then glue them in place on the left-hand side of the table.
- 28** Add two hooks to the front left-hand side of the table. This is for the spanners to change the bits. You could also recess in rare earth magnets here to prevent them from rattling around.
- 29** With a small piece of 6mm ply create a drop-down cover for the plug hole, fix with one screw. This way when the extraction is on it will suck less through this area than if it was left open. Also fix the dust extraction nozzle if you have one.



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- 30** Remove everything that isn't wood, give it one last sanding then give it a finish to protect it. I used Danish oil as it's what I had to hand and gives a good hardwearing finish I can add to over time.

Dust collection

This design certainly improves dust collection when using the router and extractor, but it won't collect it all. I also need to make an adjustable hood to be mounted above the cutter to collect what flies off it, this can be used for other things in the workshop like the lathe then. Additionally, I run an air filter while using this power tool and many others.



The ancient yew is believed to be over 500 years old

UK TREE OF THE YEAR

The Waverley Abbey yew has been revealed as the nation's Tree of the Year for 2022

The spectacular Waverley Abbey yew, thought to be over 500 years old, whose roots grow out of Britain's first Cistercian Abbey monastery has been crowned Tree of the Year in the Woodland Trust's 2022 competition. The yew will now go on to represent the UK in the European Tree of the Year contest next year.

Historic roots

The Waverley Abbey yew is an ancient tree, with roots growing into and around the ruins of the English Heritage site, Waverley Abbey – the very first monastery founded in Britain 900 years ago.

Tom Reed, Citizen Science Office for the Ancient Tree Inventory at the Woodland Trust, said: 'People who visit Waverley Abbey come with a respect and appreciation of the abbey's history and stories. It is great to see that this magnificent tree has been recognised at Tree of the Year 2022 and the way the tree is rooted within the ruins of the abbey is a great symbol of the fact that our ancient trees are intertwined with other aspects of our cultural heritage.'

'We're calling for greater protection for these living legends, so they are cared for in the same way as our historic buildings. This tree is one of the many Living Legends that have witnessed important moments in our history.'

Dr Michael Carter, English Heritage Senior Properties Historian, said: 'The yew tree at Waverley Abbey has been witness to history for nearly 500 years. While the exact age of the yew is unknown, it is likely that it has watched over the abbey grounds since shortly after the Dissolution of the Monasteries in 1536 – and has seen its surroundings transformed from a thriving religious community into a picturesque ruin.'

'The tree is a truly spectacular reminder of the passage of time and a very worthy winner of Tree of the Year.'

The yew took 16% of the total votes, finishing above The Portal Tree in Midlothian (11%), a rowan which grows in the landscaped grounds of one of Scotland's most important historic houses. In third place with 10% of the votes was the impressive Layering Horse Chestnut in Derbyshire, which was likely to have been struck by lightning in the past, causing a hollowed and decaying trunk with new roots regrowing from the fallen branches.

Now in its eighth year, the Woodland Trust's Tree of the Year contest highlights the UK's favourite trees to celebrate the role they play in fighting climate change and their importance to nature and our history and heritage.

For more information on Tree of the Year, visit:

www.woodlandtrust.org.uk.

Waverley Abbey, near Farnham in Surrey, is free to visit during daylight hours, for more details see: **www.english-heritage.org.uk/visit/places/waverley-abbey/**

The Waverley Abbey yew will represent the UK at the European Tree of the Year competition in 2023

PHOTOGRAPHS COURTESY OF THE WOODLAND TRUST



THE RIGHT-ANGLE BRACKET

Charles Mak explains the uses of this simple but versatile joinery jig



Woodworking teacher and author Robert Wearing was well known as the creator of many shop-made jigs and devices, including what he called the 'right-angle holding bracket', or simply 'angle bracket', the subject of this article. In Wearing's design, the angle bracket is two hardwood strips formed at a right angle, which is reinforced by a plywood fillet (see the drawing on the right). Examples of uses he gave for the jig include holding a dovetail joint to mark the pins, and assembling nailed and glued butt joints and lapped joints.

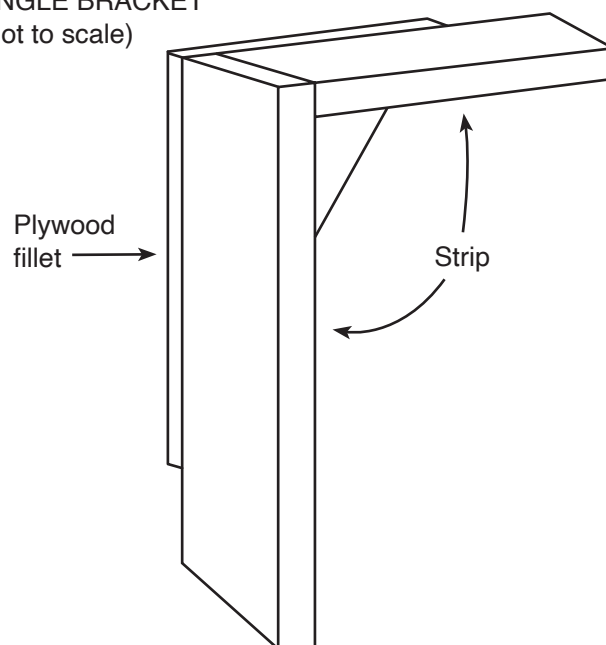
An alternative design

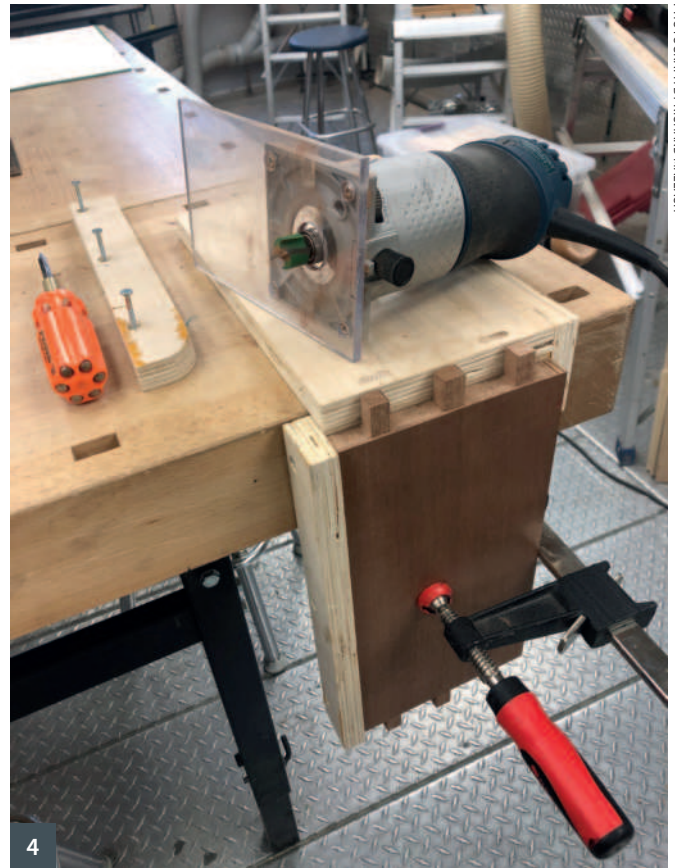
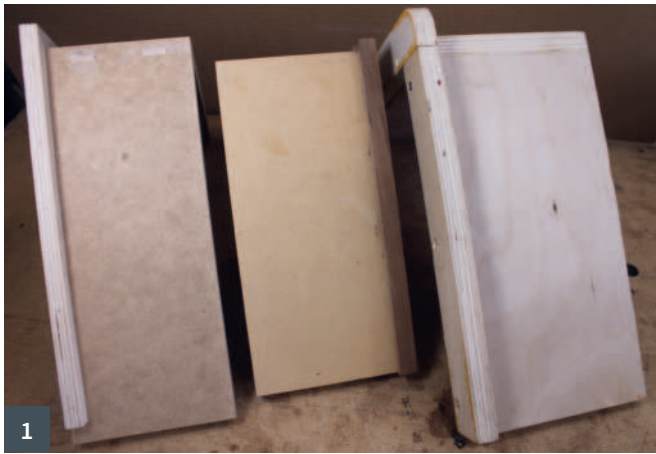
I have found that a right-angle bracket without a fillet is just as sturdy and accurate, while offering two advantages. Firstly, without the fillet getting in the way, the jig can be used flat on the bench without the presence of a vice. Secondly, there will be also no need for both right- and left-hand versions of the bracket.

British author and teacher David Barron takes this a step further, and makes his angle bracket – called a dovetail alignment board – with removable side fences added (**photo 1**).

The side fences can include a dust groove to maintain accuracy (**photo 2**).

ANGLE BRACKET
(not to scale)





PHOTOGRAPH BY RICHARD MALLACH

To use the alignment board to mark pins, hold the mating tail and pin boards against the fences on the jig (with the tail board on the horizontal top), and lay out the pins from the tails (**photo 3**).

As Wearing points out, the angle bracket has more uses than just marking dovetails. I use the right-angle jig for various joinery-related tasks, three of which are covered here.

Routing to the baseline

With its horizontal side fence removed, you can use the right-angle jig like a dovetail jig to hold a workpiece vertically and work on it with a router. For example, Canadian teacher Richard Mallach used the angle bracket in

his class, allowing his students to fine-tune finger joints to their baseline with a trim router and flush-trim bit (**photo 4**).

Making through-tenon drawers

Wearing also lists drilling dowelled joints as one of the many uses for his bracket. Instead of dowels, I use the Domino Joiner with the jig to put together drawers quickly with through tenons. The mortising steps are as follows:

1. Secure the drawer front/back on the horizontal board and against the fence (**photo 5**).



2. Clamp the drawer side to the vertical side of the jig, also against the side fence, and lay out the placement lines (**photo 6**).
3. Lastly, remove the side fence from the top of the jig, and mill the mortises (**photo 7**).

Marking angled dovetails

Although the bracket is right-angled, it can be used to mark angled dovetails. For instance, Danish woodworker Tage Frid's iconic three-legged stools have a backrest that is joined to the seat extension with a dovetail joint angled at 75° (**photo 8**). When I made those stools, I used the right-angle jig to mark the pins on the angled seat extension.

To do this, first, cut the tails on the backrest. Clamp the backrest vertically to the jig (and against the side fence). Centre and hold the angled end of the seat extension against the backrest, and mark out the pins on the seat extension (**photo 9**).

Wearing asserts that the angle bracket 'is another workshop accessory that readers will wonder how they managed without'. The angle jig does indeed excel and trumps other workholding or alignment methods in certain joinery tasks. I have made three such right-angle jigs – with variations in size or material – and wish I had known about it a lot earlier.



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LOVESPOONS

Dave Western explains
the symbolism of traditional
lovespoons and shares
a project for beginners



Understanding lovespoon symbolism can be a tricky business. Lots of mythology has sprung up over the years to explain the origins and meanings of the many romantic symbols found on Welsh lovespoons. Likely originating in Victorian times, much of this lore is more the product of vivid imagination than cold, hard fact. With the advent of the internet, ever more fanciful 'information and lore' floods us, with the result being complete confusion.

Nowadays, carvers and those interested in the history and tradition of lovespoon carving are rightly perplexed about what actually does constitute traditional design and how we can tell the difference between lovespoons and those spoons which are merely ornamental.

I will include a couple of patterns which you can use to practise your lovespoon carving or which you can build upon to create your own design for that someone special, as well as a step-by-step guide to carving a spoon.

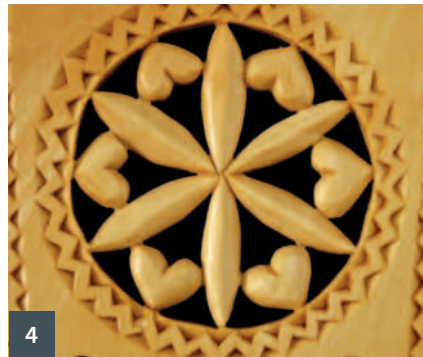
In this article, I will focus on the chief symbols common to the majority of historical spoons which have been gathered by museums and private antique collectors. Although I can't pretend to have seen

every lovespoon ever carved or to have catalogued every symbol which has appeared on a spoon, I have viewed enough of them to gain an insight into which symbols are historically traditional and which are of a more modern vintage.

Hearts

Without doubt, the foremost lovespoon symbol is the heart. Instantly recognisable throughout the western world as the dominant symbol of romance and romantic passion, its use on a lovespoon leaves no reservations that the spoon has a loving intent. From the oldest Welsh spoons in museum collections to today's CNC-produced souvenirs, the inclusion of a heart in the design strongly indicates a suggestion of affection.

There are a variety of ways the heart can appear on the spoon. It can be fretted through the handle or stem, it can be carved in low or high profile, it can be three-dimensionally carved or simply inlaid (either with contrasting wood or, more commonly, with sealing wax). I have seen it suggested that fretted hearts were considered 'less



1–4 No matter how it appears, the heart always symbolises love and affection **5–10** As with hearts, the comma shape can be fretted, carved in relief or rendered fully in the round

passionate' than carved hearts. I doubt there was any such grading of passion among the carvers or those who received their work. Much more likely the type of heart was a product of the carver's skill level and the type of design being carved.

I should note that on some European spoons originating from Catholic countries, the sacred heart (or heart of Christ) sometimes appears on spoon designs. This type of heart can often appear with a cross, flames or piercing arrows and may be misconstrued for a love heart when, in fact, its meaning was actually religious.

Comma or raindrop

Where the heart is an undeniable symbol of love, this common symbol on historic and modern spoons is shrouded in mystery and conjecture. Generally called a 'soul symbol' in Welsh lovespoon circles, it has been claimed its origins lay in Egypt where it was said to be a hieroglyphic symbol for the nostril, the part of the body where the soul enters the body at birth and exits it at death.

Further embellishments to the story tell of Welsh sailors bringing the symbol home with them after voyages to the Middle East.

It's a fabulously romantic tale, but unfortunately not likely to be true. The hieroglyphic symbol of soul (ka) is not nostril-shaped and no written evidence exists to prove sailors had anything to do with its arrival on Welsh spoons. A second theory has it being a paisley pattern from the Middle East. This explanation is more plausible but for the fact that some spoons featuring it are known to have been carved before the popularity of the paisley pattern had spread to the British Isles. A much more plausible explanation is that it is a 'raindrop' and thus a symbol of fertility and growth.

This symbol could be commonly found throughout France and Germany in the 1600s and 1700s and still appears to this day in the hex designs found on Pennsylvanian barns. It may appear as single commas throughout a design or as a grouping of several arranged in a wheel formation or border.



11–20 The simple circle can become wonderfully convoluted and decorative using basic geometric patterns. Highly segmented pinwheel patterns tested the carver's skill, patience and tenacity

Diamonds

Diamonds were a symbol of prosperity. Likely the prosperity on offer was more a promise to provide food, clothing and shelter rather than the manor house and servants. Nevertheless, young lovers dream and they generally dream big, so there was no harm in wishing for more than they probably got. I have only ever encountered stylised fretted diamonds and have never seen an old spoon with a more realistic profile carved diamond. No doubt the symbolism was clear enough with the basic shape.

Circle

Ironically, the simplest symbol commonly appearing on Welsh lovespoons is also the most complex. The circle is a well-known symbol of eternity due to it having neither a beginning nor an end (the reasoning behind the adoption of the wedding band to represent endless love). It can also represent the circle of life or notion of work and livelihood, especially when it appears on spoons carved by sailors as a ship's wheel, or by farmhands as a wagon's wheel. It can be carved

as anything from a simple fretted hole to a complicated geometric pattern. Most often the circular pattern is seen with a six-point 'flower' – an almost infinite variety of these can be found on antique spoons.

Easily rendered with a simple compass or even with rudimentary dividers, these geometric patterns enabled carvers to decorate their circles and create designs which seemed more difficult than they actually were. Particularly dexterous carvers would often carve a pinwheel pattern that was much more popular on the continent.

Chains and ball-in-cages

Once again, loads of Victorian sentiment and fanciful internet yarn-spinning has made more of these traditional carver's tricks than perhaps was the original case.

While the chain is said to be a representation of a promise to provide security (or, more romantically, a way of saying the carver is held captive by his love) it is also suggested that it was the carver's way of indicating a desire for children.



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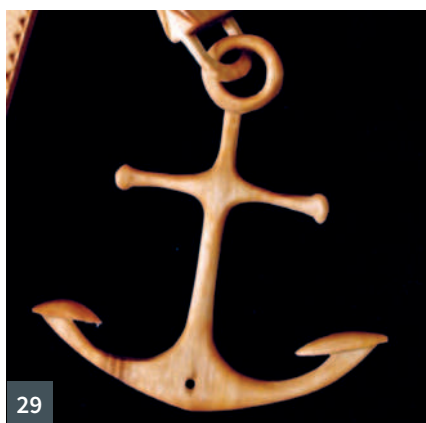
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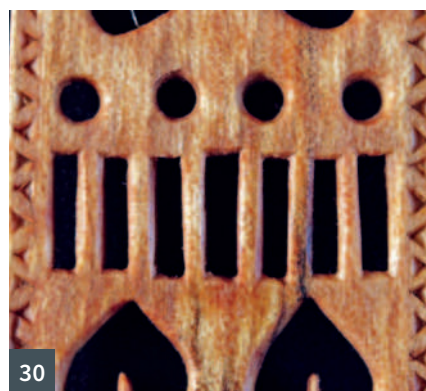
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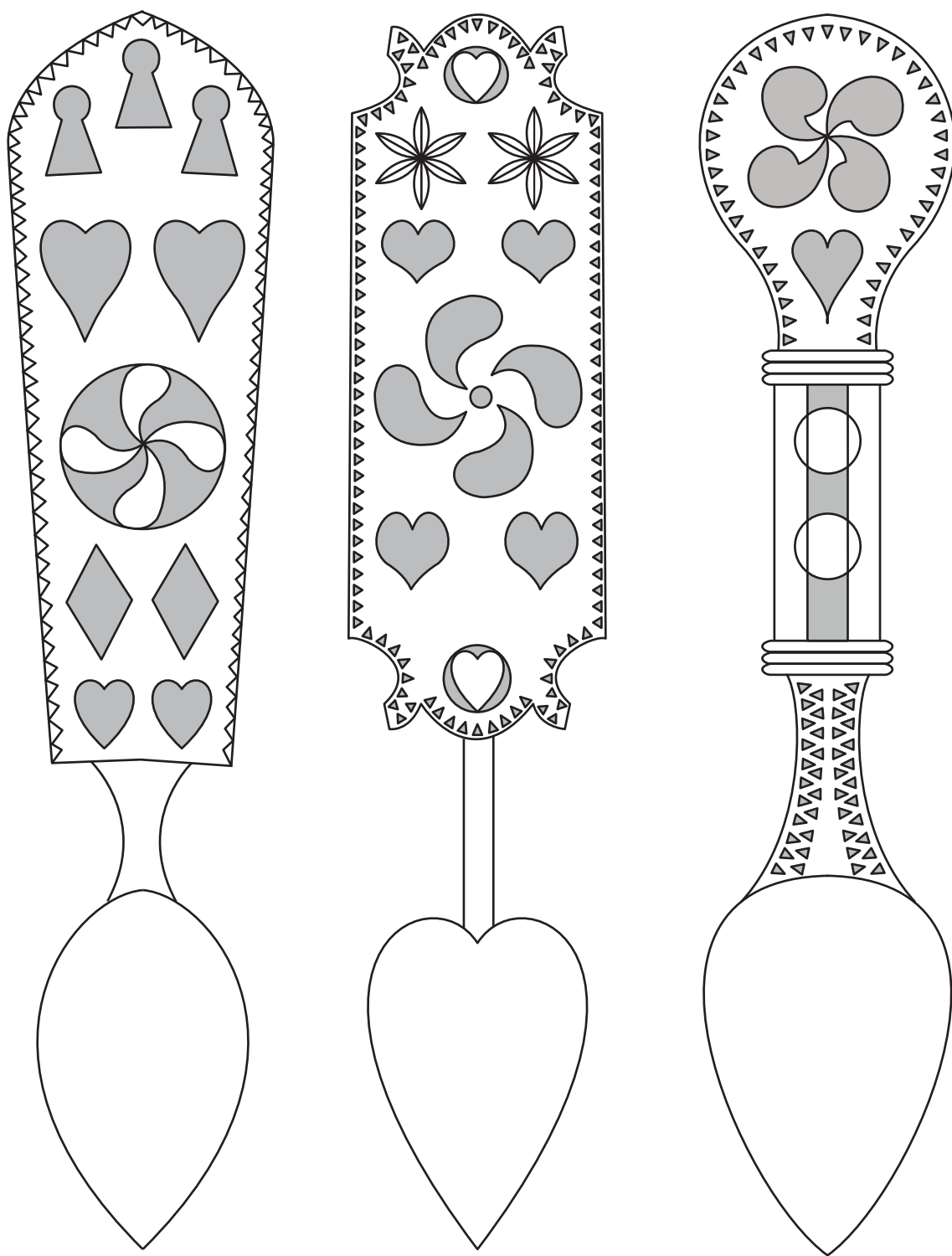
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21–25 Although the true symbolic meaning of chains and balls-in-cages might be unknown, they make for a formidable display of craftsmanship and tenacity **26–31** Minor symbols turn up on historical examples, but not in significant numbers. While keyholes and anchors are easily understood, many of the other designs are a bit more esoteric and harder to discern **32** Three examples of traditional Welsh lovespoons

Given that many spoons have good lengths of chainwork, the thought of having masses of children might not have been a particularly appealing consideration for a young woman who risked her life every time she bore one. The same symbolic meaning is also conferred on the ball in cage and in this case, it certainly seems more plausible as the numbers of balls in cages found on historical spoons seldom ranged too high. Although I love the romance of these theories, it's more likely that carving chains and balls was simply a demonstration of skill and tenacity by the young man and likely not much more was read into them.

Miscellaneous

Although they appear much more occasionally than the previously-mentioned symbols, a variety of lesser symbols can be found on historical examples. These range from double bowls (which indicate the notion of 'we two are as one') and triple bowls (said to indicate the desire for children – the extra mouth to feed) to keyholes and crossed keys to signify security or the heart held captive.



Occasionally, fretted glasses and pitchers may have denoted a wish for prosperity and a full belly. Anchors and wax-inlaid sailing ships spoke of a sailor's desire to settle with his love and engraved images of houses offered a similar sentiment for landlubbers. Simple vines and flowers often suggested fertility or the growth of the relationship and, every so often, birds in pairs would suggest love and bonding.

Less frequently, the carver would simply engage in flights of fancy, making up patterns which may have had no purpose other than to look good and nicely fill a space in his design.

Designs

If you'd like to try a traditional styled Welsh lovespoon of your own, I have included three basic designs above for you to get started with. While these aren't copies of any particular spoons, they are accurate representations of antique spoons of similar styling. They feature many of the most popular symbols and make lovely replica-type spoons.

You can practise the technique and get a feel for the traditional style of design by copying them directly, or use them as inspiration for your own versions. Either way, I know you will enjoy the carving.

CARVING YOUR OWN LOVESPOON

Now it's time to have a go at carving a simple lovespoon together. Making a lovespoon means opening our eyes, hearts and minds to the endless possibilities in which a lovespoon can look, and turning away from the dull and unimaginative designs associated with tokens of love these days. By unlocking the emotion from within, we can be inspired to create something beautiful, personal and creative, and something which we would be proud to give as a gift to our loved ones.

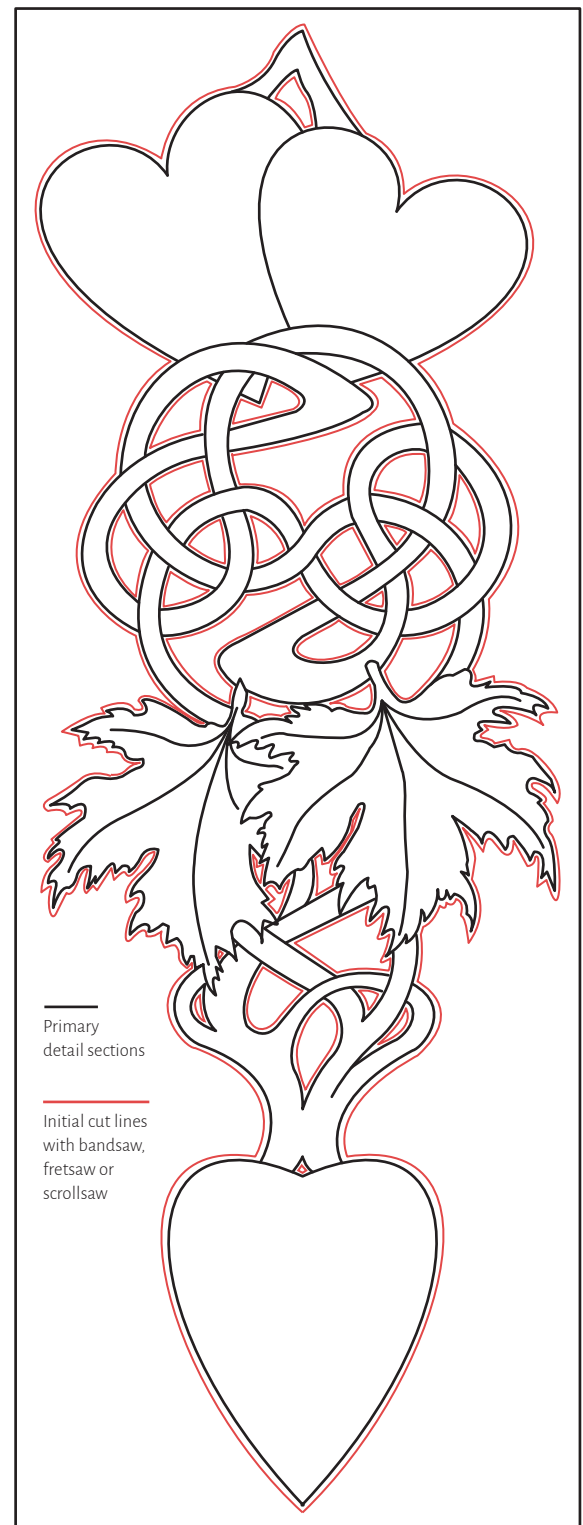
YOU WILL NEED

- Timber of choice
- Bandsaw/scrollsaw/ piercing saw or similar
- Carving knives including a bent knife
- Selection of gouges
- Cloth-backed abrasive
- Needle files, rasps
- Finishing oil
- Beeswax

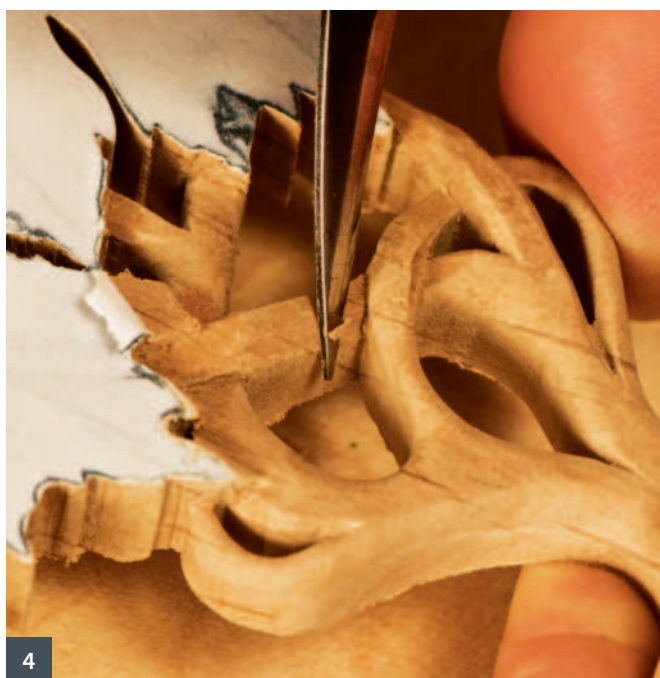


Cutting out

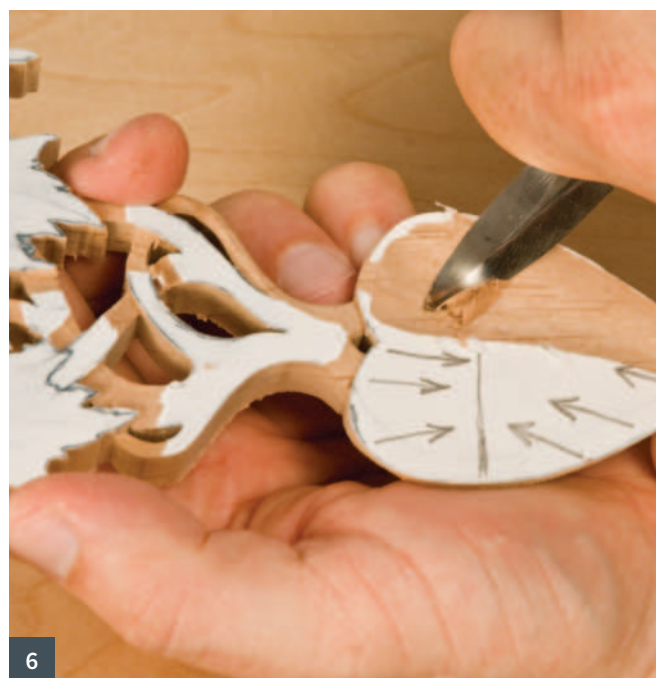
- 1 Enlarge your template to the required size, and carefully cut it out. Glue your pattern directly to your timber of choice, as this saves lots of time transferring drawings, and keeps the cuts nice and clean.
- 2 With the pattern secured onto your timber, cut the exterior lines of the pattern using a bandsaw, or scrollsaw if available, otherwise you will have to resort to using a jeweller's piercing saw which is fine, but will take a little longer and a lot more energy!
- 3 For cutting complicated patterns such as Celtic knotwork, a scrollsaw is



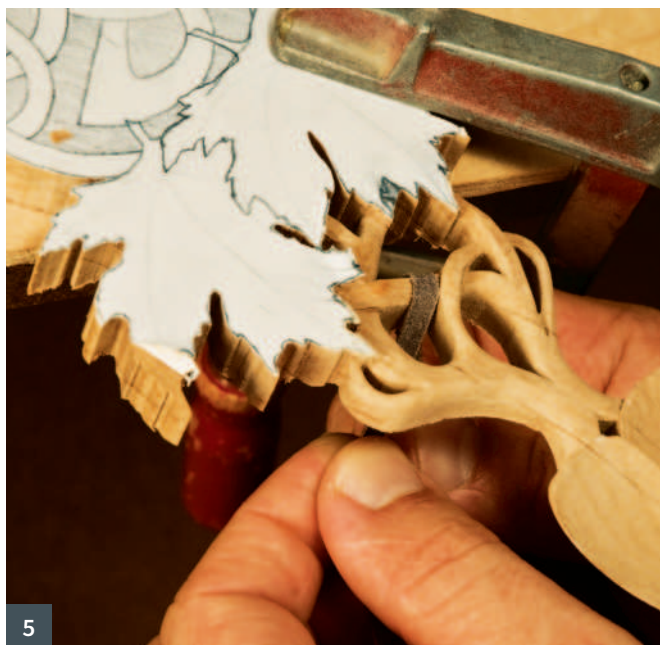
indispensable for the way in which it can cut intricate curves and patterns without having to make any entry cuts at the edge of the workpiece. To start the process, drill an entry hole where you want the cut to begin and place the blade into the hole. Cutting then takes place with the reciprocating up and down motion of the blade. You can cut these types of patterns with a jeweller's saw, but you'll need a lot of patience, as this can be a tricky and lengthy process.



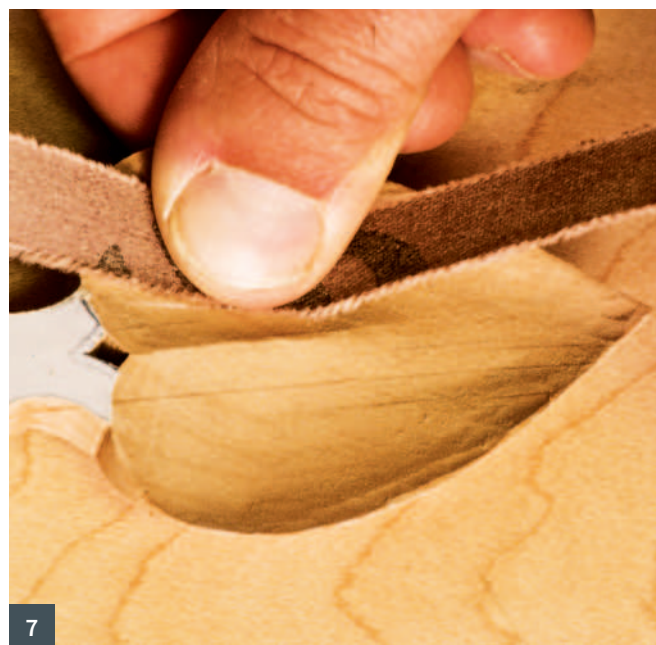
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Vines

- 4 Once you have taken the scrollsaw or similar method as far as you can, use a fine-tipped knife to access hard-to-reach areas, and to create the 'over and under' look, which is so crucial to knotwork or intertwining vines. Make sure you always use a sharp knife when making cuts such as these, as you want your vines to look as clean and refined as possible.
- 5 Next we come on to smoothing out your knife work. To round the vines evenly, use thin strips of cloth-backed abrasive, but don't do this until you are nearly finished with your cuts, as the abrasive from the paper can get into the wood and dull your knife blades.

Bowl shaping

- 6 Now we can turn our attention to shaping the bowl part of the spoon. I use a bent bladed knife to shape my bowls – this is the way it was done in the old days, but many carvers prefer to use gouges. As long as you get a good result, it doesn't matter which you use, so choose which method you feel more comfortable with and shape away.
- 7 To even out rough areas in the bowl, use cloth-backed abrasive run underneath your thumb. The thumb flattens to the surface of your spoon and follows its contours – when you pull the paper, you get a nice, even sanding job. Don't stay in one place though, or you'll sand a furrow. The reverse process can be done on the back of the bowl – just be careful to only use a very fine grade of paper, as you are sanding across the grain. When finished, sand with the grain to remove scratches.



Final clean-up

- 8** The bent knife can come in handy for finishing any areas with convex or concave surfaces. Again, using a gouge here will work equally well, but I find using the bent knife faster and more efficient.
- 9** Use needle files to clean up hard-to-reach areas for finishing. Larger files are great for smoothing spoon bowl backs or exterior surfaces.

Finishing

- 10** A couple of coats of penetrating oil, followed by a coat of beeswax will give your spoon a nice, satin sheen that will take a lovely patina after a few years of handling.
- 11** And there you have it – a lovely spoon which will hopefully start you on your way to carving lovespoons with passion, creativity and flair.



WOOD AWARDS 2022

We showcase the winning projects

The winners of the Wood Awards, the UK's premier competition for excellence in architecture and product design in wood, were announced at a ceremony in London in November. The awards recognise, encourage and promote outstanding wood design, craftsmanship and installation. www.woodawards.com

FURNITURE AND PRODUCTION DESIGN

Bespoke winner: Fenland Black Oak, Ely

From the discovery of an extraordinary piece of 5,000-year-old bog oak, 13m-long planks were cut and crafted into a table that connects ancient forests and local community. When this ancient piece of bog oak was unearthed, designers, makers and students united to save a key part of the nation's natural heritage. The story of this table originates deep inside the East Anglian Fenland Basin where an incredible ancient high forest once stood. Over time, and a rise in sea level, these spectacular oak trees fell into the silt of the flooded forest floor where they have been preserved like black treasure in the peat.

The project illustrates, educates and evokes a sense of wonder at the scale of these ancient trees by preserving the full length of the bog oak, which can be touched, used and closely admired. Visually stunning, it appears to nearly float above its elegant phosphor bronze base comprising a long slender curved spine, cantilevered via pairs of narrow wheeled pedestals.



PHOTOGRAPH BY SHAWN SCOTT PHOTOGRAPHY





Production winner: Furniture for 2 Bessborough Street, London

Echoing the geometry and solidity of the Grade II listed office building on Bessborough Street, for which it was designed, the collection includes a sofa, coffee table, armchair and side table. As part of the refurbishment project undertaken by Stiff + Trevillion Architects, the designers were commissioned to design and make furniture for the newly configured entrance lounge.

Once dubbed 'Pimlico Castle', the building has a hefty construction with an octagonal plan. The designers took this as a starting point to design a family of furniture with faceted features and played with the weightiness of solid surfaces and the lightness tapered thin edges create. The rich materiality and calm colours were designed to soften and lighten the space at the same time. The designer selected a combination of sustainable and local materials to emphasise warmth and the tactility.



Student winner: Veneer Stool by Henry Johnson, Nottingham Trent University

Veneers are commonly used to imitate a more expensive and solid piece of wood, but in this design the material has been embraced, displayed and celebrated.

A stool's form is ambiguous, as it can be used in various manners: an adaptable side table, if rotated 90° clockwise or anticlockwise, a lap tray and naturally, a stool. Sycamore can be seen to share this trait due to its homogenous and creamy grain, which continues throughout the tree's trunk, with no contrast between the heartwood and sapwood. Clever use of laser cutting, and efficient nesting of components has allowed the creation of a stool which is extremely light in weight, with sound structure.

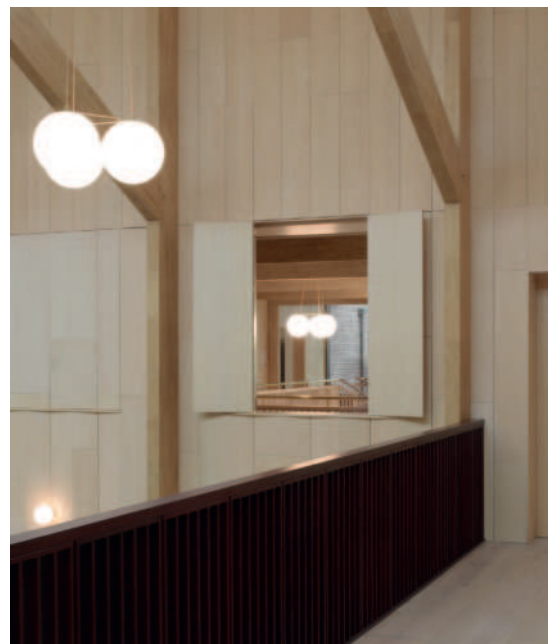


BUILDINGS AND INTERIOR DESIGN

Gold Award, Education and Structural winner: Homerton College Dining Hall, Cambridge

Elegant and impressive, this dining hall celebrates the integrity and inherent beauty of its materials and craftsmanship, creating a space which is both inspiring and functional for students. The project comprises a dining hall, buttery, kitchens and associated amenities. The faience-clad hall is a bright, airy and efficient space by day; transforming into a dramatic ceremonial setting at night. The ash-lined buttery serves as a café and provides socialising and study space on the balcony.

The structure was crucial to the design from the outset, in enabling a large, clear space for the hall with no interrupting supports. Each sweet chestnut glulam truss is formed of four members connected at a central node and to the full height columns each side, while above these beams a CLT roof deck lends lateral stability. This combination of high performing engineered timber with traditional joinery achieves an elegance, revealed in the butterfly truss design, which is not only aesthetic and echoes traditional collegiate halls, but also exploits the compressive strength of timber in its structure.



PHOTOGRAPHS BY DAVID GRANDORGE





PHOTOGRAPHS BY DIRK LINDNER

Commercial and Leisure winner: ABBA Arena, London

Timber is helping to take visitors on a voyage at the ABBA Arena where it is being used for the world's largest demountable concert venue, including an auditorium, rainscreen and front of house facilities. Home to the ground-breaking virtual concert series, ABBA Voyage, the ABBA Arena in East London is the world's largest demountable concert venue, with a capacity of 3,000.

From the 'Auditorium', a four-storey tall seating area made of 1,650 unique cross-laminated panels, each up to 9.9m long, to the exterior larch timber 'Rainscreen' made up of 1,400 finger-jointed larch fins which envelop the arena, timber is integral to every part of this project.

The 'Front of House' comprises the central concourse area covered by a hybrid spruce glulam and steel canopy structure. Twenty-four hexagonal canopies, each with a diameter of 10m, combine to form the geometric roof structure where LED lighting is integrated into the glulam beams. The concourse is surrounded by seven CLT buildings, each clad with a complex larch rainscreen.



Interior winner: Equal Access Project – Inner Portico, London

A key strategic aim for St Paul's Cathedral has been permanent step-free access to the main church floor. Meticulous research about this complex, highly sensitive heritage setting was undertaken to complete this design situated in the new accessible entrance arrangements at the North Transept. Home-grown oak was chosen as the primary material for its beauty and ability to pay respect both to the heritage and importance of the building. Meticulously sourced and selected, these materials were deployed with a view to architecture and function to create this carefully crafted structure which calls on the cabinetmaker's sensibility.

St Paul's Net Zero 2030 ambitions strongly informed both the material selection and design, which minimises both embodied and operational carbon of the new structure by employing glue-laminated timber in the frame, along with the highest standards of care, construction and craftsmanship.



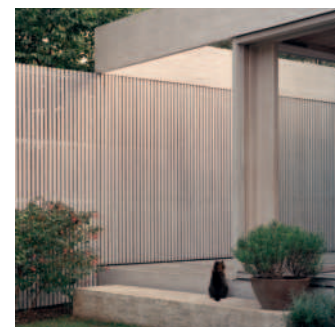
Private building winner: Mews House, London

This home is a celebration of timber construction, which manages to be both beautiful and subtle. Accessible only via a narrow passageway, what was previously a garage and garden of an adjoining house has been transformed into this 127m² home, which follows the natural slope of the site over four slightly separated levels.

The engineered joist, timber stud and OSB sheathed frame are faced in brickwork only where it meets a boundary, while all remaining exterior cladding and expressed glulam are from Larch. Furniture, including desks, beds, shelves, cupboards and doors are made from the same Douglas fir boards as the interior lining.



PHOTOGRAPHS BY ROBY GARDNER



Restoration and Reuse winner: The Water Tower, Castle Acre, Norfolk

This tower provided water to the village of Castle Acre but has lain in ruin since WWII. Now it has been reinvented as a delightful house of inventiveness and joyful peculiarity with the addition of timber rooms and a timber cantilevered staircase rising through the tower into the tank.

This castle-like cantilevered CLT stair tower acts as a compression spiral, similar to what is found in a seashell. This delivers the steel water tank structure's wind loads down to the foundations. The combined strength of this timber spiral and the shear timber walls form a rigid structure that lends stability to the existing steel frame structure.



PHOTOGRAPHS BY DENNIS PEDERSEN





PHOTOGRAPH BY CHRISTIAN BRAILEY



Small Project winner: Douglas Fir House, London

Conceived as a single piece of cabinetry and crafted out of a single material – Canadian Douglas fir – this ambitious extension was craned onto site before being nestled into this lush private garden. The project extends a studio flat behind a converted Edwardian house, set within a Conservation Area in Muswell Hill, North London. It was prefabricated entirely by a highly skilled team of carpenters in Devon, before being disassembled, transported and erected on site within days.

The extension brings to life a new bedroom amidst the lush planting seen through a vast picture window and secluded bench seat. The exposed beams make this sleeping area very restful, a feeling which is amplified when it rains, and the light drumming is heard on the roof as though in a tent. Externally the extension is seamlessly clad in pre-weathered Douglas Fir fins that have been treated using a new generation of timber treatments, which mimics and accelerates the natural process of fossilisation to make the treated wood about 10% fossil and 90% wood.



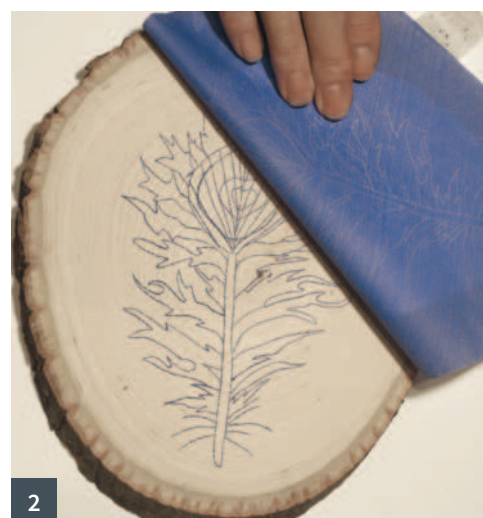
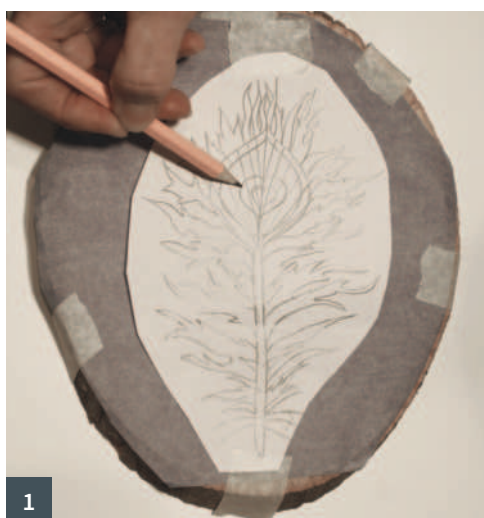
PYROGRAPHY PEACOCK FEATHER

Lisa Shackleton
explains how to
blend colour into a
pyrography design

This project is designed to develop your basic pyrography skills, particularly in adding and blending soft colours. You will be using watercolour pencils to achieve a soft look while still retaining the character of the feather. An attractive prepared slice of wood with bark edge has been used here to show off the design. You can display the finished piece on a plate stand, or attach a D-ring with a screw to the back so it can be hung up.

YOU WILL NEED

- Peacock feather template
- Pre-sanded prepared basswood tree slice with bark edge, approximately 160 x 200mm, 15mm thick
- Scissors
- Wax-free transfer paper
- Masking tape
- Pencil or pen
- Eraser
- Solid-point pen
- Steel ruler
- Coloured pencils in purple, lime green, dark green, bright blue, dark blue, light blue and brown
- Watercolour brush, No. 4 round, for blending





Pyrography on wood

- 1 Make sure your wood is free of dust. Cut a piece of transfer paper to fit the wood. Place the transfer paper on top of the wood, with the coloured side face down. Put the peacock feather template on top of the transfer paper and secure with masking tape to hold it in position. Then draw over the design firmly using a pencil or pen. I drew some straight pencil lines through the eye of the feather, but left this off the template in case you don't wish to have them. They're easy enough to add, though.
- 2 Check to make sure that the lines are transferring to the wood. If not, you will need to press down harder when going over the outlines. When you have drawn over the whole image, peel back the transfer paper. You should now have an outline on the wood that you can follow.
- 3 Using the long pointed tip in your pen, start to burn the outline of the feather. Do not linger in one place as this could result in a dark burn or blob.
- 4 When you have burnt all the outlines of the design, rub out the transfer markings using an eraser.
- 5 Use coloured pencils to add tone to the wood. Start by using a bright blue and working with light pressure from the quill in the centre. Blend in lime green where the colours meet.



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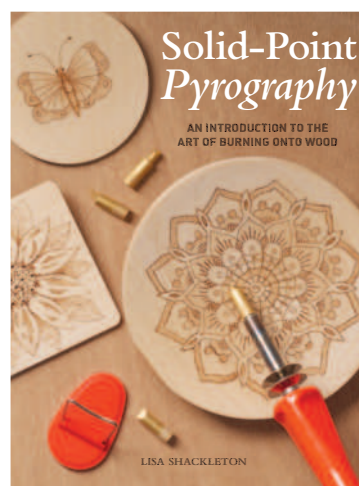
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- 6 Wet with a damp brush to blend.
- 7 Using a darker blue, go over the feather just at the base where it joins the quill to add depth.
- 8 Starting at the quill, add purple for the shadow. This gives the impression of form to the feather.
- 9 The eye of the feather is coloured from the centre outwards using dark blue and purple. Blend these with your brush for a dark centre. Next, use the light blue. Then colour the quill brown. Next, use lime green then dark green to complete the colouring. Add definition to the straight lines by running the solid-point burning tool down the side of a steel ruler.

Pyrography on card

- 10 You can also use pyrography on other materials. This peacock feather has been worked on 100gsm card and would look nice framed. You need a light touch if working on paper or card as it will burn more easily than wood.



This is an edited extract from *Solid-point Pyrography* by Lisa Shackleton, GMC Publications, RRP £9.99, available online and in all good bookshops.

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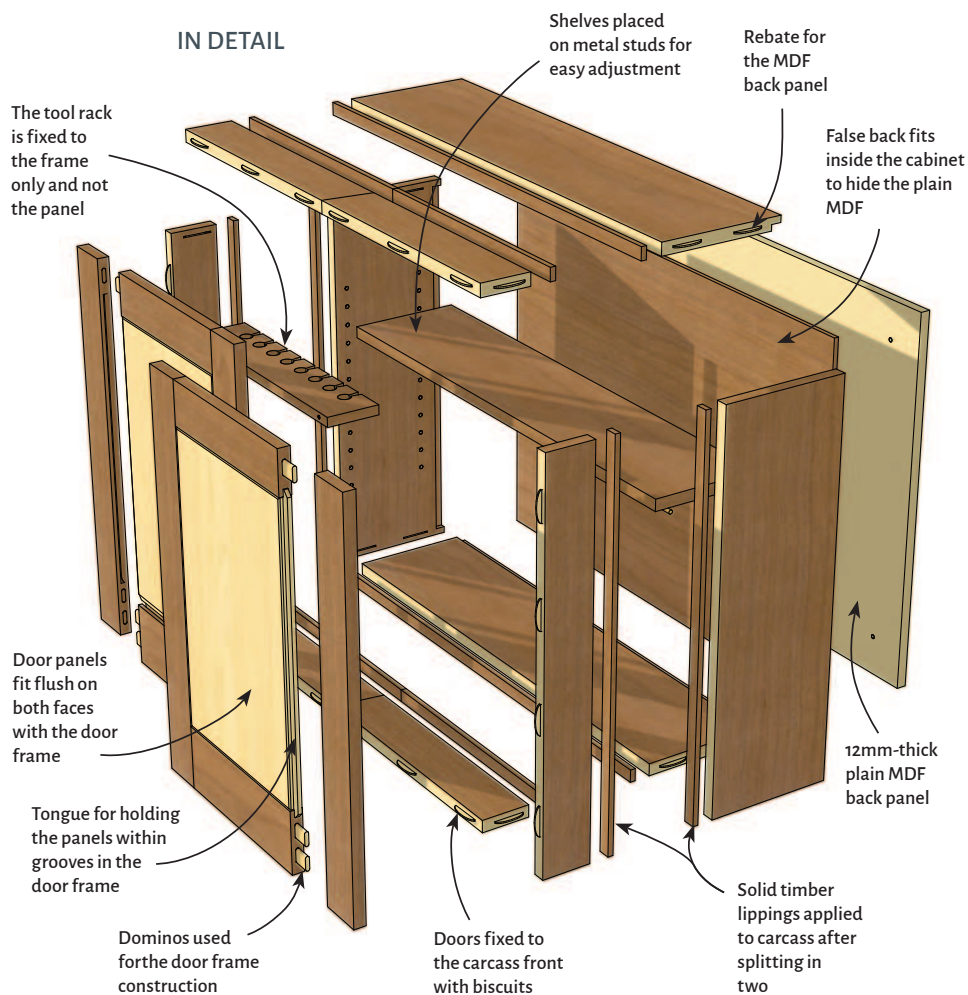
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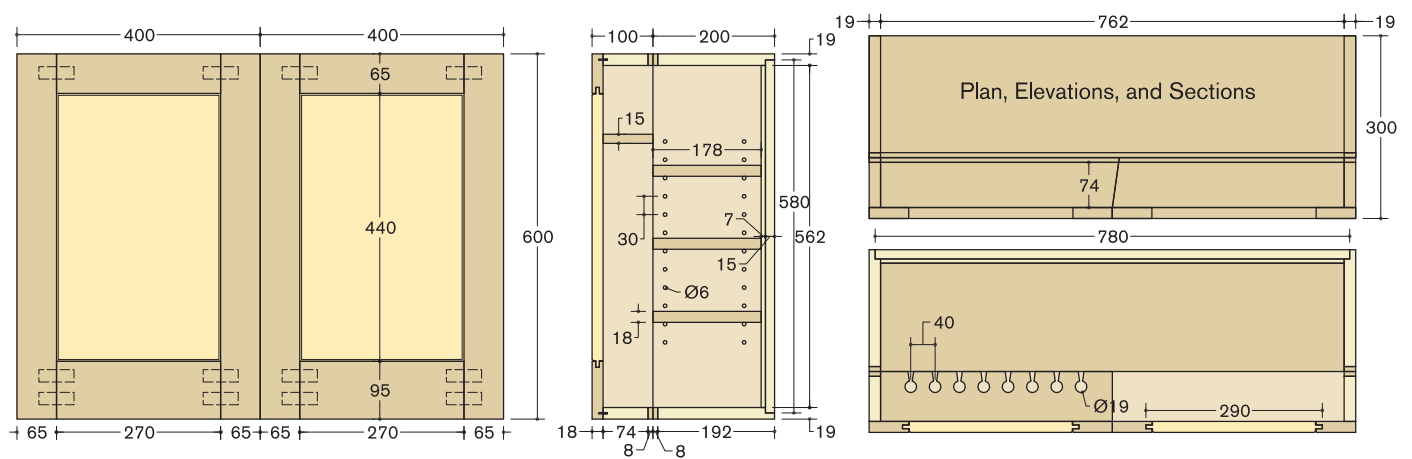
WALL-HANGING TOOL CABINET

Derek Jones builds a cabinet with flexible space for his tool collection



I decided to make a tool cabinet to fill some of the dull white space on the wall of my workshop. Over the years, I've watched fine tool cabinets being built from exotic timbers with every nook and cranny carefully planned and executed and, despite hours, if not days of agonising, most quickly fall into an equally flexible category of 'lessons learned'. I've yet to meet the man who's tool inventory isn't a work in progress, unless, of course, he's planned early for the day when his tools get handed down. I see the attraction in a bespoke tool cabinet, I really do, but I don't want to be a slave to one and I certainly don't want to spend longer than is absolutely necessary making one. These parameters hardly represent a brief so I set about deciding which tools would be contained in the cabinet and almost immediately came unstuck as there were far too many for the wall space available. Sound familiar?





1 Cut the rebates across the grain first, preferably with a rebate plane, on both sides of the panel **2** A shoulder plane will achieve the same results but may require frequent knife cuts to maintain a clean edge, especially across the grain **3** Put a little block at the end of the chamfer detail – this will keep the corners sharp **4** Sand the details before assembling the doors

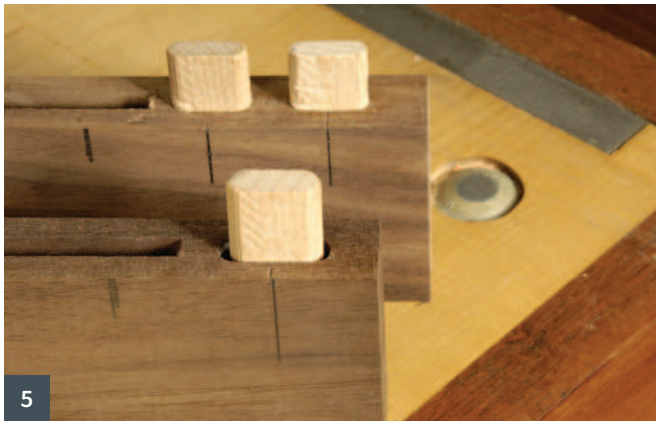
The right tools for the job

There are some tools that are quite unnecessary to have on site and, in fact, if you've packed them, it probably suggests that you haven't exactly been thorough with your making. Jointer, plough, shooter and shoulder are all planes that should have done their job on the way through the workshop and no longer be required when the finished piece is cast out into the world. This rationale would represent the criteria for the content of the cabinet and items like coping saws, rasps and gauges, all located within easy reach to complete the picture. To my mind this type of storage facility has to be futureproof and that means a system that is versatile. Fixed locations for specific tools are extremely attractive and

the attention to detail is quite tempting for a bespoke furniture maker, but knowing I could change my mind without drastic consequences has greater appeal. Adjustable shelves seemed the best means of dividing up the interior to store planes, with the smaller items hung from the inside of the door.

Carcass

I've learned to accept and adjust in some cases to the inevitable effects that temperature and humidity have on tools and materials stored in my workshop. I would nearly always suggest that solid timber is preferable to sheet material but there are occasions when a



5 Pencil lines identify the inside edge of the rails on the stiles for routing the grooves **6** Wax on the tongues will prevent any excess glue from taking hold on the edges of the panel **7** A 1mm packer is used to set the shadow gap during assembly **8** Use a cabinet scraper to set the exact position of the panel in the frame **9** A biscuit joiner is used to split the carcass with another plastic packer to fill the saw cut **10** Bench hook, shooting board and as many clamps as I could muster with another plastic packer to fill the saw cut

sound argument can be made for the alternative. Pre-veneered MDF was therefore used to fabricate the carcass and back; it's also a more economical option. The doors on the other hand, being on display, were made entirely from solid timber; American black walnut for the frame pieces and American cherry for the panels. There is a logic to this combination of solid and sheet material given that I intended to split the carcass around its perimeter after it was assembled with the doors still attached. A solid carcass would be more likely to twist as a result of the release in board tension and distort the doors.

Door panels

With only two panels to make for the doors there seemed little advantage in setting up the router table, which somehow never seems to have the cutter I need in the collet to make it a quick solution. Rebates produced with a plane are great fun to do and can be achieved quickly with a variety of tools. If you're using a rebate plane with depth and width settings, there's no need to mark each board. A shoulder plane is less forgiving but will get you the same results, though a well-defined, scribed line will make the starting off a lot easier. It might need repeating every so often until the required depth has been achieved,



11 Set the lippings with the minimum waste you can on the inside edge of the carcass **12** Trim the lippings to length after the glue has set and then level them off flat **13** A cabinet scraper is the best means of levelling off the lippings **14** This angle is not critical. Just don't make it square and make sure it goes the same way top and bottom **15** Clamp a wide batten to the inside of the carcass to steady the router **16** Step off equal distances on a template for drilling the shelf studs

especially across the grain. The face of the panels are designed to finish flush with the frames and this always poses a problem, as even the slightest movement will reveal a gap at one or more edges. A solution to this is to create one in the first place, in the shape of a 1mm shadow gap, and be done with it. A small chamfer to the edge of the gap will also disguise any movement if 1mm becomes 2mm in time.



17 Dividers are a good means of spacing out tools evenly in a rack **18** A dovetail guide is a quick way of cutting identical slots in the rack without marking each one **19** A small chamfer lets the handles sit neatly in their sockets **20** One coat of sanding sealer, another of clear shellac and wax to finish. It's a tool cabinet after all **21** A breakthrough fence is safe, accurate and more efficient for your extraction

Door construction

For small cabinet doors a profile and scribe set of cutters can be used on the router table, and for a batch run of say, kitchen cabinets, this would probably be the most efficient method for a small workshop. But for a couple of doors and particularly those that are intended to take a little extra weight, Dominos in place of a mortise and tenon and a groove to accept the panel should prove adequate. Grooving cutters, unlike straight cutters, create a rounded end to the groove that will not interfere with either the corner joint or the panel when the door is assembled. A groove like the one required for these doors will put a lot of strain on a straight cutter and require more than one pass to complete the job, whereas a groove cutter will cope with the workload with considerably less effort.

I left the grooves as they are and then cut the corners off the tongues. Rubbing wax on the long-grain tongues just before assembly will prevent the panel from sticking in the groove if a little glue manages to escape as the corner joints are clamped together.

The shadow gap on my panels was set at 1mm and I used plastic packers to achieve a uniform gap all round when gluing up. A cabinet scraper can be used to nudge the panel into place if things start to slip. When gluing up, apply glue sparingly to the corner joints and only

across the top of the panel along a stretch of around one-third of the width in the centre. In theory, expansion or contraction of the panel should be permitted at each side in equal measure.

The little plastic packers I mentioned are commonly used by replacement window fitters and are generally available in 1mm-thick increments from 1mm to 6mm. They're great for levelling things up on site or for fitting doors or false drawer fronts. You'll find dozens of uses for them around the workshop.

Grooving cutters

These are by far the best means of machining grooves in the frame components of doors. The depth can be limited by the bearing or from the table fence. With a breakthrough fence in place, you can limit the risk of tear-out, which could be important for stiles and rails on doors with thin panels. There are other benefits as well: you will increase extraction function, conceal more of the tooling while in operation and achieve a more consistent joint. Make a mark on the face of the fence where the cutter exits and a corresponding mark on the workpiece that identifies where to start and stop the pass.



21



22



23

22 A couple of bespoke fittings are not too much of an indulgence
23 A false back conceals the wall fixings and allows for changes later on. The hinge screws are a half size smaller than the real ones until the doors are fitted for the last time

Splitting the carcass

With the doors fixed to the carcass front with biscuits, I ran my biscuit jointer around the cabinet to split it in two with some of the carcass side attached to the doors. The plastic packers came in handy for this task as well, as you can clamp the loose sections together as the saw cut – biscuit jointer in this case – progresses.

The rough edges were then planed flat and lipped with solid timber thick enough to take the leaf of a butt hinge. Set the lippings with just the slightest material proud on the inside so they can be levelled off with a scraper. If you have been careful with your preparation you can achieve 0.5mm proud on both faces. Run the sides long and trim the top and bottom lippings on your shooting board to fit in between. A little spring will ensure tight joints where the lippings meet.

To separate the doors, I used a saw with a fine set and made the cut at around 15° off vertical. My theory was that one door would keep the other closed and the extra depth of the hinged component would not foul on the corresponding part as it opened. Mark this

carefully top and bottom and remember that the angle, relative to your stance, will be different on each side when you make the cut.

Fitting out

To hinge the doors, I used a router and clamped a batten to the inside of the cabinet to keep the machine from tipping. Using this method guarantees a consistent depth to the mortises on both leaves of the hinge. It also negates the need to scribe a mark along the side of the cabinet, which is easy to round over when chiselling and leave what looks like badly fitting hardware. As the cabinet was designed primarily for storing planes, the most sensible means of dividing the space was by using shelves on adjustable studs. I was fortunate to have some walnut planks for these with rather a lot of sapwood, which were not suitable for face work. The holders for the other tools were bespoke – made for each item – and fixed in place before dismantling and polishing with shellac and wax.

The one and only rack was designed to take my growing collection of rasps. Working off-centre with equal measurements is quickly done by stepping off the divisions with dividers. A dovetail guide was used to cut the slots. A small router with a chamfer cutter was used to finish things off.

The back panel is the last adjustable feature in the cabinet. At 7mm thick and placed loose behind the shelves, it gives me the chance to create more racks inside if the need arises without too much trouble. A little pot of ToolGuard VCI is left in the cabinet and, as long as I can remember to keep the doors closed, the planes inside should always be in good condition and exactly where I can find them.



FRAMED AND PANELLED DOORS



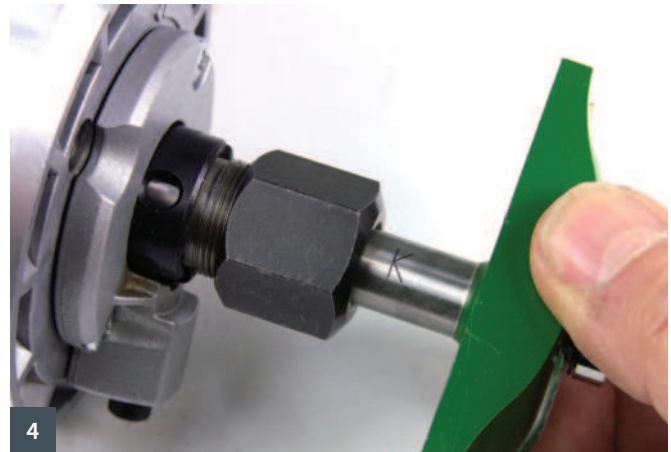
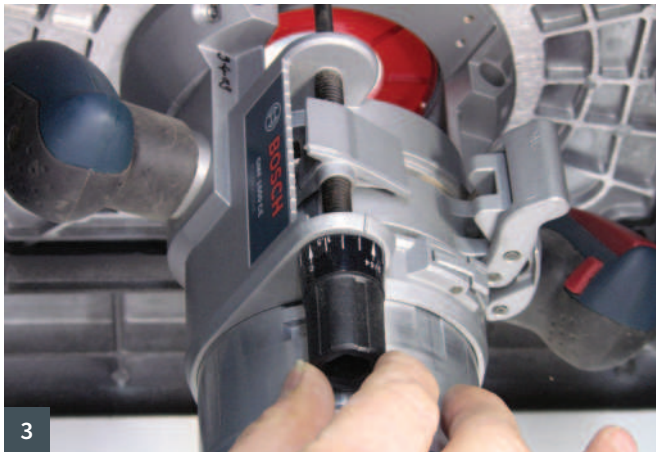
Alan Holtham demonstrates how to make your own framed and panelled doors with a few pieces of standard kit

Profile scribing and panel moulding cutters for the router are widely available, making it quick and easy to produce traditional framed and panelled doors to a professional standard. The cutters are produced in a wide range of shapes and styles and are best suited for a variable speed 12mm capacity router as they tend to be on the large size.

This door requires a standard cutter set, consisting of a single profile and scribe cutter and a separate panel raising cutter. Both the required profiles are produced with the single cutter by raising or lowering it in the table to use either the top or bottom half. Other sets have bits for each profile or interchangeable cutters that are swapped around on the same arbor.

The sides of the door are called stiles and the top and bottom components are called rails. The top one may be parallel or sometimes it is shaped into a cathedral or cambio pattern. If it is a big door there





1 The standard cutter set consists of a single profile and scribe cutter and a separate panel raising cutter **2** Make sure that the individual knives are positioned at 90° to each other on the arbor **3** It is essential that your router has a fine height adjuster for you to match the profile and scribe cuts perfectly **4** Make sure these big cutters are inserted up to the 'K' line **5** Adjust the router speed where the peripheral speed would otherwise be too high **6** The machining process must be carried out using the router mounted in a table **7** It is critical that this stop is at a perfect 90° to the edge of the MDF **8** Make sure the fences of the table are in line with the bearing on the cutter

may be an intermediate stile called a muntin. The rails are jointed into the stiles with a scribed joint which matches the decorative stile edge.

The panel in the centre of the door can be solid or veneered ply or MDF and may be flat or raised into the traditional fielded shape. The mould varies from a plain bevel to an elaborate profile. The outer edge of the panel is sized to fit into the groove that runs all round the inside edge of the door.

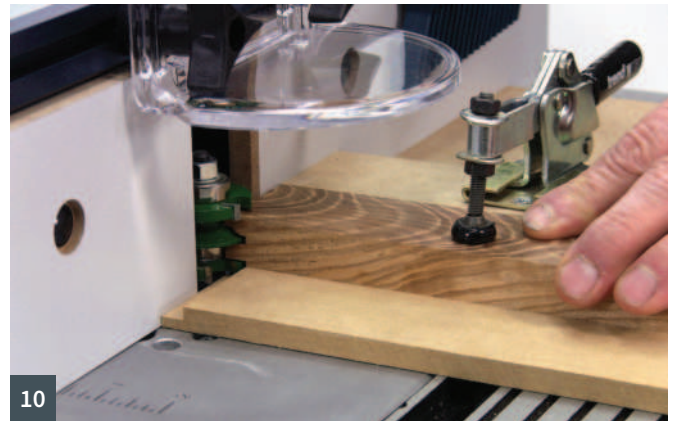
Preparing the cutters

The profile scribing cutter is made up from several components, all of which are held on a precision arbor. Having cut the scribe

on the rail ends, the profile block and groover are rearranged to cut the matching profile and panel groove along the inside edges.

As you assemble the cutter, make sure that the individual knives are positioned at 90° to each other on the arbor to minimise vibration and produce a more even cut.

It is essential that your router has a fine height adjuster so that you can match the profile and scribe cuts perfectly. Make sure these big cutters are inserted up to the 'K' line. You must also adjust the router speed where the peripheral speed would otherwise be too high. Reduce to something like 12,000 revs, which should be clearly marked somewhere on the cutter.



9 Leave a minimum quirk of at least 1.5mm on the moulding **10** Clamp the rail to the guide jig face side up, ensuring both are tight up against the fence **11** Maintaining contact with the fence and cut to the end of the stop to minimise breakout **12** Adjust the cutter set for the matching profile edge using the scribed end as a guide for setting the height **13** Run the mould down the edges of each of the stiles and rails, making sure they are held firmly on the table **14** The rails and stiles should then fit together perfectly with a neat mitred corner moulding

The timber must be accurately thickened as the joints will never fit properly if there is any variation in size. As the setting-up procedure involves some trial and error, always prepare a couple of spare pieces to allow for test cuts.

The length of the rails needs to be calculated to allow for the stub tenon that is formed on either end. This cutter forms a 10mm tenon so the calculation is:

Rail length = overall width of door - 2 x width of the stile + 2 x 10mm

This dimension has to be determined exactly at this stage. You cannot trim it in any way once the profiles have been cut.

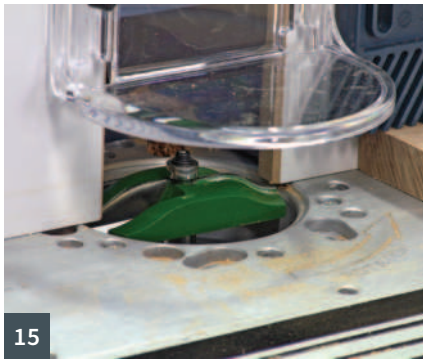
Safety

The machining process must be carried out using the router mounted in a table; you cannot do it safely or accurately enough using the router hand-held. Connect the table to a suitable extractor to minimise the dust produced as you work, this is particularly important if it is MDF being used.

Use the guards, hold-downs and feather boards to control the work safely when it is in contact with the cutters and all adjustments and cutter changes must be carried out with the router unplugged.

Cutting the joints

Start with the scribe joint on the rail ends and for accuracy and safety it is better to make up a guide jig for the rails. Even if your table has a



15 Revolve the cutter by hand before switching on to ensure there is enough clearance **16** Start by making a shallow pass across the two ends of the panel and then down the sides **17** Increase the depth of cut until the lip on the edge of the panel fits in the grooves on the frame **18** Check the panel for size so that it will not stop the scribed joints from closing up **19** It often looks better if you run a suitable complementary mould round the outer edge of the door to make it look a bit lighter

mitre guide, it is still better to use the jig as it also minimises end-spelching as the cutter breaks through. The jig is a piece of 6mm MDF with a piece of 50 x 25mm glued on to act as a stop. The only critical requirement is that this stop is at a perfect 90° to the edge of the MDF. A lever clamp ensures the work can't 'creep' as it's being machined.

Make sure that the fences of the table are in line with the bearing on the cutter using a steel rule to line it all through and close them up to within 2mm of the cutter.

Set the height of the cutter to leave a minimum quirk on the moulding of at least 1.5mm. If it is less than this the edge will be weak or even lost when the job is sanded or painted.

Clamp the rail to the guide jig face side up, making sure that both of them are tight up against the fence. Then slowly push the whole assembly through the cutter in a smooth action that is not too slow or the cutter will burn the timber. Keep the edge of the guide jig in contact with the fence all the way through and cut right into the end of the stop. This should minimise any breakout and the resulting joint should be really clean. Repeat the procedure on the ends of all the rails keeping them orientated correctly – face side up – for all the cuts.

Now adjust the cutter set for the matching edge profile. Use the scribed rail end as a guide to setting the height and then make a trial cut in a piece of spare material and check it for fit. Note that these edges have to be machined with the face side down.

Run the mould down the edges of each of the stiles and the rails, making sure they are held firmly on the table or the groove will end up out of line with the edge. The rails and stiles should then fit together perfectly with a neat mitred corner moulding. You can cut the stiles to exact length after it has all been assembled.

Panel raising

The panel is next and if you are using solid wood you will have to make some allowance for it to move with changes in humidity. Any shrinkage and expansion will be greater across the width of the panel so leave about a 2mm gap at either side and 1mm at either end. If you are using man-made panels where movement isn't an issue, just allow 1mm all round.

The panel-raising cutters are large in diameter so they may not fit through the aperture in your router table. If this is the case, make a false table from a piece of MDF and bury the cutter into this to achieve necessary height adjustments. Revolve the cutter by hand before you switch it on to make sure there really is enough clearance and check that the router speed is set correctly.

Start cutting the panel profile by making a shallow pass across the two ends of the panel and then down the sides to remove any breakout.

Keep increasing the depth of cut until the lip formed on the edge of the panel is a nice sliding fit in the grooves on the frame. Make a trial fit of the whole assembly just to check everything is in order and that the panel will not stop the scribed joints from closing up.

If everything is OK, glue the frame joints and clamp the whole thing together making sure it is square. You do not normally put any glue on the panel edges but leave it loose to allow for any movement.

A light sanding once it is dry will flush off the joints and remove any glue smears and your door is done. However, it may look better if you run a suitable complementary mould round the outer edge of the door to make it look a bit lighter.

When you apply the finish, remember to do exactly the same to both sides or differential shrinkage problems will cause it to bow.

LATHE TABLE – PART 2

Jerry Carpenter completes the mobile base for his new midi lathe



In the previous issue (WWC 77) I explained how I decided to make a mobile lathe table to enable me to wheel my new midi lathe into my small, overcrowded workshop whenever I wanted to do some woodturning. In part 1, I made the main frame, top, drawer cabinet and drawer slides. Now it was time to complete the work.

Installing the case in the stand

Once located in its correct location, I screwed from the inside of the case into the lathe framework. I used trim screws for this purpose which allow the head to sink just below the surface of the inside of the case. A 4mm pilot drill through the case side and slightly into the framework makes this work perfectly.

Because the top and bottom of my drawer case extend past the sides by 6mm I needed to cut 6mm shims and paint them the colour of the framework to screw the sides to the vertical portion of the frame. This stopped the screw from pulling the sides of the case towards the frame and bowing them out of alignment. I made the shims only 25mm wide and attached them to the centre of the vertical frame piece so they don't look like an add-on but fill the gap.

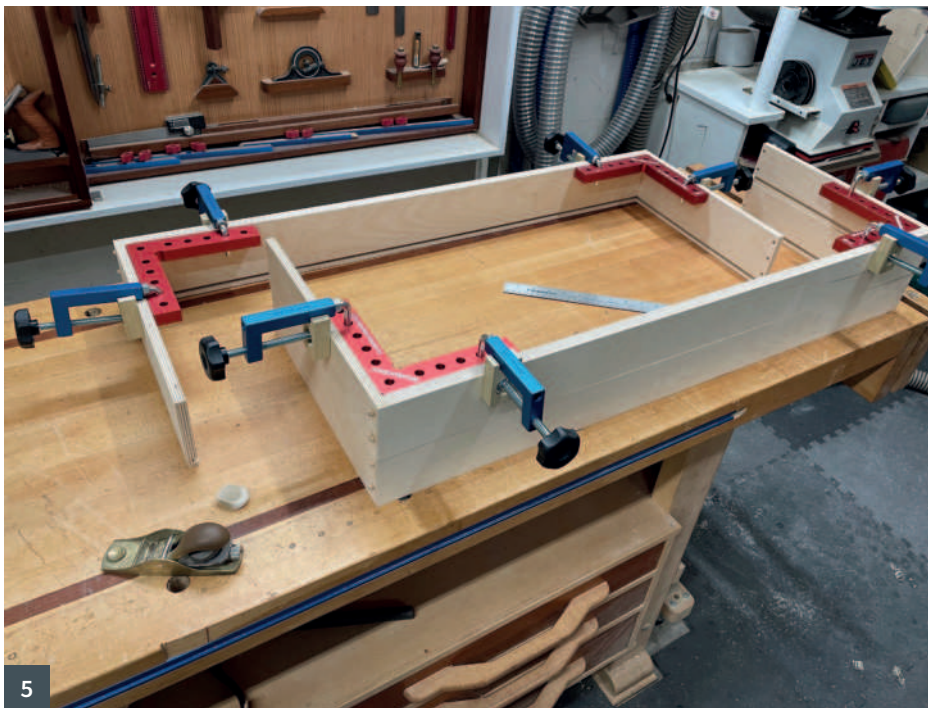
Making and installing the drawers

Now it was time to make the drawers. The first step was to start surfacing the cherry timber for the drawer fronts. I skip planed all the boards so I could see what I had and tried to pick out some boards that I thought would look good together. In my younger days I used to cut away all the sapwood and only use heartwood. But I have come to like the character of timber and to embrace it. In these boards I tried to book match the ones that had sapwood on the edges. After I chose the boards to use, I finished milling the timber and cut everything to the final overall dimensions.

After the cherry drawer fronts were cut to size, I then cut the sides and backs from Baltic birch plywood. I used 20mm for the drawer backs, and 12mm for the sides.



1 The case was installed in the frame using trim screws **2** The cherry boards were surfaced and then the best ones were chosen to make the drawer fronts **3** The drawers were constructed using a dowelled rabbit corner construction **4** I used a jig to ensure the drawers were square



5

5 Gluing up the drawers **6** Marking up for the drawer slides using marker pen and masking tape **7** Using my method, the drawers were installed successfully with only one needing some tweaking



6

Baltic birch has some strengths, but it also has some weaknesses (primarily the glue used to make the plywood, many times I have had face veneers delaminate). So, I chose a drawer building method that would eliminate most of these weaknesses. The method I chose is a dowelled rabbit corner construction.

Because I make a lot of drawers and have had my share of them come out not totally square, I have developed an assembly method that helps me build them square. Shown here is a jig I built some time back that I use when assembling corner joints. It helps me get the corner square as I assemble it and before it comes out of the jig, I attach a clamping square to the corner.

The process goes like this: assemble one of the back two corners and attach the clamping square. Remove that corner from the jig and move to the other back corner for the drawer and put it in the jig. Assemble it, install the clamping square, remove this U-shaped section of the drawer from the jig and set it aside to dry. I don't do any more on that drawer until the glue has fully dried. After the glue has dried, I cut the drawer bottoms and they slide into the U-shaped back section. Then the drawer front goes on much like the process to attach the sides to the back. The squaring clamps once again go on as the drawer comes out of the jig and the drawer is set aside to dry. Once dry, I round the top edges of the drawer and the drawer front to soften the edges. Then I finish sanding and a final finish is applied. When the finish is dry the drawer slides are installed on the centre line of the height of the drawer. Finally, the drawer pulls are installed.

When I install drawer slides I lay out the pilot holes for the screws with a fine point marker pen since my ageing eyes are not what they once were. I put masking tape on the drawer side before I lay it out so the only actual marks on the drawer side are the holes themselves. This makes for good alignment and less tweaking of the slide position once the drawer is put in place.

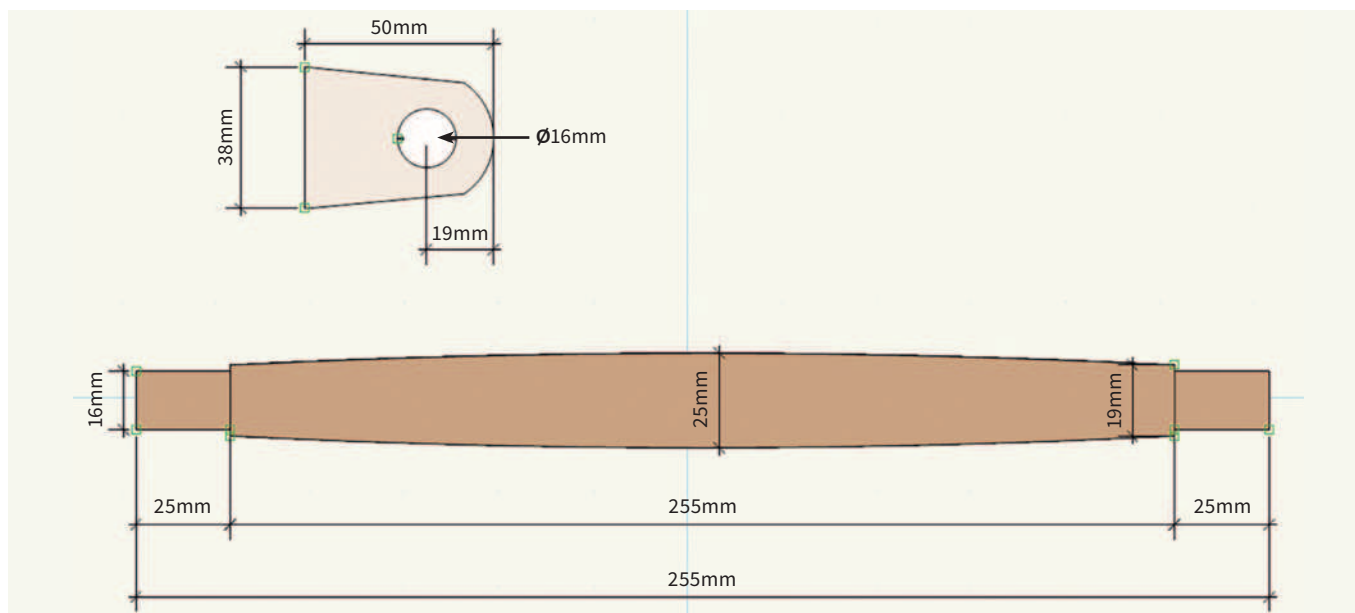


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Dust collection

There were only three things left to do at this point: make and install the drawer pulls (after putting the final coat of finish on the drawers), build the drawer organisers (which I also have a tried-and-true way of doing) and install some sort of dust collection system even if most of that effort will be fruitless. I always try to capture as much dust as possible at the source, so I am not breathing it in and so I don't have as much clean-up afterwards.

Since I needed the lathe to make the drawer pulls, I decided to come up with some sort of dust collection first. Everything in its time. I made a base from a left-over piece of 8/4 poplar and put a T-track in the bottom. This allows me to slide the dust collection from left to right and to remove it entirely when I store the unit. I drilled two holes in the top of the lathe stand and inserted T-bolts and put a couple



of turn knobs on the underside, so it was tool-less to work with. Lathes are notorious for throwing chips, shavings and dust everywhere. And while a major portion of the stuff coming off the parts makes its way to the floor, I'm pleased with the amount of fine dust this thing collects. That is the 'bad for you' dust, so that is a good thing in my mind. And it aids in cleaning up the mess also. I have a hand broom and dustpan and as I clean up I toss it in the chute and it goes to the collection barrel.

Turning the drawer pulls

As this project all about the lathe, I thought it only appropriate that the drawer pulls were made on the lathe.

Once the dust collection was functioning, I started making my first drawer pull. When I make things that I need to make multiples of, I make one from start to finish first. This helps me understand the needed procedure to make multiple pieces accurately and efficiently. The ends are made from some hard maple, and the pull itself is walnut. The walnut will not show dirty fingerprints and adds some appeal to the look of the table.

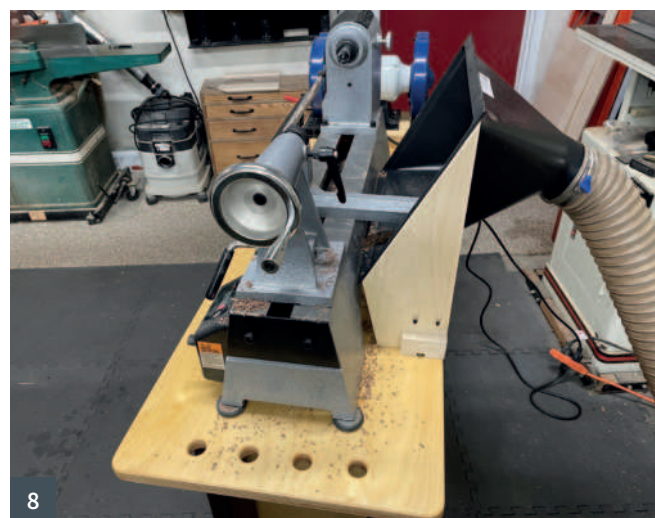
To make the pull ends, I first used CAD to make the full-sized drawing of the pull end. Then I used contact adhesive to attach it to the maple board that was cut to width. I set up the drill press with a fence and stop to make the 16mm hole. This allowed me to make all the successive pull ends with the exact same dimension and location for the through hole. Then it was off to the horizontal belt sander to shape the slanted sides and the rounded end.

At this point I had my template for all the other pull ends. I cut another board to the correct width. Then I squared the ends. I took this board to the drill press and drilled the 16mm hole on both ends. Back at the bench I used a 16mm drill to line the hole on one end of the board with the hole in my template. Then I drew the side and end on the new part, on both sides of the new part. I then transferred the base line from the template to the new part and continued it all around, so it was on all sides.

After shaping at the sander, I set up a stop on the mitre saw. This allowed me to cut all the pull ends the same length. After that it was just a matter of some sanding, and they were ready for the pull assembly.

Making the drawer organisers

At this point, I stopped working on the pulls for a bit to make a drawer organiser or two. My lathe tools were scattered all over the shop and I needed some organisation before I went to work on the lathe again.





8 The dust collection system is efficient at collecting dangerous fine dust **9** The prototype drawer pull **10** The drawer pulls were all made to the exact same dimensions **11** The pull end blocks were made from hard maple **12** The drawer organisers in the top drawer

Like most things I do in the shop I have a procedure to make drawer organisers also! I start with a thin piece of plywood cut to 3mm less than the width and length of the inside of the drawer. Sometimes I can find door skins for this job, but frequently I am stuck using 6mm plywood that is closer to 4.5mm thick. This will be a false bottom of the drawer. Then using small pieces of left-over wood, I attach the dividers and supports needed to the false bottom. If I ever want to reorganise I can simply remove the assembly and make a new one.

Final tasks

Now back to work on the pulls. I made a story stick when I made my prototype pull to lay out the important parts of the pull once the part was roughed out round. The two ends and the centre. Then it was just a matter of cutting the ends to the correct diameter and width and tapering between the ends to the centre.

And even though it took me longer than I hoped for, I did finally make it to the finish line. Hope you enjoyed the journey with me!

WORKSHOP STOOL

Matt Long builds a workbench seat from plywood

For this project, I thought I'd build something for those of us who are a bit tall for the workbench, and need help getting their eyes down to bench level for those intricate jobs. And if you just want to sit down at your workbench with a cup of tea, so much the better!

I decided on a fairly simple design, building the stool in 15mm birch ply, with the legs formed by a box section with cut-outs to create a kind of stretcher across the bottom of the legs. In effect each leg will be made of a right-angled section of two butt-jointed lengths of ply. This provides strength, but is light, and quick and easy to make.

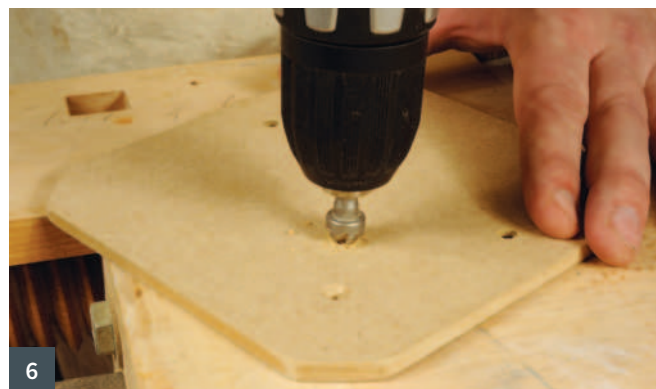
Templates

The most complicated part of the build will be the cut-away sections which form the legs. To form these, I decided to create a template so that I could rout the curved sections out of each side. Making templates involves more work initially, but it is always worth it in the end. And, of course, once you've created templates, you can keep them for re-use at a later date.



Board cutting

- 1 Not much material is needed for the project. Half a sheet of 15mm birch ply and some 25mm quadrant. Your timber merchant may sell half a sheet to you, and don't forget to check for any offcuts going cheaply.
- 2 Measure and mark up your board ready for conversion into the final component sizes.



- 3 Size all your components up with the circular saw, or by hand if you prefer. Bench cookies are a brilliant way of lifting man-made boards off your bench surface, so you can cut or rout them without worrying about fouling your bench top. I used a straightedge to keep the saw cutting true. Don't forget to fit a blade with a high number of teeth made for board cutting, or else you will not get a nice cut and lots of splintering.

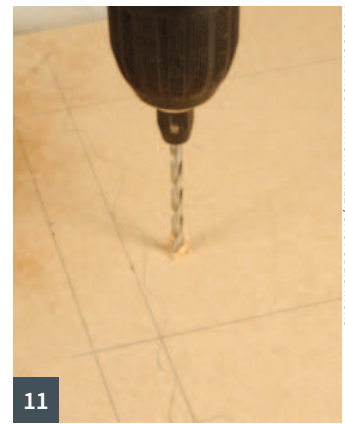
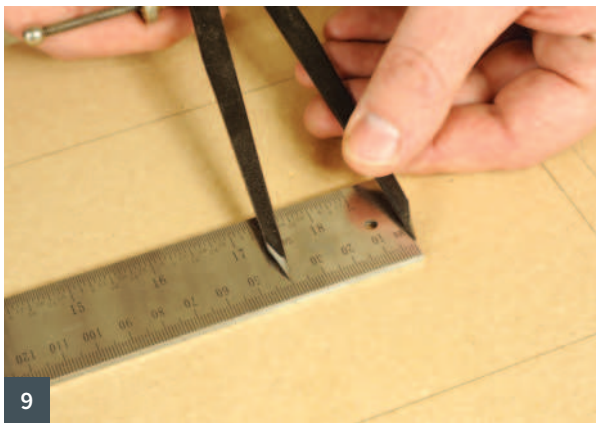
A jig and a template

The cut-out sections on each leg need a jig and a template to complete them. You need an in-board trammel jig to cut out the curved corners of the template, which will be used with a bearing-guided template cutter, to shape each side of the stool.

- 4 The in-board trammel jig allows you to cut radii that are less than the distance between the router cutter and the edge of the router base. To make one, create a square of 6mm MDF with its corners cut off, that is a little wider than the largest side of the router base. Then drill and countersink holes that will take screws appropriate for your router

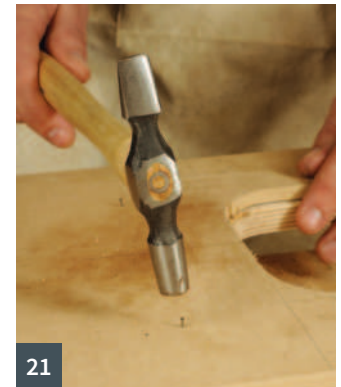
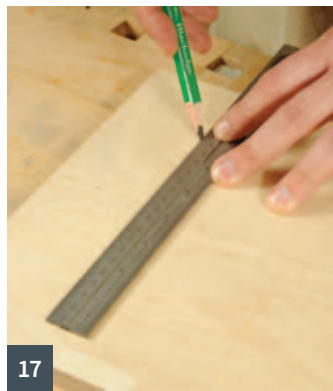
base. Then fit a straight plunge cutter to your router, screw your jig to your base so the centre of the jig coincides with the centre of the cutter, and then carefully plunge your cutter through the jig. You now need to remove the jig.

- 5 For cutting the curves with a 40mm radius, measure from the outside of the cutter hole, across the cutter hole and 40mm along a diagonal across the jig. Then drill a hole that will take a screw that will be the trammel pin.
- 6 The pin will protrude below the jig when fitted to the router base, so countersink the hole on the face of the jig opposite the face with countersunk holes for the router base screws.
- 7 Your jig is now ready to help cut your template. Simply screw it to the router base.
- 8 Mark up the template for your recess on 6mm MDF. I made the mistake of using too small a piece of MDF for my template, which made routing the template a bit more difficult later on. Use a nice large piece of MDF, and mark up your 390 x 140mm rectangle which will form the inside of the template.



- 9** Then set a pair of compasses to 40mm.
- 10** Use the compasses to find the centre of the hole which will take the trammel pin.
- 11** Then drill the hole which will take the pin, making sure it is a nice tight fit, to stop the router waggling around and producing a rough job.
- 12** You are then ready to cut the corners of your template. Locate the trammel pin in the hole you have drilled. Then start up your router with its straight cutter in place, and plunge into the MDF. Once plunged in, rotate the router around the trammel pin, so the cutter describes an arc that will touch both edges of the corner drawn on the template. Switch off the router, let it stop, and then lift off your router. You should have cut a circular slot as wide as the cutter, which just touches either side of the template lines. Repeat this procedure for all four corners of your template.

- 13** Next cut out the rest of the template waste with the jigsaw. But cut a few millimetres inside the line, as you will be straightening it up with the router in a few minutes.
- 14** Now you've got to use your router and its fence to clean up the long edges of the template recess, joining up with the curves cut with your router and in-board trammel jig. This method only works if your template outside is square to the recess. Alternatively you could use a straightedge with the router.
- 15** Now clean up your template with sandpaper. It is crucial the template is spot on, so once finished, measure it up and check for any problems. If the template is wrong, your stool will never be right, so if you are unhappy with it, just make another one. Better to waste a bit of MDF rather than the expensive birch ply. You will use the template to cut the main opening and the smaller opening at the bottom of the leg components.



Cutting the legs

- 16** Mark the centre lines across the faces and edges of your template.
- 17** And then mark the centre line on your leg components and the positions of the top of the openings you are cutting.
- 18** Next you need to line up the template on the leg components and draw around the inside of it to transfer the shape onto the ply.
- 19** Drill a starting hole for the jigsaw in your birch ply.
- 20** Then cut around the inside of the line with the jigsaw, leaving a few millimetres of waste.
- 21** You are now ready to use the template with the router to clean up the edge and create the flowing lines of the stool. Tack the template in place over the leg component in exactly the right position.
- 22** Your router needs to be fitted with a top bearing-guided template cutter. The bearing runs against the inner edge of the template, and then the bit cuts to this profile. Be very careful setting the router depth of cut, so the guide runs only along the template.
- 23** Then move the template and tack it in place over the bottom opening



- in the stool sides and repeat the routing process, only using the top half of the template to clean up the bottom opening of the leg.
- 24** After completing all the legs, use a 6.4mm bearing-guided round-over cutter to shape the edge of the leg cut-outs.



- 25** Once done, give all the components a sanding. No need to go mad here and go down to a very fine grit, as it is only a workshop stool!
- 26** Give the rounded edges of the cut-outs a good hand sand to remove any cutter marks.

Seat top

- 27** The seat top is next. To cut this to shape, make up another MDF template exactly the size of the seat top. Then draw around this onto the birch ply. Rough cut this out with the jigsaw, and then tack it in place for a final routing with the top bearing-guided cutter again. Alternatively, you could just jigsaw the shape, and smooth the curves with a spokeshave, before sanding the edges off to a nice smooth curve.
- 28** Then take the roundover cutter to the top and bottom edges of the seat. Always try to keep your router moving, and don't go too fast, that way you should get a nice, burn-free finish from the cutter.





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29 Then give the top a good sanding too, starting with the top and bottom faces ...

30 ... and then the rounded edges.

31 Now for glue-up. I glued and clamped the four edges together.

32 This can be a bit of a tricky clamp up, so use lots of clamps and get someone to help you if possible.

33 Next glue and pin the quadrant the full depth of the stool legs for extra strength. Modern PVA glue is very strong, and this jointing method should be more than strong enough, and this is particularly true after the stool seat is glued in place, too.

34 After the glue had set, use a large 45° cutter to chamfer off the edges of the stool, then plane and sand off the edges ...

35 ... before giving the legs a quick sanding to clean off any glue marks.



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- 36** I just glued the top in place, spreading a nice layer of glue over the top edges then applying pressure with a heavy weight.
- 37** To reinforce the joint between top and sides, I glued the blocks on all four sides.
- 38** The glue blocks are pinned in place to hold them until the glue sets. An alternative method is to screw and glue the top in place.
- 39** I gave the stool a few coats of spray-on lacquer, just to make the stool more durable. And there we are, a simple design for a workshop stool, that shouldn't take too long to build.





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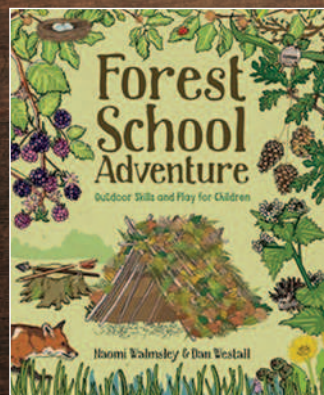
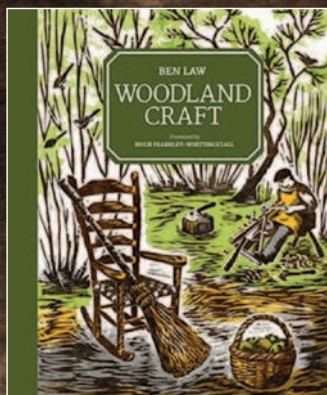


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TEACHING IN THE HEART OF THE WOODLAND



Peter Wood tells us about the courses on offer at the Greenwood Days centre, and how enriching learning traditional crafts can be

Peter Wood established the Greenwood Days centre on the Derbyshire/Leicestershire border around 30 years ago. The courses cover a wide range of traditional crafts, including basket weaving, chair and stool making, pole-lathe turning, woodcarving and forging. In doing so, the centre plays an important role in preserving heritage skills, inspiring students with a love of woodlands and craft, and promoting wellbeing. Peter, an expert Windsor chair maker and green woodworker, explains more about the school here.

When did you establish Greenwood Days and what was the motivation for setting it up?

Greenwood Days was set up in 1994. I started the centre because people who saw me at country shows and craft fairs demonstrating chair-making and pole lathe turning were asking where they could learn the craft.

Could you tell us a bit about your woodland setting?

The centre is in Spring Wood in the heart of The National Forest just a few miles from where I live. It is an ancient wood full of bluebells; it's approximately 70 acres with a mixture of self-set birch, oak standards, younger oak and ash with a larch nurse crop. Further into the wood there's a mixture of mature sycamore, ash and cherry. It's perfect for access, in the middle of the country



Greenwood Days offers a welcoming outdoor learning experience

(the East Midlands) with the M1, A42 and A50 all within 10 minutes, a mainline train is a short taxi ride away and buses come within a mile of the wood and, of course, it's a beautiful and secluded place to run courses.

I set up the centre about the same time that The National Forest started to be planted. We have a great working relationship which has been brilliant for me with lots of support and now a local timber supply and I am able to promote the area bringing lots of people into 'The Forest'.

How did you get into woodworking yourself and what kind of training did you have?

I was studying a carpentry and joinery City & Guilds when I was shown the basics of pole-lathe turning and green woodworking by a friend. She started me on the journey but from then I've taught myself, making chairs full time, demonstrating and then teaching the craft. Having taught getting close to a thousand people how to make a chair they have all taught me a great deal!

Do people attending your courses need to have some woodworking experience or are the courses suitable for complete beginners?

Nearly all of the courses are suitable for beginners (some students will have never picked up a tool before) though each course is designed so that each student can learn at their own pace and build on skills that they may already have.

How do you plan courses for students with different skill levels?

Each tutor is adept at teaching to each student's level. We have low numbers on each course so we can cater for the differing levels of skill and experience. The chair-making course is an example with more preparation of materials for the 'beginners' and perhaps fewer spindles made, or a simpler design of leg so the turning is easier. The more



The centre helps to preserve traditional handcrafts





Pole-lathe turning courses teach students to make stools, plates and bowls

skilled students can work more independently and have more input to the finished design of chair.

What kind of tools and timbers do your students work with?

It depends on which course but we use locally sourced English hardwoods for chairs (ash, beech, cherry, oak and elm). A lot of the willow tutors grow their own willow or buy from Somerset. Some tutors supply their own wood for the specific course they are teaching, which will be sourced locally to them. I try to have every tool you can use to make a chair available to students, both modern and vintage.

Adzes (big and small), inshave, travisher and scrapers for seat shaping, pole lathe, shaving horse, drawknives for turning and shaping. Bit and brace and cordless drills, steamer and jigs for bending. On the courses I aim to show people how to make a chair with as many different options for tooling as possible but I'll also show what can be achieved with minimal tooling so it's easier to start when not in a school environment.

Where do you source the timber from?

The timber I use on my courses is locally sourced. I live in The National Forest so lots of the local woodlands are being thinned, which is ideal material for my courses. I have also been milling locally fallen or felled larger trees for seat bottoms. This is all within a few miles of my centre.

For the last few chairmaking courses all the wood (including the large seats) has come from the Calke Abbey Estate (National Trust), which is about 2 miles away.

What kind of accommodations and facilities do you offer for students?

At the centre in the wood we have enough cover to run two courses at the same time with everyone having plenty of dry space. We have two composting toilets (wheelchair accessible) and ample parking next to the teaching area. We provide lunch, tea, coffee and biscuits and there is a tradition that people who enjoy baking are welcome to bring along cake to share with the group. There are big tables to sit around at lunchtime and all the tooling, benches, vices lathes, shaving horses and chopping blocks needed – more than enough for everyone to have their own to use! I send out a comprehensive list of local accommodation for people staying overnight. There is a campsite next to the wood where you can camp, park a campervan or hire a wooden glamping pod. We also recommend local self-catering properties and B&B's all within a few miles. It is quite a foody area so there are plenty of options for eating out.



In your view, why is it important to preserve traditional skills like pole-lathe turning, Windsor chair making and scything?

Once a craft skill is lost, it is lost forever, it is important to keep these crafts alive and being used by a diverse range of people. The skills that people have developed over many generations of refinement are easily lost and hard to preserve. In society we are perhaps aware of how these crafts have been used in the past but we have little idea how a particular skill may be used in the future. An example of this is split hazel basketry, few people practise this craft and some styles of basket are made by just one or two people. We have a course in one such basket, which has proved very popular. Some professional basket makers took this course and now use this skill in their own making, broadening this heritage craft's use. This is one reason why it is important to keep these skills alive, so that people can draw on this wealth of experience and adapt these skills to contemporary making. Sometimes hand tools are more appropriate, sometimes they are the only practical way of working (scything small inaccessible areas in a nature reserve for example) and sometimes it is the feel of the work, the connection to what you do with your skill and how that interacts with a specific piece of wood, allowing you to react to the material in your hand and create something beautiful using the skills built up over millennium. As well as the heritage aspects of preserving a craft for future use, working with your hands, in company is great for people!

What do you find most rewarding about teaching people these skills?

I just love the look on people's faces when they assemble the parts of their chairs for the first time and realise they will create a chair. It's watching people build their skills, gain confidence and gain a love for working with these crafts. We get so many people coming multiple times to the centre it's a real joy knowing we've helped people find something they enjoy.

You regularly offer courses on making Windsor chairs; what do you find so appealing about this classic design?

I love the simplicity of design that enables beginners to achieve great results but allows more experienced students to push the boundaries of the design. Sometimes simple can be the most complex and rewarding skill to 'get right'. With the chairs I make now it's taking the traditional design and 'running with it', exploring how you can use the shape of the wood, how it has grown, the differences between wood species and producing something that harkens back in terms of construction but looks forwards in overall look and feel. This also feeds into the courses as there is such a great variety of ways of making a chair that each person coming on a course leaves with a chair they have created, which is unique to them, rather than everyone leaving with the 'same' chair.

How did you cope with and adjust to the Covid pandemic and lockdowns?

Initially it was hard with nearly 40 courses having to be postponed and a very real worry that we would have to refund everyone, which would have been catastrophic for our small business. But our students were wonderful and were all happy to wait for rearranged courses. Because all our courses are run outside (under cover) we were able to open straight after the lockdown was lifted. We took lots of advice, reduced the numbers and made sure we could teach distanced. We redesigned the structure of some courses. We bought more tooling so people could have their own sets of tools for the duration of a course with all the recommended safety protocols in place. When we reopened we started with simple 1:1 days to trial and then started our standard courses when we were happy that we were working safely. This proved very popular and we were busier than before, having to add extra courses to cope with demand.



What does the future hold for Greenwood Days?

We would like to keep adding new related crafts for people to discover. The centre is of a size now that we are comfortable with, able to cater for most people's needs. As always we want to make each course achievable but also offer plenty of scope for improving skills and watching people take these skills further be it as a hobby or part of their daily work.

What makes Greenwood Days so special?

I was particular in creating Greenwood Days as an outside centre in the heart of the woodland. The connection between how the wood is grown, how it is harvested and what we use it for is emphasised by learning in the forest where this happens. There is something about working outside that helps with your 'wellbeing'; it's the fresh air, the wind blowing through the trees that creates a memorable experience which is totally different to working inside. The students come time and again and so experience the wood through its different seasons, during early courses the wood is full of bluebells and most years you'll hear a cuckoo calling, summer you're shaded with the trees in full leaf protecting you from too much sun and before long autumn days bring a beautiful light to the courses.

We try to be as sustainable as possible sourcing locally and it is great for people to use the 'waste wood' generated when thinning a woodland. While classified as waste they are high quality and so ideal for turning into chairs, stools, spoons or baskets.

Using hand tools, seeing people gain confidence in their abilities, in their creativity, which translates to their everyday life is so satisfying.

The centre is sustainable, with a reach far beyond simply teaching people a craft. We help generate demand for the wood that is available due to good management of the woodlands in the area. Employing craftworkers promotes their businesses and craft, enabling them to engage with others who appreciate their craft. Financially it supports these craftworkers and with people staying locally helps the local economy especially in these harder times.

greenwooddays.co.uk Instagram: [@greenwooddays](https://www.instagram.com/greenwooddays)



Windsor chair made by Peter Wood



A collection of various woodworking tools is scattered across a rustic, dark-stained wooden surface. In the top left, there's a wooden handle and a red-handled tool. To the right, a red square is visible. Below it, a black and red tool lies horizontally. In the bottom left, a hammer with a wooden handle and a black head is positioned. On the right side, a large circular saw blade with a serrated edge is partially visible, along with a long, thin metal rod. The background wood grain is prominent and adds a textured, natural feel to the advertisement.

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PILLAR DRILLS

Walter Hall guides us
around this versatile piece
of workshop machinery

The pillar drill is not the first machine that comes to mind when equipping a woodworking workshop as these are traditionally machines employed by metalworkers. In reality it is difficult to overstate their usefulness to the woodworker. While I got by for many years doing all my drilling work with a drill in a stand, it was only when I bought a pillar drill that I realised their versatility. Mine is now the most frequently used piece of machinery in my workshop, whether it is being used for drilling, light mortising or as a bobbin sander.

How pillar drills work

The business end of a pillar drill is the chuck, mounted by means of a Morse taper into a quill driven through a series of pulleys by an induction motor. The quill is raised and lowered by the use of a handwheel and the whole assembly is mounted in a fixed drill head casting. This is fixed to a column to which is also fitted a rack and pinion system on which the work table is raised and lowered. The table, which is slotted to accept vices, etc. can also be rotated to position the work appropriately and tilted for angled work. To work on large pieces, the table can be rotated to one side and the work mounted on the base of the machine. The machine may be either bench or floor mounted, the only difference being in the length of the column.

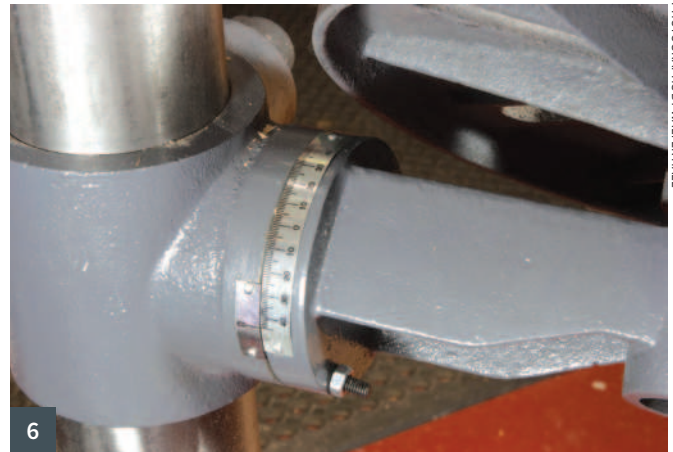
The motor

The motor is an important determining factor in the usefulness of the machine. Cheap machines with low-powered motors, while fine for DIY use, will soon prove a disappointment. Spending a little more on a machine with a motor of at least $\frac{3}{4}$ horsepower (550W) to 1 horsepower (750W) will be a sound investment.

Belts and pulleys

Most pillar drills are driven by a system of belts and pulleys that may be adjusted to provide a range of speeds. Matching the speed of the drill to the work is important, not only to achieve a clean cut in the work but also to avoid overloading the motor and to maximise the working life of your drill bits.





Parts of the pillar drill: 1 Motor 2 Belts and pulleys 3 Quill 4 Table 5 Rack and pinion 6 Clamping 7 Chuck

The quill

The quill is the working end of the machine to which the chuck is fitted. It is raised or lowered by means of a wheel or handle. The quality of the bearings used to support the quill determines the accuracy of the machine. When buying a machine, it is important to check for any play in the bearings and steer clear if there is perceptible sideways movement.

The table

The table is slotted to attach a vice for holding smaller workpieces, but this also allows the fitting of sub-tables and jigs.

Rack and pinion

The rise and fall system supporting the table consists of a rack and

pinion fitted so that the whole mechanism can be rotated around the column. In the machine illustrated, the rack is held in place by collars at the top and bottom of the column, the table height adjusted by means of a crank handle and the whole mechanism locked in position by means of a clamping lever attached to the table mounting bracket.

Clamping

Most machines are designed for metalwork, where the work is usually held in a vice, whereas woodworkers will often need to clamp work directly to the table. Inconveniently sited ribs under the table can render clamping difficult, so ensure that the machine you choose has a good clamping surface underneath. A table that can be tilted for angled work is preferable to one where the table is fixed.

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The chuck

The chuck fitted to most machines will be of the keyless type and will be matched in its capacity to the power of the machine. A useful capacity to aim for is 16mm, which will be sufficient for most purposes. If changing the chuck, do not be tempted to replace it with one of larger capacity than the original as you risk placing stresses on the motor and drive mechanism beyond those for which they were designed.

Depth stop

An adjustable stop ensures the hole is drilled to the correct depth.

Work light

A work light built into the body of the machine will prove advantageous to safe and accurate working.

NVR switch

An NVR switch is fitted to prevent accidental starting.

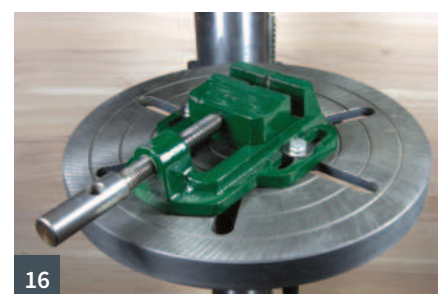
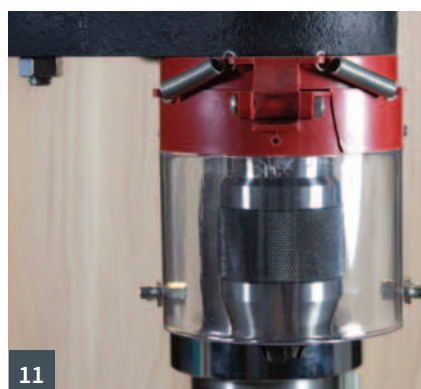
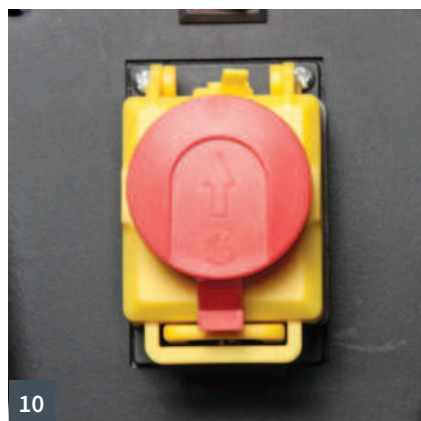
The guard

The chuck is protected by means of a guard clamped to the quill bearing flange. The guard may be raised to enable fitting of drill bits but should always be lowered into place when drilling.

Tips for getting the most from your pillar drill

Many types and sizes of drill bit can be used, so to maximise the effectiveness of the machine and the quality of the work, match the speed of rotation to the size of the drill bit. Speed charts are available giving detailed recommendations for different bit types and materials, but as a guide, bits under 10mm may be run at up to 3,000rpm in softwood or 1,500rpm in hardwood, while larger bits up to 25mm may be run at up to 750rpm in softwood or 500rpm in hardwood. Brad point bits should be run at slightly slower speeds than twist drills. Forstner bits in softwood and hardwood will vary from 1,500/750rpm for a 6mm bit to 500/250rpm for a 50mm bit. Larger bits and hole saws should run at speeds of 250rpm or lower. Heed the manufacturer's recommendations for maximum bit size to avoid damaging your machine.

Speed is changed by altering the position of the belts on the pulleys. A chart may be printed on a sticker inside the pulley compartment.



Parts of the pillar drill: 8 Depth stop 9 Work light 10 NVR switch 11 Guard **Tips for using the pillar drill:** 12 Use decent Forstner bits for large hole drilling 13 Make sure you choose the correct speed for the job 14 Bolt the base down securely 15 Always drill into a sacrificial board – not cast iron 16 A vice is essential when drilling metal



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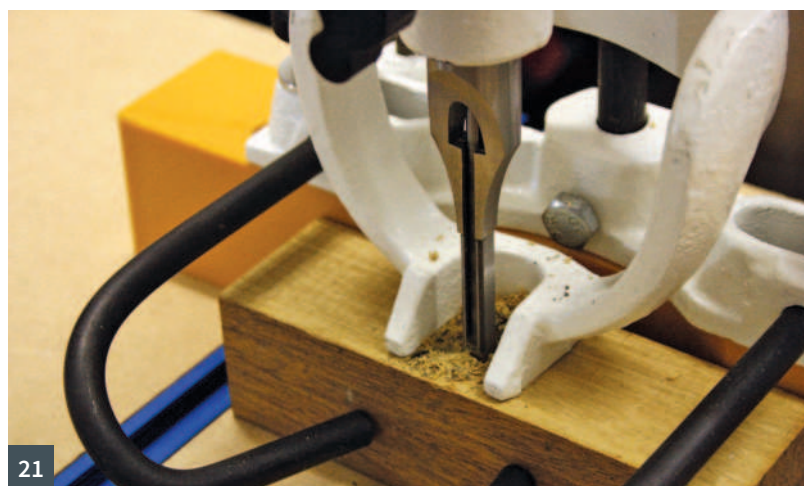
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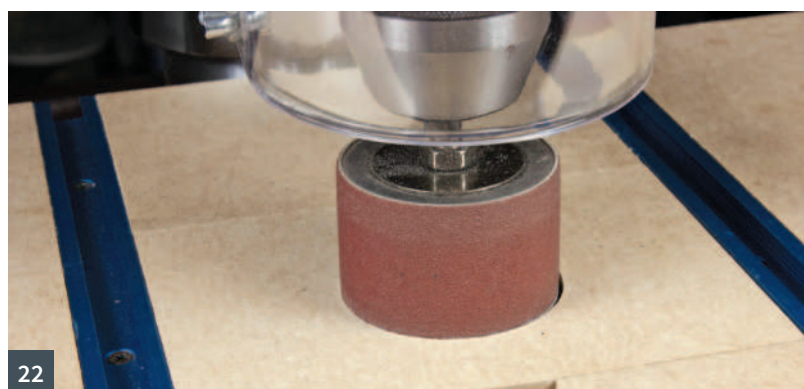
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17 You can easily make a decent sub-table and fence **18** It is easy to slide the workpiece along, drilling each hole in succession **19** A length stop gives repeat accuracy **20** A hold down prevents the workpiece from moving **21** You can buy an adaptor for chisel mortising **22** A drum sander can be fitted with a receiver hole in the sub table

Work should be clamped to the table and if the hole is to go all the way through the workpiece a sacrificial piece should be placed underneath to limit breakout and prevent damage to the table. A vice may be used to hold small work; it should be securely bolted to the table for accuracy and safety.

A sub-table to which fences and hold downs can be attached is much more versatile than an engineer's vice. Tables are available commercially but are easily made from MDF or plywood and may incorporate a t-track for attaching fences and jigs.

A fence is useful to ensure consistency when drilling multiple pieces or a series of holes. Stops attached to the fence further facilitate accurate repeat work.

Hold downs are a useful alternative to clamps for securing work.

Pillar drills can be used for light mortising work, if used with a suitable attachment. A pillar drill fitted with a sanding drum makes an effective substitute for a bobbin sander.

Safe working

All of the usual safety precautions for the use of woodworking machinery should be taken when using pillar drills, but particular attention should be given to eye protection to avoid the risk from flying debris. Clamping the work is also crucial. It is tempting to hold a workpiece on the table by hand, but serious injury can result if your hands are drawn into the drill bit, so a few seconds spent clamping or securing the work can save spending hours in A&E. Loose clothing and jewellery should also be avoided and long hair tied back. Pillar drills are heavy and the weight is concentrated in the drill head making them unstable unless bolted to the bench or floor.

THE INTERNATIONAL WOODWORKING FAIR



Randy Maxey reports on the latest tools and technology unveiled at the IWF 2022

Every two years, Atlanta, Georgia, USA, hosts one of the largest woodworking fairs in the world. It's a gathering place for vendors, buyers and visitors to view the latest in technology tools, and materials for woodworking.

IWF 2020 was cancelled due to the coronavirus, and there was some question about what the attendance would be for the 2022 show. It did not disappoint. There did not seem to be any reduction in vendor space or attendance from the 2018 show.

NEW PRODUCTS ON THE MARKET

IWF is an enormous show covering three buildings at the beautiful Georgia World Congress Center in downtown Atlanta. Vendors and manufacturers from around the world look forward to this opportunity to present their products and services. The venue is so massive, the large turnout did not make the venue seem crowded.

Technology occupies a large section of the show floor with mini-factories complete with robots, automated material handling, dust collection systems and CNC machines. Geared towards the commercial and industrial woodworking sector, these manufacturers aim to increase the speed and efficiency of the customer's operation. Everywhere you turned there was a robot arm performing a task.

Cabinet hardware vendors like Blum, Salice, Rev-A-Shelf and others occupy another section of the show floor. Here, the hardware manufacturers present their line of hardware including drawer slides, hinges, and other cabinet accessories. It seems there's a hardware solution for every challenge in finishing out cabinetry.

Speaking of cabinetry, the vast selection of hardwood, plywood, laminates and other unique materials for cabinetmaking was a bit overwhelming. It was an opportunity to learn about new materials and their applications.

For the small-shop and hobbyist woodworker, there was plenty to see and learn: tool vendors showing off their latest CNC machines, power tools and hand tools. Chemical companies demonstrating their latest wood glues and finishes. Shaper Tools demonstrated some new products for their hand-held CNC routers. Sawstop was there to show off its new compact tablesaw. Next Wave CNC proudly demonstrated their new automated CNC system for your router table. PantoRouter demonstrated their latest in routing solutions for joinery. Ramia and Sjobergs displayed their latest in workbenches.

The IWF show runs for a full week. You can walk the show floor every day and see something new. It's almost impossible to see everything in a day or two. But the venue is accommodating with clean restrooms, plenty of food from a variety of vendors and cafes, and spaces to rest your feet. There are plenty of hotels and restaurants within walking distance. If you're serious about woodworking, whether you're a hobbyist or industrial cabinet shop, you'll find the show provides an opportunity to get face-to-face with new vendors and renew relationships with existing suppliers.

For more information about the show, visit: www.iwfatlanta.com



TRADITIONAL SHELVES

Anthony Bailey uses his router's multi-profile cutter to make a shelving unit

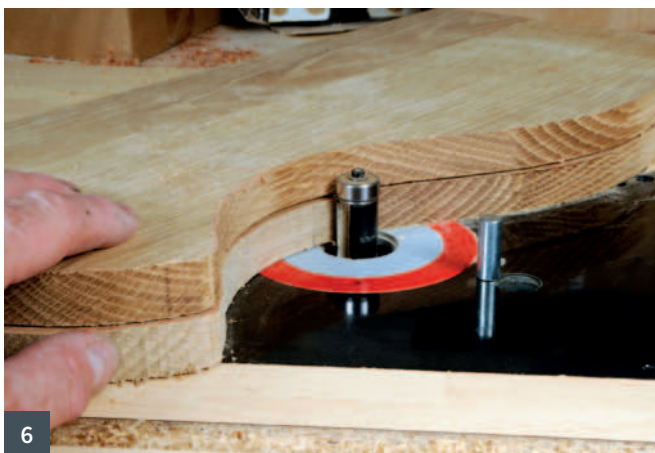
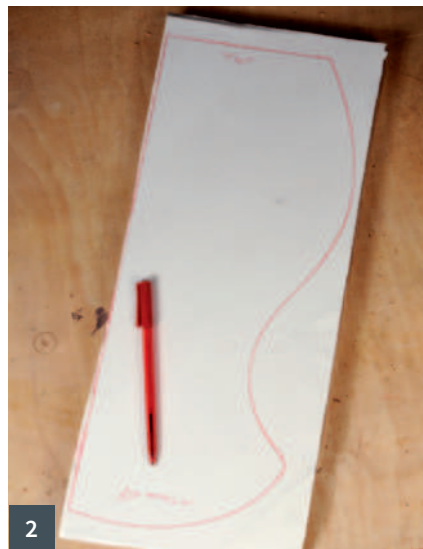
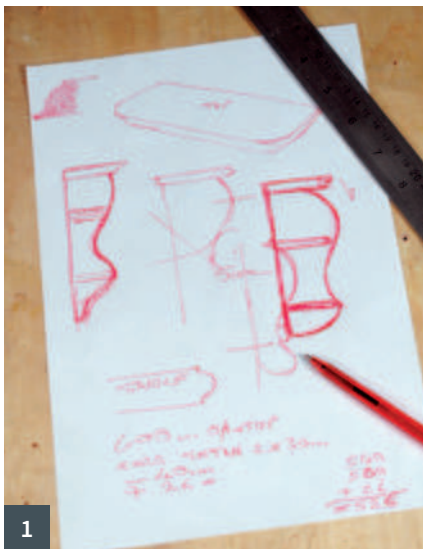


When I was self-employed as a cabinetmaker, I found that many clients preferred a traditional furniture style rather than contemporary. Consequently, I ended up with a very large router cutter collection, covering all possible types and styles of furniture. Some were used all the time, while others were almost a 'one-job wonder' and collected dust afterwards. Perhaps the most-used cutter I owned was a 'classic multi-profile' cutter, for want of a better name. I thought I would reprise those earlier days of furniture building by revisiting this cutter type. So, this is a simple set of shelves using just this cutter to produce the moulded edges – and a couple of others for jointing, of course.

For this exercise, I have chosen the large Wealden model. They also do a small version that suits a smaller router and in both cases, must be table mounted for safety and control. This style of cutter isn't unique to Wealden, but it is one of the few currently available.

The jig

- 1 Make some sketches of possible scroll shapes. This can be harder than it seems – arriving at an aesthetically pleasing shape that is wide enough for your shelves can be a challenge.
- 2 Work out the size the whole unit needs to be and redraw the complicated end profile at full size on a large piece of paper. Adjust it until you are happy with the shape and stick it to your wood blank with spraymount adhesive. Bandsaw the shape out, running close to the pencil line. Remove the paper template and remaining adhesive using white spirit.
- 3 The two shelf ends need to match. Sometimes it makes sense to make up a template that can be used time and time again. If you want to batch produce these shelves, then a template is the way to go. However, if you want to make just one set of shelves, the quicker method is to make up one end and use that as the template for the other.

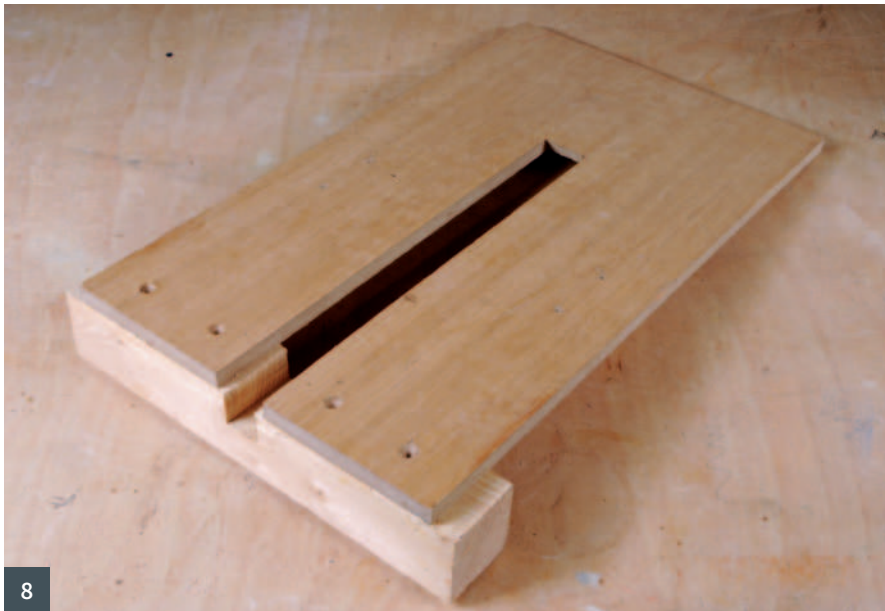


- 4 Clean up the shape using a fine rasp or a wood file before doing so with abrasive, preferably wrapped around a piece of wood or cork block, so it will sand without rounding over from face to face.
- 5 Mark and cut out the blank for the other end. Bandsaw it out oversize by roughly 3mm. Pin the finished end to the rough blank ready for machining. Pin the two pieces together where the shelves will be, avoiding marks on the finished furniture.
- 6 Set up the router table with a large trimming cutter with a bearing at the bottom end. The finished component is the one on top. Ensure the bearing is running against the top component and also a small amount of the cutter. Use a lead-in pin to start the cut safely

and machine into the rotation direction of the cutter. You should now have a perfect copy of the first shelf end.

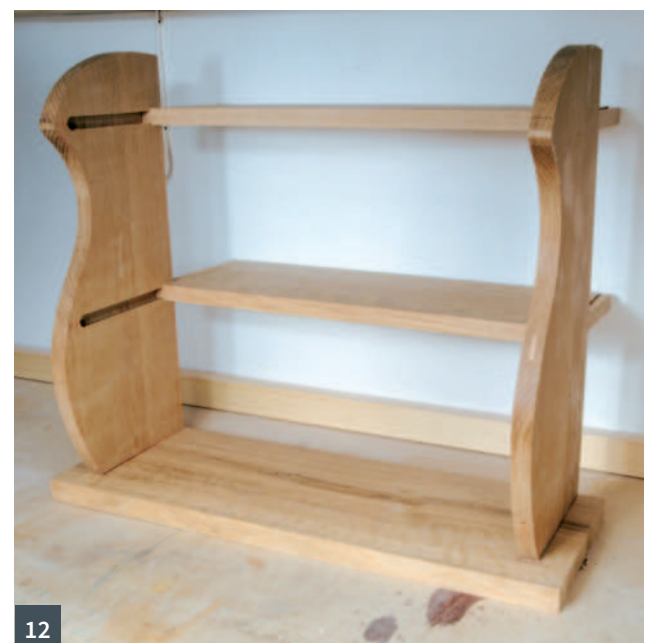
The cutters

- 7 Apart from the classic multiprofile (shown far right with small version), I used a large trimming cutter (left) with a bottom bearing which is normally supplied with a glue shield to prevent the bearing from getting gummed up; and a straight cutter (middle) to remove most of the waste before running the dovetail cutter (right) to make rigid shelf joints. All these cutters are on a 1/2in shank.



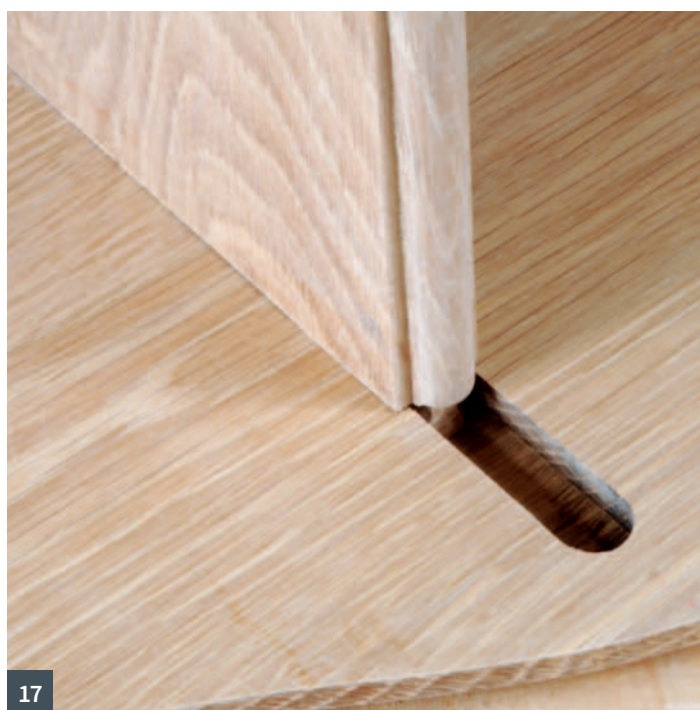
Making the shelves

- 8** Cut out all the components according to your drawing. The shelves are cut exactly to size and square, ensuring there is enough length to create the dovetails that will fit in the end housings. You need a slotted jig (pictured) to accept a router and 30mm guidebush.
- 9** Mark out the shelf positions, including the limit of the slots which will stop short of the front edge. Screw a batten across the T-square to limit the router's travel. Machine most of the housing waste away with a narrow straight cutter.
- 10** Do a second pass using the dovetail cutter but do not unplunge or it will ruin the cut – just switch off and wait before withdrawing the router from the slot.
- 11** Set up the router table with the same dovetail cutter and do some test cuts with offcuts until you get a good sliding fit into the housing, then machine all the shelf ends in the same manner. The front end of each dovetail will need to be sawn slightly short and rounded to slide fully into the slot.
- 12** Dry assemble the shelf unit and mark the housing positions on the underside of the blank for the top. Machine these housings exactly as you did for the sides.





- 13** Now machine the dovetails on the top ends of the side blanks and check they fit the housings.
- 14** Set up the large multi-profile cutter so the bearing will run against the edge of the end blank. This will be on the outside face only. Because we are using the first, rather large 'classical' mould section, you will need to do repeated passes, raising the cutter between each so you don't take off too much wood each time. Use a lead-in pin and push into the direction of the router cutter's rotation.
- 15** The shelf top needs to have the front corners radiused. Repeat the previous moulding operation, this time on the underside of the top. The finished profile will be quite large and imposing when the top is finally fitted on.
- 16** To shape the shelf edges, refit the fence to the router table and raise the combination cutter so the bead section is centred on the shelf thickness. So long as your router table insert is thin enough, the cutter should be able to rise up enough. Set the fence and as usual do test cuts until the result is correct. Shape the front edges only.
- 17** Finally, sand and apply a finish to each component before assembly. Then use a hammer and block to tap all the joints together.



RING TURNING

Richard Findley tries his hand at the 'hoop' technique, commonly used for turning toys



Ring, also known as hoop turning, is the technique of turning a profile into a ring of timber on the lathe and, once parted off, it is sliced or split to reveal the shape of, very often, an animal of one sort or another.

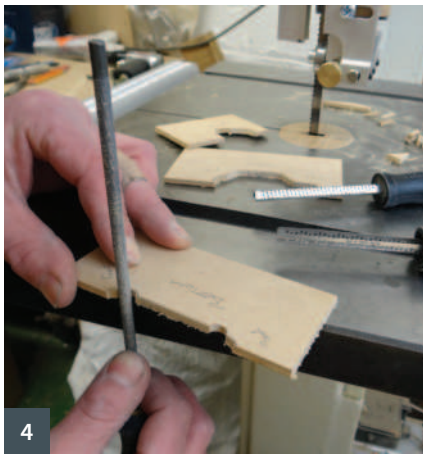
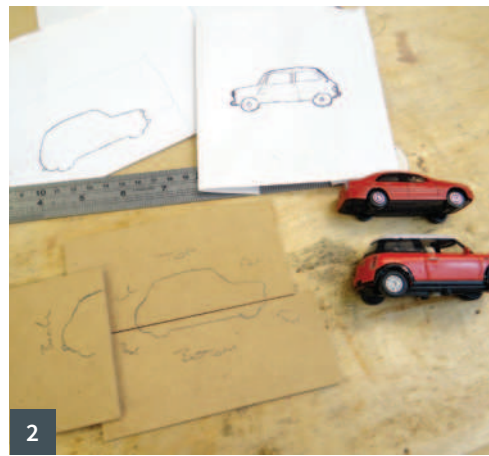
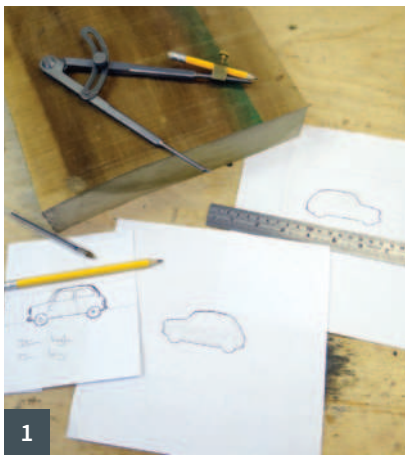
This technique seems to have originated in the Erzgebirge region of Germany, where the production of wooden toys and 'folk art' has been the mainstay of the local economy for generations.

Animals are the most commonly made items using this technique. To give the legs and necks of creatures such as horses, elephants and giraffes strength, the rings are cut, end grain, from whole logs of green spruce, which are kept wet in the river that runs through the mountainous area. This means that the rings are essentially large diameter spindle blanks, rather than cross-grained bowl blanks that we would be more used to seeing in this sort of size – ranging from 250mm upwards, from the information I can find. The grain running like this means it runs in line with the legs, necks and tails, keeping natural strength in these parts.



PHOTOGRAPH BY STUART KING

Traditional German ring turning



1 Making sketches of the car profile **2** The sketches were transferred onto the working templates **3** Cutting the templates on the bandsaw **4** Refining the bandsaw cuts with rasps and files **5** Reassembling the templates to check the shapes **6** Truing the edge

The theory

Once I have a suitable piece of wood and a design that I wish to make, I will need to make some templates to make sure I can achieve the correct shape without properly being able to see the profile I'm turning. It seems like, once I have these three steps covered, the turning is likely to be reasonably straightforward. The difficulty is going to be making the templates accurately and trusting them to guide me in the shapes I turn. If it goes to plan, when I split or cut the ring open, I should have the profile of my chosen design, but we shall see!

The plan

Because I don't have a source for such large logs or spindle blanks in a suitable timber, I decide to cut a cross grain bowl blank from a 280mm-wide board of 50mm-thick tulipwood that I have in the woodpile. Because it is cross grain rather than a spindle blank, I can't make the usual animals because the legs would all have 'short' or cross grain, making them weak. I need a design that has no long legs, something compact where grain direction won't matter. After giving it some thought it seems like a car would be a good profile, being compact but easily recognisable.

I could either go for a generic 'car' shape or choose an iconic car which will add to the recognisability of the segments. I decide to base it on a classic small car of my childhood which I hope will look great in this form. I immediately set to work researching the shape of these little toy cars.

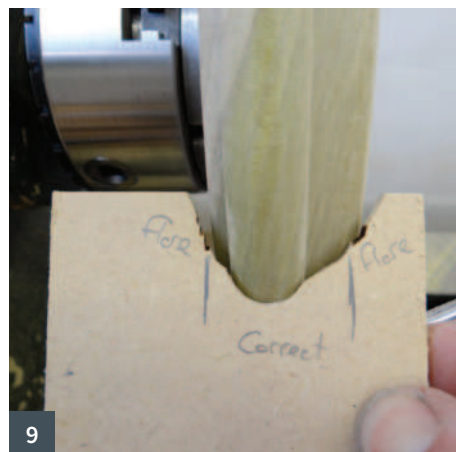
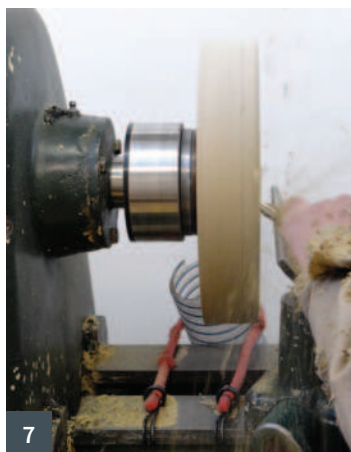
Research and drawing

I run a Google Images search and I'm shown various pictures which include different elevations and even technical drawings of different models of the car I'm basing my design on. I print a few pictures off, reducing sizes to a usable scale and make a few sketches based on the most useful aspects of what I see. Bearing in mind this is supposed to be a toy (for children over three years old) I borrow a couple of my son's toy cars to get some idea of the right size. With several sketches made and useful notes taken, the next step is to make the templates.

Templates

I opt to make my templates from 3mm-thick MDF, although acrylic would also be a good choice. I find it difficult to fully visualise exactly how this is going to work, but it seems like I will definitely need a template of the top and bottom of the car and most likely one of the back. It's a tough decision as to whether I should turn in with the front or the back of the car to the outside of the ring, but I decide that it might be easiest to make it with the front pointing towards the centre of the blank. My intention is to turn the shape up to the front bumper bar and part it here, this being a detail that would be easy to shape or re-shape to hide any mismatch in the parting and turning of the two halves.

I transfer the drawings to the MDF and, once I'm happy, cut out the waste on the bandsaw. Because of the complex shapes (although the beauty of using this profile is that it's probably as simple a shape as one



7 Reducing the thickness to suit the toy cars **8** Shaping the car's boot and rear windscreen **9** Checking progress with the template **10** Working out the detail positions on the face of the blank **11** Cutting the slope of the windscreen **12** Shaping the curve of the roof

could hope for in a car) I don't attempt to simply follow the lines, but cut from the edge of the template to my lines to form relief cuts. These ensure the blade doesn't bind as I form the profile. As I cut, I leave the pencil marks visible and will use several rasps and files to shape them right up to the lines as accurately as possible. In my barley twisting kit bag I have several small Microplane rasps and a round chainsaw file which I find are perfect for refining the curves and lines of the car.

With the three templates cut, I put them all back together, just to make sure they look right. So far I'm encouraged by the results.

Mounting the blank

Traditionally the German Masters use a ring chuck to hold the blanks.

A ring chuck is a completely alien concept to most modern turners outside of Germany. I've never seen one but have read about them. By all accounts they are just a ring of sharpened metal that holds the wood, simply by it being forcibly driven onto it with a large hammer. While that description would make most turners wince and fear for their headstock bearings, the traditional German lathes are specially designed to withstand this type of work and the forces involved. Despite my old Wadkin having some of the biggest and most sturdy bearings I've seen on a lathe, I don't have a ring chuck so decide to work with a more conventional method. Traditionally, the turned rings are formed from a large blank in one mounting, no reversing or re-chucking, just turned in one hit. I'm going to give this a try, so decide that a faceplate ring on my chuck will give me the best access to the underside of the ring of cars.

Forming the profile

Having cut the disc on the bandsaw and attached the faceplate ring, my next job is to true up the edge and then reduce the thickness of the blank to that of my toy cars. With the blank prepared, I'm ready to begin the shaping.

The turning itself is all very straightforward. The fact that this is kiln-dried timber makes it more difficult to turn than the green spruce would be, but it is well within my comfort zone. With it being a cross-grain bowl blank, rather than a spindle, I just need to be aware of the grain direction, cutting as I would a bowl or plinth, working with the grain as much as is possible.

As the car begins to take shape, I start to apply the first template and it becomes apparent that I need to remove all but the essential part of the profile to avoid binding and an inaccurate reading. I mark the limits of the shape that I need and flare the rest of the template to give full access.



13 Checking the profile against the template **14** Using a negative rake shear scraper to flatten the underside of the car

I am happy that the profile I have turned matches the template, but as I look at it I can't help feeling the boot is too pronounced and rounded. The trouble is, it matches the drawing and the template so, despite my reservations, I decide to trust the template and leave it as it is. Will this be the right decision?

I move to the face of the blank, or the roof if you prefer. I mostly use the wing of my spindle gouge to gently refine the shape of the windscreen and the curve of the roof. Once again, I need to remove a large piece of the template to make it work in practice, but once I can comfortably hold it up against the work, I am able to get a pretty close match.

Turning the underside

Despite my best intentions, I find access is really restricted at the rear of the blank and the front of the car is just too close to my chuck to make it feasible to work on, so I drill an 8mm hole through the centre of the blank and switch to my screw chuck. While this is still held in the same chuck, it does mean I can consistently reverse and re-mount

15 Turning the wheels with a spindle gouge **16** Checking against the template **17** Further refining of the top **18** Light begins to show through

the blank in either orientation, giving full access to both sides and making my life much more simple. With the blank reversed on the screw chuck, turning the underside of the car and its wheels is a simple job, using my spindle gouge in a push cut around the wheels and a negative rake scraper in a shear cut to flatten the space in between.

I take the curve of the front of the car round as far as I am comfortable and approximately to the position of the front bumper,



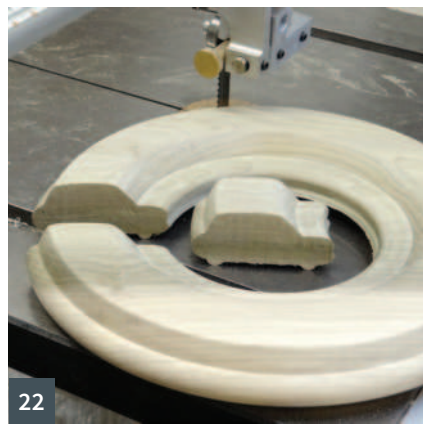
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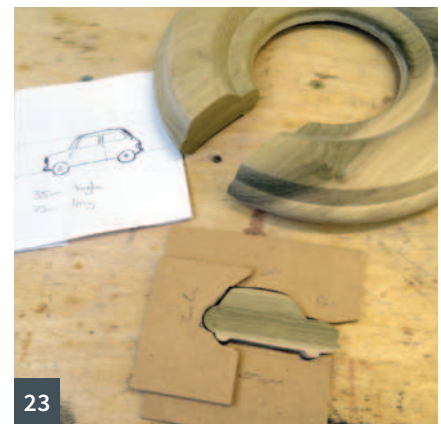
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19 Once I begin to cut through, the ring easily lifts away from the hub **20** The ring looks promising **21** Cutting the car from the ring **22** It actually looks like a car! **23** Comparing the car to my sketches and templates

and reverse the blank again on the screw chuck, so I am once again working on the top of the car. My next concern is that the cuts on the top of the car line up with the cuts on the underside. A few adjustments and double and triple checking measurements and my templates leaves me feeling confident that I should break through in the right place. I refine the curve on the front of the car that will form the headlamps and begin to work towards parting the ring from the blank.

Parting

Having developed the shape on both sides as far as I can, I sand to 240 grit and start thinking about parting off the ring. I take a few more light cuts, just experimenting a little with the remaining thickness and see some light coming through the ring. I am aware that the sight of light coming through the wood means it's thin, but still with surprising strength. Before I could take any additional safety precautions I take one more light cut and there is a light 'pop' sound as I get some breakthrough. I immediately stop the lathe and take a look. As is usually the case, I have just broken through in a couple of areas, with it still holding in others. I gently apply some hand pressure and the ring easily comes away from the central boss, which remains firmly fixed to the screw chuck. The ring looks promising, but it remains difficult to see if it is a success without cutting it open.

Health and safety precautions when parting

I was comfortable throughout the process and never felt out of control as I was constantly checking the remaining thickness of timber and taking very carefully controlled and measured cuts. To make the parting process safer I could have applied layers of tape to the rear of the ring to 'catch' it as it became free, or even wrapped it in cling film, which is a common technique for removing the centre of hollow forms that might have potentially decorative but weakening cracks, voids or other flaws in them.

Splitting the ring

Because the rings are traditionally made in end grain, they are usually simply split into animal-sized pieces once the ring is parted off, using a sturdy knife and a blow from a hammer. Rings of horse blanks can be split into dozens of individual animals. Because my blank is cross grain, like a bowl blank, it won't split and so needs cutting on the bandsaw. It immediately becomes apparent that cars are nowhere near as economical to make as horses! Animals lend themselves to being split from a ring as their rumps are invariably wider than their noses, so the natural taper that occurs from splitting like this is not an issue. Cars on the other hand are largely the same width at the front and back, and are much wider than horses, so I mark out the width of my car, which I estimate to be around 35mm, and cut it out. To continue this around the ring, I would probably only achieve eight or 10 more cars with considerable wedge-shaped wastage. There is no waste from splitting horses from a ring.



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24 I begin shaping with my chip carving knife **25** The first coat of British Racing Green is applied in the spray booth **26** The finished toy car inspired by a car from my childhood

Out of interest, I cut out a second, thinner car, which could perhaps become a badge, brooch or pendant, and lay in the templates I have been using. I'm pleased to say that it matches pretty closely, but I can't help thinking that I was right about the boot being too bulbous. This tells me that I need to make some changes to the templates, should I try this again, but over all, it definitely looks like a car, and does indeed have a hint of the small cars I remember – if you squint and try not to think about London taxis!

Embellishment

Usually this would be the end of an article like this. With the turning done, I would reflect on the job, but I can't help feeling it could be improved somewhat and the German ring-turned animals that I am basing this on would now go to a carver and painter to be given further embellishment to make them more lifelike. To fully explore the technique I decide to see if I can improve the car and make it more like the little car I'm aiming for with some carving and a paint job.

During my research I watched a YouTube video (www.youtube.com/watch?v=GoRJT9L-kf8), despite the commentary being in German, I could follow what was going on, thanks to my very rudimentary schoolboy level of the language and by watching very closely. The video showed that, after splitting the animals, they are boiled before being carved. Unfortunately my grasp of German doesn't reach far enough to work out exactly how boiling works but it seems to make the wood easier to carve, and is not a local speciality soup, as the narrator seems to suggest! The carvers use knives that cut through the wood like slicing vegetables for a Sunday dinner, before they are beautifully hand painted. I am aware that my carving and painting skills are way below the German masters, but I feel I should at least give it a go.

After an enjoyable hour of whittling my toy car with a chip carving knife and small chisel (I skipped the boiling stage) I feel it does indeed look more like I wanted. I am aware that I would need to spend several hours, or perhaps days, to make this entirely realistic, but feel the hour was time well spent. I tried to focus on areas that really give the car character, such as the headlamps, the curve of the bonnet and grill, the shape of the roof and the curve at the top of the doors.

I bought a can of British Racing Green car paint from a local car shop, along with a pot of white paint, a silver paint pen and fine marker from a local stationer. I focussed on areas that lend themselves to a car of this sort, so the colour was an easy choice. I painted the roof white and added some stripes to the bonnet. I used the black marker to line the doors and the silver pen to make the windows stand out. Once these were dry I finished with a spray coat of gloss lacquer.

Conclusion

This was a real challenge for me. Not so much in the actual turning, but in the planning and the visualisation that I needed to form the correct shapes. I have mixed emotions about whether or not it is entirely a success though. It certainly looks like a car, with more than a hint of a car from my childhood about it and I feel that a second attempt would certainly improve the shape. My attempts at carving definitely improve on the turning alone, but even as I painted it, I wished that I had spent more time and removed wood around the door cills and wheels. My painting skills need some serious practice and improvement!

The thing that surprised me most, and probably shouldn't have, is the amount of inward curve that shows on the front bumper. I don't think it has a particularly detrimental effect to the overall job, but it did surprise me and I wonder if this could be used to an advantage in future attempts – if I ever do try this again!



TREE SIGNS

Carol Anne Strange researches the Celtic tree calendar and what your tree sign could say about you

Similar to the western and Chinese astrological zodiac signs, the Celtic tree calendar is governed by the lunar month and is based on the ancient ogham alphabet, which was used mainly to write Old Irish, and also Old Welsh and Pictish. Some believe that it was conceived by British author, poet and scholar Robert Graves (1895–1985), who discussed it in his 1948 book, *The White Goddess*.

Each of the 13 lunar months is represented by a tree, which has specific qualities. Each tree can act as a totem, symbol of good fortune or guiding light. Whether considered a bit of fun or deeply meaningful, the calendar can be used to reflect on each tree's qualities to gain additional insights through the year.

BIRCH

24 December–20 January

Hardy and adaptable, the birch is a survivor and will grow and flourish in the most challenging environments. One of the first trees to re-emerge after a forest fire, it's symbolic of rebirth. Those born under birch's influence are resilient, strong, tolerant and possess zeal and drive. Goal-orientated, they tend to be pioneers, motivators and achievers.



ASH

18 February–17 March

With its deep and complex roots, the mystical ash is regarded as the sacred Yggdrasil, also known as the world tree. Expansion, growth and higher perspective are the main qualities associated with this tree, and those influenced by it tend to be highly imaginative, intuitive, creative, free-thinking and in a constant state of self-renewal.



ROWAN

21 January–17 February

Associated with Brighid, or Brigid, the Celtic goddess of hearth and home, the rowan can thrive in the most unexpected places. Qualities associated with the rowan include clarity, balance, protection and transformation. Not one for conformity, rowan people are often deep-thinking, influential and passionate. They are visionaries in a quiet way, with strong concerns for humanity.



ALDER

18 March–14 April

Mostly found in wetlands and riverbanks, the alder's roots are often submerged, drawing upon nutrient-rich water for its strength. The tree is symbolic of sustenance, protection and durability. Confident, passionate, inspirational and brave, alder people have a magnetic personality, a love for travel and are natural wayfinders.



WILLOW

15 April–12 May

Known as the immortality tree because of its ability to regrow from a broken branch, the willow is associated with healing, growth, patience, fertility and creativity. Those influenced by willow are intelligent and imaginative. They are also family-oriented and excel as teachers.



HAWTHORN

13 May–9 June

The hawthorn Moon is a time of fertility, fire and masculine energy. 'Never judge a book by its cover' is a term that best describes hawthorn people. They have a keen interest in life and are energetic and mysterious, often with a wonderful sense of humour.

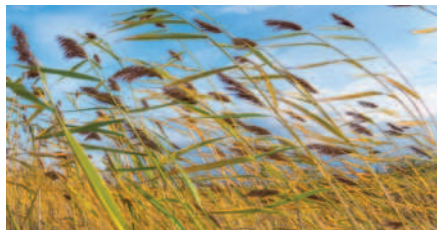


PHOTOGRAPHS BY SHUTTERSTOCK

HAZEL

5 August–1 September

Known as the tree of immortal wisdom and learning, the hazel is associated with seeking truth and inspiration. Those influenced by hazel are highly intelligent, efficient, organised and gifted. They are also knowledgeable and have an eye for detail.



REED

28 October–24 November

Though not considered a tree by modern definition, reed is symbolic of resilience and secret knowledge. With a strong sense of truth and honour, reed archetypes are naturally curious and love adventure. They have inner strength and make great friends.



OAK

10 June–7 July

As king of the forest, the oak is powerful and associated with protection, strength, fertility, purpose and a long, happy life. Optimistic and a champion for those in need, those born during oak time are nurturing, helpful, resilient and generous. They tend to be determined and make great leaders.



HOLLY

8 July–4 August

This evergreen is regal and symbolic of unconditional love and reincarnation. It's custom to hang a holly sprig in the home for good luck and protection. Holly people are generally practical, confident, high-minded and kind. They take on challenges with apparent ease and overcome obstacles with rare skill.



VINE

2 September–29 September

Regarded as the tree of joy and exhilaration, as well as wrath, the vine is fast-growing, prolific and adaptable. Vine people have a distinctive taste for the finer things in life. Gentle by nature, they are considered empathic, sophisticated and often full of contradictions and surprises.



IVY

30 September–27 October

Symbolic of connection, friendship and protection, the hearty ivy can grow during the most challenging times. It's associated with the strength and will of the human spirit and being able to survive against the odds. Born survivors, ivy people are compassionate, spiritual and loyal. They also tend to be charismatic, exuberant and friendly.



ELDER

25 November–23 December

As the queen of all herbs, the elder has many medicinal qualities to treat a variety of ailments. The tree can be damaged easily, but it recovers quickly and springs back to life, which is symbolic of endings, beginnings and resilience. Those born at elder time are freedom-loving, thoughtful and philosophical. Sometimes withdrawn, despite their extroverted and energetic nature, they love variety in life.

SIMPLE QUICK-BUILD CHAIRS

Paolo Frattari makes four chairs that are beautiful, comfortable and economical

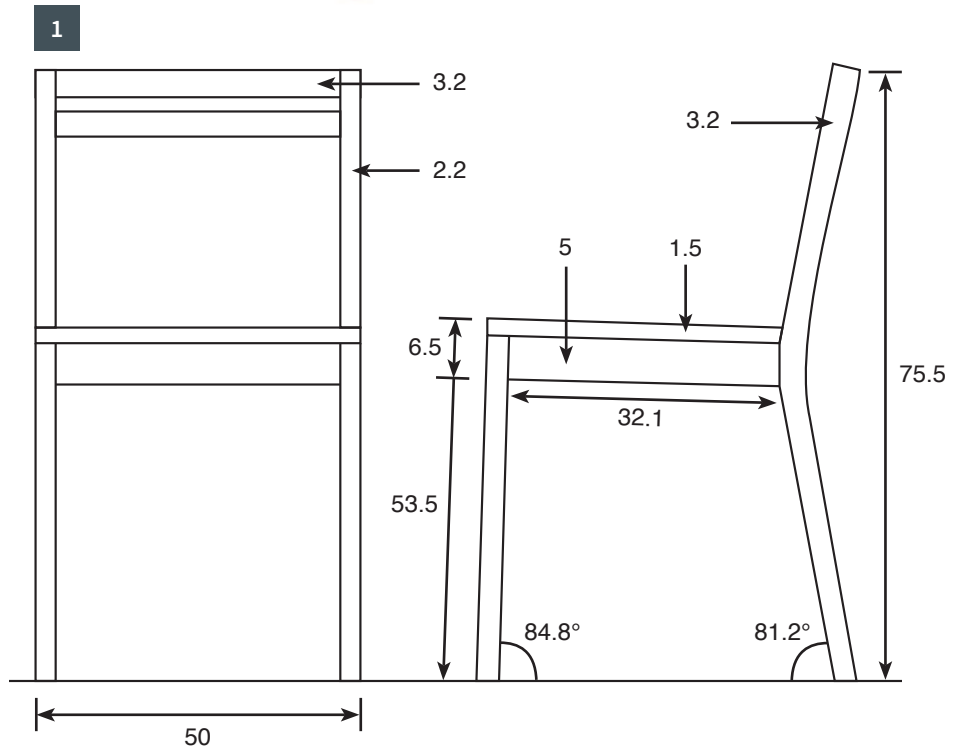


Chairs are subject to rapid wear and even when they are well-made, time, the natural shrinkage of wood and the enormous load they bear all combine to cause joints to loosen, until they are completely broken. What to do?

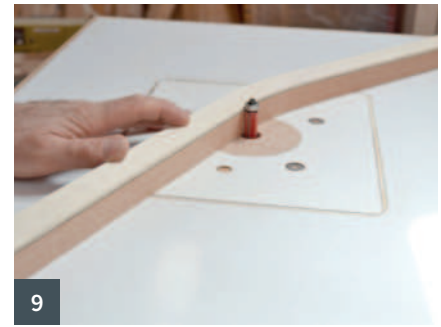
Restorers are on the verge of extinction, let alone the good and honest ones. When repaired with glue the repair is inevitably short lived, especially if the joints are not cleaned first. The only other option is to buy new chairs, and this is where things get complicated.

The universe of chairs is vast, with a wide range of materials, designs and prices. Manufacturers are fighting to get the edge and find that distinctive and easily identifiable element that people like, and for the lowest price. Certainly, 'designer' chairs can be very beautiful but are often very expensive too, while cheaper ones can be ugly.

Recently, a client asked me to make her a set of four chairs that had to be 'comfortable, beautiful and cheap'. Without the slightest hesitation, I said yes; I then spent an interminable time thinking about how to make them ...



1 My first task was to work out comfortable dimensions (measurements shown in cm)



2 Example of a tapered leg; this look has greater lightness and elegance, without affecting stability, but takes more time to make **3** Two backrests: the one at the top is from the sample chair, the other is from the test one. I preferred the second due to its greater lightness **4** Preparing the template for the back legs: the external profile is slightly rounded to make it more visually pleasing **5 & 6** From the board I obtained two back legs, plus two pieces for the rails under the seat **7** Dividing the back leg pieces in two. The pieces are all straight and the parallel fence can be used **8** I attached the template to the back leg and cut it with the bandsaw leaving just under a millimetre of excess **9** The leg was finished on the router table and the cutter mounted with the bearing at the top **10** With the sandpaper mounted on the table surface, I finished the shape and made sure all pieces were equal **11 & 12** The first 90° cut was at the upper part of the backrest: the strip at the top acted as a reference for the other legs. Similarly, the point of support was cut at 81.5°

Comfortable

I based my design on the results of endless tests and anatomical studies; these have given excellent results from which I think it is better not to stray too far. The following dimensions were arrived at for the smallest

footprint as both my client and her kitchen are quite small, generally a few centimetres larger is to be preferred.

The comfortable seat I arrived at is 400mm wide and 385mm deep,



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13 When finished, the eight legs looked like a sculpture **14** Dry-fitting the pieces, I determined the angle and the point to cut off the front leg **15** Positioning the beech dowels; the two at the top together with the threaded bush belong to the two rails, the other two at the bottom, to the front and rear side of the same rail **16** Fixing the stops on the drilling jig, which extend on both sides, to the two templates of the rail **17** The first holes were drilled on the front legs for connecting with the front piece of the seat rail **18** Inserting the threaded bush after enlarging the hole with a 9.5mm drill and countersinking **19 & 20** The recess for the Allen key on one of the side pieces of the rail was drilled with a 16mm bit. The slot was cleaned out with the router and an 18mm cutter to define the size. Then, with the chisel, I squared the side closest to the edge

is inclined towards the back by 15mm and has a height from the ground taken from the front of 440mm, while the total height of the chair is of 750mm.

Of course, a person 2m tall and another 1.5m tall won't have the same opinion of what is comfortable and what is not; usually a seat that touches the rear area of the knee is defined as correct, and the same applies to the back, which must be at about half of its height. The backrest must be angled in relation to the seat by 98°, while the rear legs, angled by 102° to the seat for decent stability. The rail where the back rests must have a height of at least 80mm, a curvature with a radius of 470mm and a distance of 330mm from the seat.

Beautiful and cheap

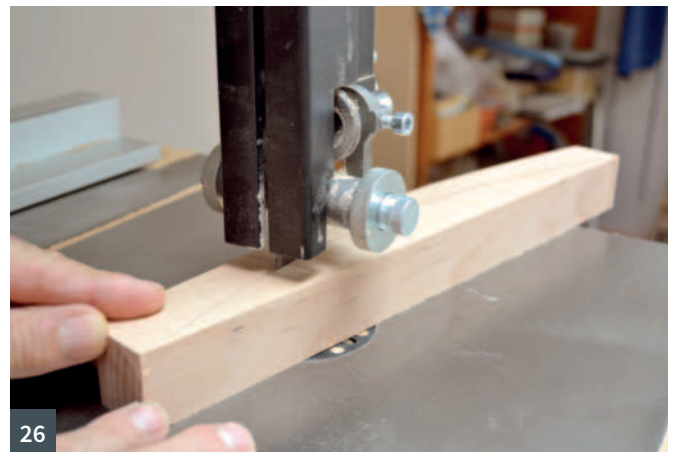
For us 'erudite' artisans it is easier to make things beautiful than cheap, so I concentrated mainly on the economic aspect and then tried to make the chairs beautiful as well.

A chair made quickly includes joints with beech dowels, simple,

sturdy and easy to make, a single high rail around the seat and a semi-finished panel for the seat itself. What makes a chair so minimally conceived beautiful? In my opinion it is the dimensions of the pieces; the thinner they are, the lighter the structure is, giving an ethereal appearance to the item. If I hadn't had the economic limitation, I would have undoubtedly opted for a design that was tapering, beautiful and light, but this would have been too time-consuming to build.

There is only one way to calculate the right sizes of the pieces to make a chair and that is by sitting on it and starting to sway with a certain firmness. This tests the limits of flexing of the back legs to determine the right size. In my case the size was 22 x 32mm.

The perimeter around the seat is what holds the structure together and the greater its section is, the better the stability. I always choose a size of 22mm thick by 50mm high. For the rest, I used some 15mm semi-finished wood for the seat and two slender strips for the back; the chair was completed by a strong lacquering of the perimeter and of one of the two backrest slats.



21 & 22 For the back leg, the jig was positioned taking thickness of the seat into account, and then aligned 15mm below the upper edge. Note the careful positioning of the clamp **23 & 24** The 22mm bit was used for cutting the seat support tabs to fix the seat. At the bottom there was a strip for matching with the other pieces. I squared the recess 6mm deep with a chisel **25** I drew the curve on the backrest template with a radius of 470mm, then I transferred the curve to the plywood. After cutting, the template was finished to shape **26** With the template I traced the rails and made the two cuts on the bandsaw leaving 1mm of waste

The wood

The chairs were made from beech. Over time and in the desire for originality, chair makers have used other species, but beech remains without a doubt the best. You may not love it as much as I do, but its strength combined with its incredibly compact grain make it the most suitable wood to bear loads. I used steamed beech since raw beech has become impossible to find. The steamed beech came from Germany and is 50mm thick.

Preparation

I prepared the template for the back legs and using this I marked the outlines on the beech board, following the grain as much as possible

and trying to keep waste to a minimum.

Two back legs for four chairs were cut from a plank 49mm thick; these were then planed with care and cut in half on the bandsaw to make two pieces at 22mm thick. The four 50mm legs were cut to eight pieces of 22mm. I also used this system of dividing in half for all the other pieces, to reduce waste material. No template was needed for the front legs, the rails under the seat and for the backrest crosspieces, as they are perfectly rectangular pieces.

In summary: I cut the pieces with the bandsaw from the rough board, I planed one side and then the other side of each, I divided them in half with the bandsaw and, finally, I planed them to thickness. The beech had been dried in the oven, but I still preferred to saw the pieces and let them settle for two days, before finally planing them.



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27 & 28 I finished the profile with the plane, on the convex side, and with the spokeshave on the other side **29** I checked the joints on the back of the chair before gluing **30** To assemble the backrest I used two parallel jaw clamps as they clamp harder **31 & 32** The addition of the two sides rails and the tightening of their Allen screws completed the assembly. The 18mm recess gives ample room for manoeuvre

The back legs

The back legs are the pieces that characterise a chair the most, and usually, they are the most complex part. I fixed the template to the planed pieces with double-sided tape and cut them with the bandsaw, removing the 2mm excess that was on the drawing. With the router mounted on the table and using a bearing-guided end mill cutter I completed the machining.

Beech is a very hard wood, and using the cutter with a top bearing takes some effort, so I proceeded slowly and went over the piece several times. Given the shape of the leg, the grain direction of the wood changed halfway through; the only way to proceed was to reverse the direction of cut, detaching the template and placing it on the opposite side.

In order for the chairs to be identical, I had to take some time over

this step; the cutter and the repositioning of the template could have created slightly more waste, but I eliminated this by passing the piece on the table with sandpaper glued on it and manually planing the ends.

Once the pieces were finished, I created a flat of 65mm on the central section of the leg – it is from this that both the back and the leg branch off. The 65mm includes the height of the rail under the seat, which I remember being 50mm, plus 15mm of the thickness of the plywood seat itself.

I then switched to the mitre saw and, having as a reference point the central flat on the leg, I first trimmed it at the end of the backrest at 90°, at a distance of 330mm from the upper edge, then at 81.2° the leg, at 350mm from the lower edge. I divided the finished legs into pairs, marking the internal side on each one and again checking the squareness.



33 & 34 With the saw, I removed the two rear corners of the seat to allow for the legs **35** With the plane, I trimmed the beech edging flush with the birch of the seat

The front legs

Work was much easier on the front legs. I squared the pieces, determined the length and the support angle, cut one side at 90° and the other at 87.8°, at a distance of 435mm from the first cut. When I say 'cut with an angle of 87.8°', I should specify which side; in this case, the inclination was towards the side inside the chair.

Not really trusting the measurements obtained from the drawing, I preferred to assemble one side of the chair to obtain the height and angle of the front leg, extending the support base of the rear one. I also divided the legs into pairs, I marked the inner side and checked for square.

The joints

There are joints between the rail of the seat and the legs, as well as between the two curved slats for supporting the back and the two rear uprights. They consist of 8mm beech dowels; I inserted two in the front and rear of the rail. In the sides, in addition to the two dowels, I inserted an Allen screw that tightens them to the legs, where I embedded an 8mm threaded bush. The reason for this is the greater stresses that the sides suffer when the chair is used; I decided to glue the front and back of the rails to the legs, but I preferred to make sure that, if necessary, the two sides could be tightened again, using the threaded bush, the Allen screw and the absence of glue.

There are two ways to ensure the two pieces joined with the beech dowel fit together: build a drill jig, or own a dowel jig.

I used the first option. The three joints are different, so I had to build three different jigs: one for the front and rear, with two relatively central holes, another for the two side ones, with a hole in the centre and the other two at the ends, and one with two holes for the backrest. For the first two templates I carefully divided the 50mm in height so that the dowels and the jig did not come into contact with each other.

The templates have a side stop that must always be positioned on the same side, either on the outside of the pieces or inside them, to avoid errors.

I started with the front legs by drilling the two holes on the inner side and then the same ones on the front piece of the rail. I continued on the legs by drilling the three holes for the two sides. In this last step, I widened the central hole with a 9.5mm bit, I countersunk the mouth and inserted the threaded bush.

A similar procedure was used for the two sides of the rail, except that the central hole had to be made with a large bit in the drill press to insert the Allen screw. The hole was 35mm long, equal to the length of the screw, and 18mm wide, in order to have sufficient room for manoeuvring to tighten with the Allen key. For the back legs the procedure was the same, except that I had to place 15mm, the thickness of the seat, under the template.

I finished processing the rail by adding small beech tabs to the centre of each piece, to then fix the seat. They were 22mm wide, the diameter of the cutter with which I created the seat, and 20mm long.

The backrest

The backrest consists of two pieces each 35mm high, 15mm apart. To create their required curvature, I used 50mm-wide pieces. As before, I made a plywood template, then I cut the curve with the bandsaw and with the spokeshave and sandpaper, I completed the piece.

I did not use the cutter with the bearing as the 35mm thickness of the beech would be too much for the cutter, and the time required to make a piece by machine was greater than doing it manually.

With the pieces ready, I took the third jig for drilling and started drilling for the joints. I started from the top with the holes for the upper rail, flush with the back of the chair, then I eliminated the top stop of the template and drilled for the lower rail, adding the thickness of 15mm between them.

Assembly

This was a simple assembly as the pieces and joints had been correctly sized earlier. Two clamps and some vinyl glue were enough. First, I glued the front legs to the front of the rails, checked the squareness and, as a precaution, added a strip at the bottom with the same length as the front. It was then the turn of the back legs, on which I preferred to use the parallel jaw clamps, as the contact surface with the backrest was too much for a classic clamp. After the glue had dried, I eliminated any imperfections with the plane and, with the addition of screws, I completed the chair by inserting the two side rails.

The seat

The seat is made up of 15mm-thick plywood; I used birch plywood instead of poplar because it is more resistant. I wrapped 3.5mm-thick beech strips around the rails to hide the unsightly edges.

I placed the seat directly on the chair, then with the hand saw I cut the two recesses in the back legs. Finally, I reduced those dimensions by 3.5mm per side for the edging. I held the strips on to the edge of the seat with masking tape and, after the glue had dried, I trimmed them with a plane.

Finish

I sanded everything and slightly rounded the edges, with 220-grit paper, then I added a first coat of sealer and sanded again. With some paper tape and paper I carefully masked the parts to be finished, then with a green spray I lacquered the rails and the lower backrest strip. To top it all off, I applied two more coats of polyurethane over the lacquer.



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36 Before finishing I made sure the surfaces were smooth, especially the corners, which I prefer to smooth by hand **37 & 38** It's a strange green, I find it unusual for a chair but, definitely very nice

Product news

Find out about the latest kit and tools for your workshop

Clarke CCS12B tablesaw with sliding carriage

The new Contractor tablesaw from Clarke is sturdy and powerful, with a durable steel body. It offers accurate wood cutting for builders, contractors, tradesmen and DIY enthusiasts, as well as general workshop use.

The tablesaw includes an 80 x 40cm extending table for supporting longer planks and larger timber sheets. The extension table and guide can be fitted to different sides of the saw table allowing support for cross, rip and mitre cutting.

The long-life TCT blade is 315mm in diameter with a 30mm bore. There is full blade safety guarding to allow for safe usage. The blade tilts up to 45° for mitre cutting and the maximum depth of cut is 83mm at 90°. A 2kW 230V induction motor makes this a powerful unit, providing a no-load speed of 2800rpm.

The tablesaw is supplied with a guide rail, two brackets for the guide, a sliding table, folding stop block, saw guard, 1.6m dust extraction hose and push stick.

www.machinemart.co.uk



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with the DCJ205 as a kit. The jacket's olive coloured, polyester outer lining makes it waterproof and windproof, while the inner fleece lining helps keep the user warm and comfortable even with the power off. Additionally, it is fully washable and dryable, so cleaning is easy and hassle-free without damaging its heating capabilities.

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SUPPER TABLE RESTORATION

Michael Huntley carries out some essential repairs on a Georgian table



This little table came to me from the back of an old workshop. I suspect that the restorer did little bits of stripping when he had spare time, but the job was too time-consuming to do in one go. This accounts for its 'part-restored' condition.

I call it a 'supper' table; but it might well be called a 'work' table. I think it had both uses. The side lifting handles indicate that it was moved around the room, as would be necessary for a bachelor having a supper guest in his bedsit in Georgian times. It is true, though, that the term 'supper' table more often refers to tilt-top tables.



PHOTOGRAPHS BY MICHAEL HUNTLEY

1 When the drawer was finally removed, it turned out that a replacement board had been cut too wide **2 & 3** Two different views inside the carcass, showing each end of the missing drawer runners **4** Close-up of an original flap showing the sander marks **5** Stripping the flap. Note the protective gear **6** Once rinsed down, I like to leave the board outside to 'air' for as long as practicable

Fixing an ill-fitting drawer

The side wall of the drawer, which also forms part of the runner, is worn down, as well as being grooved to take the drawer base, thus allowing the base to drop out. The front baseboard is original – it matches the baseboards in the other drawers – but the two rear boards are thinner and show a diagonal mark made because a 'brace support' had been nailed across the drawer and the drawer left out on a bench in the sun.

I wanted to deal with this tight drawer as early as possible in the restoration because a drawer is safer and takes up less space if it is in the carcass rather than on the carcass. However, I did need to examine the carcass to see if the aperture had been deformed in any way. It is no good easing a drawer and then finding that the problem isn't with the drawer but with the carcass.

The first thing to do is to measure the fronts of all the drawers and all the apertures. This is an imperial piece so I am using inches, not millimetres for recorded measurements. The shoulder to shoulder measurement on the carcass is $15\frac{1}{16}$ in. By looking at the carcass shoulders you can be sure of the original aperture regardless of later repairs, glue, paint etc. The drawers themselves are all 15 in, which also tells us that they allowed $\frac{1}{32}$ in on each side as clearance. The drawer that I am dealing with is $15\frac{1}{4}$ in, which gives us a $\frac{1}{4}$ in excess, which was probably caused by forcing the replacement baseboards into the groove. Now, you old-timers reading this will wonder why I have used up 300 words explaining what to you will be obvious, but to a beginner, this kind of analysis of old and falling apart furniture is a new experience!

So, the drawer is now fitted by deducing the problem and removing the ill-fitting baseboard. No planing required. This is an important point: don't start taking off original material until you are certain it is necessary. Spend the first hour of a job looking, measuring, thinking and recording. On the subject of recording, note the missing drawer runner.

Removing white paint

The next most obvious thing is the white paint. This needs to be stripped, but it's easier said than done! I do not use commercial 'strip and dip' companies. When they submerge the item the liquid dissolves the glue in the joints as well as the paint. Not a good idea! I'm afraid that there is no alternative to elbow grease, or more accurately – paint stripper and wire wool. I use industrial Paramorse paint stripper. It is very important that you read and observe the safety precautions on the data label. A previous restorer had tried to strip the top by using a sander and you can still see the marks. It doesn't work and will remove what is one of the most important aspects of an antique – the patina. Save the patina at all costs!

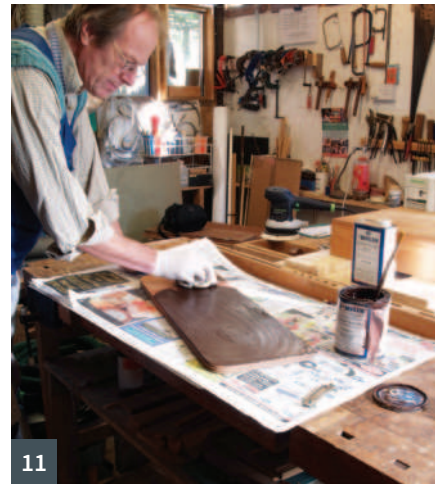
Photo 5 shows the set-up for stripping. I am wearing an old jumper – so it doesn't



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7 The Festool sander did an excellent job of removing the previous sander marks **8** Two flaps side by side. The one on the right is as it arrived; the one on the left is off the Festool **9** Picking the paint out of the rim mouldings. Note the clamp marks from Victorian needlework accessories **10** The three leaves before any colouring **11** Applying grain filler to a leaf **12** The filled leaf left to dry

matter if it gets splashed and dissolved by the stripper – an old apron, safety specs and chemical-resistant gloves. Note also that the door is open: in fact I have two doors to provide a through draught, and I am using a board to protect the benchtop. I have also cut up pads of coarse steel wool and lined them up ready to use. It is not easy using scissors while wearing gloves covered in stripper. The stripper itself has been decanted into an old saucepan and all sensitive tools and projects moved out of the way.

Follow the instructions on the tin. I cannot say that often enough. Leave the stripper to do the work; if it dries then put on more stripper, but only when you can see that all the paint has dissolved do you rub it over with a pad of wire wool. Ensure to take care to only work with the grain and to expose a fresh face of clean wire wool each time. Drop the messy contaminated pad into a bucket and as soon as you have finished, move the bucket into the open air.

When there is no more paint to remove, take the board outside and wash with meths, then wash again with water, then again with water. You must remove all traces of stripper before polishing. You could wash with meths alone, but that gets a bit expensive, so I use water. Finally, leave the item outside – although not in direct sun – which will allow it to dry and let any fumes blow away.

A little note of interest here: I thought that the sander had been used to attempt to remove the white paint, but as I found sander marks

under the white paint, I have to conclude that it was either an attempt at keying up for the white paint or that it was used to remove the original polish. Either way, it is a blasted nuisance and the act of somebody who doesn't know better!

The turned feet were stripped in the usual way with Paramose and wire wool but the final cleaning of the turnings had to be done with flexible abrasive. I decided to use Abranet sheets for this purpose, starting with 120 and going through the grits up to 240 or so. You have to use your judgement about effective paint removal versus scratching!

Sanders

I have never used nor recommended sanders for antique restoration purposes. However, I was faced with so much scraping to get rid of the previous restorer's sanding marks that I decided to ask Festool for help. They loaned me a sander and I have to say that it did a fantastic job. I can now thoroughly recommend one but be aware of the possible problem of lead paint and take suitable precautions.

The Festool sander did a brilliant job on the previously Paramose-stripped leaves, so I decided to see how it would perform on the table's unstripped flat surfaces. Again, lead paint dust was a consideration here but the vacuum was so good, and I was working with a through draught and a mask, so I considered it safe. It worked very well and didn't round over the arrises.



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13 A quick sand after raising the grain **14** Trying out water-stain on the underside **15** Note the spattering from the brush, so keep other surfaces covered

Cleaning the mouldings

Neither the Festool nor the '0000' wire wool can reach deep into the triple reed mouldings on the edge of the top. Making a new scratch stock cutter would do the job quickly and neatly, but also reduce the value because the mouldings had been 'reworked'. Never rework a surface unless you absolutely have to. So I am afraid it is a 'toothpick job' and a pretty long one at that!

Note the different types of blade used. Don't expect to do all cleaning up with just one 'toothpick'. You need a variety of different shapes and materials. Actual toothpicks or kebab sticks are very useful and Perspex can be shaped to make a scraper as can softwood offcuts. Use them at different angles. One technique is known as 'cleaving'. This is applying pressure on the top surface of the paint at an angle such that the flake detaches itself. Don't just go scraping into the wood hell for leather! One hand pushes and the other hand 'holds back' to prevent the scraper digging in. Dry stripping is a bit of an art!

The little round marks that can be seen on the underside of the flaps were made by the screw clamps on needlework accessories in the 19th century – and perhaps earlier. They are one of the 'witness' marks that you expect to find on an old table that has been used as a work table.

After replacing the missing drawer runner and re-surfacing the other runners, the whole carcass was squared and glued up. Finally, it was ready for colouring.

Colouring

Colouring is often the forgotten part of 'polishing'. In the days when materials were scarcer, hidden areas of an item were often made from cheaper timbers. One of the polisher's jobs is to blend all these together prior to or at the same time as, applying a shiny finish.



16



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16 Thick brush coats of garnet polish and Mylands light fast stain
17 The plugs on the drawers being camouflaged with polish and pigment
18 Dropping 'jam' into some of the divots **19** The water-based grain filler 24 hours after application



18



19

As this table belongs to me, I could try some experiments on it without worrying too much about the outcome. I used Behlen mahogany proprietary grain filler on one leaf. This is a messy operation, to say the least, but it does give you a guarantee of uniform colour, colour fills in the divots, no need to raise the grain and, of course, filler in the actual grain. It is also fast, which is a major advantage. What it doesn't give you is much choice of colours or an opportunity to blend colours. However, I thought that I would give it a try. The other leaves will be coloured, one with water-stain and the other with shellac.

Tools for grain filler are simple – just a rag and gloves! With all tins of finish do use a proper tin opener. It saves the lip of the lid becoming bent and twisted. Another little tip related to lids is to take them outside when you are hammering them back on. The force of the hammer can cause spillage in the rim to shoot right across the room onto your newly polished job or indeed into your eye. So always cover the tin with a cloth and your eyes with safety specs.

Application

I applied the colour onto bare wood because I was concerned about adhesion to the painted finish where I had been unable to get all of the paint out of the grain. But normally you would seal the wood first. Stir well and then rub it around, finishing with strokes across the grain. The point being that you want to push the filler into the grain holes.

Make sure that it doesn't dry in thick lumps and very lightly run the cloth down the grain before you stop. Back in the old days, I was taught to use old sacking for this job, so the coarser the cloth the better. This table has a reeded edge, which has held some of the paint so I gave

the edge a light wipe with grain filler, more to colour it than fill any grain. I didn't make any effort to get the filler into the bottom recesses of the reeding. Clean-up would be too much of a problem here. I will deal with those areas with Van Dyck crystals and wax later on in the process. The filler was left on overnight and then lightly cut back and sealed with a shellac rubber in the morning. That leaf will be complete within 24 hours but the other leaves will take longer due to drying times and bodying up times.

The second leaf

The second leaf was wetted in the evening to raise the grain and left overnight in a dry, but not excessively warm, room to dry. The following morning I sanded it with the Festool using 280-grit paper. I have always sanded by hand after grain raising before, but the Festool left a perfect finish. When sanding after raising the grain, don't do too much sanding. All you want to do is take off the raised broken fibres rather than expose an entire new surface. Two passes were sufficient here.

Water staining

Now comes another messy bit. I used water stain for this leaf. Water-stain powders are cheap so a wide palette of colours can be made for much less than pre-mixed stains. I use Mylands powders. I made up samples in jam jars and painted them onto a scrap offcut. I then selected the best mixture, which in this case was Van Dyck – powder colour not crystals – and be aware that they dry differently so you must wait



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20 Sanding off the excess grain filler to leave a beautifully smooth surface **21** The carcass with a base colour applied ready for blending in **22** The finished table, with just the new handles to be added on

for them to penetrate and dry. You can then wet them again with stain to see the colour revealed. The offcuts used were white to clearly see the colours but the leaf is mahogany, so I used the underside of a leaf to test my selection. The underside can always be washed off and wiped clean afterwards. I had to warm up the Van Dyck slightly with some redder mahogany until I was satisfied, then I applied the mixture to the top surface and the reeding using a 12mm paintbrush. There is no photo of this step because you have to work very fast to avoid a dried edge tide mark and I couldn't do that and operate the camera!

Once the wood is covered, go over with an old towel to even out the liquid. By the way, the old paintbrush breaks down the surface tension and helps penetration. Beware of spattering adjacent surfaces. Set aside the leaf in a clean place and do not disturb it. Leave for 24 hours before polishing. I prefer to leave for 72 hours if I have time. Oh, and always make up enough stain to touch up if necessary. But be warned, touching in flat surfaces is not easy – much better to get it right first time.

Grain filling

The centre leaf was not grain filled, just polished with sanding sealer. It was then cut back before being shellacked. Now you might ask, why did I not do that for all the leaves, or if I was going to grain fill, then why not do it the traditional way with pumice? The answer is that the timber still had traces of white paint in it. The grain filler let me kill two birds with one stone: obscure the paint and fill the grain. The unfilled and unstained centre leaf was a control. As it was my table, I could test out some theories and then share them with you.

The next stage was lots of traditional bodying up with shellac and cutting back. The drawer fronts had already been polished with clear shellac. They had to be darkened using Mylands Light Fast stains in garnet shellac, applied by brush. Those drawers also had old plugs where previous screw-holes had been plugged. These had to be coloured out with pigment and polish. There were also divots in the top – these were filled with coloured shellac 'jam'. Jam is a blob of shellac that has been allowed to part dry and is then picked up on a brush tip and dropped into the divot. All this went on for several days, with each surface being cut back with 240- or 320-grit paper every morning.

I used water-based brown grainfiller from Behlen on the carcass. This is more environmentally friendly and accepts a stain better than the Pore-o-Pac. It is pretty messy but I had the Festool, which made clean-up a doddle. I then used a variety of stains to test for the best combination. The final choice was Golden Fruitwood, Nutmeg Brown and a touch of Sea Blue – the blue to kill the pinkish-red in the timber – Solar-Lux stains. When dry this was washed over with 15-minute brown mahogany pigmented woodstain. The whole thing was then left for three days to dry.

You may ask why not use gel stain? I think that would be too uniform and opaque. Why not use plaster of Paris to fill the grain? I wanted something with inherent adhesion to the remains of the painted finish and the synthetics seemed to stick better.

With all the restoration work complete, all that remained was to choose and fix some new handles to the drawer fronts.

CARRYING TRADITIONS INTO THE FUTURE



Daniel Carpenter of Heritage Crafts tells us about the organisation's fascinating and challenging work as they seek to safeguard traditional crafts in the 21st century

Heritage Crafts is the advocacy body for traditional heritage crafts. Its aim is to support and promote heritage crafts as a fundamental part of our living heritage. Working in partnership with Government and key agencies, it provides a focus for craftspeople, groups, societies and guilds, as well as individuals who care about the loss of traditional craft skills, and works towards a healthy and sustainable framework for the future. Heritage Crafts' President is HM King Charles, a passionate supporter of traditional skills.

The organisation maintains a Red List of Endangered Crafts, a range of skills that are in danger of being lost. They work to publicise these crafts and come up with solutions to make them economically viable in the future. Its website also hosts a Makers Directory, showcasing the amazing work of its members, all of whom are experts in their chosen crafts.

As well as representing a wide range of crafts, Heritage Crafts also works to encourage a diverse range of people to become makers. Funding is offered for projects, training, apprenticeships and career advice.

Daniel Carpenter explains this vital work in more detail [here](#).



Above and opposite: Woodworking skills are supported by Heritage Crafts



PHOTOGRAPHS COURTESY OF HERITAGE CRAFTS



Why do you think traditional crafts are not recognised as either art or heritage in the UK?

The reasons traditional crafts are not recognised as either art or heritage in the UK are slightly separate, but both deeply rooted in British society.

In the past, made objects would have been lauded for their skill, function and beauty, concepts that would have gone hand-in-hand. As art became a commodity, market forces demanded that artists set themselves apart by breaking with the past rather than working within a recognised lineage of practice. Those with the most social and financial capital were often best placed to do this. Romanticism in the 19th century briefly put the focus back on the unnamed artisan, but as part of a narrative that was very much set up to serve a cultural elite. The idea of creating things had shifted from making something well to requiring total originality of concept in every artwork. By the late 20th century, 'art as concept' had reached new heights with the object becoming little more than a vehicle for an abstract idea. The institutions set up to oversee the art establishment were as much the product of this way of viewing art as they were instigators of it, but in actuality only served to reinforce it.

In recent years much has been done to democratise art and reincorporate the vernacular, especially when it comes to historically under-represented communities, but, as with many things, once a particular way of thinking has been mainstream for so long it is difficult to overcome. The crafts that tend to be funded through the arts sector today are those that use skills primarily as the vehicle for a message, rather than to celebrate the cultural value of the skills themselves.

In terms of heritage, the British view of what is heritage is deeply rooted in our colonial past, based around those treasures we have acquired from around the world, the national museums we built to house them, and the houses and gardens of those who enabled their acquisition. The effect of this was to centre the concept of British heritage almost exclusively on tangible objects, buildings and monuments. Globally, this is not a 'normal' way of thinking. Today the UK is one of only 12 of the 193 UNESCO states not to have ratified the 2003 UNESCO Convention for the Safeguarding of Intangible Cultural Heritage (ICH), meaning that the majority of the rest of the world has much more parity between their artefacts and historic builds on the one hand, and their knowledge, skills and practices (including traditional craftsmanship) on the other. Heritage Crafts is flying the flag for UNESCO as one of only four accredited NGOs in the field of ICH, but the British view of heritage is so entrenched that the vast majority of heritage funding is still allocated to the conservation of historic buildings and artefacts, rather than the continuation of the full breadth of those skills that are handed down from person to person. As in the art world, much has been done to interrogate the acquisition of our heritage assets, and reverse the erasure of marginalised communities in those stories, but mostly this has been around re-interpretation of the tangible as opposed to direct support for the vernacular practices embodied in people.



Above and below: A key part of Heritage Crafts's work is encouraging younger people to learn traditional skills



How can this view be changed?

One way we can help change these long-held views is to encourage the UK Government to ratify the 2003 Convention for the Safeguarding of Intangible Cultural Heritage, which would not only mean a statutory duty to assess the current state of the knowledge, skills and practices that make up the UK's intangible heritage, but it would also act as a very important symbolic message that the systematic devaluing of such an important part of our shared culture is no longer acceptable.

Why is it so important to preserve a diverse range of crafts?

We acknowledge that traditional craft practices have always ebbed and flowed through history, coming to the fore and fading away as part of a constant shift of markets, technologies and social movements. Our work isn't an uncritical demand for preservation. It's about being attentive to cultural change and, through this attentiveness, opening up opportunities yet to be discovered; opportunities for society to have a debate about which parts of our culture we want to carry with us into the future, and for individuals to use these repositories of knowledge to create rewarding livelihoods for themselves in ways we might not yet even be able to imagine. Without this attentiveness, we could be sleepwalking towards a situation in which these opportunities are greatly reduced.

We often talk about a craft ecosystem with crafts being practised at all levels from amateur to professional, and representing chains of dependence where allied crafts rely on each other for skills, materials and routes to market. Examples of this are the cutlery trade in Sheffield, jewellery in Birmingham or pottery in Stoke. In their heyday all of these would have been made up of networks of highly-skilled specialists working in informal but complex networks. For practitioners to survive there now they need to fulfil what would have at one time been the jobs of 10 or more skilled craftspeople. And to make this pay they have to market their products at a much higher end in order to compensate for the loss of the economies of scale these industries would have once enjoyed. Each loss of specialised skills could be the straw on the camel's back that brings down an entire craft ecosystem.

Can traditional crafts play a part in encouraging more sustainable and environmentally friendly lifestyles?

We are quite upfront in saying that crafts aren't always intrinsically environmentally friendly. Many rely on extensive use of fossil fuels. On the whole though, being involved with something that is made by hand with natural materials, whether that's as a maker or a consumer, means we better appreciate the skills, energy and labour

that goes into making things, and encourages us to be more mindful about where they come from and their impact on the environment and the lives of those people involved in their production. Conscious purchases of things that are made with care and go on to be cherished and last a lifetime, improving with age and bringing joy with each use, encourages habits that are much more sustainable for the economy and the planet. We encourage all the craftspeople we are in contact with to consider incremental changes to make their practices more environmentally sustainable.

What does Heritage Crafts do to reach younger generations and encourage their participation?

This year we are working on a project called #iwill to reach out to 11- to 18-year-olds around the UK to inform and enthuse them about incorporating heritage crafts into their everyday lives and career aspirations, but just as importantly to get their view of how they see themselves as shaping the sector in years to come. For us, heritage is as much about the future as it is about the past, deciding collectively what we want to hand on to the next generation as a toolkit of knowledge, skills and practice for them to tackle the challenges of the future. We have been a little hesitant in the past to avoid creating a demand for craft careers that cannot yet be met due to the lack of training routes available. But we now realise that we are going to need these young people to lend us their voice in advocating for more support from the government for this type of provision, to help fast-track our existing work with the Department for Education and the Institute of Apprenticeships.

How can our readers support Heritage Crafts' work?

One of the most effective ways to help is to support our work by becoming a member of Heritage Crafts at heritagecrafts.org.uk/get-involved. Not only will this help us become more financially sustainable as an independent charity but it will also help build a community of like-minded individuals whose voice will become increasingly difficult for policymakers to ignore.

Secondly, if you are able to, please donate to our Endangered Crafts Fund at heritagecrafts.org.uk/ecf which we have set up to ensure that our most at-risk heritage crafts within the UK are given the tools and support they need to thrive.

Thirdly, but no less importantly, you can support your local craftspeople by buying and commissioning their work and telling your friends about the wonderful products your local heritage craftspeople have to offer.

heritagecrafts.org.uk Instagram: @heritagecrafts

PEG BOARD

Jim Robinson creates a simple 'W' peg board to hang your hats and scarves



When making large items of furniture there always seems to be a few short ends left over, this project for a 'W' shaped peg board is a good way of utilising them.

These pegs were made for a gallery where they were to be used to display scarves and other accessories.

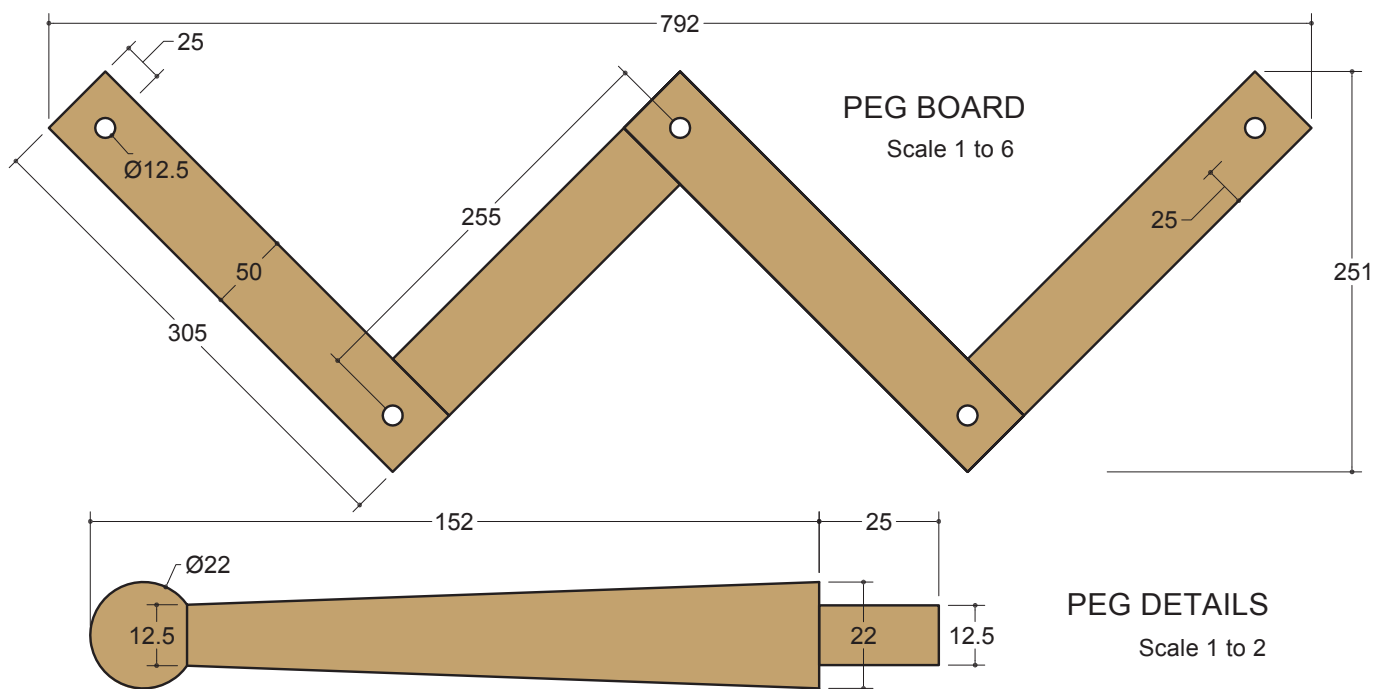
Oak was the material chosen, the pegs were relatively large in size with a ball end rather than a Shaker-style end so that items would be a little more secure. If the pegs are to be used in a domestic situation and you prefer, it will be a simple matter to scale them down.

Working with oak

When using oak material that has been sawn through and through there is usually a strip of sapwood along one or both edges. In my case the board I used was rather wide and had been sawn from near the centre of the tree, there was sapwood along one edge and a few shakes near the other edge which had been at the centre.



1



CUTTING LIST

Extra allowances given on lengths only

Description	Qty	L	W	T
The 'W' peg board	4	311	50	22
Pegs	5	190	25	25



PHOTOGRAPHS BY JIM ROBINSON

The peg board

- 1 Draw a straight line near one edge so that the extent of the sapwood is marked. With a bandsaw fitted with a 12mm skiptooth blade, saw along the marked line, so that all the sapwood is removed.
- 2 Next, plane the sawn edge to provide a straight surface to bear against the bandsaw fence.
- 3 Adjust the fence so that the maximum width can be obtained eliminating any shakes or defects.



- 4 Use the planer to plane one face of each board flat and then pass them through the thicknesser a few times to finish with a thickness of about 22mm.
- 5 The 'W' is joined together with halving joints, which after gluing together are reinforced with the pins turned on the ends of the pegs. Form the halving joints on the edge of each section of the 'W', with a router guided by a straight piece of wood clamped to the surface. Set the straight cutter used in the router so that it takes out exactly half the depth of the wood. It is advisable to try it on a piece of scrap first.
- 6 Rather than cut the housing on the end of each section separately if your offcuts are sufficiently wide, you need to take out the housings and then saw the wood into strips before planing the edges to finish with 50mm-wide pieces.
- 7 Trim the length of the housings so they allow a little for trimming after they are glued together. Apply glue to one face of each housing and then hold in position with G-clamps until set.
- 8 Trim any slight projection at the ends, then sand smooth. Because of the opposing grain direction a small orbital sander is useful when sanding flat and level. The pegs used have a 12mm diameter pin turned on one end; this is used to reinforce the halving joints.
- 9 Using a bench drill to ensure the holes are vertical drill a 12mm

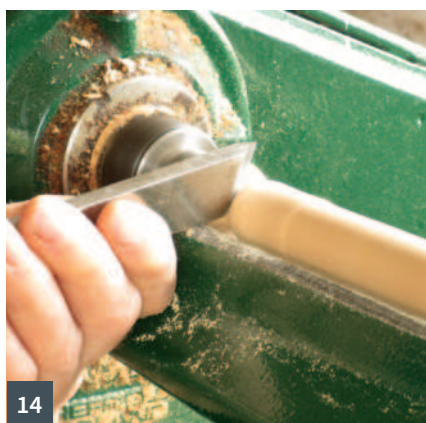
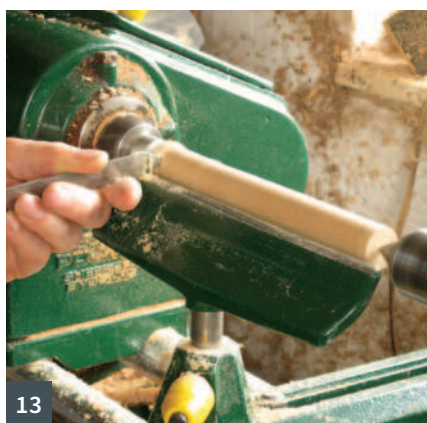
diameter hole at the peg positions. To complete the 'W' to receive the pegs, work a 6mm radius all round the 'W' using a self-guided rounding over bit in a router.

Preparing the peg blanks

- 10 To turn the pegs you will need blanks which are 22mm in cross section and about 190mm long to allow for mounting between centres and trimming. Prepare the blanks for turning by marking diagonals at each end, the easiest way if you have one is to use a Veritas centre finder. If you trim the corners of the blanks at a 45° angle on the bandsaw it will save a little time when turning.

Turning the pegs

- 11 Mount the pegs between centres and use a spindle roughing gouge to shape to a cylinder.
- 12 With a large skew chisel, plane the cylinder smooth; to avoid a dig in you should only use the centre third of the chisel for the operation.
- 13 With a small parting tool narrow the end down to mark the top end of the ball.
- 14 Use the short end of the skew chisel to form the upper end of the ball before repeating this operation to complete the ball down to the diameter of the upper part of the peg.



- 15** With a shallow spindle roughing gouge followed by a skew chisel alone continue the shaping of the peg.
- 16** Form a sharp edge at the start of the stem with the long corner of the skew chisel. To avoid a dig in just cut with the extreme point angled slightly away from the surface you are forming, then use a parting tool to complete the pin down to 12mm diameter.
- 17** Check to make sure your pins are a good fit in the holes. If you are turning the pegs in pine the diameter can be a little over size because the wood being soft will compress slightly when entering the hole, but when using oak you are more likely to split the backing board if you are not careful. Mount the pin in a chuck then use a large scraper to trim the ends. Sand the pegs to 240 grit, then burnish the pegs with a handful of shavings.

Completing the pegs

- 18** Apply glue to the holes drilled in the back board but not the pins turned on the pegs, then insert the pegs. When set, trim the ends of the pins with a flush cutting saw. After sanding the back the pegs and board are finished with a coat of clear wax polish.
- 19** The finished peg board, ready to mount on the wall.



WORLD SKILLS 2022



PHOTOGRAPHS BY MICHAEL ZANGHELLINI/COURTESY OF WORLD SKILLS

The WorldSkills competition returned after the pandemic, with contests in a range of skills and a gold medal for the UK

WorldSkills is the international organisation that encourages and develops young people's technical skills over a range of industries. The WorldSkills Final competition usually takes place every two years and is the 'Olympics' of vocational skills. The 2022 Final was supposed to be held in Shanghai, China but this had to be cancelled due to the Covid-19 pandemic. Instead, a Special Edition competition was organised, taking place in different countries, with the woodworking skills contests held in Basel, Switzerland.

Cabinetmaking

The cabinetmaking contest attracted participants from 19 different countries, who were tasked with creating a piece of wooden furniture, demonstrating their skill and understanding of design and finish.

James Boyes from Team UK was awarded a Gold Medal, as were Suil Kwon of South Korea and Dexin Li from China. James, aged 22, comes from Northampton and studied for a three-year Diploma in Furniture Studies at Moulton College. He had been training for the competition since 2020, but the pandemic had caused the Final to be postponed. On making Team UK, he commented: 'It's been a long journey to this point but all that hard work has really paid off. A massive thanks to my training manager and everyone else who supported me and pushed me so hard.'

Carpentry

At the carpentry competition, where Jaeho Song of South Korea was awarded a Gold Medal and Philipp Kaiser of Germany and Marcel Bolego of Italy both won Silver. Participants were tested on their craftsmanship, accuracy in measuring and cutting, construction skills and use of power and hand tools.

Joinery

Joinery was another key woodworking skill represented at WorldSkills. Competitors were judged on their ability to interpret drawings, set out and measure, cut, form joints, assemble, install, and finish to a high standard. Rupeng Shao of China and Shi-kai Chen of Chinese Taipei won Gold Medals, Wolfgang Ramming of Austria and Romain Mingard of Switzerland won Bronze Medals, and Ross Fiori of the UK was awarded a Medallion for Excellence. Ross comes from Langley-on-Tyne, Northumberland and works for Langley Furniture Works.

For more on WorldSkills, see worldskills.org



1 Team UK's James Boyes won a Gold Medal in Cabinetmaking **2 & 3** Suil Kwon of South Korea (2) and Dexin Li from China (3) were also awarded Gold Medals for their cabinetmaking work **4** Jaeho Song of South Korea won the Gold Medal in Carpentry **5** Philipp Kaiser of Germany competing in the Carpentry skills test; he won a Silver Medal **6 & 7** Rupeng Shao of China (6) and Shi-kai Chen of Chinese Taipei (7) won Gold Medals in Joinery **8** Ross Fiori from the UK won a Medallion for Excellence in Joinery

CABINET SCRAPERS

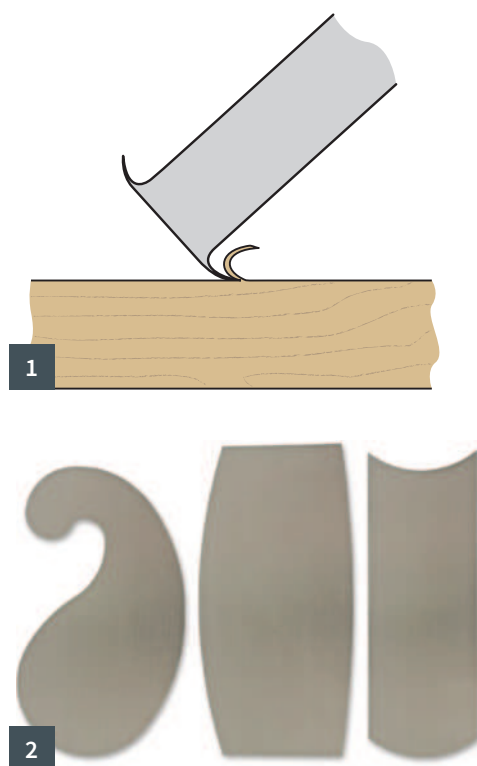
Anthony Bailey explains how to use these handy finishing tools



A lot of woodworkers don't use, or know much about, one of the most basic finishing tools – the cabinet scraper. A simple rectangle of metal, when correctly prepared and used, it can give a very clean and effective surface to newly planed timber, ready for a final light sanding and a finish. It can also remove torn grain and smooth difficult timbers with opposing grain. Here is what you need to do to get the best from a scraper.

Using a cabinet scraper

- 1 It may seem like an obvious statement, but a scraper, well, scrapes off a very thin surface layer. To do this, a sharp edge isn't enough – it needs a hook in the form of a burr formed evenly along the scraping edge. Scraper blades are available in differing thicknesses and I tend to prefer a thinner one because the scraper needs to be pressed in the middle to form a slight convex forward curve, and the thicker the blade the more effort is required to press it into shape while working it. Also the more it is used the hotter the blade gets, so less thumb pressure means cooler thumbs if you are doing a lot of work with the tool.
- 2 For the majority of work a simple flat scraper made from thin high carbon spring steel is perfectly adequate on all flat or convex surfaces, however there are times when you need a shaped scraper to work on concave and moulded surfaces. For these situations, there are gooseneck, and other pattern, scrapers that can be used instead.





- 3** There are also scraper planes that allow the blade to be set at a specific depth and bow (curvature) and give similar control to using a hand plane. This one is homemade from ash strips and is fully adjustable.

Burr forming

The crucial bit, which eludes many potential users, is forming the burr. Here is the sequence for correct burr forming.

The chosen edge needs to be both flat and perpendicular to the faces. You can use a flat, medium or fine metal file to true the edge, although these days a continuous diamond sharpening plate is also good as it gives a very crisp raw sharp edge. The use of an oil or water stone is less reliable as stones are often hollowed in the middle, and in any case, tend to round the edge over when it must be absolutely flat and sharp edged.

- 4** You need a tool referred to as a burnisher – sometimes called a ticketer – to create the actual burr itself. It has a shank made of hardened steel.



You can also use a modern thick screwdriver shank instead, as these are hardened too.

- 5** Move the scraper edge back and forth on the diamond plate on edge, keeping it upright all the while. This is intended to give a perfectly flat square edge.
- 6** Then turn it flat and move it face down to create that crisp sharp corner. It can help to use a magnifier so you can examine the state of the prepared edge afterwards.
- 7** Lay the scraper face down just projecting over the edge of the bench, and move the burnisher back and forth along the edge at a slight angle. As you do this it runs over the ends of the blade with each stroke making a click-clack noise. The object of this exercise is to get the steel to spread slightly, thus creating a tiny projecting edge.
- 8** Now clamp the scraper low down in a wooden jawed vice and run the burnisher along the upstanding edge at an angle. Do this several times, working from each end in turn. If you gently rub the edge crosswise with your thumb – not lengthwise or you may cut yourself – you should feel a burr. This needs to be even from end to end of the blade. The burr is what does the cutting for the scraper.
- 9** Do a test scrape which should lift thin shavings from the wood and give a clean finish. If the result is just fine particles and dust, as with this picture, it means the burr is tiny and you haven't mastered the process. If the edge ceases to cut properly, start the burring process again from the very beginning. Pay careful attention to each step in order to get a consistent result.

NURSERY MOBILE

Fred and Julie Byrne design a set of cute mobile figures to make on the scrollsaw

Every nursery should have one, so whether it's for your own child, grandchild, niece, nephew or even a friend's child, why not make the little one feel extra special by creating this nursery mobile just for them? The sleepy rabbit, bear and waking up panda are all fun characters, and the stars add to the night-time theme. All that's needed is a small quantity of 6mm and 3mm birch plywood, a few coloured paints and some thread for hanging.



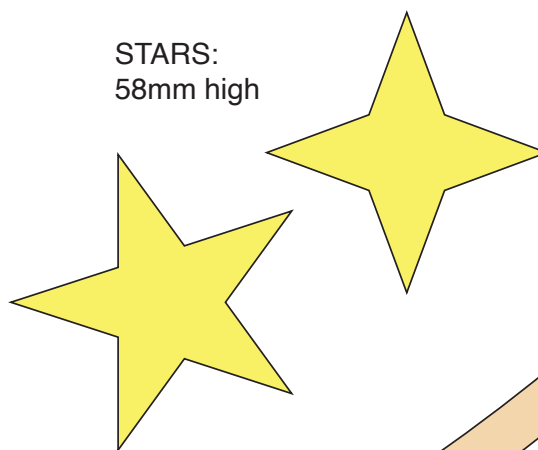
SLEEPING BEAR

Size: 160mm x 140mm



STARS:

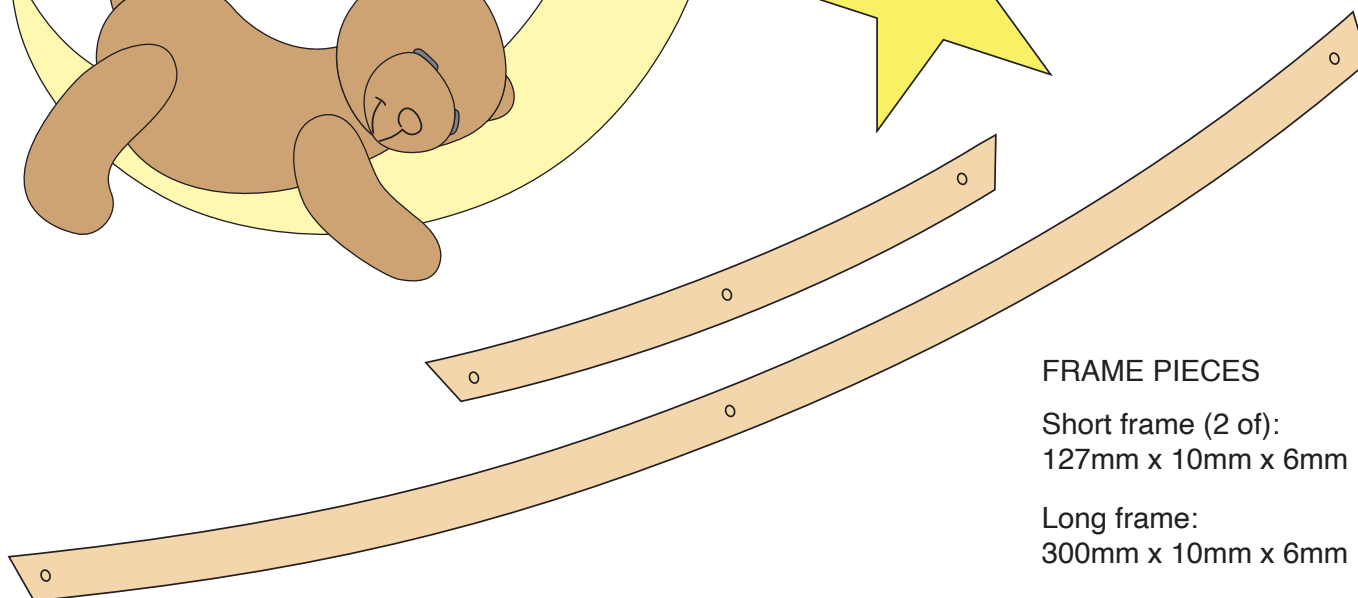
58mm high



FRAME PIECES

Short frame (2 of):
127mm x 10mm x 6mm

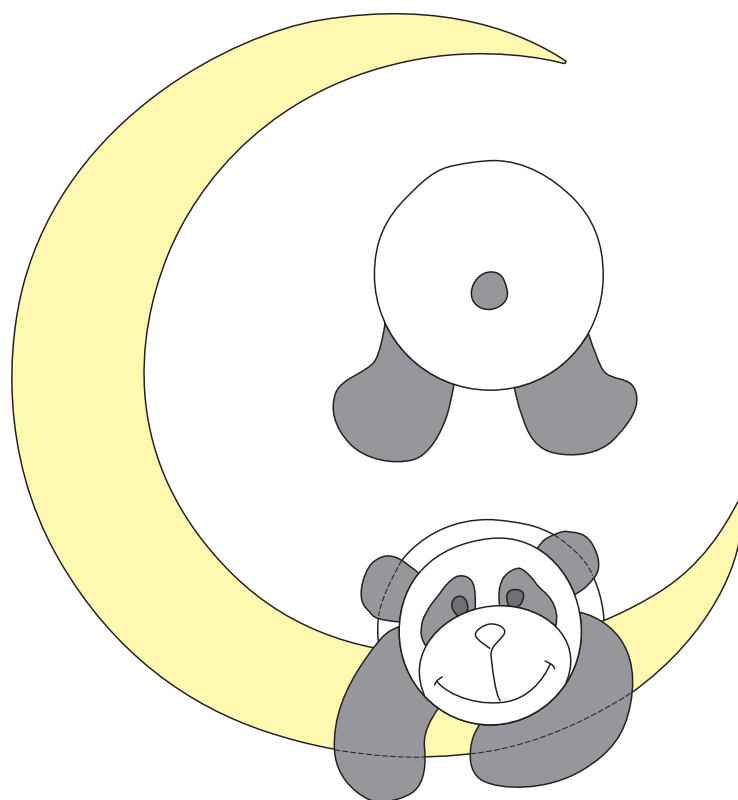
Long frame:
300mm x 10mm x 6mm





SLEEPING RABBIT

Size: 150mm x 135mm

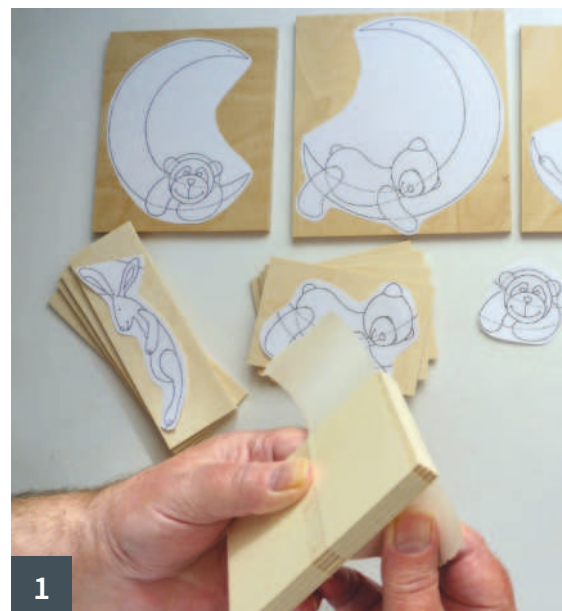


WAKE-UP PANDA

Size: 140mm x 130mm

YOU WILL NEED

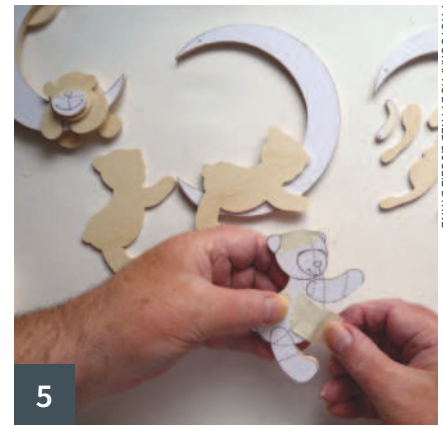
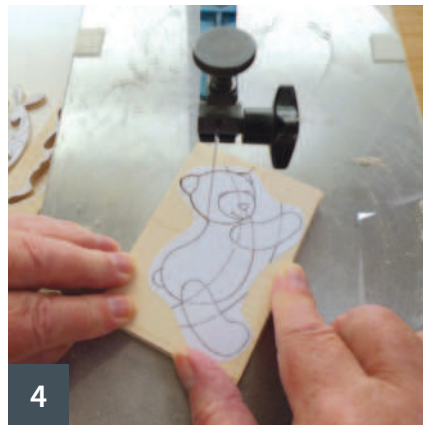
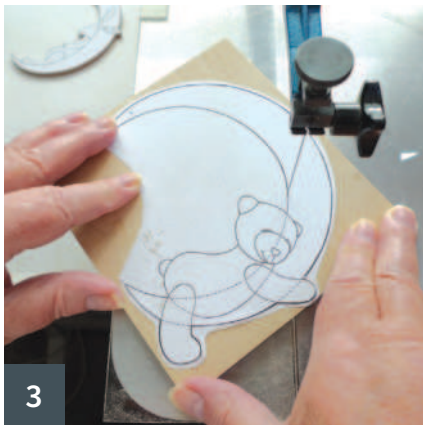
- Scrollsaw – No.5 blade
- Drill – 1mm bit
- Three copies of the bear & panda patterns, and two of the rabbit
- A quantity of 6mm & 3mm birch plywood
- Extra wide masking tape
- Glue stick/spray adhesive
- 180 & 240grit sandpaper
- Acrylic paints – brown, light brown, grey, white, black & silver
- Acrylic matt varnish
- Fine black marker pen
- Transparent nylon thread – 2 thicknesses



Getting started

First prepare the wood – you'll need three 165 x 150 x 6mm plywood for the moons, four 150 x 50 x 3mm ply for the rabbit, and eight 115 x 75 x 3mm ply for the bear and panda. Enlarge the patterns to the correct size and make three copies of the bear and panda patterns, and two of the rabbit.

- 1 Securely tape together the three stacks of four wood pieces using extra wide masking tape.
- 2 Stick the patterns onto the top using either a glue stick or spray adhesive.



Cutting out

- 3** Fit the scrollsaw with a No.5 blade and make sure the table is square to the blade. First cut out the three moons including the characters' bodies – but not the arms and legs that hang down – and in the case of the rabbit, the small section of the ear that sticks out beyond the outline of the moon. Also remove the tips of the panda's ears, having just the round body as the outline.
- 4** The next stage is to cut out the character from each stack.
- 5** Then separate the stacks by removing the two lower pieces and then re-securing the two remaining pieces with masking tape.
- 6** Following the patterns, cut out the heads, arms and legs of each. With all the pieces cut out you'll see why the extra pattern was needed for the bear and panda as they have three layers including the muzzle pieces.
- 7** Remove the patterns and any masking tape from all the pieces.
- 8** It's helpful to number the pieces and mark their positions as there is a back and front to each character and it's easy to sand or paint the wrong side of a piece – this way there is no mistaking.
- 9** Also turn the piece over and mark where the legs hang down or an ear sticks out beyond the moon – you can then use this as a guide as to where to paint on the underside of the piece.



Sanding

- 10** Use the 180 grit, then 240-grit sandpaper to round over all the edges that are on top, not where another piece will be glued onto. As with this section of the bear, only sand over the tummy, back and ears.
- 11** The areas of the moon pieces to be rounded over are all around the outer and inner edges where no pieces will be glued onto, as well as the bear's tail.



12



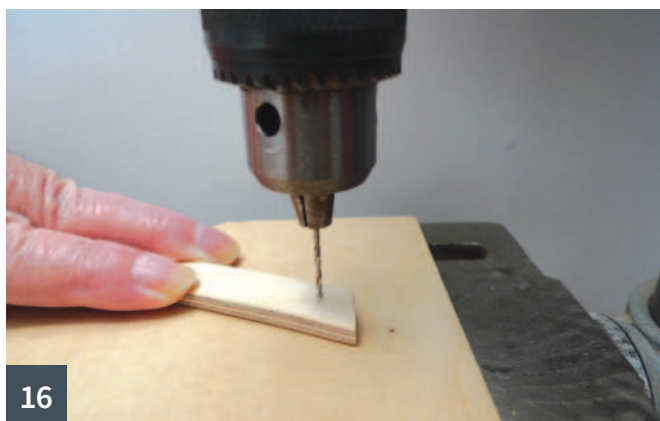
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14



15



16

Colouring

12 We have used acrylic paints mixed with a little slow dry medium, which stops the paint from dragging on the wood, and any excess is easily wiped off. When dry, lightly nib down with fine sandpaper and then apply a coat of matt varnish and again allow to dry.

Finishing touches

13 Use a fine black marker pen to draw on the faces. If you're not too confident, lightly draw on the faces with a fine pencil first or trace the faces onto tracing paper and then use carbon paper to transfer the lines.

Gluing up

14 Lay out the all the pieces in order. Glue the back pieces onto the moon first,

carefully aligning each piece to the underside piece as you go. When dry, turn them over and glue on the fronts and again allow to dry.

15 To determine where the hole should be for hanging, hold the piece between your thumb and fore finger until it hangs the way you wish ...

16 ... then mark with a pencil and drill the 1mm hole.

Making the frame

The frame is made up of three sections: one at 300mm in length and the two lower ones at 127mm. Referring to the pattern, cut out the frame pieces and as many stars as you wish, as they can easily be hung from any part of the framework. Drill the 1mm holes and then paint the stars with the iridescent silver paint and the frame a colour of your choosing.

Stringing up the mobile

The transparent thread is almost invisible on a light surface so it's best to work on a dark piece of card, or whichever dark surface you have! Start at the top and work your way down by first attaching the two (side) pieces to the longer top piece, and so on, referring to the picture. There are no hard and fast rules regarding the length of thread used or where each piece is placed – it's your choice.

Note there is no hole in the pattern for the final hanging/positioning of the mobile – this is because some of the pieces are heavier than others and getting the balance just right needs a bit of tweaking.

Hold the complete mobile between your thumb and forefinger – as before with the single pieces – to determine which off centre side the slightly thicker thread should be tied, then once the mobile is hung, it can be moved slightly either way to get the balance just right.

Vic Tesolin explains how a few extra steps when making your joints will guarantee centuries of strength



DRAWBORE MORTISE AND TENONS

In medieval times, it wasn't uncommon to see the trestle table. This simple design is strong, sturdy and easily adorned with carving or other embellishments. The secret behind this rock-solid design is the always present mortise and tenon (M&T) joint. Specifically, the drawbore M&T is a joint that will stand the test of time because the mechanics of the pin intersecting the joint provides centuries of strength. Drawboring a joint is not a difficult skill to master so let's dive right in.

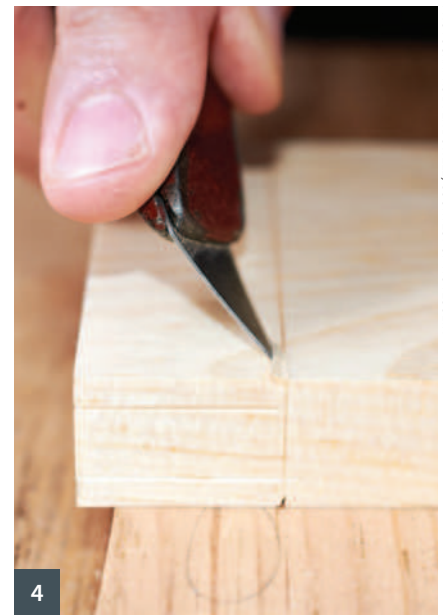
There are only a few extra steps to drawboring a M&T joint. The first step is to get a good fitting M&T. It's true that the drawbore technique will hold together a sloppy fitting joint, but there is no need to intentionally do shoddy work. Also, don't rely on this technique to correct the reveal of this joint. Sort out your shoulders first and test fit the joint prior to drawboring. A proper M&T joint should only require moderate hand pressure to close and there should be no gaps where the tenon shoulder meets the mortised part.

Mark the mortises...

The secret to success for most joinery is the step before cutting it – marking. Knife-in the left and right lines that will define the width of the mortise as well as the top and



1 A marking gauge with two cutters makes easy work of marking this joint



2 Go as wide as you can to make paring the mortise easier **3** Forget the numbers and determine the depth of the mortise referentially **4 & 5** This small groove will give you all the guidance you'll need **6** Start with angled cuts to ensure great cheeks

the bottom. I find the most reliable way to do this is with a mortise gauge. Take time to get the layout right, sloppy work here will come back to haunt you for the rest of the build.

Personally, I'm a fan of using a drill press to muck out the waste but you can use any technique that you prefer. I use a wide chisel to remove any waste left behind by the drill press. I also like to leave the mortise round at the ends because it is much quicker to shape the tenon to fit than it is to square the holes. Don't get lost in the minutiae of differing techniques, the key is to respect your layout lines.

... and now the tenon

Locate your tenon shoulder by inserting a small stick into the mortise to gauge the depth. It's good practice to make the tenon slightly shorter than the mortise is deep to prevent an overly long tenon from hanging up the joint; 2mm shorter is a good number though I usually just gauge

this by eye. Use the gauge stick to set a second marking gauge for the shoulder and carry the line all around the board. In the case of an angled shoulder, use a sliding bevel and square to lay out the shoulders. Using the same gauge you used for the mortises, simply change the fence setting to accommodate the tenon board and strike your lines. Be sure to maintain the spacing between the gauge cutters as you used for the mortise.

With a chisel, cut an angled groove into the knife line on the waste side to create a reference point for your saw. Now you can drop your backsaw blade into the groove and saw the shoulder to depth. The goal is to get the shoulder fitting right off the saw but in all probability you will need to do a bit of tweaking with a shoulder plane.

Clamp your board securely in your vice to saw your tenon cheeks. Saw as close to your lines as you dare but keep in mind that if you go past the line you will have a sloppy fit. It's always good to cut the tenon



7



8



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7 The width of this rebate block plane makes it ideal for thinning down tenons **8** The drill press allows you to not worry about whether the holes are plumb **9** Prick the location of the hole using the drill **10** Make sure the second hole is closer to the shoulder or you will drive the tenon open instead of closed

a bit fat and pare it down for a great fit. To get a straight cut, start by angling the board towards you and making the first cut down to the shoulder line ensuring you reach the halfway point. Then reverse the angle and do this for the other side. Finally, drop the saw into the kerf and saw straight down until the waste falls away at the shoulder line.

Test fit the joint and make sure that the shoulder meets nicely with the mortise board. If the tenon needs to be thinned down, do this now. I like using a rebate block plane for this task but you could also use files or joinery floats for the task. The key is to keep the tenon cheeks flat and true. Also, be sure to remove material equally from both sides of the tenon cheek to ensure that your offset doesn't change. A good rule of thumb is whatever you do to one side, do to the other.

Locate the holes

Once you have a good fit, it is time to draw the joint. The drawbore hole should be about 10mm away from the edge of the mortise. This not only looks pleasing to the eye but it also keeps the hole that will be created in the tenon far enough away from the edge so it doesn't split the end of the tenon. Bore the 6mm hole into the mortised component, stopping short of coming through the other end. A flag of tape acts as a great depth indicator – as soon as the flag clears the shaving on the surface, you know you are at depth.

Insert the tenon into the mortise and ensure that it is fully home. Use the 6mm drill bit to lightly prick the hole location,



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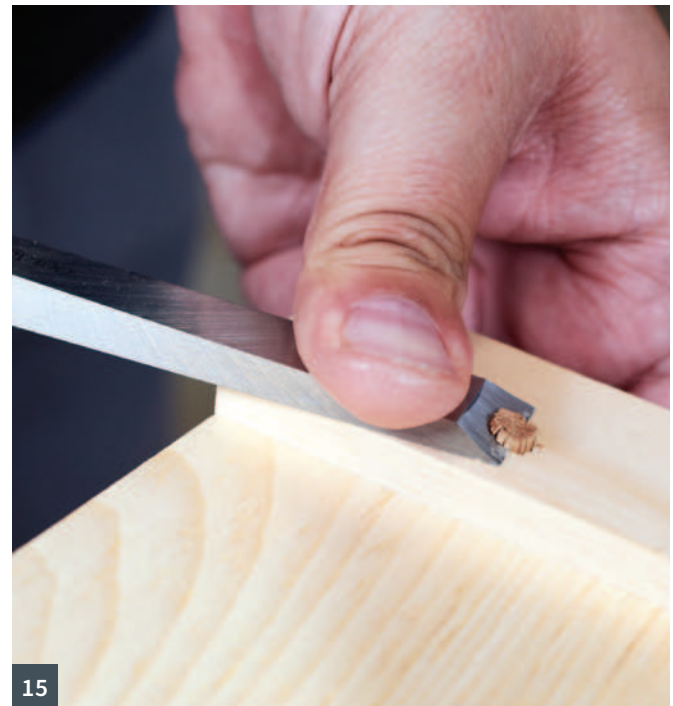
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11 A gentle twist is all you need to judge the fit of the joint **12** A small hacking knife is all you need to split out the pin material **13** This small chamfer will prevent the pin from binding **14** Send the pin home with a mallet. Listen for a dulling change of pitch to your strikes to know when the pin is fully home **15** Bring the pin flush with the surface using a paring action with a sharp chisel

then disassemble the joint. The location marked is your starting point. Measure 2mm towards the shoulder and prick another mark. This offset is a good general measurement but it never hurts to do a test joint with the wood species you are working with to be sure. Be advised, as little as 0.5mm of change one way or the other can have dramatic changes to how the joint goes together. Drill the hole through the tenon with the same 6mm drill.

Reassemble the joint and test the fit using a drawbore pin. Gently twist the pin into the holes and observe how the joint comes together. If you get a solid, gap-free fit then you are ready for the wooden pins.

It's all about the pins

It seems that historically, pins for most furniture construction were 6mm in diameter, bigger for larger work. The pins should be riven for maximum strength so that there is no grain run-out on the pin. You are asking a lot from this small oak pin so make them as strong as you can. Start with some straight oak stock and rive (split) it out so that you end up with a slightly oversized pin. Using a block plane and a knife, whittle the pin to an octagon shape and taper the leading end to allow the pin to pass without interference at the start. As before, don't get lost in the minutiae of differing techniques, the key is to respect your layout lines.

The vintage toolbox

Colin Sullivan looks at the classic London pattern hammer

Some 19th-century tools have the word 'London' marked on them, although they were made nowhere near the capital. I have read that this refers to the quality of manufacture, rather than the origin – maybe the best tools were made in London at that time. What is strange is that London pattern hammers were made by Sorby and Timmins in Sheffield, Preston and Birmingham – London pattern was a style, so did it also originate in London?

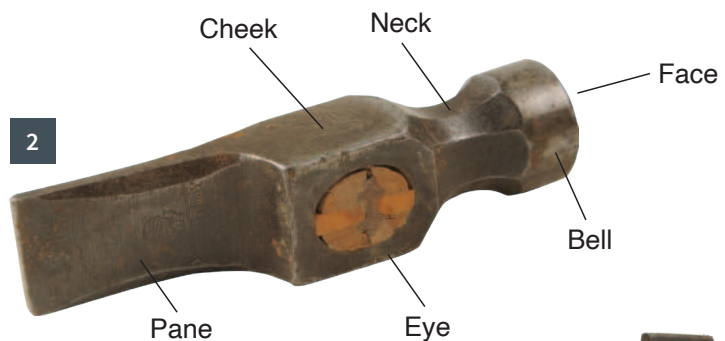
The evolution of the hammer

The Romans had a claw hammer of sorts made by splitting down the pane, but it took an American blacksmith to make the first claw hammer, as we know it today, in 1840. The variety of hammers developed to such an extent that each individual trade had its own preferred pattern; delicate little ones for clock making and jewellery, through to the large and heavy sledges. Even now, new hammer designs are still being developed and marketed. The hammers shown here were commonly used by joiners, including cabinetmakers, in the 19th and 20th centuries.

R Timmins & Sons Pattern Book, circa 1845 shows only claw and London pattern hammers, suggesting these were the preferred hammers for the woodworking trades. Not many tools were made to the same style and pattern with so many different sizes and weights – the largest one shown is 3lb, and the little one 5½oz. There may have been other sizes we have not yet found. Each hammer is marked under the head with a number from one or zero – each company had their own system – through to 10. It is generally accepted that the London pattern hammer is the more simple form, whereas the ones with chamfered edges are the Exeter pattern. Marples called them all Exeter pattern regardless.

The handles are very good to hold and give you the feeling of being in control of the tool. Their gentle flowing curves are quite difficult to copy and make; the proportion of the handle to the head is important. Compared with a lot of hammers, the head does not have a lot of depth for the handle, but I've found that if the head is fitted properly to the handle they are reliable and also stronger than they look. Having a large selection of sizes means the right hammer can be chosen specifically for different jobs, large or small.

1 A collection of four London and six Exeter pattern hammers **2** Anatomy of the London hammer head **3** The 3lb London pattern hammer with a replacement shop-made handle **4** The typical Exeter pattern hammer clearly showing the nicely shaped chamfers on the pane. It's marked No. 7 under the neck



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