Issue 23 February 2017

Woodworking CRAFTS

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A3 41

A3 31

A3 41 A

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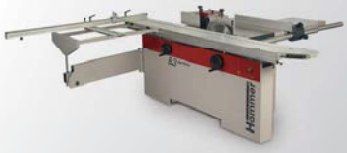

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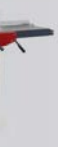

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S01

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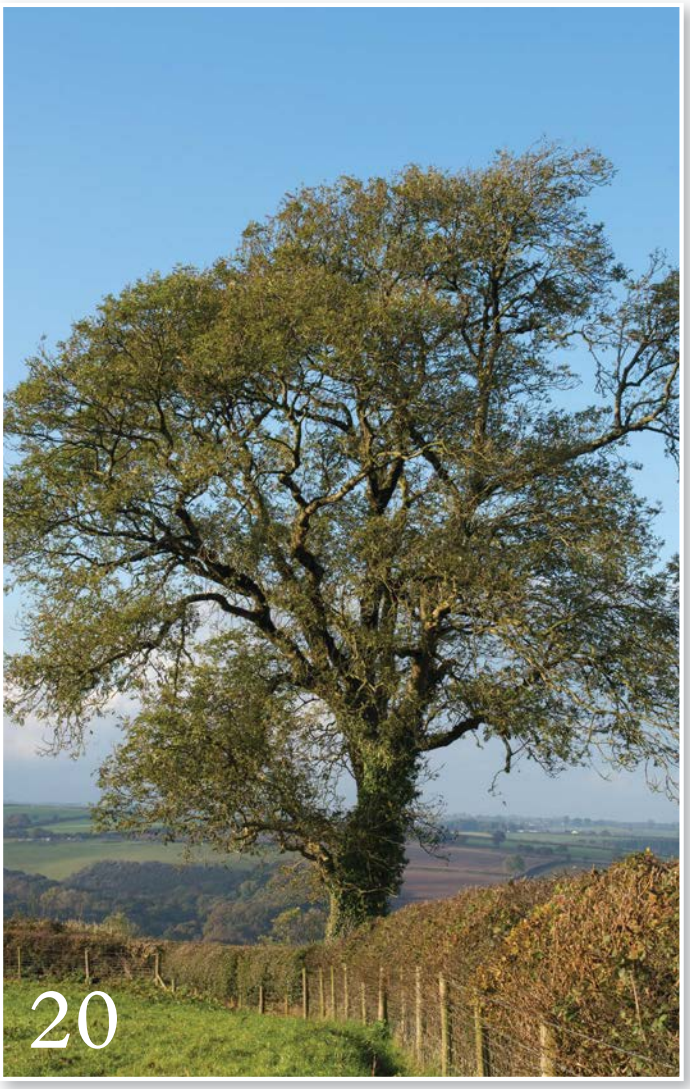
Welcome

to the February issue of *Woodworking Crafts*

Hello Everyone, welcome to the February issue of Woodworking Crafts. In this issue we have the second in our new series of trees and timber, this time it is the common or European ash (*Fraxinus excelsior*). It is under threat from ash dieback, but you wouldn't think so. I remember several months back when high winds and rain threw down a mass of ash 'keys', which covered everything in our back garden and beyond. It is a determined survivor and for the health of our environment we need it to succeed where the elm failed in the face of the Dutch Elm disease onslaught. In fact, ash seeds spread quite easily so the hope is that it will fare better in the long run. The sad fact is that a lot of the generically labelled timbers we use are actually imported from Europe and the USA, American white ash being a case in point. Every time we import trees and seedlings, or even wooden pallets, we run the risk of bringing in invasive insects and tree diseases which damage native stock. Global trade or at regional trade has gone on for millennia, but the current high level of consumption increases the level of risk too.

So, it may seem like an almighty nuisance when the ash keys fall, but this legendary tree is doing its best to ensure it will be with us long after we have gone…

Anthony Bailey, Editor
Email: anthonyb@thegmcgroup.com



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In the February issue...

PROJECTS

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Flat screen media centre

In an extract taken from *Routing for Beginners*, the Editor makes a sleek media centre

This is the biggest project in the book. This media unit is designed to be a height that makes a flat-screen TV comfortable to watch when mounted on the wall above. There is also plenty of drawer space for DVDs and so on. If you have extra equipment, it can sit under the screen with speakers to either side. This piece is light in appearance so it won't overpower its surroundings. ➤

Materials and tools

- Board and half of ash-veneered 18mm MDF
- Solid ash for lippings and legs
- Ash-veneered 6mm MDF
- Veneer edging tape
- Medium and fine abrasives
- Clear aerosol lacquer
- 3 x pairs easy drawer runners 350mm long
- Long drawer handles
- 6mm straight cutter
- Rebate cutter

Routing for Beginners
By Anthony Bailey

ISBN: 9781861088390
Price: £16.99
Web: www.thegmcgroup.com

Cutting list

CARCASS

- Solid ash lipping – 19 x 19mm sufficient for front and ends of carcass top
- Solid ash legs – 575 x 45 x 45mm x 4

18mm veneered MDF:

- Top – 1610 x 480mm x 1
- Base – 1516 x 393mm x 1
- Ends – 350 x 200mm x 2
- Dividers – 385 x 180mm x 3

6mm veneered MDF:

- Back panel – Approx. 1534 x 198mm (divided into 3)

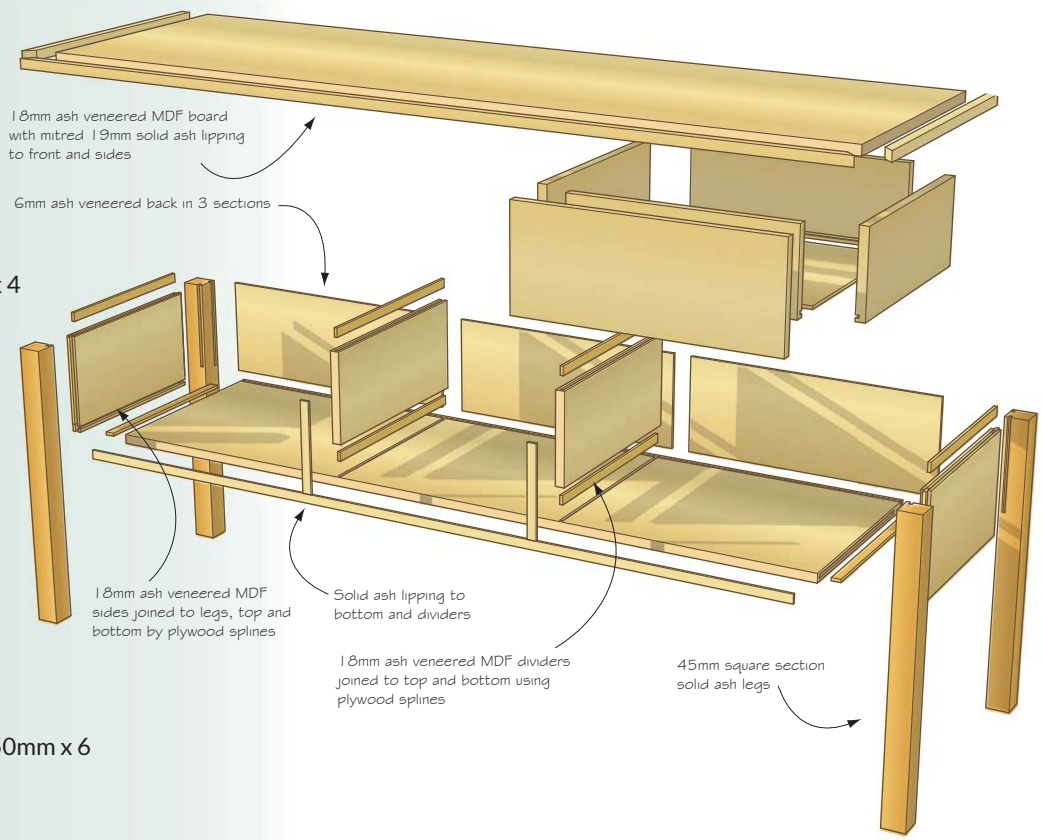
DRAWER BOXES

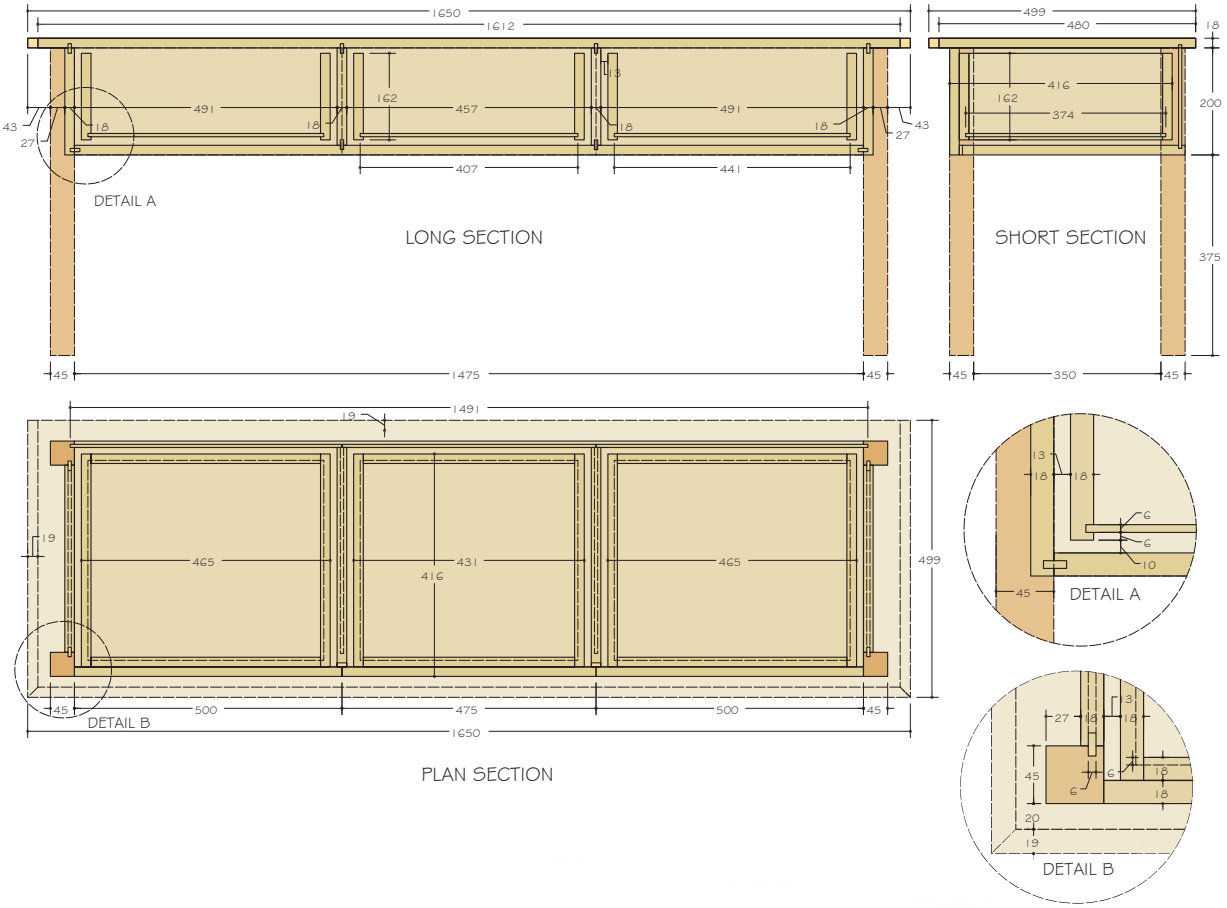
18mm veneered MDF:

- Front and back – Approx. 453 x 150mm x 6
- Sides – 375 x 150mm x 6

6mm veneered MDF:

- Drawer bottom – Approx. 448 x 349mm x 6





1 Make a cutting list based on the drawings and cut out all the carcass parts. Set the blade so it doesn't protrude far through the veneered board as it will reduce breakout of the veneer surface and cut slightly oversize.

2 Use a large router and straight cutter to trim all edges neatly. Check for square before making each cut.

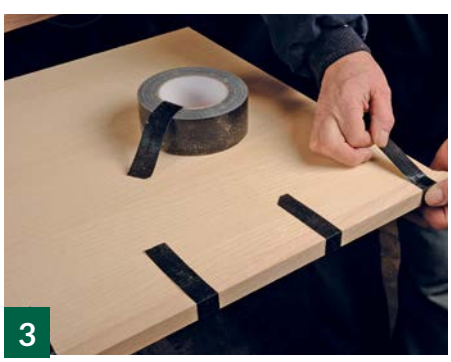
3 Apply solid lippings to the edges of the unit top. They should be the same thickness as the veneered boards or a fraction thicker, certainly not less.

4 Narrow pieces such as the ends of the unit are better cut on a table saw if you have access to one.

5 Begin marking out the positions of all components on the underside of the top. This in effect becomes a 'rod' or template that tells you exactly where everything will go.

6 The large bottom panel needs to have markings on it taken directly from the top so there is no chance of measuring errors.

7 The top overhangs all round so the back panel groove being machined here is set some distance in from the back edge.




7

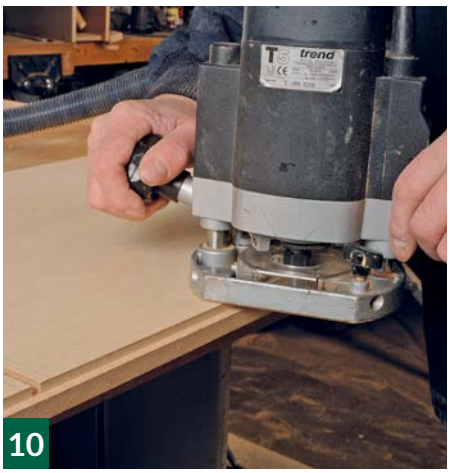

8

8 A groove is needed at each end, ready to take the end panels.

9 The bottom panels require rebate rather than a groove. To achieve the correct rebate width you may need to do a bearing swap, as I did here.


9

10 Machining the bottom panel rebate. Rebating can produce uncollected dust, so wear a mask.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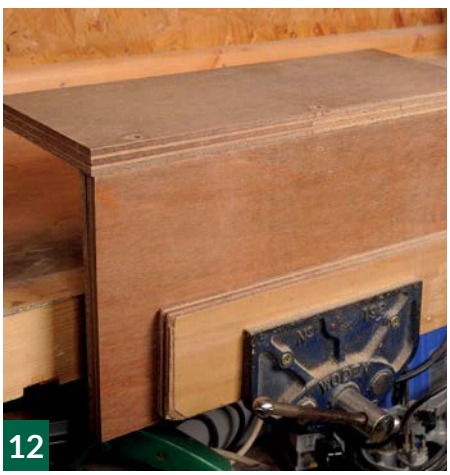
11 The construction relies on loose tongues that are glued into slots in the carcass parts. The slots are just over 6.4mm wide, so a 6mm ply tongue with glue is sufficient to fill the gap. Take care when cutting these on the table saw; use a sub bed to close the gap around the blade so these narrow components don't get trapped beside the blade.


11

12 Slotting the ends of boards is a bit of a problem, which is overcome by making up a simple 90° L-jig.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13 Clamp a board in the vice alongside the L-jig and check it is flush from end to end with the top of the jig. It goes without saying that the edges need to be flat and square so all meeting faces do so properly. It can help to align the workpiece to the L-jig by clamping both together before inserting in the vice, then removing the clamps if they foul the router fence.


13

14 Now fit the fence to the router and centre it on the board edge and proceed to slot it. To avoid the router wandering off course it should normally be pulled towards the operator; if you push, it invariably moves outwards away from the jig. ➤


14

15 The outer ends of the unit need slots, as seen here, because the bottom panel will fit against them again using loose tongues.

16 The legs need to be planed square and also need tongue slots; this is easy if you have two fences to prevent the router from wandering.

17 The finished legs are 'handed'; that is, two go at the left-hand end of an end panel and two to the right. The legs should have been marked up before machining so you don't get a mix up, as this can happen easily.

18 Gluing up an end as a sub assembly. It is only possible to assemble this unit by doing the ends first and leaving them to dry.

19 Clamp the ends together carefully, making sure the legs are not twisted from side to side as this will prevent the carcass from going together correctly.

20 Sand all internal surfaces before assembly. This is good practice as it is difficult to do this properly after assembly.

21 Use a bevel cutter to add a small bevel detail on both the top and bottom edges. A tiny bevel looks right on oak rather than a roundover; however, it isn't needed at the top of the legs where they meet the carcass.

22 Before final assembly, slot in the ends of the bottom panel. This is the same as for the intermediate panels except I found myself higher off the ground using a pair of steps.

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Working tip

There are 'Working At Height' regulations governing trade use of steps and ladders which don't apply to home users, but nevertheless we should all take care working off the ground. Steps and ladders should not only be strong enough but shouldn't wobble; if they do there may be some defect and for the cost it is better to replace them. The type with an extended platform to rest against or hold paint tins is safer to use especially if you are routing above bench height.


20


21


22

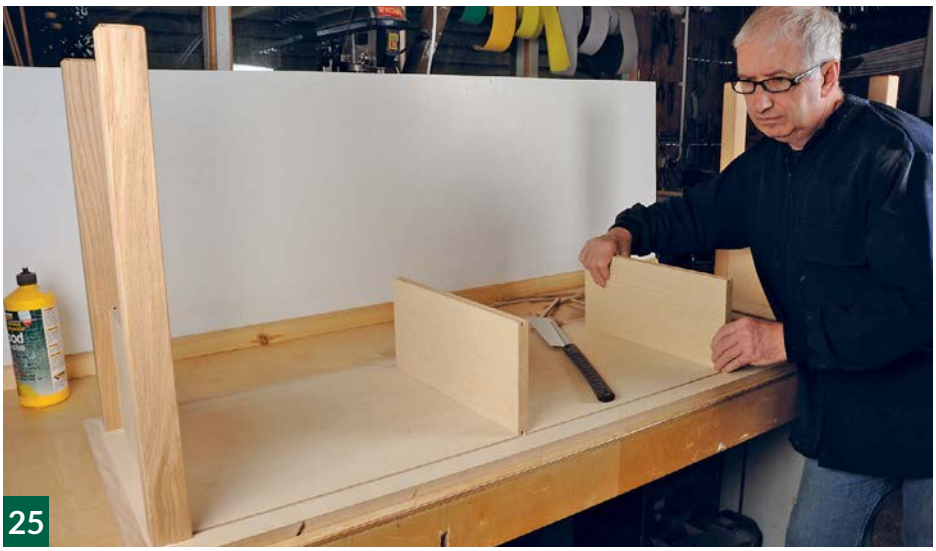
23 The leg ends need to be bevelled so they move smoothly on flooring if shifted around. Note how the tough oak end grain has caused burning; a second lighter pass will remove this cleanly.


23

24 Detail of the meeting slots in the carcass ends. The carcass end is loose tongued to the leg and the lower slot will take the bottom panel while the leg slot will accept the carcass back panel.


24

25 This is not a time to be interrupted unless someone offers to help hold the unit together while you assemble it. Do a dry run first though and check squareness – better to discover any laying out and machining faults before everything is covered in runny glue!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26 Push the loose tongues into the glue so they sit properly in the grooves. The loose tongues need to be a good fit rather than relying on the glue to fill any gaps. The tongue width should be a millimetre or two less than the two combined slot depths or the joints will not close.


26

27 Plenty of clamps are needed to pull the whole unit together. It must be checked carefully for squareness everywhere. Note how short clamps have been put together on top to extend them effectively.

28 The MDF back panel is inserted in sections using a small piece to protect them while tapping them into place. This operation is quite critical because the sectioned back panels will hold the carcass square. ➤


27


28

29 The back panel is glued and pinned in place with the joins coinciding with the drawer dividers. Be careful where the back panel joints occur, so that any fixings go into the rear of the divider, or they may show sticking out inside. It can help to aim the pins or pin gun at a slight angle to avoid the problem.

30 The edges of the dividers and the bottom panel now have a solid lipping several millimetres thick glued onto them.

31 You need to work out the drawer dimensions accurately. Measure each space they fit into, as there will be slight differences. Using easy runners, allow 12.5mm per side gap. The drawer needs to stop short of the carcass back and you need a gap above so each drawer can be hooked into its runners. The drawer box front and back will fit inside the sides of the drawer and a 6mm panel is grooved into the drawer bottom.

32 Make the grooves in the sides to take the front and back components. Keep the board pressed against the fence all through the cut so the groove doesn't deviate and weaken the resultant joints.

33 The drawer bottom grooves are made in the same way. The drawer front and back have tongues cut with a rebate cutter so they can fit into the sides.

34 Iron-on edging is used to finish the top edges; the excess will be trimmed off. Some stockists will sell you edging tape by the metre; it is not so cheap per metre but will cost less overall as you do not need lots of it.

35 Use a sharp chisel to take away the overhanging veneer. The edges will need a light sanding. You can buy special edging tape trimmers but a sharp broad chisel running flat against the board side in order to get a neat finish works. However, respect the grain of the veneer or it may tear out.

36 The easy runners in position and the drawer front with handle fitted. The separate front may need some adjustment to get the fit correct with just a 2mm gap all round. It is screwed to the drawer box from the inside. ■


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Working tip

Modern 'easy-on' drawer runners are not difficult to fit. However, make sure you have got the drawer width right or they may not fit along the sides. They fit just inside the carcass nearly resting on the base. The screws to fix them are not long but the heads need to be small enough so they don't interfere with the sliding action.

The other half of the drawer components screw in from underneath the drawer box. Once installed the drawer box then hooks into the receiving part of the runners in the carcass. For that reason the drawer box needs clearance above it inside the carcass.

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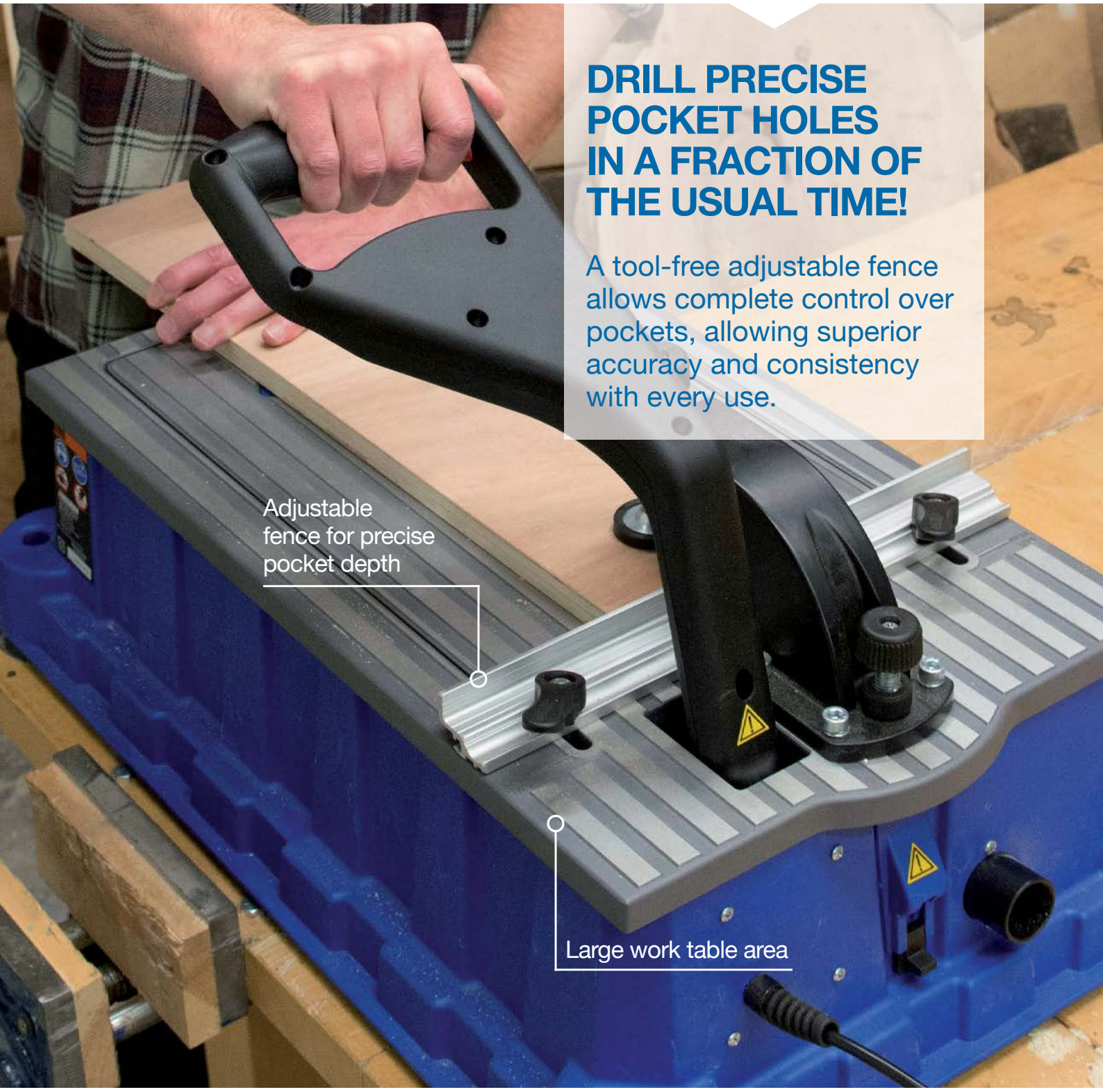

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Wall clock case restoration

Louise Biggs fixes and restores a wall clock case

PHOTOGRAPHS BY LOUISE BIGGS

I was originally called in to assess and repair a broken door from a clock case. Upon seeing the clock I found that several other repairs were needed to the case, with the clients requesting a solution to the wobbly pediment. From a distance it looked to be a resplendent little clock just the right size for their hall, and having carefully transported it to my workshop I took a closer look.

Tool list

- Chisels – various sizes
- Mallet
- Block and smoothing planes
- Spokeshave
- Screwdriver
- Mortise gauge
- Drill and drill bits
- Tablesaw
- Planer/thicknesser
- 'Gents' saw
- Tenon saw
- Sash and 'G' cramps
- Animal/hide glue and glue pot

Not quite what it seemed

Alarm bells started to ring initially with the fixing of the pediment, which had a narrow peg and a rather large slot. The other major concern was the mix of timbers on show with pine (*Pinus sylvestris*), beech (*Fagus sylvatica*) and mahogany (*Khaya ivorensis*) forming the case. Although beech and pine are used within furniture, etc. it is not typical for them to be polished and visible alongside mahogany.

Nothing seemed to quite add up and on closer inspection I found that all the black applied decoration on the pediment and the finials on the bottom were fitted with car body filler. Many of the joints were loose, and with splits due to shrinkage the construction was not as I would have expected. My conclusion was that the clients valued clock case was a made up piece.

At a further meeting I explained what I had found and my concerns about the clock case. My clients were very upset as they explained that while on holiday in Yorkshire some 25 years ago, they came across an antiques fair in the grounds of a large house and had been looking for a clock. They brought it from a 'reputable' dealer and paid a large sum of money (for the time). They had trusted what they saw and heard. With no way of finding the dealer and with its reputation a little tarnished, they agreed to the plan of restoration. As they said 'they had enjoyed their clock for all those years and despite it not being all what it seemed, they would continue to enjoy it'. Having asked their permission to photograph the restoration as a possible article, they agreed in the hope that other people would learn from their mistake.

Above: The narrow peg and long slot for the pediment

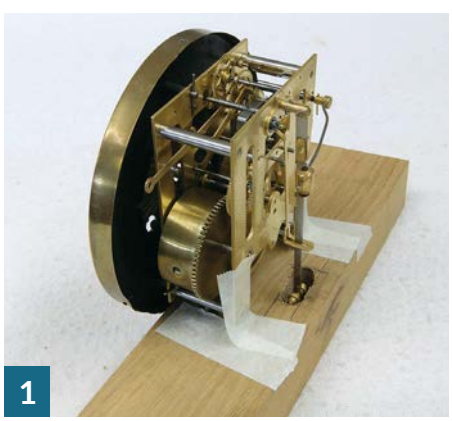
Right: Bottom section with minimal joints and more filler

The top pediment with car body filler which glued the applied decoration

The mix of timbers not usually found polished on show together

Stages of restoration

1 With the pendulum removed for transportation, the movement needed to be removed and supported during the restoration process. A waste piece of timber was cut to allow for parts of the movement, with the main part fixed to the board and supported further with masking tape. ➤



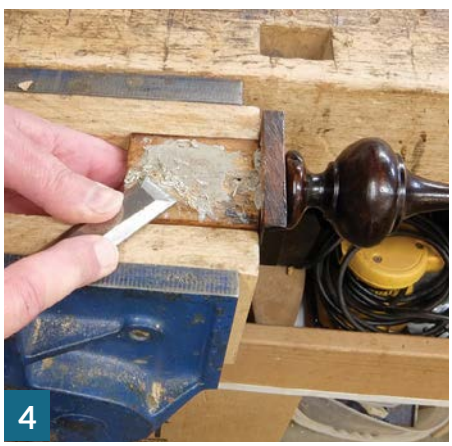
2 The back panel was removed, the carcase disassembled and the joints cleaned of old glue. On a dry clamping run the split rails pulled up tight, so the carcase was glued, clamped and checked for being square.


2

3 Having dismantled the shaped sections under the main case, the glue joint areas were cleaned up. The mitres on the curved section did not meet, but neither was it loose enough to take apart to recut the mitres. The alternative was to infill the gaps with thin slivers of beech. Planed to an angle they were glued in place, before being shaped to match using a wide chisel kept flat on the surfaces, which allowed the mitred shape to be formed. The rectangular block, half finial and shaped section could then be re-glued and clamped.


3

4 Holding the various pieces of applied decoration and finials as safely as possible, and without causing further damage, the car body filler was slowly chipped away. This not only ruins the edge of your chisel but tends to leave a residue on the surface of the wood. From past experience I remove as much of the filler as possible before wiping the surfaces with methylated spirits, being careful not to disturb any polished surfaces. The best glue to use is the animal/hide glue as this seems to adhere despite any small residues of filler.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5 The finials and applied decoration were then re-glued in position. Where possible I straightened and placed the pieces so this time they were at least symmetrical.


5

6 To stabilise the pediment a piece of card was cut to the width of the pediment and the centre point marked. The centre of the case was also marked and the template cut to shape to form a tenon that corresponded with the groove, while keeping both centre points aligned. The template was then shaped to correspond with the pediment so it would not be seen but give the greatest support, and the edges round off using a spokeshave.


6

7 The pediment and support were then glued and cramped together, keeping the centre marks aligned and the protruding tenons shoulder line level with the bottom edge.


7

8 Using a tenon saw, the tenon was reduced in thickness until a snug fit was achieved into the groove on the pediment.

9 With the carcase re-glued and square, attention was turned to the door. The frame had broken at the corner bridle joints on the bottom rail. For a door that is opened on a regular basis for the clock to be wound, corner bridle joints are a weaker joint than a mortise and tenon and not one I would have expected to find. With the carcase loose, the door had bound on the carcase and had eventually weakened and broken.

10 The top rail had separated between the veneer and solid timber. The old glue was cleaned up from the face veneer and the solid frame, this was then ready for re-gluing with the rest of the frame. The tenons of the bottom rail had broken off within the ends of the door stiles and were cleaned out using a narrow chisel. Splitting down the tenons in stages and removing the waste reduced the amount of force on the joint.

11 Using a mortise gauge a corresponding slot was marked on the bottom rail, which was then cut out using a 'gents' saw and two sections of pine to form a false tenon for the corner bridle joint. These were then glued and clamped in place.

12 The door frame was then glued and clamped, checking it was square and when dry the bottom edge of the door was levelled using a small block plane. The door was then re-fitted to the carcase, having previously plugged the worn screw holes. Then three new sections of glazing bead were made in order to hold the glass in the door.

13 The repairs to the door were stained and polished to match. The infill slivers on the pediment and bottom were also coloured to match, and the remaining carcase and details checked for any touching out that need to be done. The case was then given a good coat of wax.

14 Finally, the back panel was reinstated and the glass fitted to the door. The movement was re-fixed onto the two support brackets and the clock was ready to go home. ■


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My New Year's resolution

Irwin's Ultimate Tradesperson of the year, Nicola Butcher tries something new in 2017

'Vandog' Riley is ever attentive and right at his mistresses's side

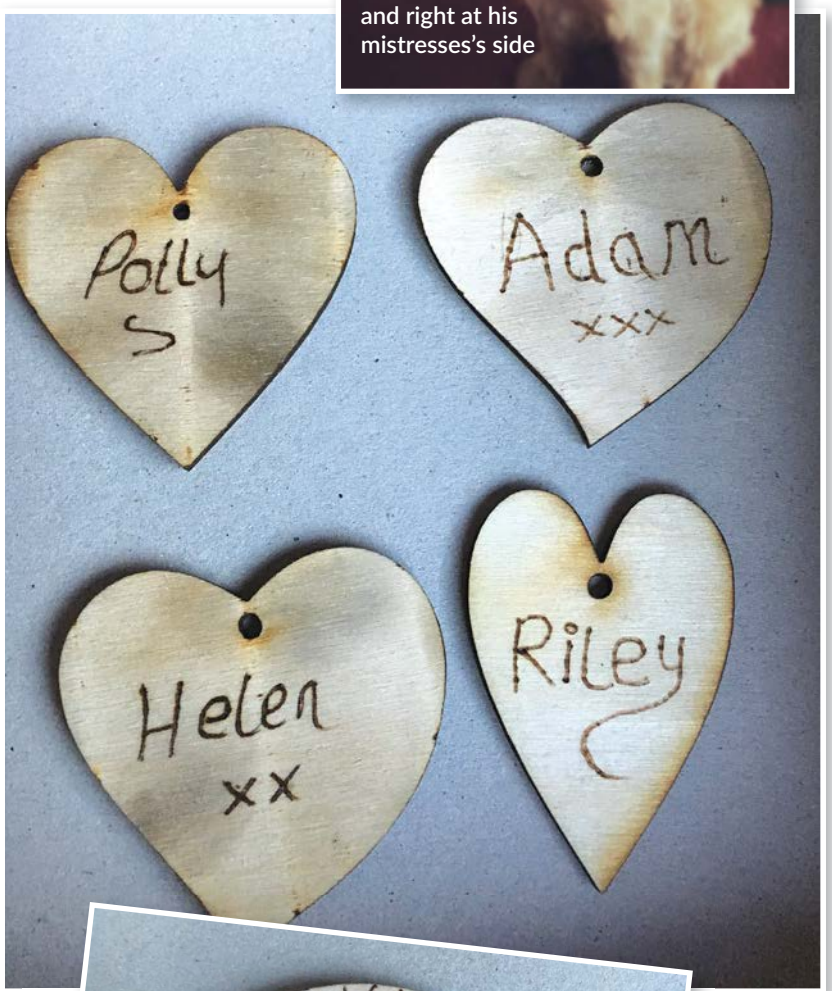
PHOTOGRAPHS COURTESY OF NICOLA BUTCHER

Hey everyone! How are we getting on with those new years resolutions then? Other than the usual lose weight and eat better, I set a different resolution for myself this year… to spend a bit more time doing things I enjoy – woodworking style. See, I spend a lot of time doing the jobs the customers want done, that's what pays the bills after all, but for a long while I've wanted to experiment and make things for myself or friends that are a bit different, be it a wine rack or a chopping board, maybe something more adventurous as I go along.

My love for carpentry came about because of my love for making things, and I decided it's time to use my skills and combine them with my love of creating things. At Christmas I treated myself to a pyrography tool it's something I have wanted for a long time after attending a local craft fair and trying one out as a teenager, so I bit the bullet and bought a basic one and have experimented a little with it since. I find it relaxing as well as enjoyable. This year I plan to incorporate my love of making with my newfound love of pyrography, with the hope of making a few personalised presents for friends and family. I will share my projects with you as I make them and hopefully inspire you to make similar.

For now I've added a few pictures of my initial tester pieces, as I wanted to share these as the beginning of my journey into pyrography. Hopefully my skills with wood burning will improve throughout the year, and if I stop talking about it altogether come and give me a nudge on social media to get back into my new year's resolution!

Good luck if you're still going with your resolution and if it's like mine and it involves making, I would love to see your projects too, find me **@thefemalechippy** on Twitter.



Right: Nicola's early efforts are already showing promise

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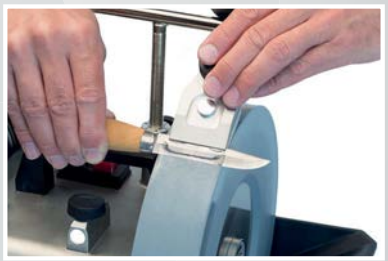

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NEWS & EVENTS

PHOTOGRAPH BY FOREST GREEN ROVERS FC

Winning design chosen for the New Forest Green Rovers ground

The new football stadium for Forest Green Rovers FC, built by Zaha Hadid Architects

Following a seven month competition, Forest Green Rovers have selected a winning design for their new football stadium. After announcing the competition in March 2016, the club received over 50 entries from around the world, including Sweden, Germany, France, Britain and the United States.

After shortlisting nine entries, the club gave them two months to work their concepts, which were then reviewed, leading to two finalists being selected. The finalists were asked to take their concepts further and to include a scale model. The winning design came from Zaha Hadid.

Dale Vince, the Ecotricity founder and Forest Green Rovers chairman said: "Zaha Hadid have built some fantastic sports stadia around the world, including one in London at the Olympic Park; they've designed one of the five stadiums for the next World Cup in Qatar, and now they've designed one for Forest Green Rovers."

The stadium is completely unique because it's made entirely from wood. "The importance of using wood is not only that it's a naturally occurring material, it has very low carbon content – about as low as it gets for a building material," said Dale. As well as being made from wood, the stadium will have the lowest carbon content of any stadium in the world.

The Zaha Hadid designed stadium will be the centrepiece of the £100 million Eco Park development near the M5 in Gloucestershire.

Contact: Forest Green Rovers FC
Web: www.forestgreenroversfc.com

New Forest fungi – a feast for your eyes

The Forestry Commission have launched a new campaign that highlights the importance of the New Forest for fungi. The Forestry Commission are appealing to the public to support a no picking code on the Site of Special Scientific Interest, as there has been a growing concern from conservation bodies and members of the community.

The Forestry Commission feels it is necessary to take a precautionary approach to spread the message about just what a special place the New Forest is. Bruce Rothnie, Deputy Serveyor for the Forestry Commission said: "We want people to get out into the forest to enjoy the autumn spectacle of fungi, we just ask that they don't pick. Fungi are great to admire and marvellously photogenic too."

Contact: The Forestry Commission
Web: www.forestry.gov.uk

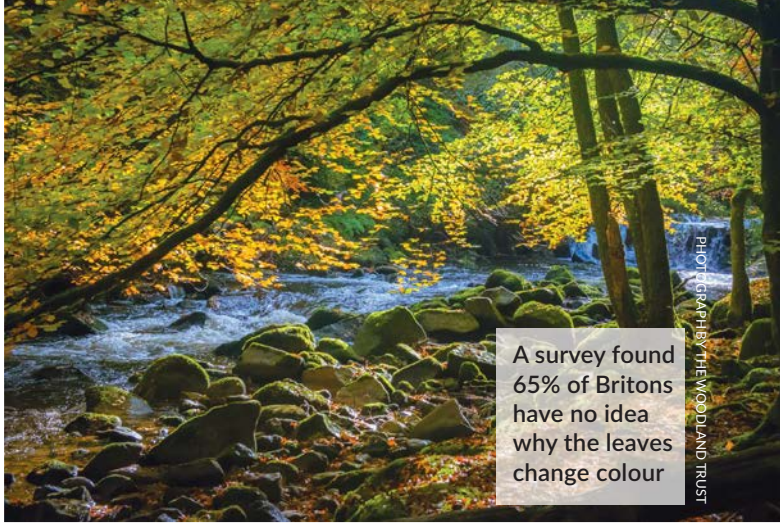
Events

The Stitching, Sewing and Hobbycrafts Show
When: 2–4 February, 2017
Where: EventCity, Phoenix Way, Stretford, Manchester M41 7TB
Web: www.stitchandhobby.co.uk

Spring Fair
When: 5–11 February, 2017
Where: NEC Birmingham, Birmingham B40 1NT
Web: www.springfair.com

Record Power Roadshow and Sale
When: 10–11 February, 2017
Where: Yandle & Son Ltd, Hurst Works, Hurst, Martock, Somerset TA12 6JU
Web: www.yandles.co.uk

Why do leaves change colour?



A survey found 65% of Britons have no idea why the leaves change colour

A survey carried out by The Woodland Trust, about why leaves change colours from green to red and gold, suggests that nearly two thirds of the population have no idea. The Woodland Trust's survey also revealed a fifth of Brits believe the onset of autumn is shown with leaves falling and over a quarter believe autumn is here when the clocks go back.

The trust is also launching a plan to plant 64 million trees across the UK by 2025. Dr Kate Lewthwaite, Woodland Trust citizen science manager, has previously said: "autumn colours is one of our most inspiring sights, and this year as the clocks go back, we'd like people to let us know when they see leaves changes colour and trees become bare. Our records show how climate change is affecting the seasons, with autumn lasting longer than before thanks to milder temperatures."

Autumn signifies the start of tree planting season for most, but one third of Brits suggested they do not know the best time of year to plant a tree. The Trust's survey found less than 5% of respondents choosing winter, which is traditionally thought of as the best time of year to plant young trees.

Contact: The Woodland Trust
Web: www.woodlandtrust.org.uk

Web links for you

Places to visit

• The Geffrye Museum
The Geffrye Museum of the Home, East London – if you have or have ever had children, revisit your worst domestic nightmare with an exhibition of 26 London teenager's bedrooms!
Web: www.geffrye-museum.org.uk

• Bedgebury Pinetum
Bedgebury Pinetum – open all year round to explore for walkers, cyclists and horse riders – with a café, of course.
Web: www.forestry.gov.uk

• Dark Sky Discovery
Dark Sky Discovery – from Caithness in northernmost Scotland to the Isles of Scilly off the Cornish coast there are wild and open areas where you can discover the stars in the heavens above.
Web: www.darkskydiscovery.org.uk

Blog

• This girl makes
Check out the piece on the Young Furniture Maker's Exhibition 2016!
Web: www.this-girl-makes.com

The environment

• Rewilding Britain
Attempting to make our environment whole again.
Web: www.rewildingbritain.org.uk

Education

• Lison de Caunes Créations
Specialising in straw marquetry and held in Paris.
Web: www.lisondecaunes.com

Instagram

• Canadian Woodworks
custom woodworking
A short video on the finishing of a walnut (*Juglans* spp.) dining table as he uses zebrawood (*Microberlinia brazzavillensis*) dovetail keys and a coat of Rubio mono coat pure.
Web: www.instagram.com/canadianwoodworks

• dandesch
Specialising in restoration, but in particular their newly made cabinet for their bathroom
Web: www.instagram.com/dandesch

Twitter

• Bath College
Bath College is very well established and provides a woodworking for beginners course and other short courses are available.
Web: @BathCollege

Pinterest

• Sawtooth ideas
A number of pin boards for your enjoyment features a number of boxes, birdhouses and even a revolving bookcase!
Web: uk.pinterest.com/source/sawtoothideas.com

• Garage
Some great tips on this pin board to organise your workshop/garage or even build extra storage units!
Web: uk.pinterest.com/cemdvfd/garage

YouTube

• Scrap wood projects – Dan Lecocq
A short video clip on creating a project with any bits of scrap wood you have lying around. It's definitely mesmerising to watch!
Web: www.youtube.com/watch?v=M9upLrT1Dik

An ash tree in a typical landscape setting

PHOTOGRAPHS COURTESY OF SHUTTERSTOCK

Tree for Life

A brand new series looking at trees, timber and their uses

This month, we look at a tree that is more universally useful than any other tree on the planet – the versatile ash tree

The ash tree is unique like all other species, but it's uniqueness almost knows no bounds in terms of usability. It can be sawn, riven, it can form massive structures and be steam-bent; it can be safely used for cooking utensils and has a natural beauty both as a standing tree and as a cabinetmaking timber.

European or common ash

The common ash – Latin (*Fraxinus excelsior*) – 'excelsior' translates as high, elevated, lofty. This could be said about many mature trees and, although found everywhere, as is the utility of its timber, it seems unkind to call it common but more certainly 'excelsior' on account of its importance to the environment and mankind.

It is a large deciduous tree, typically growing up to 18 metres in height and two metres diameter, but exceptionally as high as 43 metres tall and 3.5metres in diameter with a tall, narrow 'crown'. The bark is smooth and pale, the leaves have an oval form with 'leaflets' which have serrated margins. The tree generally has male or female wind pollinated flowers, although sometimes they may have both. A tree can have male flowers one year and female the next, or vice versa. The fruit are, of course, the dreaded 'ash keys' designed to fly and land anywhere and everywhere, making the ash a 'pioneer' species self seeding. Unintended young seedlings can be found growing in the corners of many a garden, often near a building and need to be removed promptly if they are not to cause problems later on.

Ash keys and leaves

The ash flowers

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

A close up view of the bark

Typical uses

Ash is or has been used for car and bus body framing (Morgan Cars still do!), the DeHavilland Mosquito in WWII, for sleighs, toboggans, snow shoes and sports equipment, cooking implements and bowls, hand tool handles – including axes. It is frequently used in solid or veneer for furniture, its ability to be cold bent and laminated in thin layers or larger components to be steam bent, is well known. Unlike other steam bent timber it will retain its shape indefinitely. Young trees mature early and have been felled in the past for hop poles, ladders, carts and carriage shafts, walking sticks, hoops, hurdles and crates, and for mediaeval arrows and some bows.

Food and medicine

The bark and root have astringent properties and have been used to treat fevers, while the dried leaves have been used as a diuretic or purgative treatment. The freshly fallen leaves have been used as animal feed for sheep and cattle; in a few parts of eastern Europe this is still common practice. ➤

Did you know?

Yggdrasil, the World Tree in Viking mythology, grew on an island surrounded by the ocean, in the depths of which the World Serpent lay. This ash tree's trunk reached up to the heavens, and its boughs spread out over all the countries of the Earth. Its roots reached down into the Underworld. (source – **treesforlife.org.uk**)

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

History

The battle of Crécy in August 1346, where Edward III and his men were being chased by King Philip VI and his army, was the first battle where the longbow demonstrated its superiority against both cavalry and crossbows and a much larger enemy. This was only possibly because many Englishmen were required to train in using longbows as a matter of course. Thus a trained archer using a weapon with a longer range than the French had, could loose off between 10–12 ash-shafted arrows in a minute, creating what appeared to the enemy as a frightening 'snowstorm' of arrows. War longbows used yew (*Taxus baccata*) as the wood, ash bows would have been reserved for practice or hunting, but ash could be cleft and shaped to form perfectly straight arrows that didn't deflect under the enormous load of tensioning a longbow. Landowners were expected to plant sufficient ash to supply the enormous number of war arrows – 51,350 sheaves equalling 1,232,000 arrows at this time.

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

An ash vase with an ebonised finish

PHOTOGRAPHS COURTESY OF SHUTTERSTOCK

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Ash is the perfect fire wood


PHOTOGRAPH BY GMC/ANTHONY BAILEY

Timber conversion

Freshly sawn ash has a slightly pinky hue, the colour when dried is a creamy white – except where there is dark or olive heart wood present. Although ash cleaves well as young trees, in practice mature trees are sawn 'through and through'. This reveals a 'crown' on some outer boards which is considered attractive. This also shows when cut as veneers.

Choosing the timber

Ash is less wasteful on conversion than oak, but if it is to be used for steam bent components, wider spacing between annual rings indicates a more flexible timber that will withstand compression bending without damage. Olive hearted wood may be chosen where the added colour might suit the end use.


PHOTOGRAPH BY GMC/ANTHONY BAILEY

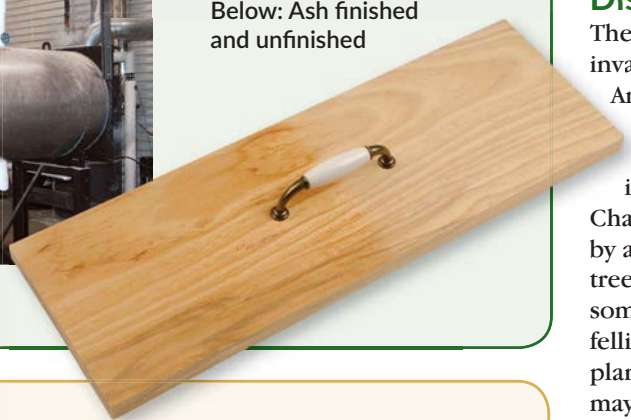
Steam bent hoopbacks (Ercol)

Working characteristics

- Ash is a tough wood, but responds well to hand or machine working.
- You can't beat really sharp edge tools if you want a good trouble-free finish without too much effort.
- Always respect the grain direction so you don't tear angled grain.
- When routing, burning can occur so make a final lighter cut to remove the evidence.
- Where oak often looks better with bevelled edges, ash can suit both that or rounded-over profiles.
- Wirebrushing the grain can help to emphasise the noticeable pore structure.
- Unfinished ash can stain badly if continuously damp or wet.
- Ash will take a good polish due to its smooth surface when planed.


PHOTOGRAPHS BY GMC/ANTHONY BAILEY

The steam bending process at Ercol, Princes Risborough



Below: Ash finished and unfinished

Did you know?

Hurling is an ancient Gaelic game native to Eire, but also played around the world by the Irish diaspora, its origins going back about 3000 years. A wooden ash stick called a 'hurley' is used to hit a small ball called a 'sliotar'. The game has been used as symbol of Irish nationalism with attempts under the British occupation to supress it unsuccessfully.

Diseases

The Emerald Ash Borer is a highly invasive species of beetle in North America, but not yet found in the UK, however the Forestry Commission have emergency plans ready in case it should be discovered in the UK. Chalara Ash Dieback, which is caused by a fungus, is slowly devastating ash trees in the UK. There is evidence that some trees may be resistant, apart from felling diseased trees, it may be that planting apparently resistant examples may be the only practical way to save this valuable species.

Make your own discoveries

Why not visit your nearest arboretum, stately home or urban park and see which unusual trees you can identify? Let us know if you find something unusual, send a photo and details and we can publish it!
Check out Trees for Life:
treesforlife.org.uk ■

Fascinating facts

The writer John Evelyn said of the ash in his book Sylva (1662) 'so useful and profitable is this tree (next to the oak) that every prudent lord of a manor, should employ one acre of ground, to every 20 acres of other land'.

Many place names and even peoples names have ash in them, examples of place names are: Ash, Ash Vale, Ashworth, Ashington, Ashwell, Ashton-under-Lyne, Ashton-in-Makerfield, Ashcombe, Walters Ash and many more, all indicating the presence of ash trees as markers in the landscape. Ash tree and names indicating their existence appear elsewhere in the world too.

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Ask the Experts

This is your chance to challenge our Editors and for them to answer your comments and queries

ANTHONY BAILEY
Editor,
Woodworking Crafts magazine

MARK BAKER
Group Editor,
GMC woodworking magazines

HANDLING PROBLEM

*"When my grandmother died the family shared out some of her furniture between us. I got a large mahogany (*Swietenia *spp.) Victorian chest of drawers in a dark mahogany, which she had for as long as I can remember. Now it's mine, I have started to look at it more carefully. I'm a bit puzzled because there are faint shadow or dent shapes on the drawer fronts around the large wooden knobs. Does this mean it had different handles? If so, why did they change them do you think? There are several bits of thick veneer and some beading around the drawers which are missing as well."*

Andy Wetherall

The ring around this knob is evidence of an earlier brass mounted knob

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Anthony replies: Every period in history has its own furniture style. The Victorians had a habit of altering older pieces of furniture to suit their more recent taste, sometimes as a result of the old hardware being damaged or missing. Late Victorian styles tended towards very large, rather bulbous knobs and bun feet, which I don't feel are particularly attractive. The slight shadowing you refer to almost certainly meant it would have had brass plate handles, which would make it older, probably late Georgian at a guess without seeing it first hand. The thick veneer would also suggest it is from an earlier time period than Victorian times as the veneers would have been sawn not sliced. The drawer beading is referred to as cockbeading and may not be original as it was used to disguise gaps between drawer and carcass. Earlier chests usually had ebony (*Diospyros* spp.) or boxwood (*Cornus florida*) stringing around drawer and carcass edges. The finish would have been lighter, but would have been given a dark polish later on in Victorian taste. Find a good antique restorer who can give you a more accurate opinion about its history.

Grooves cut more cleanly if you do a 'pre-scoring' pass first

BREAKING BAD

"I bought a set of grooving cutters (which weren't cheap) so I can machine a variety of slot widths on the router table. Unfortunately, it seems that too often the wood tears out a bit so the surface of the wood is damaged around the grooves. Am I doing something wrong, or are the cutters not as good as advertised?"

Peter Williamson

Anthony replies: The difficulty with a groover is that it rotates into and then out of the wood. As it leaves the wood it pulls the wood fibres out at either side of it, as you have discovered. The answer is fairly simple; set the cutter height but make the cut depth just one or two millimetres for the first pass. This will create what is called a 'pre-scoring' cut, which should leave the surface intact because it isn't dragging a lot of wood fibres from deeper in the workpiece behind it. Once that pass is done you may need a second deeper pass before the final pass, which I imagine you are running against the bearing, but level with the fence. It is worth the extra effort, it will avoid tearout and be less strain on the cutter and your ears!

WILLOW WEAVING

"I've read several articles in your magazine that use willow (Salix spp.) for various things like arches and decorations. How difficult is it to grow my own willow to make things out of?"

Mandy Archer

Anthony replies: Willow is an incredibly versatile material which, as you say, can be used as decorative or as practical objects and even for reinforcing river banks! Growing willow isn't that difficult either and young garden willows can be coppiced and used to make something simple like a hedgerow basket. But (there is always a but...), there are many different willow species, some of which are more suitable than others. Equally, there is good reason why so much willow is harvested on the Somerset Levels; it is because of very damp, peaty soil which creates long lasting willow beds. There is lots to learn about willow; it is a fascinating subject and an interesting journey if you really get into working with willow. To start with I suggest you read up about it online. This website is a very good for information and useful downloads: **www.basketryandbeyond.org.uk**.

PHOTOGRAPHS BY PETER WOOD

Cultivated willow has nice straight stems, which are perfect for willow work

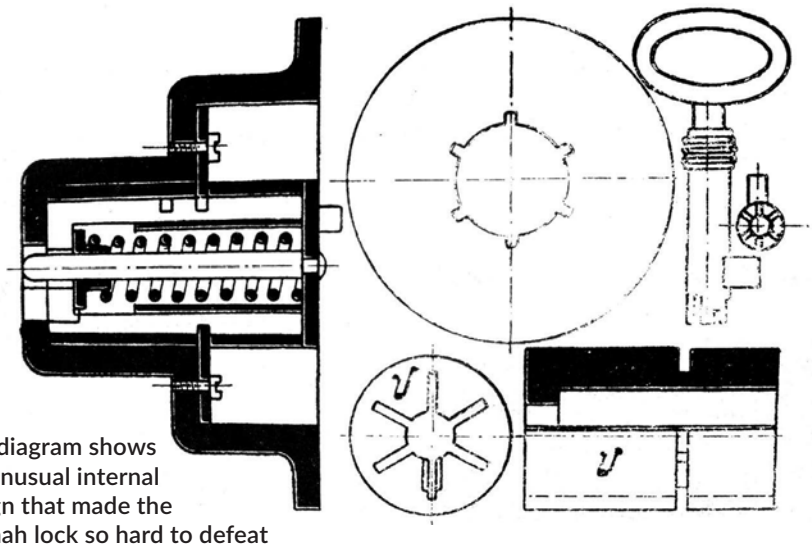
In the meantime you can also have a go at Peter Wood's willow arch in issue 20, as a starter. Visit Peter's website: **www.greenwooddays.co.uk**

SECURITY IS THE KEY

"Recently, I found a rather strange key in a junk shop with a castellated end but the slots weren't all the same length. There was also a funny little round escutcheon with milled edge that seemed to belong with it, but nothing else. Any ideas?"

Ben Hankham

Anthony replies: The answer is very a simple one; it belongs to a Bramah lock along with the escutcheon. It once probably belonged to a jewellery box or something similar where valuables were kept. The Bramah lock was first invented in 1784 by skilled engineer and inventor, Joseph Bramah, who was so confident of the security of his design that he challenged anyone to find a way to unlock it. It was more than 50 years before an American locksmith finally managed to do so. The drawing shown here demonstrates a cylindrical design with pins of various lengths that the key had to depress, before turning the key. Anyone who has an antique box with such a lock, but missing the key is advised to get in touch with Bramah UK via their website. They can advise on the type and price for key replacements.



PHOTOGRAPH COURTESY OF WIKIPEDIA

This diagram shows the unusual internal design that made the Bramah lock so hard to defeat

STAR QUESTION PRIZE

The Tool Marketing Company, or TOMACO, as it is known, who sell a variety of tool brands, including COLT, Sharp Edge and Narex Tools, are pleased to be sponsoring the 'Ask the Experts' section in collaboration with GMC Publications.

Each issue's 'Star Question Prize' will receive a Narex six-piece chisel set worth £79.95 and all other published questions will receive a 20mm half-round fine cut Narex rasp worth £20.95. For more information see **www.tomaco.co.uk**

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Alternatively, email: anthonyb@thegmcgroup.com

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

The router mortise box

If you want good strong joints the traditional mortise and tenon is the way to go. Here's how to machine them using a router and a mortise box

You can use a router and its fence with a straight cutter, but it is very easy for the router to stray off course and spoil the mortise. The amount of cutting effort involved when the cutter is deep in the wood is enough to make this rather traumatic when the cutter jumps sideways. It's far, far better to make a simple, reliable device called a mortise box. This holds the workpiece securely and controls the movement of the router.

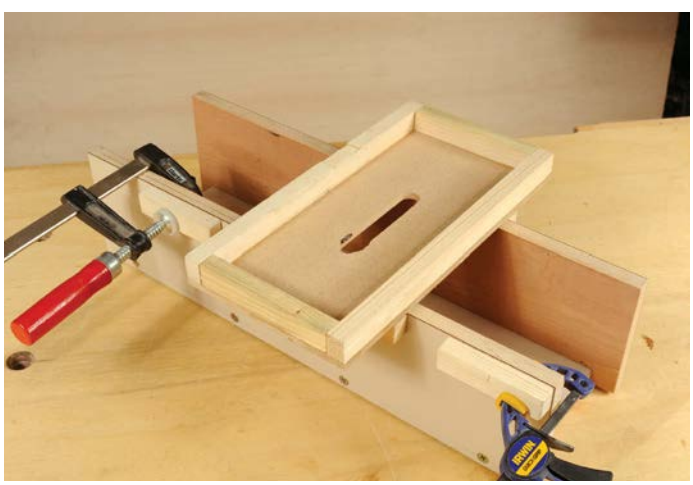
HOW TO MAKE

The size of the box isn't critical, but all the components need to be square-edged and parallel. It must be big enough to accommodate the largest intended components.

The box is nothing more than an inverted 'U' shape. To fix it down you can either screw or bolt it to the bench or alternatively, fix a batten underneath so it can be clamped in vice jaws. In the past it has been necessary for a router to straddle the width of the box, but this can limit the width of the box. It also needs longer than average fence rods and a second fence to avoid sideways movement.

My solution has been to add a 'tray' on top of the box. It sits perpendicular to the mortise box and needs to be the width of the base so the router can slide sideways smoothly and without any play. The tray has two little fillets of wood glued underneath and on the outside of the box, which ensures they slide smoothly along the box.

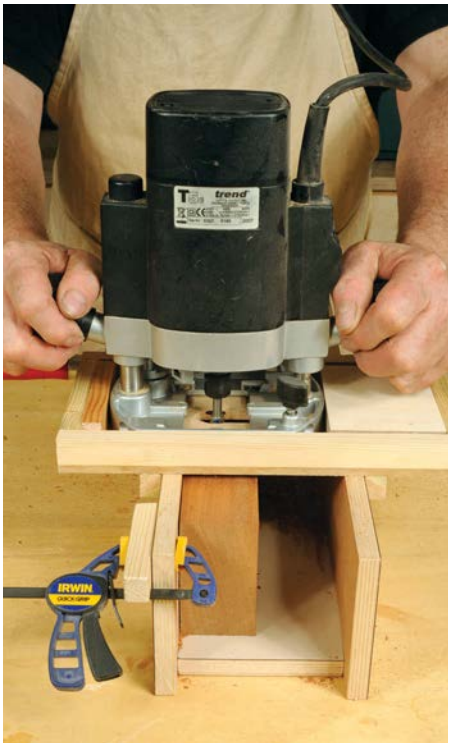
To control the width of the mortise, infill pieces of the appropriate size are placed in each end of the tray. Different width pieces will alter the mortise width and position.



The mortise box with a router tray on top. Note the fillets under the tray and mortise length stops clamped at each end

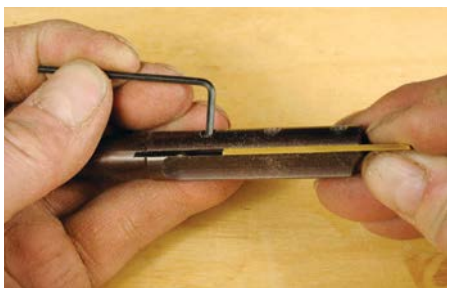
The workpiece can be straight or shaped like a rear chair leg for example. It will generally be clamped to one side of the box and sit on packers to bring it right up under the tray. Begin by marking out the mortise, then position the chosen straight router cutter against the width lines and make and drop in infill pieces so they act as sideways machining stops.

Now, move the cutter to each end of the mortise markings and add clamping pieces to the top of the box at one side, or screwed right across the box top edges so they prevent the router moving beyond those fixed points. If you do a series of identical mortises just line the workpieces up to a datum mark so you get exactly the same mortise position each time.

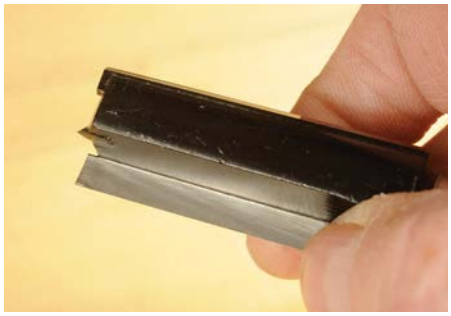


Another view showing the workpiece clamped to the side. Note the router tray has two infill blocks preventing it moving sideways

Stagger-tooth cutters have single offset blades, which makes cutting quicker but rougher, however it does allow chippings to escape more easily

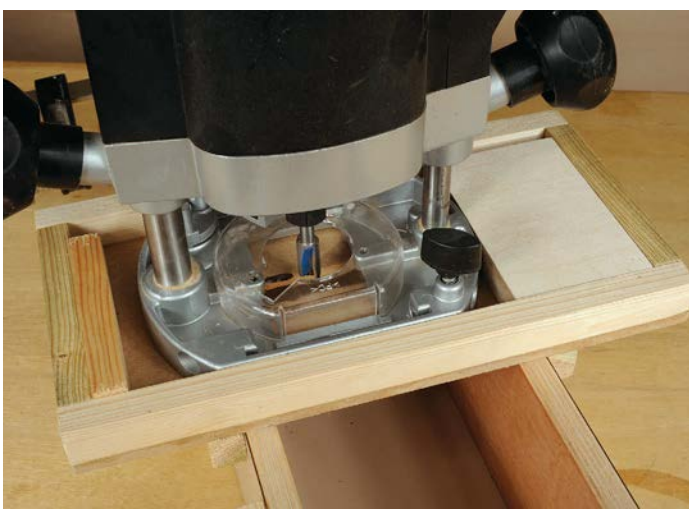


A disposable tip straight cutter. The tips are usually reversible, making it more economic for quantity production work



A twin bladed TCT straight cutter, the bottom cutting insert is essential for plunge mortising

A long pocket cutter used for lock cutouts and similar tasks. The blades are slightly larger than the shank so it can plunge deeply without burning



Two blocks dropped in which allow a limited amount of sideways movement so the mortise width can be increased

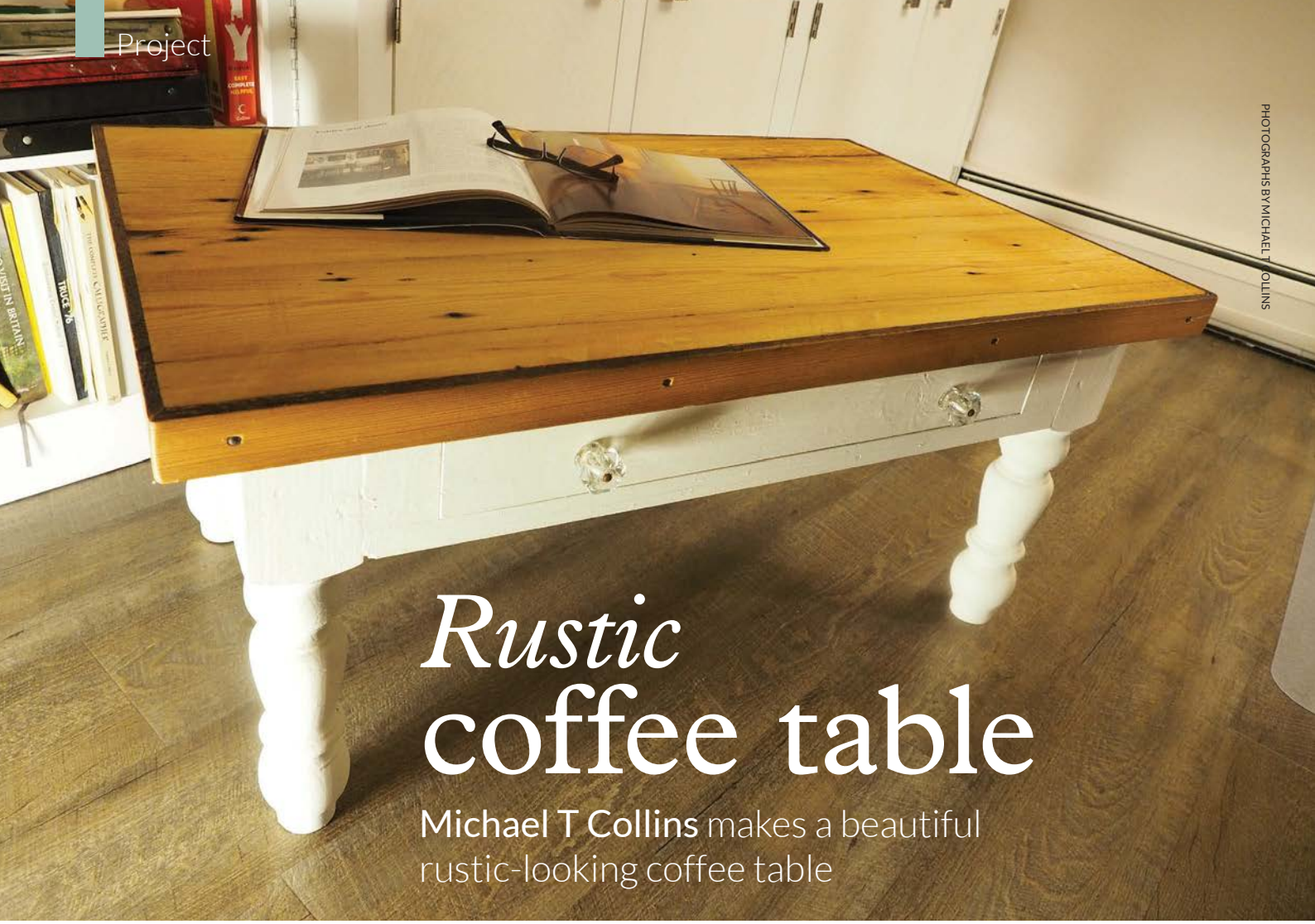
CUTTING TIPS

Mortises are cut with straight cutters. There are different types but a standard plain twin-bladed straight cutter works well. Alternatives are pocket, stagger tooth and disposable tip models, although these are more expensive types.

Make a series of passes to final depth, and don't take heavy cuts as it will strain the cutter. If the router has been given freedom to move sideways to enlarge the width of the cut, always travel so the router and cutter moves into the rotation of the cutter, i.e. clockwise.

Chippings extraction is problematic as the tray will sit right over the mortise and your vision of the cut is limited, although you can open up the tray base quite a bit. Lift the router and tray off between passes and use a vacuum and nozzle to clear the chippings out. ■

The mortise box in operation; note the support packers so the cutter can have enough plunge depth and extraction fitted as well



PHOTOGRAPHS BY MICHAEL T COLLINS

Rustic coffee table

Michael T Collins makes a beautiful rustic-looking coffee table

I have long been a proponent of recycling wood and when a friend of mine said they wanted a rustic coffee table I jumped at the chance. I got to use some reclaimed barn boards to craft a new coffee table.

Making the top

1 The size of the tabletop is determined by the boards available. Here I have made the tabletop first and let the rest of the construction flow from this. Choose the widest and most stable boards. Before allowing your sharp tools to touch old wood, make sure the boards are free of any foreign material. Where I live it is not uncommon to find nails, barbed wire and even the occasional bullet embedded in the wood. I suggest using a metal detector, wire brush, facemask and eye protection when cleaning old wood.

Planing the top

2 Start with a scrub plane or jack plane with a 255mm ground radius and a slightly aggressive iron, work diagonally across the face side of each board. Check for flatness as you go. Then switch to a jointer and plane the length of the boards, this will

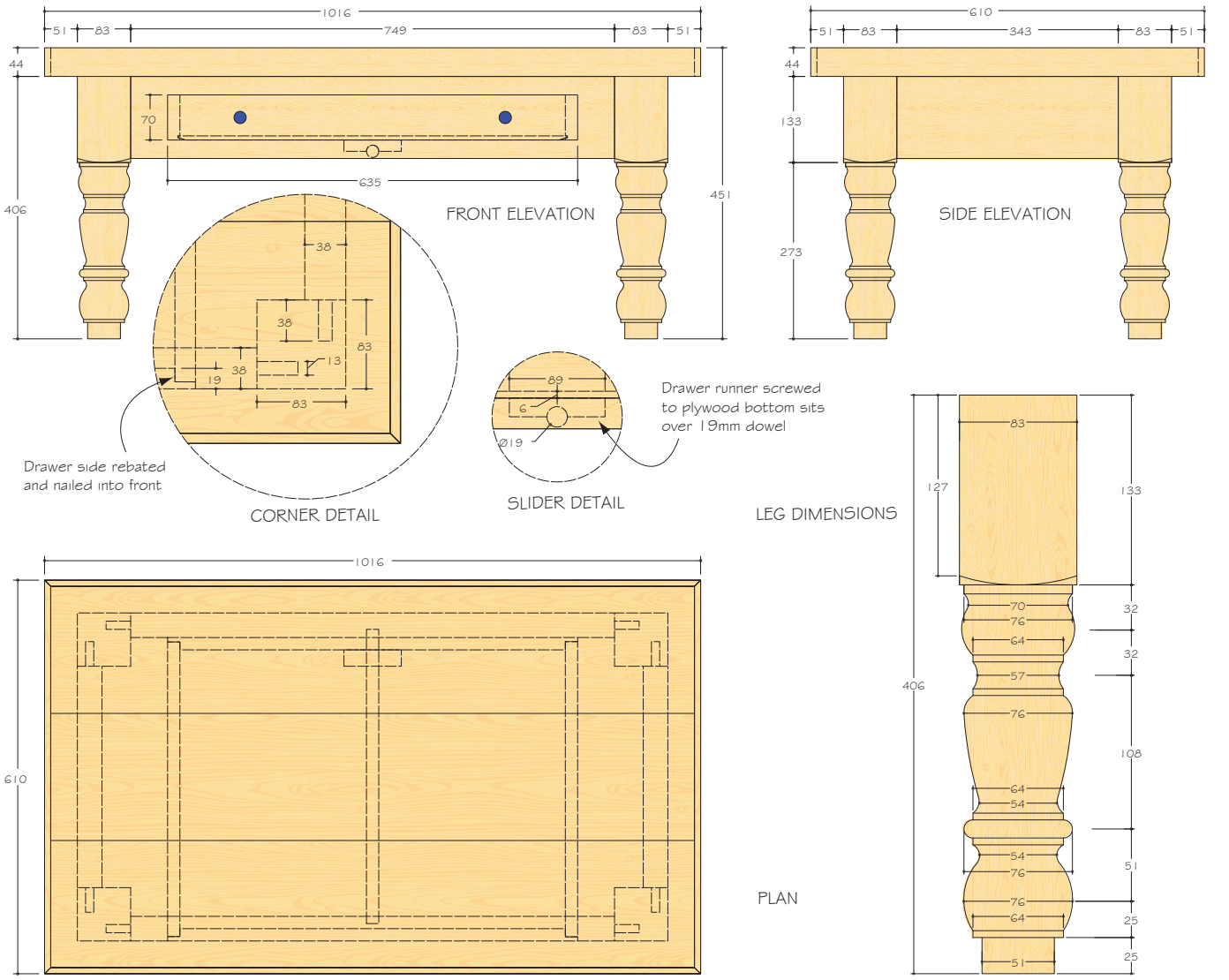
Cut list

Top – three boards make a 45 x 610 x 997mm top
Edging – enough to frame the top
End rails – 2 @ 441 x 125 x 38mm
Front rail (drawer) – 1 @ 832 x 150 x 38mm
Back rail – 1 @ 1010 x 125 x 38mm
Legs @ 4 (see profile diagram)
Drawer guide – 610 x 20mm oak dowel
Drawer bottom – 10mm x drawer depth
Drawer sides – 70mm x drawer depth

1

2

3



remove the ridges. Continue until you are removing continuous shavings, indicating that the board is flat. Repeat for the other boards. The underside only needs a few passes with the Jack plane to bring the roughness down.

Jointing the boards

3 Put the boards together and try to match the grain. Mark these as the face side. Plane an edge at 90° to the face.

4 Check for flatness along the length of the wood. Be careful to avoid creating a convex surface – a slight concave surface is better and will provide a stronger 'spring' joint. Repeat for all the other boards.

Glue up

5 Spread the glue on one surface and then take the mating piece and create a rubbed joint by using a back and forth motion until friction prevents it from moving without force. In an ideal world your surfaces will match perfectly and there is no need for clamps; just make sure that the boards remain flat and the mating joints are flush. I carry a 'feeler gauge' with me all the time – my index finger – it is amazing how accurate it is at discerning misalignment. If you created a spring joint you will need a clamp in the middle. Glue squeezed out can be removed with a paint scraper once dry. Don't forget to wear eye protection! Once the glue is dry, repeat the planing process across all the boards. ➤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The legs

6 I wanted a 'chunky' look to the legs, so laminated pine (*Pinus sylvestris*) construction boards together. Turn the legs using a template (*see diagram*). Make sure that the top/mortise section is at least the depth of the rails.

7 Once turned, look for the best faces and arrange them as they will be in the table. The pattern created on the legs from turning is 'wild', but these are going to be painted and isn't an issue. Mark where the mortises will go – this will avoid any errors…


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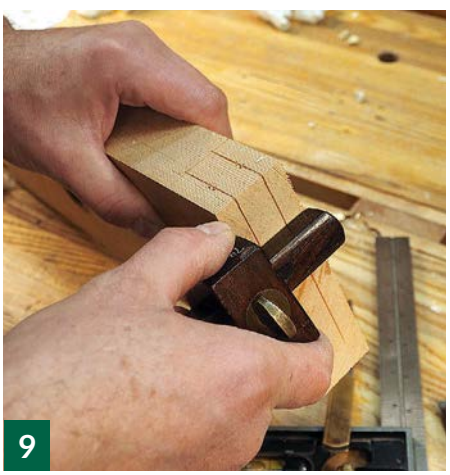
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8 Mark the tenon depth based on the mortise depth (38mm). Gang the rails and scribe the shoulder line on all side. Set the mortise gauge using the width of the chisel (16mm).

9 I make my tenons half the width of the stock. Adjust the mortise gauge so that the mortise is in the centre of the rail. Mark the tenons using the face side. Set the rails aside for now.

10 Take the mortise gauge and, without changing the setting, mark the location of the mortises. To chop the mortise, place the wood over a leg of your bench so that the chopping is well supported. You can draw a line or add a bit of tape on the chisel as a depth gauge. Note: If you want to add a reveal between rails and legs simply increase the gap between the mortise gauge fence and the first spur. The mortises are 100mm long. Full details on chopping mortises can be found in issue 1.


10

11 Take the side and back rails and cut the shoulders first. Create a 'V' groove on the waste side and using a bench hook and a tenon saw, saw down to the tenon scribe marks.


11

12 Place the rail in the vice at 45° and mark a small 'V' notch on the waste sides of the tenon line. Now rip down to the scribe marks. Rotate the wood in the vice saw at 45° using the previous kerf as a guide; now remove the triangle of wood in the kerf and the waste should fall away. Repeat on all sides and test fit. If need be, you can clean up with a chisel by paring towards the tenon. Note: The tenon is 100mm long and should be positioned so that when seated in the mortise the top of the rail is flush with the top of the legs.


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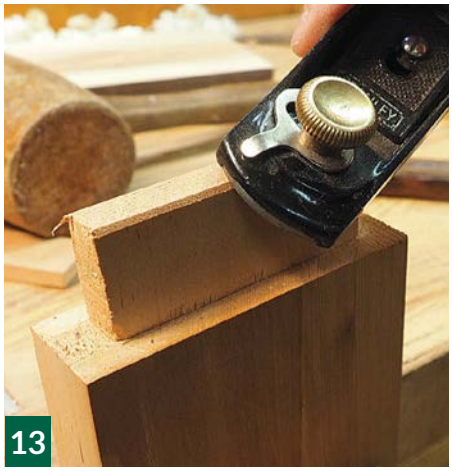
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13 Bevel the ends so that it won't snag on the fibres in the mortise.

Adding a drawer

14 Take the drawer rail and mark the drawer front section in the centre. Rip the top and bottom and then cut the centre section into three pieces with a draw front 635mm long. Clean up all the saw marks and glue the outside pieces together. Now cut the tenon on this piece as before. Plane the rail down to match the height of the other rails.


14

Glue up

15 Take a 20mm oak dowel (drawer guide) and place this in two holes drilled in the centre of the front and back rails. Apply furniture wax to reduce friction. Glue and clamp the base checking for squareness.


15

Making the drawer

16 This drawer is going to use simple nailed rebates. Take the drawer front and rip this in half – this will form the front and back of the drawer – plane the sawn faces.

17 Use a combination plane to cut a 6 x 6mm groove 6mm up from the bottom on all draw sides. ➤


16


17

18 The back panel rests on the drawer bottom and so the section below the groove can be removed. Mark the rebate size 10mm on the end grain with a marking knife and remove with a saw and chisel.

19 Position the drawer side and glue and nail together.

The drawer bottom

20 This is made from a piece of 10mm ply, the edge is chamfered to slide into the groove. Apply glue to the front edge. Test fit the drawer and plane accordingly. Make a 'C' shape runner and screw to the back of the drawer bottom.

Attaching the top

21 Wood moves with the humidity, so secure the top to the base with 'pockets' that will allow the top to 'float'. Using a 20mm gouge make two evenly spaced pockets on each of the rails, then drill a 3mm hole from the 'pocket' through the top of the rail, elongate the top so that the screws can 'wiggle' back and forth. Use a washer and screws to secure the top.

The finish

22 For the top apply one coat of Danish oil – we want this table to have some protection and yet continue to develop character over the years. Give the legs one coat of blue, followed by one coat of cream milk paint. Over time the cream will wear through revealing the blue, giving the table a 'shabby' antique worn paint look – you can speed the process with sand paper. Add a 10mm boarder, nailed to the top, to even up the rough edges I added crystal drawer pulls. And there you have it – barn boards upcycled to produce a very nice rustic coffee table that would grace any home. ■

Supplier list

Milk paint: **www.milkpaint.com**
Barn boards:
www.barnwoodaddicts.com
Michael T. Collins – Custom Woodworking:
www.sawdustandwoodchips.com
@sawdustandwoodchips


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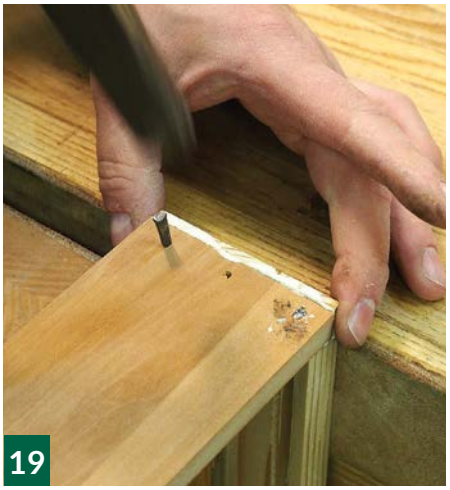
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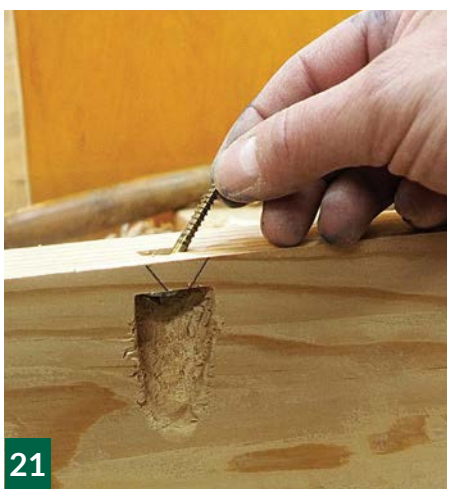
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PHOTOGRAPHS BY LEE STOFFER

Woven top stool – part 2

This month, **Lee Stoffer** weaves the seat for his stool

To ensure the seat weave was of the highest standard I visited my friend and basket maker extraordinaire, Martin Hazell. He's developed his own method for chair seating with willow, which is reasonably simple to achieve, incredibly strong and comfortable.

1 Having soaked and mellowed the willow to be used, the first job is to sort through the material and group into thin, medium and thick. The majority should fall into the medium category.

2 Now mark out three positions on the side rungs of the frame. Measure from the outside of the front and back top rungs, mark the centre point on each side rung, then measure half this distance out either side of centre (minus 5mm) and make the other marks.

3 Select the six thickest rods you have to make the 'scalloms'; these will be the start of the frame work for the weaving. Make a diagonal cut to the centre of the rod 200mm from the thick or 'butt' end. Using pressure from your thumbs to control the split, remove half the material.

1

2

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4 Then use a knife to remove any pith for about 50–60mm from the initial diagonal cut. It can help to now re-soak the exposed wood on the scallom in warm water for 10 minutes before fitting them to the frame.

5 Trim all six scalloms to around 300mm longer than the stool frame. Place the first scallom on the rung to one side of the mark cut side down (as shown). Use you thumb and forefinger to carefully flex it around the back of the rung.

6 Bring the tail around the outside of the rod and over the top towards the centre of the frame. Add a second scallom on the same side of the next mark and repeat. The second scallom should hold the first in place.

7 Repeat for the third, but this time bring the tail around the outside of the rod again back towards the middle and tuck it under the centre scallom. At this stage you can use masking tape to keep them in place until the weave locks them in.

8 Next, turn the frame around and add three more scalloms from the opposite end and on the other side of the mark, but this time sharpen or 'slype' the loose end with a long tapered cut. Feed it in under the bind of the existing ones and wrap over the top of each pair of rods and lock in the tails as before.

9 Trim the loose ends back but leave them overhanging the edge of the frame. You should end up with it looking like this, ready to start weaving from front to back.

10 Start weaving with the thin/medium rods. Take one and thread the butt end into the scalloms start over the top of the rung then alternating so it finishes under the furthest scallom.

11 Pull the working end in tight to the leg while clamping the inserted section in place with your other hand, and wrap it tightly around the rung twice. Be careful not to kink the thinner end of the rod.

12 It should come out under the rung and over the first scallom, under over then under the opposite rung. Again, wrap it tightly around the ➤


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rung twice, tight to the leg, then back through the scalloms so it finishes under the last scallom and the rung (as pictured).

13 Repeat this process but this time inserting the butt end from the opposite side of the frame. This will begin to form a pattern that is followed through the weaving process. There should be around 300mm of the tip left poking out each side, this can be trimmed back to keep things tidy but leave at least 50mm protruding beyond the frame for now.

14 Turn the frame around and repeat the previous four steps. You can remove the masking tape now if you wish and pull the weavers tight up to the side rungs. Then cut three more thick rods to about 500mm and slype one end. Push the slyped end in between each pair of scalloms and through the weavers.

15 Continue the weaving pattern as before, adding butts from alternating sides and working two or four rods from each end, working towards the middle of the seat frame. Maintain tension on the weavers and keep pulling them tight up towards the side rungs.

16 The last few weavers to go in will be more difficult as there is less space to feed them through. Use the thinnest ones now and pre-flex them by dragging them back and forth over your knee a few times. Leading with the tip (more like sewing) may also be necessary and a few kinks are inevitable, but try and keep them to a minimum.

17 Now it's best to let everything dry out for a couple of days, but keep a few rods wrapped up in a damp cloth because after a few days you should be able to pull everything up a little tighter and squeeze in a couple more weavers.

18 Trim back all the protruding ends, side cutters work well for this but be sure to leave the butts and tips overlapping the scalloms underneath the seat so they don't work loose. ■


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The finished stool should give many years of reliable service. Martin has a 15-year-old example that is still in great condition with regular use. You can also modify the frame, adding stretchers to give extra support to taller versions if you wish.

Woodland ways

Harvesting and growing hazel

Gary Marshall talks this month about good quality hazel

Hazel (*Corylus avellana*) is one of our commonest, well recognised and most useful under-storey tree species. Young supple stems have long been cut and exploited by man. The 'wattle' in wattle and daub walls relates to woven hazel. Hurdles, fencing, bean poles, props, various sticks and pegs are still used by people with access to hazel products. In good quality hedge laying, hazel stakes and binders are considered essential materials.

A quality product

Generally the straighter, longer and more flexible the harvested hazel is, the more useful and valued it tends to be. So the best hazel is likely to be found in woods with dedicated hazel coppice areas that are also harvested rotationally. The reason for this is that cut hazel regrows quicker and more reliably when exposed to the light, and is drawn up straighter when it's in competition with regrowing neighbouring coppiced stools. Stools can be anything from a metre to four metres apart, often they appear to grow with random spacing. Rotation can be anything from three to 12 years governed by the rate of regrowth; the soil; the diameter wands needed; the size of the wood; the 'cants' or 'coups' to be rotationally cut and the time and resources of the woodsman. These days it is ever increasingly necessary to protect newly cut areas from deer browsing – with dead hedging, brashing over or most effectively by temporarily deer fencing.

Coppice-with-standards

'Coppice-with-standards' woodland

Closely growing hazel

Well drawn up hazel

PHOTOGRAPHS BY GARY MARSHALL UNLESS OTHERWISE STATED

Right: Overstood hazel

Far right: Check for wildlife such as dormice

Below: Coppice with standards

PHOTOGRAPH BY WIKIPEDIA

Straight flexible stems prior to cutting

is a traditional and common method of producing good hazel. The hazel under-storey has sufficient light to regenerate well after cutting, but it is interspersed with usually oak (*Quercus robur*) standard trees, which are grown over a longer term for their timber. The oaks are sufficiently close to be 'drawn up' themselves, but not so close that they form a completely overshadowing canopy.

Old and neglected hazel

'Overstood' or 'outgrown' hazel, i.e. neglected, old hazel presents problems. The old stools may start to collapse or die back, and regrowth can be uneven. Larger stems are more time consuming and difficult to cut, and the amount of light reaching the woodland floor may be poor or, at best, uneven resulting in a poorer habitat. A lot of unmanaged woodland has suffered in this way, but good hazel is as useful as ever.

Restoring coppiced hazel woodland

Restoring neglected coppiced hazel woodland takes time, effort and vigilance, but the result can be most rewarding. I've seen it done and helped do it too!

It's a good idea to work within a management plan – see my previous *Woodworking Crafts* article. Check for wildlife, particularly listed species such as dormice – if in doubt seek advice from your local Wildlife Trust. Divide your hazel dominant areas into areas to be cut in rotation – anything up to a hectare a year is usual. Start with an easily accessible 'cant' and gradually and carefully dismember your hazel stems, branches and dead wood.

Large old hazel can be cut for logs – hazel burns well after seasoning. Some bean poles or stakes and binders may be cut, but a lot of it will be poor quality and can only be stacked as habitat piles or burnt.

After cutting, gap up with new hazel between unevenly spaced stools, protect the whole area against deer, and leave for 'x' number of years until the next cut, observing regrowth. In following years, move on to another area and treat the same. Eventually you'll end up cutting your first restored area, which will hopefully now be a lot more improved with good straight stems. Each cut should further improve the hazel understorey to provide a consistently even, supple long product – valuable to all hazel craftsmen.

For more information, please visit www.forestry.gov.uk and search 'coppicing' ■

Dead hazel stool

PHOTOGRAPH BY GMC/ANTHONY BAILEY

A newly constructed dead hedge

Coppiced hazel produce

#@*&!%?! happens!

A hammer can be an offensive weapon – especially with wood! Here's a quick guide to undoing the damage

REMOVING DENTS

When nailing, it is better to leave nails slightly proud and then use a punch. If you are tapping components together use a protective pad to spread the force and avoid a dent. However, if you do dent a surface with a hammer or by dropping something on the wood, all is not lost…

Removing dents

A dent often isn't obvious until the surface is seen against the light – that is when you wish it hadn't happened. You can remove a dent by steaming using a damp cloth and an iron; this can be done to bare wood or wood with a finish on it. However, in the latter case, it will damage the finish and it will need refinishing. To minimise the area of damage take a small felt pad, used underneath objects for protecting the surface of furniture, remove the adhesive backing and then cut to the shape of the dent and soak the pad thoroughly in warm water so it gets absorbed. Press the tip of the iron on it until it gets hot enough to steam the dent out. This will at least minimise the damage area to the finish. Wipe away moisture and let it dry.

After that some careful colouring and finishing using artists' brushes will be needed. Wood with a finish on could be very lightly rubbed with very fine wirewool to remove roughness to the surface before touching in the colour and finish. If it is bare wood it can be lightly sanded back, allowed to dry and then your chosen finish applied. ■

1 Apply a wetted cloth to the damaged area

2 Then, create steam by placing an iron on the cloth

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

3 Where a finish exists, some colouring in may be needed

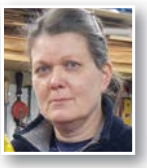
4 Then a bit of refinishing, in this case French polish

5 This is bare wood sanded after steaming

Next month... Decay, fungus and insect damage

Meet the contributors...

We put all of this month's professional and reader contributors here, so you know exactly who they are and what they do!



Louise Biggs

Having completed her City and Guilds, Louise trained for a further four years at the London College of Furniture. She joined a London firm working for the top antique dealers and interior designers in London before starting her own business designing and making bespoke furniture and restoring furniture.
Web: www.anthemion-furniture.co.uk

Michael T Collins

British-born Michael has been working with wood off and on for 40 years. He moved to New York in 1996 and over the years, has made bespoke furniture, including clocks, inlay work, Adams fireplaces, book cases and reproduction furniture.
Web: www.sawdustandwoodchips.com

Lee Stoffer

Lee Stoffer has finally decided to turn his passion for green woodworking into a full-time occupation, making, teaching and demonstrating.
Web: www.covertcraft.com
Facebook: www.facebook.com/covertcraft

Nicola Butcher

Nicola is a qualified carpenter working in the Stevenage area, who has recently been awarded the UK and Ireland's Ultimate Tradesperson by Irwin Tools.
Twitter: @thefemalechippy

Amber Bailey

Amber Bailey is a marquetarian and surface design artist with a background in furniture restoration. She has trained in prestigious decorative art schools both sides of the English Channel and is now based in North Wales working for a furniture company using laser cut marquetry.
Web: www.abmarquetry.com

Gary Marshall

Gary has had a life-long interest in woodlands and the countryside. He trained in countryside management and subsequently ran a company working with the local County Councils and Unitary Authority and their Countryside and Rights of Way Teams, as well as a wide range of conservation organisations.

Simon Rodway

Simon Rodway runs LineMine, a website with articles and online courses on drawing software. A new course, 'SketchUp for Woodworkers', is proving really popular. Simon also provides all of the illustrations for *Woodworking Crafts*.
Web: www.linemine.com/courses

Your face and details could appear here in our 'rogues gallery' if you write an article for the magazine, and you could be rewarded for your efforts too!

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10 TIPS *for* DRILLING

Anyone can drill a hole – but there are right ways and wrong ways to do it. So, here are some handy hints to help you do it right

An 18 volt drill with hammer action is favourite for masonry drilling. An SDS chuck will hold bits firmly and do use extraction (as shown here)

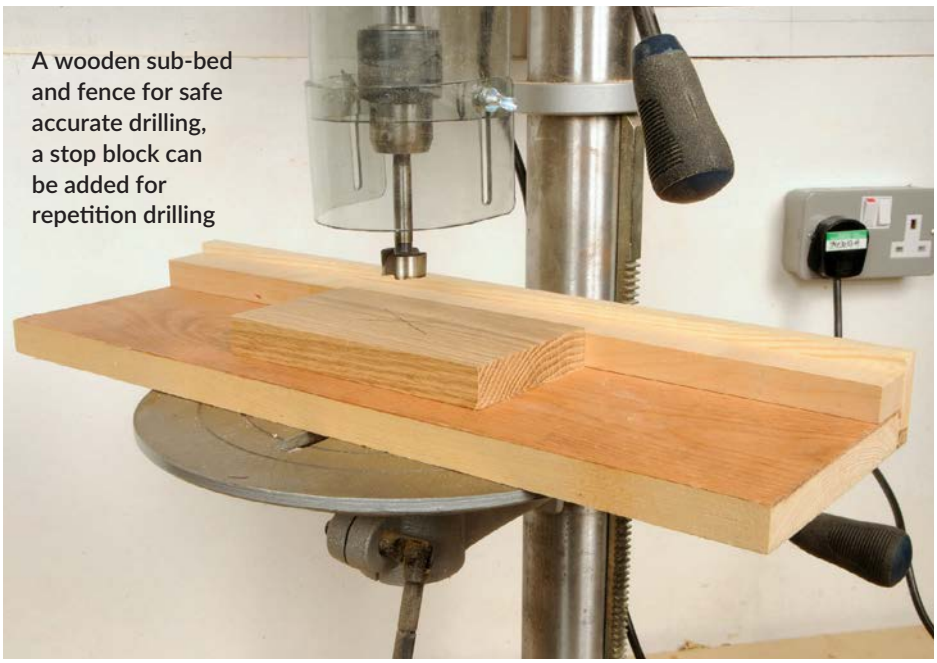
1 Drilling is so much easier with a cordless drill, meaning no trailing wires from a mains drill. Buy a drill with enough power to get the job done. For screwing and wood drilling a 10.8V/12V will probably be adequate but masonry drilling needs 14V/18V and hammer action.

2 For fine cabinetwork, a good quality secondhand 'coffee grinder'-type hand drill is still very useful. It needs to have two bevel gears running against the centre wheel and the chuck must open and close smoothly. It will only work with smaller diameter drill sizes but will give good control, perfect for installing hinges, small locks and shelf fittings.

3 There are a variety of drill bits to suit different purposes. Be sure you use the correct type for each job. Wood drilling should be done with bradpoint bits which have a point and outer cutting spurs, while metal drilling uses bits with just a bevel-shaped tip. Masonry needs TCT (tungsten carbide tipped) drill bits. There are other types which claim superior performance or variety of application.

4 For larger holes standard spades bits work reasonably well, although Bosch have an advanced bit design that cuts much faster in our opinion. There are sawtooth Forstners in a variety of sizes for wood, the small centre point makes overlapping holes possible. Holesaws come with various tip types for drilling in wood or building materials (see Reader Group Test in issue 22).

PHOTOGRAPH BY GMC/ANTHONY BAILEY



A wooden sub-bed and fence for safe accurate drilling, a stop block can be added for repetition drilling

Forstner bits can cut overlapping holes easily due to the cutting action and centre point

5 Freehand drilling can never be truly accurate, even if the drill bit stays on the spot you are drilling. Trying to keep it exactly perpendicular is quite a trick, although placing a trysquare standing up nearby to sight against can be helpful. If at all possibly use a pillar drill because it will be much more precise.

6 When using a pillar drill use an engineers vice to hold metal or small wood components. If necessary bolt it down to stop it turning around, you can mount it on a long board and clamp it at either side of the drilling table. For larger components, a proper wooden sub-bed and fence will not only make drilling safer, it will give repeatable results as the workpieces can sit against the fence each time.

7 If you need to drill repeat holes for shelf studs a jig is needed, which can be made out of 6mm MDF. However it can get worn out quite quickly. The best answer is to use a router, straight cutter (usually 5mm for shelf studs) and a guidebush. The jig holes can be made with a 16mm drill bit, then the guidebush will fit perfectly for repeat drillings.

8 Resharpening drills is a bit of an art. You can only do this with metalworking bits with their simple bevel profile. You should use a proper drill sharpening jig if you want attempt this. Since drill bits are cheap to buy, it is frankly easier to do that, rather than ruin the tips of your drill bits so they aren't useable anymore!

Drill types (*L–R*): twist drill, bradpoint, sawtooth Forstner, small sawtooth Forstner, holesaw, spade bit

9 Some jobs need exact drill sizes, for example letting in door catches or rare earth magnets for use as closers or drilling metal prior to creating a screw thread using a tap and die set. Make sure you have the correct sizes in stock, if necessary buy from a specialist supplier if you need a non-standard diameter drill, e.g. imperial instead of metric for example. A set of Vernier callipers is essential for checking actual diameters.

10 Small diameter drills are incredibly useful but have a tendency to break as they are somewhat brittle. You can buy replacements in small quantities so you always have spares ready. ■

These knife rack holes needed to be an exact fit for the rare earth magnets

2016 Wood Awards — the winners

Maggie's, a place of refuge for cancer patients, at the Robert Parfett Building

PHOTOGRAPHS COURTESY OF WOOD AWARDS

November 2016 saw the awards ceremony for the Wood Awards, so Briony Darnley takes a look at all of the winners

Originally called the Carpenters' Award, this annual competition for excellence in architecture and product design in the world's only naturally sustainable material was first awarded in 1971. However, in 2003 the competition was relaunched under the title of the Wood Awards, and previous Arnold Laver Gold Award Winners include: David Morley Architects for The Hurlingham Club Outdoor Pool, Adam Richards Architects for Ditchling Museum of Art + Craft and, most recently in 2015, Niall McLaughlin Architects for The Fishing Hut.

The Awards' elite independent judging panel of professional experts and specialists not only judged the submitted entries, but also visited the shortlisted projects in person, making the Wood Awards as meaningful and rigorous a competition as possible. Here, I'm looking at the winners, and what got them the coveted awards.

So what is it about?

The Wood Awards aim to recognise, encourage and promote outstanding design, craftsmanship and installation using wood; the Awards having a great impact on the architectural and design landscape. They are also a 'mark of excellence' in wood.

The criteria for the Wood Awards is based on design, craftsmanship and quality of installation. Neither size nor value are taken into account, except where special attention is given to those small projects for the Small Project category.

Private

This competition category includes privately funded projects for non-commercial clients. Examples include residential property, new builds and extensions. Past winners have included House no.7 by Denizen Works and Church Walk by David Mikhail Architects.

Commercial & Leisure

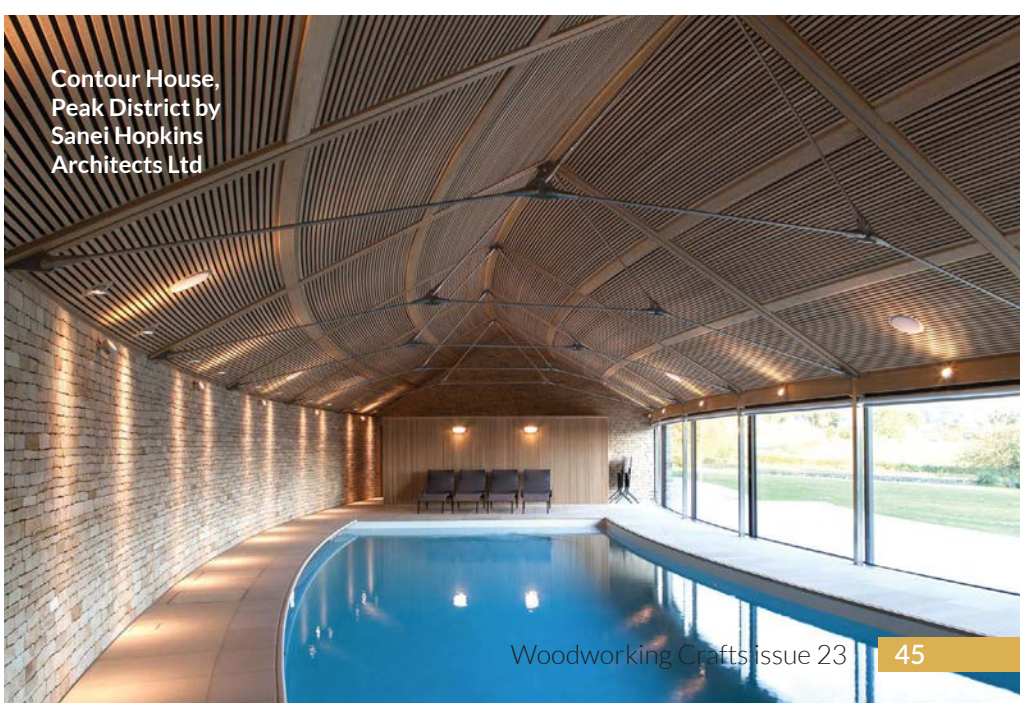
Originally part of the now split Commercial & Public Access category. Examples might include museums, theatres, leisure centres, shops, hotels, restaurants and offices.

Stihl Treetop Walkway, Westonbirt, The National Arboretum, Gloucestershire by Glenn Howells Architects

Education & Public Sector

Originally part of the now split Commercial & Public Access category. Examples might include schools, universities, government buildings, hospitals and religious buildings.

Stanbrook Abbey, Wass, Yorkshire by Feilden Clegg Bradley Studios



Contour House, Peak District by Sanei Hopkins Architects Ltd

The Portledge Rear Staircase, Bideford, Devon by Witcher Crawford Architects and Designers

Interiors

This was a new category for the 2015 Wood Awards. This category includes fitted interiors in all types of buildings. Examples might include fitted kitchens, bespoke staircases and hotel lobbies.

Small Projects

This category includes any small project, however funded. Examples include studios, garden buildings or designed projects for special events, such as 'Sclera', David Adjaye's pavilion for the 2008 London Design Festival. Past winners have included Studio by James Wyman Architects and RoominaRoom by Atmos Studio.

The TWIST, Timber Expo 2015 by Emergent Technologies and Design, Architectural Association

FURNITURE & PRODUCT CATEGORIES

Production Made

Pieces or ensembles from individual designer/makers, small workshops or larger manufactures can be entered. Projects entered in the Production Made category should be in commercial production since January 2014. Anyone involved may enter any piece(s) with the permission of the designer and manufacturer. Past winners have include Hat Tree by Fowler & Co and the Theo Chair by Pengelly Design. This category ended up with two joint winners.

Planks Collection by Max Lamb

Stretch Extending Dining Table

Designed by Pengelly Design Ltd

Bespoke

Single pieces or ensembles from individual designer/makers, small workshops or larger manufactures can be entered. Pieces entered into the bespoke category must be a unique single piece or commissioned work. Anyone involved may enter any piece(s) with the permission of the current owner. Past winners have included Oak Furniture for the Dickson Poon Centre by Makers Eye and Ripples by EJ Bespoke Furniture.

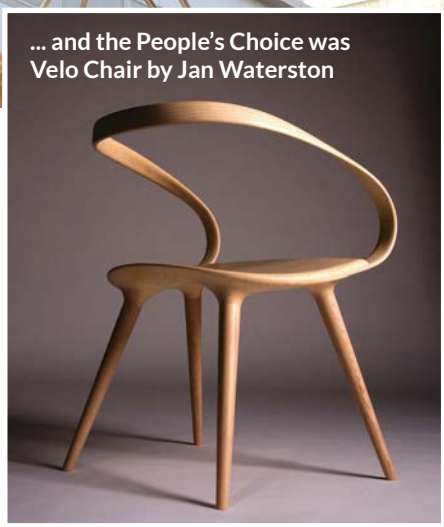
Pantori by Steph Leake, Intern at Jack Badger Ltd.

The winner was Geometry by Michael Stevenson...

Student Designer

This new category is open to anyone currently in education or who has left education in the past 12 months. There are two cash prizes for this category, £1000 for the winner and £500 for the people's choice.

WINNER: Geometry
PEOPLE'S CHOICE: Velo Chair



... and the People's Choice was Velo Chair by Jan Waterston

OTHER AWARDS

Structural Award

From 2015 there will no longer be a Structural category, instead a Structural Award will be given to a project that has a worthy structure. Past winners have included Alfriston School Swimming Pool by Duggan Morris Architects and Bishop King Edward Chapel by Naill McLaughlin Architects.

Arnold Laver Gold Award

The Arnold Laver Gold Award is the winner of winners and chosen by the judges from the winners of all nine categories. Previous recipients include Ditchling Museum of Art + Craft by Adam Richards Architects and Bishop King Edward Chapel designed by Niall McLaughlin Architects.

Maggie's at the Robert Parfett Building in Manchester, designed by Foster + Partners, won two awards

PHOTOGRAPHS COURTESY OF PERMACULTURE MAGAZINE

Using a forge to burn off the handle of an old billhook

Scrap upcycling...

... it's a steal!

In an abridged extract from *Permaculture* magazine, Steve Hanson shows how he turns a pile of scrap steel into desirable green woodworking tools

It's a steal!... I'm not advocating theft here, far from it. But saving yourself a lot of money can feel like stealing. And surely saving money and benefitting others, is as 'permaculture' as it gets. My wife Fiona and I love to visit a local charity/thrift shop.

We donate our own pre-used items to it when things become unused or unwanted. When we stopped using our tumble dryer whilst trying to reduce our electricity use, we donated it to the shop for them to sell on. The charity is Emmaus which is a charity for the homeless that started here in France, but they also exist in England. Ours is actually a warehouse with a few barns and houses set in the countryside.

On one visit, the charity had been donated a workshop full of old tools. I have plenty of tools of my own but my most recent craft interest is blacksmithing, so I'm always on the lookout for old tools that I can re-purpose into hand tools for green woodworking or natural building.

I was surrounded by a newly donated abundance of old tools past their best for their original use but still pieces of good quality steel – that's steel that is high in carbon which makes it hard – as hard steel takes and holds a good sharp edge. I made a selection of the best pieces of steel for re-forging and took it over to the counter to obtain a price. I could hardly haggle over the price as the box weighed about 12kg (26.5lbs) and the billhook laying on the top would cost me a minimum of 25 Euros for a new cheap Chinese one. Next to that with a loop forged in the end of the handle was a clog maker's hand chisel. I already had a project in mind for that. The rest of the box was full of files, nail pullers and an old pry bar – all good high carbon steel. Back at the forge, I wanted to renovate the billhook first so I burned off the over-

A box of assorted scrap steel ready and waiting to be upcycled into new tools and products

sized handle, heated the tang (back part of a tool) to bright red and bent the tang back straight, ready to have a new handle fitted.

I worked on a few other things while I had the forge up to heat. I took the blade back into my workshop to clean up with a wire brush and then sharpened it on my water stone to

Checking the fit of the new billhook handle in the hand

Off centre turning

Drilling the handle

avoid overheating the edge, causing it to lose its original edge-holding ability. Now I needed to make a handle for it. I heated the loop on the old chisel to bright red and straightened it out (it actually took two heats to finish this stage). Then I heated the area at the point the steel gets larger just after the loop and bent it to an 80º elbow at 90º to the blade edge. The tapering end would be a tang for the handle.

Next I bent the centre of the blade to the same elbow, but in the opposite direction to the new tang. It was then ready for heat treating. First I heated the whole thing up to a cherry red in the forge and placed it in a bin full of vermiculite. This insulates the steel and allows it to cool slowly over a few hours, which enables the steel to soften, a process called annealing. In this softer state, it's easier to file, grind, sharpen and polish. Once all the grinding and polishing is done, it's time to re-harden the steel (quenching), then reheat it again in our Rayburn oven to about 310ºC (590ºF) (tempering). This makes the steel less brittle. Afterwards, the handle was made and fitted.

The restored bowl gouge

Drawknife, bowl gouge, kilt broach and billhook, all made from scrap

Making the handles

Whilst a round handle is serviceable, it wasn't ideal for either the billhook or the bowl carving gouge. I therefore used a technique of turning using multiple centres. First I needed a piece of suitable hardwood. Ash and beech make good tool handles, but I had some dry oak around my workshop, so that's what I used for these two projects. I turned the oak down to a slightly oversized cylinder. The joy of making your own tool handles means you can make them specifically to fit your own hand, so I sized it by feel not measurement. Then I re-turned it again on three separate centres leaving a bigger section at the back end of the handle to stop it slipping from my hand when in use. In the picture (above centre) you can see the original centre mark surrounded by the four marks left by the prongs that drive the wood round. You can also see two rings left by the next drive centre which is just using friction to drive the wood. I was left with a softly rounded, three sided shape.

I then turned off all the marks, which left me with a pleasing shape. Then it was time to drill a hole for the tang of the tool and to fit the handle into it with plenty of friction to grip the tang. The hole was not deep enough for the whole tang, so I heated the tang and burned the rest of the hole into the handle. This made it fit well. The handle was tapped on to the tang once it was cool with a little added Araldite glue for extra security. It should last a lifetime. I made both handles for these two tools using the same method but with slightly different shapes. The bowl carving gouge works as intended and the billhook will see plenty of use this winter and next spring laying hedges. The picture (left) shows some more tools made from re-purposed steel. These are all tools that students on our natural building courses can learn to make, starting with a craft knife as part of the first week's curriculum of blacksmithing and green woodworking. Once the building starts, students use their evenings and weekends to explore both disciplines of blacksmithing or green woodworking further. ■

Bowl carving gouge and the fully restored billhook

Drawknife, gouges and craft knives fitted with wooden handles and copper pipe ferrules

Steve Hanson, *Permaculture* teacher, practitioner and consultant. A natural builder and professional craftsman for more than 20 years. He is co owner of Permaculture Eden, a human scale permaculture farm near Lourdoueix-Saint-Michel in central France.

Courses

More details of courses at Permaculture Eden can be found on their website at: www.permaculturereeden.com/courses

READER GROUP TEST

Welcome to our **Reader Group Test** by members of our very own Woodworker's Institute Forum

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Policraft Wood Polishing kit

This simple-to-use kit is intended to give a mirror finish to wood in three easy stages. It consists of an aluminium oxide coated web buff, one hard and one soft 10 fold buff, all 100mm diameter, a ¼in arbor and a bar of polishing compound. It is intended for use in a drill chuck.

DETAILS
Price: £29.99
Contact: Shesto
Web: www.shesto.co.uk

Testers

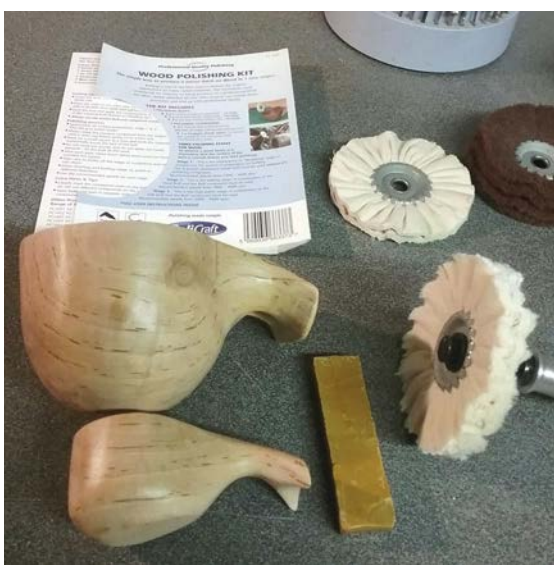
Graham Brackley
Lionel Williams
Edwin Large
Jason James
David Carter
Liam Motyer

shesto

Graham Brackley: The instructions are simply laid down and easy to follow; in particular, the health and safety precautions. At present I only apply a finish to protect the finished carved wood. Depending on the article use, I carve spoons and bowls, it is either a hand applied low key, slight gloss wax and or an oil finish. This has to be compatible as a food grade finish. The Policraft kit gives a good gloss finish, a pleasant to the eye finish, and looks very natural. It does, however, take a little practice to achieve this.

I used the kit in my Foredom flexible drive – the stage one brush for denibbing the surface is quite large and at the required 1400–2000rpm can 'take charge' of the drive shaft if not held extremely tightly. This first stage does not remove sanding scratches or tooling marks. The two polishing buffing wheels (stages two and three) should be used lightly, only a small amount of compound should be applied. I would recommend it to other people

Lionel Williams: The instructions were understandable after reading through several times; the full instructions were okay. I usually try to get a high level of finish to my work by wiping it clean first, then using a soft cloth with some polishing compound. I got amazing results after a bit of practice using the Policraft kit. The only problem I found was



PHOTOGRAPH BYGRAHAM BRACKLEY

The buffing wheels suited Graham's Brackley's work

PHOTOGRAPH BY LIAM MOTYER

Liam Motyer buffing on the pillar drill

PHOTOGRAPH BY EDWIN LARGE

Edwin Large achieved a nice shine

PHOTOGRAPH BY EDWIN LARGE

Another sample produced by Edwin Large

Using the aluminium oxcide wheel before buffing

remembering that the thread on the shank arbor is the opposite to the UK. I would recommend it to other people as long as replacement buffing wheels are readily available.

Edwin Large: I apply a high level to some turned pieces using friction polish, oil and varnish. The Policraft kit produces a good level of finish. On the unfinished oak, the aluminium oxide buff opened the grain, but it took a polish from the cotton buffs easily and didn't discolour the wood. As expected, using sanding sealer before starting did result in a better finish.

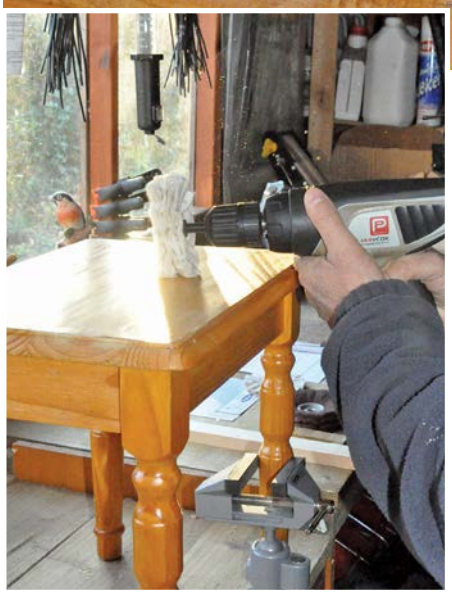
On the mahogany wooden plane, which was already finished with oil, the aluminium oxide was slightly too aggressive despite a light pressure, but a couple of minutes of polishing with the cotton mops resulted in a nice finish. I suspect that a fine wet and dry would have been better in this case.

Overall I'm quite impressed with the kit. The polish supplied built up well but I was not able to compare it to other compounds. The mop couldn't reach into the corners of intricate shapes and I wouldn't like to have to use it on large pieces. The instructions did not mention if the wax was food/toy safe or if it was waterproof. I would recommend it to other people.

Jason James: I apply a high level of finish to most of my woodturning, using the Chestnut polishing system. The buffing wheels gave a very fine finish, but the stick that came with the kit was not the best to get a high shine from. I would recommend it, but advise they use a different polishing compound stick such as beeswax or other wax products.

David Carter: The instructions were very easy to read and follow. I don't usually apply a high level of finish to my work, wax or spray clearcoat. It produces an okay level of finish, I would have liked some finer scotchbrite wheels, but no problems were encountered using the product. I would recommend it to other people for small pieces of work only.

Liam Motyer: The instructions were very straightforward to use. I attached the polishing buffs to my pillar drill. I normally apply a high level of finish to my work using sanding, oiling, buffing, etc. The Policraft kit was comparable to using wirewool yet much quicker. I felt it increased the speed and efficiency of finishing, fitting the buffing disk to shank is a bit tricky due to the flathead screw head. Its portability makes it a recommendable product. ■



PHOTOGRAPHS BY LIONEL WILLIAMS

Lionel Williams got a high standard of finish on his work

How our testers rated the product

How would you rate the product performance?	8/10
How would you rate the product ease of use?	8.2/10
How would you rate the product overall?	8.2/10

PHOTOGRAPH BY DAVID CARTER

David Carter would prefer a finer grade aluminium oxcide wheel

Editor's comment:

This is part of a range of Policraft polishing wheels, arbors and compounds for a variety of materials – wood, metals, plastic, etc. It claims to give a mirror finish to wood which is a strong statement. This very much depends on the material and the method, including any sealer coat before use. However, with practice it does give good results on smaller items such as woodturnings. Lionel Williams mentioned the reverse threading which is meant to tighten the arbor nut in use; however it rather depends which way the drill is turning as drills have a forward and reverse setting!

If you would like to be part of our panel of product testers, please go to our website www.woodworkersinsitute.com – and **SIGN UP NOW!**

PHOTOGRAPHS BY PAUL PURNELL

End grain coasters

Paul Purnell makes coasters using pen blanks

Large end-grain projects are reasonably straightforward if you possess a planer/thicknesser and a huge industrial drum sander, but not everyone does (including me). These coasters are an introduction to working with end-grain without access to this equipment. Once you are able to manage these, an end-grain chopping board is feasible. It is crucial that edges are flat and at 90° to each other. Without this, there will inevitably be gaps in the finished piece. This project is a challenge, but a worthwhile one. Anyway, a few gaps will show the coasters were handmade.

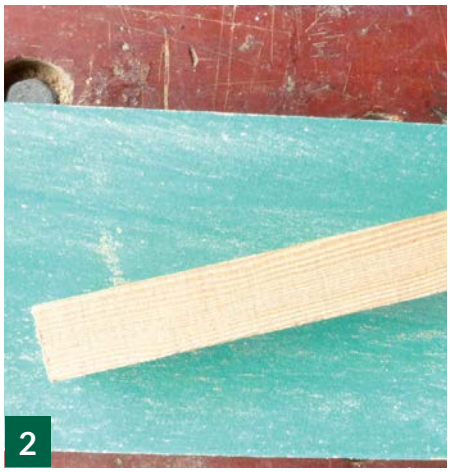
Things you will need

- Tablesaw or bandsaw
- Rotary multi tool (optional)
- Abrasive, 120 through to 320 grit
- Sanding block
- Cling film
- Wood glue
- As many clamps as you can find
- Finishing oil
- Wax

Wood

- 16 assorted pen blanks, no smaller than 170 x 17 x 17mm


1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4


5

If you have an accurate bandsaw or tablesaw, you could cut the blanks from your own wood stock. However, this will limit you to the types of wood you have. I experimented by ordering 30 pen blanks via the internet.

Their size and 90° accuracy varied, and strangely the more exotic the wood, the worse they were. I managed to find 16 blanks that were acceptable for this project. The advantage of buying these pen blanks was the wide selection of wood species: English oak (*Quercus robur*), sapele (*Entandrophragma cylindricum*), American black walnut (*Juglans nigra*), ash (*Fraxinus excelsior*), douglas pine (*Pinus douglasiana*), Scots pine (*Pinus sylvestris*), tulipwood (*Dalbergia decipularis*), Canadian maple (*Acer saccharum*), sycamore (*Acer pseudoplatanus*), iroko (*Milicia excelsa*) and sweet chestnut (*Castanea sativa*).

1 Sort out the best 16 blanks. Obviously it will depend on what you have purchased as to what dimensions the blanks are. At 17mm square, the pieces for these coasters are the smallest they should be. Other sizes available are 18mm and 25mm square, which will obviously make a larger coaster. The length determines how many coasters you can make. I managed to cut 12 coasters using a bandsaw.

2 You may have some blanks that need light sanding to tidy them up. It is important to keep everything square and not to round over any edges. I found this decorator's sanding block ideal for the job. I clamped it into the workbench and lightly sanded the edges on 120-grit abrasive. Alternatively, tape a piece of abrasive to a flat surface.

3 Sort the pieces into four sets of four that will give a pattern to your liking, but more importantly a pattern where the blanks fit together snugly. The blanks will vary by up to 1mm, but with some shuffling you will find the perfect fit. Mark the number of each set, the order of each blank within the set and its orientation. It will take some time to find the perfect fit, and if you do not mark them, you can guarantee you, or someone else, will knock them flying.

4 Do a dry-run first to ensure that everything is to hand before gluing. Use cling film to keep the glue from sticking to the clamps and the wood pieces used during clamping.

5 Glue the first set of four blanks. Lay the blanks on a flat surface. The first blank remains in position. Turn the remaining three anticlockwise by 90°. Spread glue on the top surfaces ensuring every part of the blank is covered. For adhesives to work well, they need to wet the entire surface and be at the right thickness for the attracting forces to work. Turn the first of the glued blanks back to its original position and join it to the blank you ➤

left on the work surface. Do the same with the other two.

6 Place the set of four on to the bar clamps that are covered with cling film. If you do not have bar clamps, make a clamping board and use wedges of wood to hold the blanks in place. Align the blanks at one end. Cover the top of the set of blanks with cling film and apply enough force on the bar clamps to hold it in place. A continuous bead of glue will squeeze from the joints showing you have glued correctly.


6


7

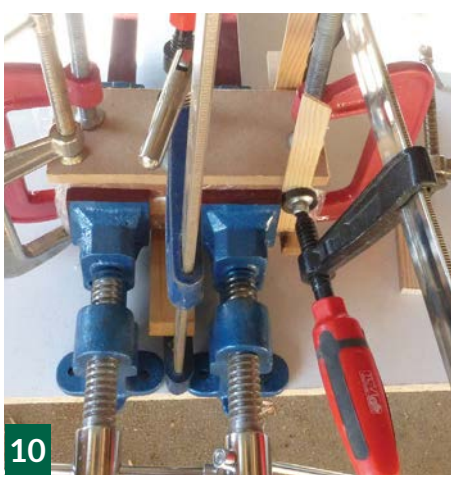
7 Place a piece of wood on top of and beneath the blanks, and clamp. Also, place a piece of wood at each end beneath the blanks, and clamp. As you place each clamp on the work, tighten just enough to hold everything together. After all clamps are in place, methodically tighten each clamp a touch at a time to achieve the correct tension. Don't try to over tighten as there is a chance too much glue will squeeze out. Ensure throughout this process that the blanks do not slip out of alignment. Allow to dry overnight.


8

8 Remove the first set; take off the cling film. Use a chisel or scraper to remove the glue lines. Sand away any remnants of glue on the sanding block.

9 Apply a layer of glue on the upper surface of the first set. Place back on the bar clamps. Glue the second layer as in step 4. Place the second set on top of the first. Cover with cling film and clamp the two layers together.


9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10 Repeat this process with the third and fourth layers. Depending on the size of the bar clamps, they might not grip the fourth layer. If this happens, place the fourth set on the clamps upside down. After gluing the top surface of the block, turn it over and place on top of the fourth set.

11 You should end up with a 4x4 block. Scrape any glue from the outside edges and sand with a cushioned-drum sander or sanding block.


11


12

12 With a bandsaw, slice a thin section from the aligned end of the block to square it. Then slice pieces approximately 10mm in depth from the block.


13


14


15


16


17

13 If your bandsaw is set up correctly, you will finish with 12 uniform coasters that will need little sanding.

14 Hand sand to finish with 120, 240 and 320-grit.

15 Apply three coats of finishing oil and a final layer of wax.

16 If any of the slices are beyond using as coasters, don't throw them, shape them into small key fobs.

17 Your final coasters should look something like this. ■

Work smarter

SCREWS vs NAILS – a tale of two fixings

We always need to hold things together – but should it be screws or nails?

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

There has never been a time when so many different kinds of fixings have been available, it runs into many thousands, but just two dominate our thinking when we are repairing or constructing anything in wood. The good old-fashioned nail pitted against the newer, more sophisticated screw. Is that really correct? What are the advantages and disadvantages?

NAILS

Nails have been around for many millennia, they are cheap to make and buy, and use a hammer and the kinetic energy from our muscles to bury them in wood. They come in a variety of types from veneer pins, upholstery tacks, oval nails, wire nails and ring nails, right up to long contraction nails. Today, you can buy nails powered by air, gas, explosives or battery. So, do they still have a place in the world?

Nails seem crude by today's standards, as does using a hammer and risking hitting your fingers and thumbs. On the other hand, for a quick result if you develop the right technique they still do the job, powered nailers are even quicker. Wood splitting is the bane of fixing, but a key thing is to start nailing away from the end of the wood. If nails are driven in very quickly with a powered nailer, the chance of splitting reduces because the wood fibres have less time to react to the intervention of metal in the wood. A long standing fault of the nails is their tendency to pull

From tacks to glazing pins, cut nails, wire nails, ring nails, hard-board pins and oval nails and more, there is a thing to be hit for every purpose

out easily. Ring nails are designed to counteract that to some extent. In earlier times, cut nails were used to fix skirtings and so forth, to masonry; the square shape being able to bite into brick and mortar. Sadly, modern cut nails don't seem to do the job anymore. There are special hardened masonry nails if you need to use them.

SCREWS

Screws have been around quite a long time, originally hand-cut but quickly succumbed to mass-manufacturing. Screws have become a very diverse family of types with every conceivable thread, shank form and head shape. Traditional steel and brass screws have a tapered form, which requires two drill sizes – pilot and clearance – and then a countersink for the recessed head. Modern single or twin fast screws often don't need any pre-drilling, if they do it is a single pilot drill and no countersinking as the heads now often have cutting edges under the head to dig their way into the wood.

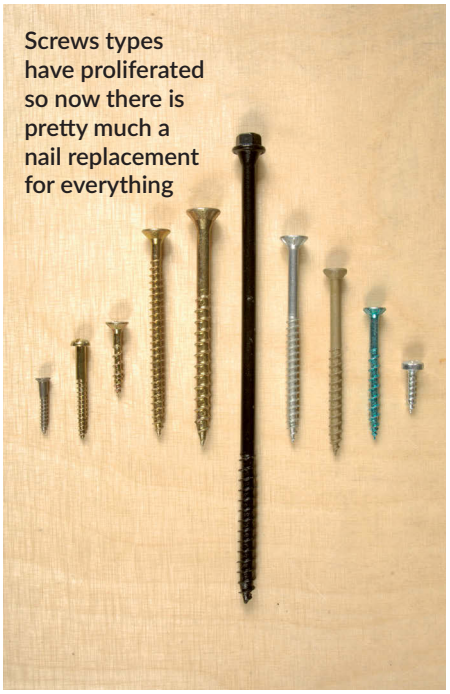
The driving interface in the head has become just as important. Traditional slots easily burr over when they are hand driving and the screwdriver tip can slip out and skid across what may be a beautifully finished surface. Instead, we have other recesses, the most common is the Pozidrive, otherwise known as Pozi, and comes in one, two and three sizes to suit the head size. Factory produced items use simpler Phillips recesses or Torx, which are typically used by double-glazing companies but increasings are used with wood too. A major advantage is no 'cam-out' – the driver tip cannot slip out of the recess, but unlike Pozi and Phillips there is no possible offset driving angle. This is both a good and bad thing since it is offset driving that causes 'cam-out'. You may encounter a Torx variant that has a pin in the middle as a security feature, it needs a matching driver tip. There are other cross-head types often described as 'stick-fit' because of close tip and recess tolerances. These come with their own special driver tip in the box, but may accept Pozi driving tips as well.

Returning to the shank of these modern screws, the better ones have a slit near the tip to allow them to cut into the wood, and some have frilled flutes designed to break up the wood fibres as they drive into the wood. Many are also dry lubricated so they go in without effort or pre-drilling and they are strong enough not to snap when they're power-driven. If such a screw is withdrawn, it will heat up and more so if it is immediately re-driven as the lubrication is lost.

Some answers

So, screws vs nails – which is the winner? Speaking from personal experiences, life has got a lot easier with 'first-fix' carpentry using nail-on joint plates, and long timber screws with just a thread at the tip and a hex head on the top when power-driven with a socket driving bit. Gone is the need for a repeated arm aching, hand hurting 26oz hammer blows and slamming 100mm or 150mm nails into timber framing.

Upholstery and the like can often be done with a heavy duty stapler, although tough upholstery tacks on a hardwood seat frame still win. For general work, oval nails are useful because they cause less splitting and the heads can be lost by punching into the wood. Panel pins and veneer pins



Screws types have proliferated so now there is pretty much a nail replacement for everything

yes, but wire nails – except in power nailers – seem largely irrelevant.

For general carpentry and cabinetwork, choosing the right quality and type of twin fast screw gives neat, efficient results quickly, but for fine cabinetwork slotted brass screws run into carefully pre-drilled and countersunk holes after using steel screws first (to ensure the weaker brass screws go in smoothly) still wins. Indeed, I am fanatic about settling slots at the correct angle – I prefer them to alternate, though without over stressing the screws.

Overall, the nail isn't dead and won't be anytime soon, but it does seem as if the screw is the modern day winner; it has certainly changed my working habits… ■

Next month

Dealing with wood movement

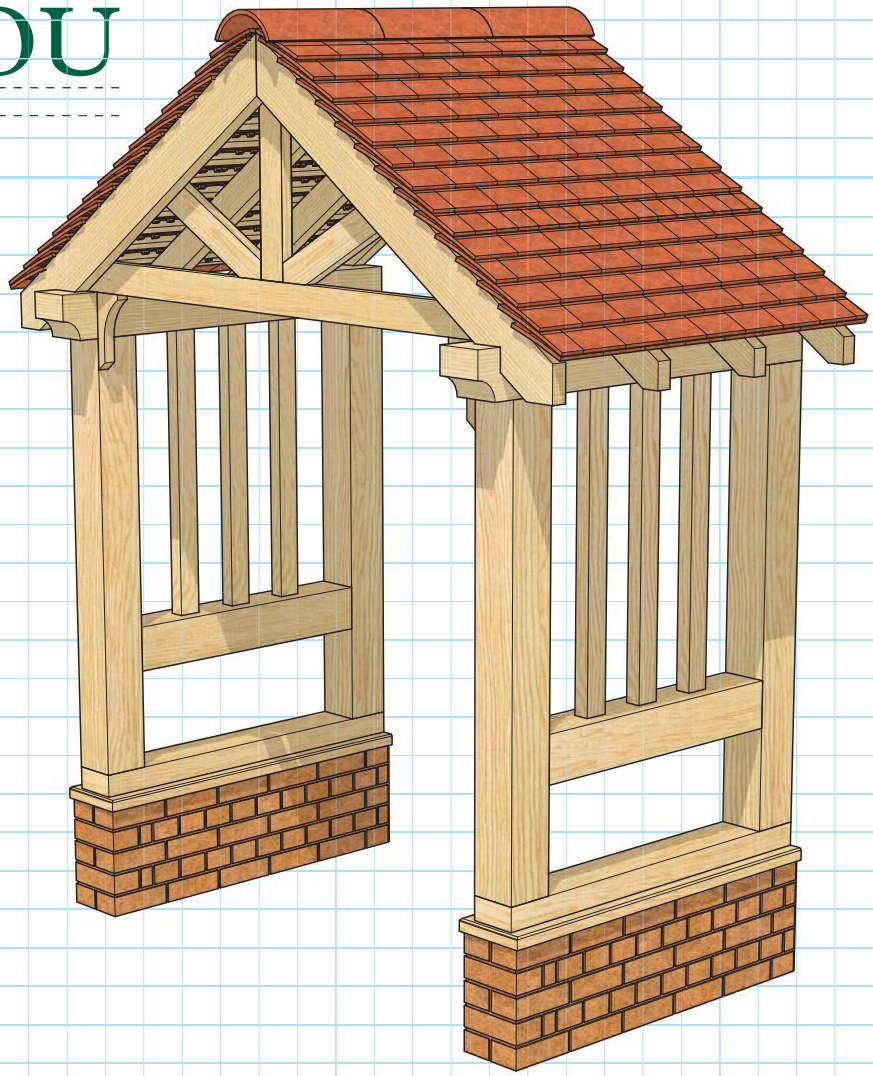
Powered nailers with their own specialised consumables make for fast, repetition fixing

There is still a place for hammer and nails at least at the smaller scale end of fixings

PLANS 4 YOU

Porch

Simon Rodway makes a porch



It is usually over the winter months – when you arrive home cold, tired and with wet clothes and shoes – that the need for a new porch, somewhere to put bags down while you unlock the front door and maybe even take shoes and overcoats off, really hits us as a necessity rather than an optional luxury. Before you rush out and start buying your materials, however, it is important to realise that this is a building project, which potentially comes under planning and building regulations legislation. I have included a few pointers on the drawings on avoiding the need for these, but you need to double check with your local authority before laying any brick courses.

Normally I try to avoid using large section timber as it can get pretty expensive. Here however, I decided I just had to bite the bullet and go for 150mm square sections for the main side frames. This type of porch is often built in oak (*Quercus robur*), but I don't see any reason why you can't either use treated softwood or if untreated, you can paint the finished frame. The side frames sit on brick plinths and it is a good idea to just spend a little time getting the bonding clear in your mind before laying bricks. There are recognised bonds for single thickness solid brick walls, I've used an English garden wall bond.

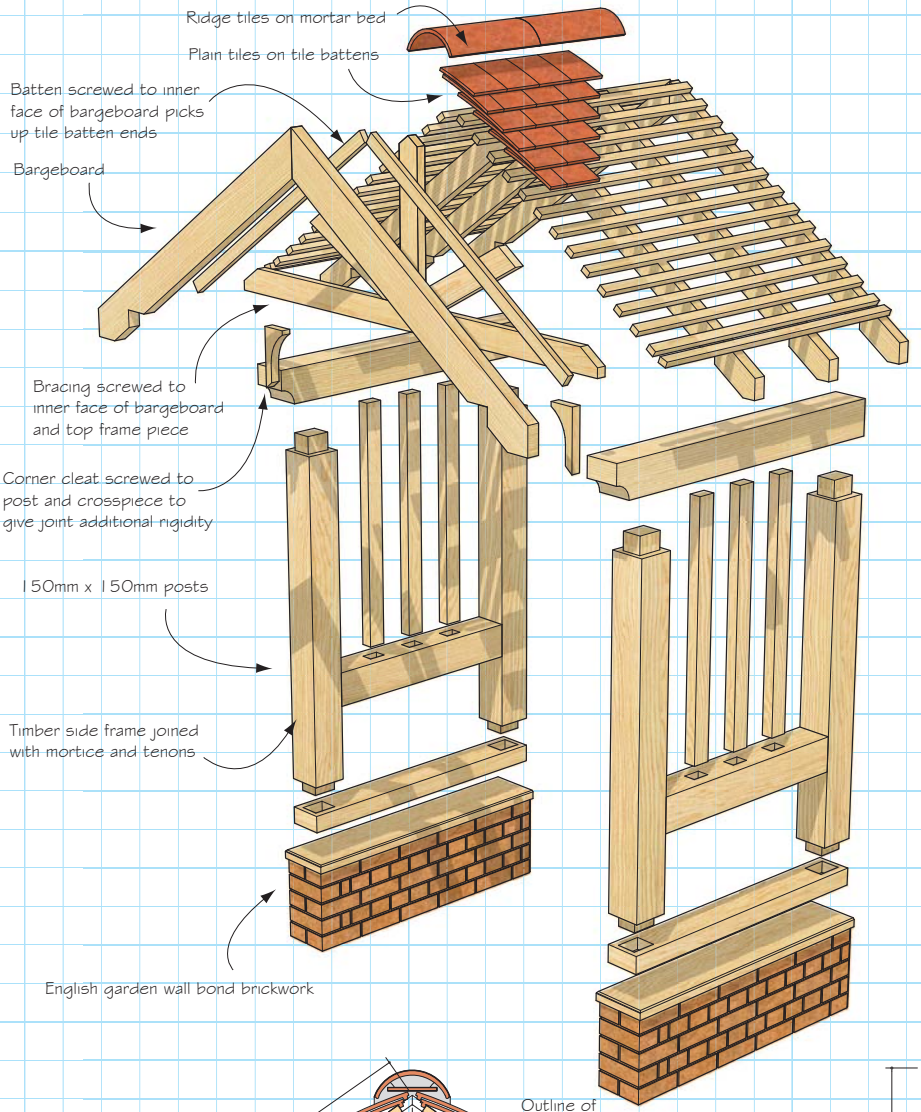
Preventing the bottom timber piece that sits on the brickwork from rotting out is a bit of a problem, and you can start by laying a section of DPC between the brick and the timber.

Adding a small drip to the bottom face on the front and sides really helps as well. Obviously, this and the bottom frame piece need to be well anchored to the brickwork; galvanised coach bolts into large rawl plugs work really well, and use these when fixing into the main wall of the house too. If you use bolts with a nice finish you can just drill a short section at a wider diameter at the top of the holes with an auger bit, so that the head of the bolt is nicely recessed into the timber but still visible. Otherwise plug or fill the holes to hide the fixings.

The configuration of the side frame with the muntins into a cross piece is just a suggestion, giving a more traditional timber-frame look to the porch, but you can customise the infill to suit your house. Additionally, I have located the front cross piece at a fraction over 2080 from ground level. This is a standard height for an external door frame, so if you wanted to you could enclose the porch with side and front

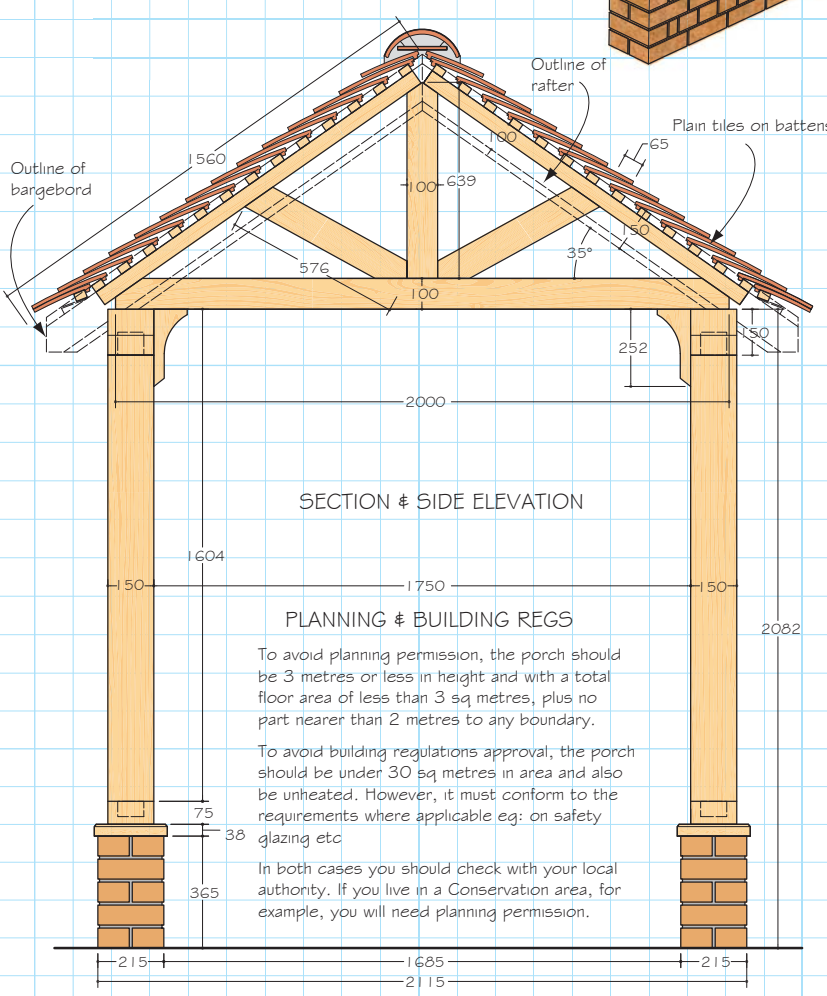
Cutting list – main components only

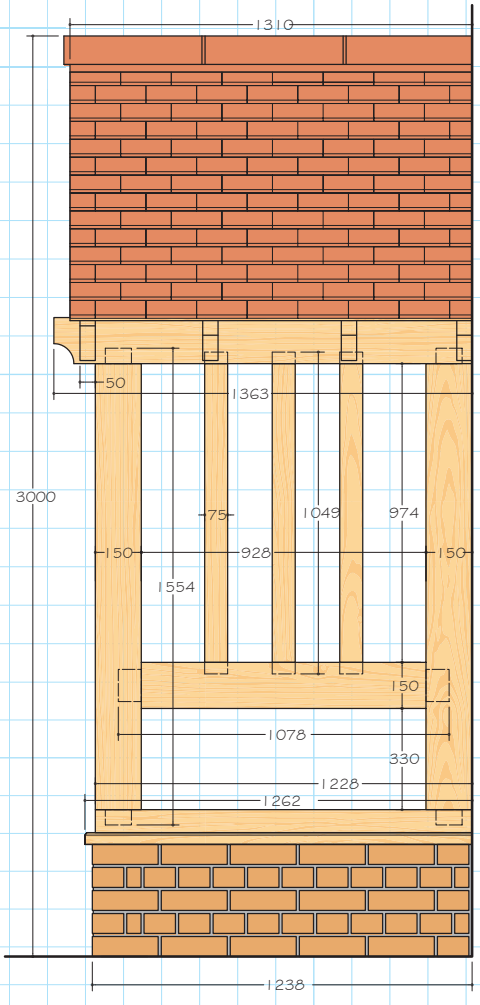
Bottom/shelf	2 @ 736 x 736 x 12
Top	1 @ 748 x 748 x 12
Plinth	1 @ 404 x 50 x 12
Plinth	1 @ 392 x 50 x 12
Batten	1 @ 404 x 25 x 25
Batten	1 @ 429 x 25 x 25
Batten	1 @ 711 x 25 x 25
Batten	1 @ 736 x 25 x 25
Posts	4 @ 1554 x 150 x 150
Frame bottom	2 @ 1228 x 150 x 75
Frame top	2 @ 1363 x 150 x 150
Cross pieces	2 @ 1078 x 150 x 150
Capping pieces	2 @ 1262 x 258 x 28
Muntins	6 @ 1049 x 75 x 25
Bargeboards	2 @ 1560 x 150 x50
Rafters	6 @ 1545 x 100 x 50
Cross brace	1 @ 2000 x 100 x 38
Vertical brace	1 @ 639 x 100 x 38
Angled braces	2 @ 579 x 100 x 38
Batten supports	2 @ 1260 x 50 x 25
Cleats	2 @ 252 x 120 x 38



glazing and put an external door at the front. If you intend to do this you need to add a DPC at two brick courses above ground level and then connect it up internally with a DPM which would sit under your flooring and be lapped up the walls, and hidden behind a small skirting or plastered, it's up to you. This would still remain a semi-outdoor space however, and unheated.

The roof is formed using a bracing frame immediately behind and fixed to the bargeboards, which are birds-mouthed over the top framing piece. Behind this there are three pairs of rafters which are a nominal 100 x 50mm, as opposed to the bargeboard at 150mm wide. The inner pair of rafters are fixed to the house wall, and timber tile battens are fixed across the tops of the rafters and onto the fixing battens on the inside of the bargeboards. Plain tiles are fixed to the battens and ridge tiles sitting on a mortar bed to finish the whole thing off. Use the manufacturers details and specification for spacing of battens and tiles and fixing details. ■





Animal portrait

Bring your favourite critters home with these photo-realistic designs by Jacob and Wayne Fowler

When Jacob draws fretwork patterns, he starts with photos we have taken at zoos, wildlife preserves, our family cottage and many other locations. He doesn't trace the photos or use a specific software program to convert them. Instead, he combines and digitally interprets multiple photos to create freestanding designs that can be cut from a single piece of wood.

I cut the patterns from hardwood, using varieties like cherry (*Prunus avium*), oak (*Quercus robur*), and sycamore (*Acer pseudoplatanus*) that will 'hold' the pattern features (Jacob's patterns can be very complex). I often choose wood with lighter grain for the main subject and bolder pieces for the contrasting base or backing board. I use thick wood to make freestanding designs, but you could use thinner boards if you like to mat and frame your work.

We are happy to share a pattern here and hope you'll look for our new book, which contains 76 more patterns of animals based on our photos. We use them for fretwork portraits, but you could also woodburn or even carve the designs. Enjoy! ➤

Materials and tools

Materials:

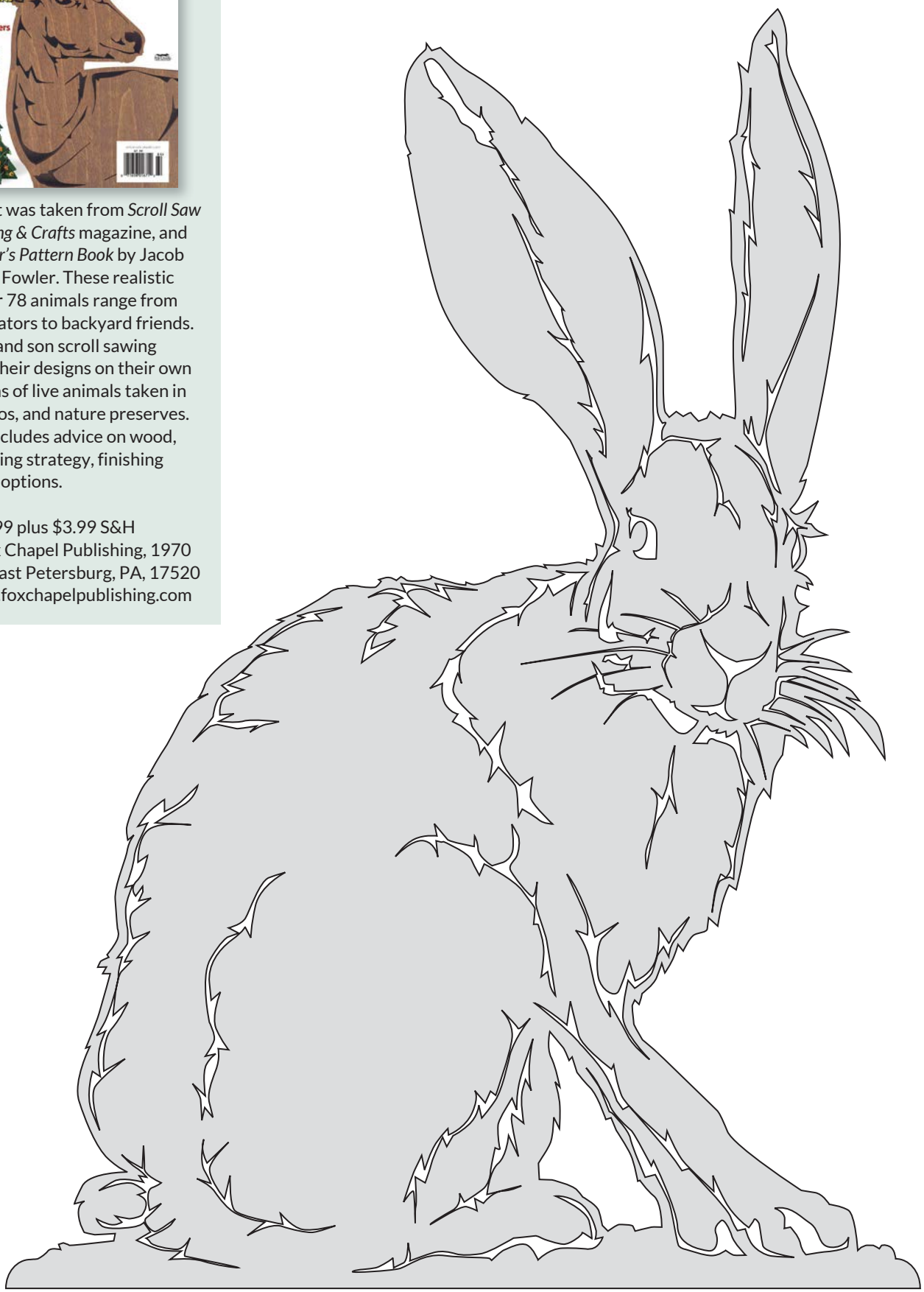
- Hardwood, ¾in to 1in (19mm to 25mm) thick: rabbit, 7in x 9½in (178mm x 241mm); oval base (optional), 2½in x 8in (64mm x 203mm); deer, 8in x 10¼in (203mm x 260mm)
- Hardwood, ¼in (6mm) thick: deer backing board (optional), 8in x 10 ¼in (203mm x 260mm)
- Adhesive: spray or glue stick
- Tape: clear packing
- Abrasive
- Wood glue (optional)
- Finish: clear spray

Tools:

- Scroll saw blades: No.2, No.2/0 or No.0
- Drill and assorted small bits

This extract was taken from *Scroll Saw Woodworking & Crafts* magazine, and *Woodworker's Pattern Book* by Jacob and Wayne Fowler. These realistic patterns for 78 animals range from exotic predators to backyard friends. The father and son scroll sawing team base their designs on their own photographs of live animals taken in the wild, zoos, and nature preserves. The book includes advice on wood, blades, cutting strategy, finishing and display options.

Price: $16.99 plus $3.99 S&H
Where: Fox Chapel Publishing, 1970 Broad St., East Petersburg, PA, 17520
Web: www.foxchapelpublishing.com



Meet the maker

Lawrence Goodwin

Amber Bailey is here to introduce Lawrence Goodwin

PHOTOGRAPHS BY LAWRENCE GOODWIN

Lawrence Goodwin, who is a Buckinghamshire New University alumnus and former member of the Crafty Little Makers collective, is striking out on his own. His 'Zed' collection will be debuting at this year's London Design Festival, but he found time to discuss with me how his first solo collection came together.

The collection

Lawrence took inspiration from a rather unexpected place for the collection based on industrial architecture, a bridge located on the M4, so Lawrence set about transferring its concrete structure into wood. This resulted in the bridle joint being incorporated into each piece of the collection.

The selection of furniture included in the Zed collection began several years ago while Lawrence was in part-time employment for another furniture maker; he set himself a brief of creating a stacking chair with armrests. To ensure the completion of his prototype Lawrence signed himself up to exhibit at TENT London, setting a firm deadline for himself. Making full use of the large exhibition space, an entire dining suite was created. This careful choice allowed show-goers to sit among the display and engage with the pieces in a tactile manner, as well as be able to take the time to comfortably discuss the development of the project with the maker.

The design process

For Lawrence, the design process for his furniture is methodical down to the planning of each stage and what jigs will be required for an overall efficient make. Being an avid user of SketchUp does not stop him from constantly altering the dimensions of components when he hits the workbench. Mock-ups and maquettes also come into play for crucial decision-making.

Material selection

Lawrence works under an ethos weighted heavily on the importance of environmental concern and advocating the use of British grown timber.

He said: "Using British timbers is something I feel quite strongly about. I think, as a furniture maker, I am probably quite sensitive to the thought of taking down animal habitats, etc., so the idea of keeping things sustainable and managed is quite high up in my priorities. I think by keeping a demand for British timber it will hopefully improve the management of our forests, therefore hopefully more will be planted!"

Lawrence purposefully works

The Zed Chair vacuum seat former

The finished Zed Chair seat shape

Cheese board exhibited at TENT London

with suppliers who can guarantee their timber has been FSC certified. Not only is this crucial in the preservation of the world's forests, the previous location and history of the wood can also be accounted for. This provenance of material sourcing is always very appealing for customers to emotionally as well as financially invest in a piece of furniture.

On show

London Design Festival proved a prime opportunity to showcase Lawrence Goodwin Furniture as a brand, recognising the importance of keeping up as a familiar face, consumers are far more likely to invest in a story and lifestyle if the craftsman is intent on proving longevity. With that in mind, Lawrence has already signed up for 2017, so catch him next summer with a brand-new collection.

The collection's name derived simply from the side profile of the Zed Chair, forming the shape of a 'Z'

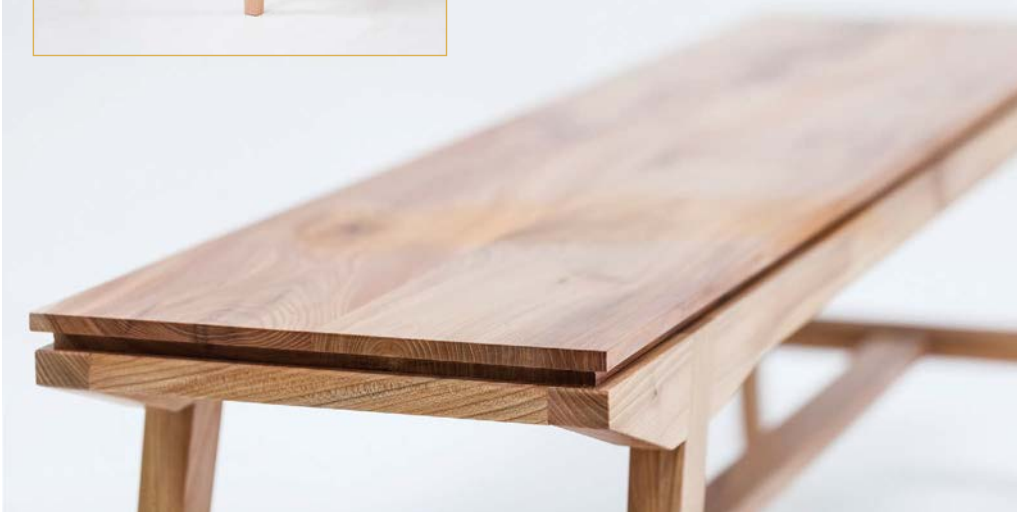
Top tips

In 2013, Lawrence took the leap into establishing his own workshop alongside several fellow craftsmen. He kindly provided us with some top tips for those also looking to take the plunge.

- Before you have even made any contacts or have any jobs, you need a fairly big space, which you need to fill with some pretty expensive tools and machinery if you're really going to go for it. Invest in good second hand machinery. Our tablesaw was made in the same year I was born (1989) and it's still going strong. It is far better than what we would have got for the same money new.
- Becoming self-employed is a big financial risk. Once you have a workshop space it is worthwhile making sure you start out with a bit of money behind you, even if this means you have to continue working for your current employers for a few more months.
- Try to keep your expenditure to a minimum; you don't need a workshop in the centre of London with underfloor heating and a briquette machine...
- Sharing a workspace with like-minded people allows you to share costs and ideas. A spare pair of hands doesn't go a miss when lifting the odd tabletop either!

DETAILS

Contact: Lawrence Goodwin
Web: www.lawrencegoodwin.co.uk



MAKITA TABLE SAWS

Table Saw
2704
2704X

TCT blade diameter		260mm
Bore diameter		30mm
Size	W	L
Main table	625mm	567mm
With sub table	1050mm	1060mm
No load speed		4,800rpm
Input		1650w
Net weight		34.9kg

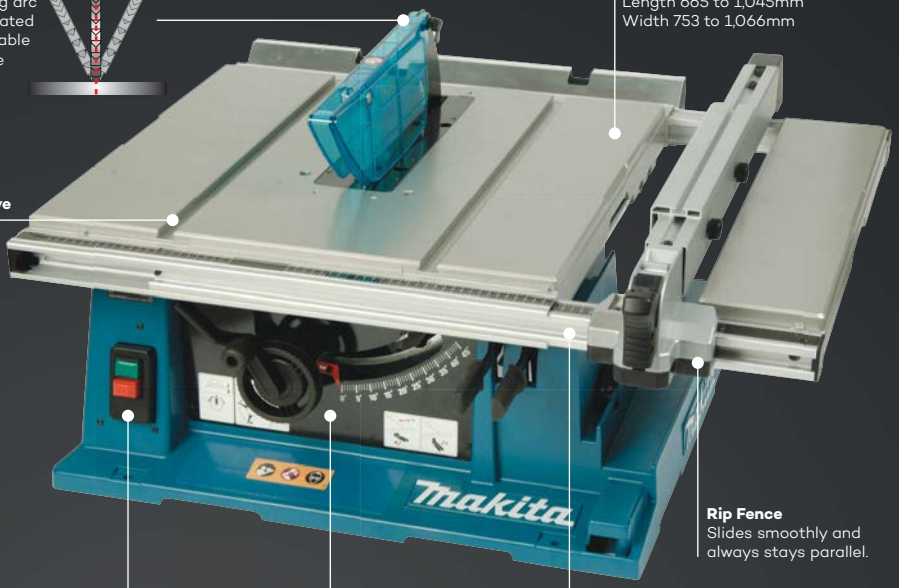
Cutting angle	Depth
90°	93mm
45°	64mm
Angle settings	-0.5° to 45.5°

2704X
Comes with a folding stand: 194093-8

Centre Blade Position
The centre of the swing arc of the saw blade is located at the surface of the table so that the cutting line is always at the same position for any angle.

Table Size
Length 665 to 1,045mm
Width 753 to 1,066mm

3/8" x 3/4" T-formed Groove



Rip Fence
Slides smoothly and always stays parallel.

Power Switch
Electronic soft start and anti restart function

Easy to Read Scale

Telescoping Guide Rail

Table Saw
MTL100
MTL100X

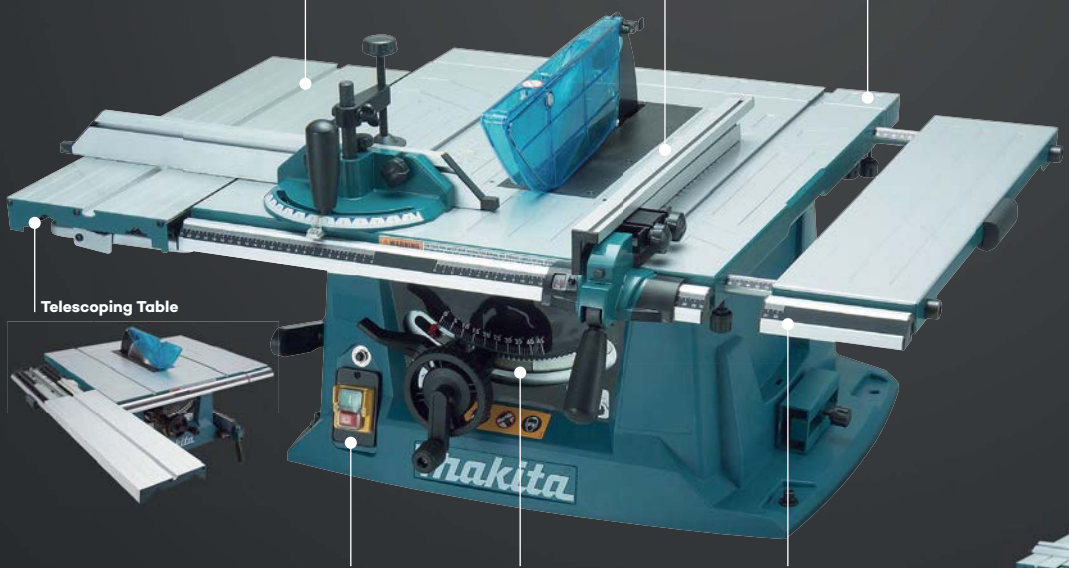
Blade diameter		260mm
Bore diameter		30mm
Size	W	L
Main table	610mm	590mm
With sub table	760mm	790mm
No load speed		4500rpm
Input wattage		1500w
Net weight		34.1kg

Cutting angle	Depth
90°	93mm
45°	64mm
Angle settings	0-45°

3/8" x 3/4" T-formed Groove

Rip Fence
Slides smoothly and always stays parallel.

Table Size
Length 590 to 790mm
Width 610 to 760mm



Telescoping Table

Power Switch
Electronic soft start and anti restart function

Easy to Read Scale

Telescoping Table

MLT100X
Comes with a folding stand: JM27000300

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PHOTOGRAPH COURTESY OF SHUTTERSTOCK

DIY fencing

February may still be a chilly, rather frozen affair but it's a good time to be planning fencing and fence repair work. Here are some useful tips...

Rise and fall palings are eye catching

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Certain events, much like the Great Storm of 1987, which felled the weakened paling fence at our previous property, can force a decision about fencing. Often though, a rotting or damaged fence can linger on when it is clearly past its best. Generally, unless you live on a housing estate where the deeds specify no fence allowed, we usually want some kind of enclosure. What that should be can vary tremendously, and cost and personal taste play a big part, but also whether it fits in with the surrounding environment. You may find it necessary to contact your local planning office if it could become a contentious matter. It is better to chat to neighbours about it first and also check whether you live in a conservation area where planning rules are more strict. Make sure you stick to the boundary line; don't be tempted to adjust it to gain a bit more land for any reason, you will only cause upset and end up having to correct the matter. A final point is that property deeds usually show 'T' markers on the fence line. The direction of the 'T's' indicates ownership, so if a fence is in a poor state but not your ownership, then you need to discuss the matter with the neighbour concerned. ➤

Repair?

The first question is whether a fence is worth saving and, if so, how? Wood or concrete spurs can be bolted or timber-screwed to the existing posts if rot is taking place at ground level. This will extend the fence life by a few more years. Rot takes place around ground level because the mixture of oxygen, water and bacteria present at this point are perfect for attacking wood. Fence panels resting on the ground will suffer the same problem, keeping them off the ground and having a replaceable gravel board underneath will help here.

Tops of posts need to be rounded or capped to reduce the ingress of water as splits open up causing top-down damage. Fence paint will improve the look and life of panels but not indefinitely so.

PHOTOGRAPH COURTESY OF GMC/ANTHONY BAILEY

Removing concrete is a real nuisance

PHOTOGRAPH COURTESY OF GMC/ANTHONY BAILEY

An oak spur used to extend post life

Replacement

It is easy to replace like-for-like, but you might want to consider something slightly more radical. Fencing supply companies have all the usual fence types in stock, but if you want something different look on the internet, perhaps using Google images as a search tool. Just occasionally you will find something that appeals; keep a note of it for later research. On the other hand you could, like Chris Grace, come up with your own design and construction method that will definitely be your own unique solution.

Gates

Fences invariably have a gate somewhere, this can be pedestrian access or double gates for a car and this has to be considered, so it is in keeping and how it should be constructed. A ledged and braced construction or bracing of some sort is essential as gates will drop after a while and go slightly trapezoidal, becoming weakened as a result, which can cause them to drag on the ground – and doesn't look good either.

PHOTOGRAPH COURTESY OF JAMES HATTER

Painting a gate before installation

Standard, but rather boring looking fence panels

PHOTOGRAPH COURTESY OF GMC/ANTHONY BAILEY

An unusual wave fence near Shoreham harbour

PHOTOGRAPH COURTESY OF CHRIS GRACE

FIXING METHODS

Posts

The three typical ways of installing fencing posts are: concreting, earth socket lined with brick, etc. and metal post sockets. There is no perfect answer, you can use quite a lot of concrete and it can look like, well... concrete. Earth with brick packing (which I favour), is easier to replace than trying to lift big lumps of concrete out of the ground, but will need repacking as the earth settles. Metal sockets are pretty good and drive in well, but you need to be sure the socket is truly upright so the post will also be upright.

Panels

These are, or were typically, nail-fixed from the installation side (your side, not your neighbours) but I've gone over completely to screws and an 18V drill driver. Quick, efficient and adjustable or removable without damage.

Rails

Where you have sawn arris rails or riven rails (split with the grain) they are normally mortised into the posts. Posts can be supplied with or without mortises, although it is a lot easier not having to mortise them. Hopefully the rails come already shaped to tenon in, but if not, or where you have a shorter final section, they will need shaping down to fit. The previous post can be set firmly then the next one knocked on to the rails to bring it upright and so on down the fence line. If you need to replace a rail you can buy galvanised repair joints to nail the rails in place.

Palings or close boarding

You need to make a jig or template piece so you can achieve exact spacing or overlaps as you board. Doing this will save a lot of time and bother. Use two galvanised nails per paling or closeboard for security and to hold it flat. ■

PHOTOGRAPH COURTESY OF GEOFF MENSTON

Reader Geoff Menston's own fence design

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

A natural bamboo screen fence

PHOTOGRAPH COURTESY OF GMC/ANTHONY BAILEY

Clamp and screw panels to posts

PHOTOGRAPH COURTESY OF GARAY MARSHALL

Why not grow your own fence? See Woodland Ways next issue

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

What you need to know about tablesaws

The first choice for a workshop machine is usually a bandsaw, but a tablesaw comes a close second, here are some things to consider

A decent quality tablesaw is incredibly useful. Just being able to do accurate rip cuts to exact widths, repeatedly if needs be, is fantastically useful. If the saw arbor runs true without any hint of play, putting a decent fine-tooth blade on can give a near 'planer finish'. If the blade is set dead upright then you can 'square edge' stock with no difficulty and, if necessary, run a handplane over the edges a couple of times for a super-smooth finish. It is a truly ubiquitous machine.

Cheaper lightweight saw tables are made of thin pressed steel with a cast, ground or extruded aluminium table. They will also have a direct drive brush motor, which is noisy. Not necessarily a problem, but a tablesaw priced at a mere £86 in a discount supermarket cannot be expected to be as solid, long lasting or reliable as a premium professional brand site saw such as Makita or Metabo and priced in excess of £500 – quite a difference.

The controls on a tablesaw should run smoothly and should lock securely i.e. the blade height and cut angle. The default position should be exactly perpendicular to the table surface, which should be flat and the table insert around the blade should be flush, not sticking out of the surface.

Better machines have stronger, longer lasting bearings on the saw arbor. This is really important as the wear and wobble on a tablesaw renders it unusable. Likewise a powerful enough motor is essential. Expensive machines are more likely to have quieter induction motors that drive through pulleys and a belt meaning a more constant speed and power under cutting load.

Don't buy a big 305mm diameter saw table if you don't need it. Most work can be handled by a 255mm blade, bearing in mind cut height is about one third of the diameter – about 80mm, which will cope with 75mm thickness softwood.

Blade choice is critical, more than you might think. The blade supplied with a cheaper tablesaw may not be very good quality. Ideally you need two or three different types of blade, plus a spare of the standard rip blade because of heavy usage. If you buy a premium brand such as Irwin or Freud, the cost of blades can easily outstrip the cost of a medium price tablesaw, and yet you should use the best you can afford because the difference in cut finish, lack of overheating, increased power at the blade edge, low noise level and long service life make them a must have. Good access to change the blade is also important.

A well made small site saw like this DeWalt model can produce repeatably accurate results

Three different sizes and types of circular saw blade: (*L–R*) rip/crosscut/triple tip board cut

An adjustable and accurate mitre protractor, the arrow has been used to a zero position for the sub-fence

The parallel rip fence needs to lock securely before cutting, and be adjustable so cuts are parallel and the wood doesn't get trapped during a cut. For solid wood you need a sub-fence you can withdraw to the front of the blade so as the tension in the wood is released, it doesn't bind between blade and fence. Keep a slim wedge handy for tapping into the cut to spread it slightly once it has passed the riving knife should binding occur.

Safe sawing is essential, do not remove the crown guard or riving knife for any sawing operation. It is illegal in the UK even for one-man businesses to do so and the same should apply to domestic users. Use pushsticks, so hands are always well away from the blade. Extraction is vital as finer, unseen wood dust penetrates the skin and lung tissue. A drum extractor is an effective way to remove most dust at the source. Always wear PPE – an FFP2 category dust mask, ballistic eye protection and ear defenders as a minimum. Make sure you have enough 'in-out' space for feeding timber through the saw and if necessary, have a roller stand for out feed support. A workshop or shed with end windows or doors may facilitate handling extra long lengths.

Crosscutting requires a medium 42 tooth or finer blade for a decent finish. Use the mitre protractor with an extended sub-fence screwed to it, and check it runs smoothly and set perpendicular to the blade. Do not attempt unsupported crosscutting running against the rip fence as the wood can become jammed between it and the blade causing a devastating kick-back.

You can do repeat crosscuts to length either with an extended sub-fence fitted to the mitre protractor and a stop block added, or use a block fixed at front of the rip fence to set the length. Then slide the protractor forward to make the cut so the component moves into free space, but not getting jammed between blade and fence. ■

Next time

We look at exterior wood finishes

Easy blade changing on a sliding table saw. Note the wedge to hold the blade fast, some machines use a arbor locking rod

When ripping solid wood withdraw the rip sub-fence to the front of the blade to reduce the chance of timber binding

You can make your own sub-fence, which can be located in any position or turned over to give support to small section

Drum extractors are powerful and fit neatly beside a machine or under a workbench

Coming next month in
Woodworking CRAFTS

ISSUE 24 ON SALE 16 FEB

Waney edge desk

by Brendan Divitt-Spooner

- Pine chest reduction by Louise Biggs
- Woodland Ways – hedge laying
- What you need to know about bandsaws

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KITTED OUT

Take a look at the tools, gadgets and gizmos that we think you will enjoy using in your workshop

Rider No.62 low angle jack and No.5½ jack plane

Axminster Rider planes are well-made, affordable hand tools, squarely aimed at professional woodworkers, tradespeople, apprentices and keen hobby users. Axminster claim the No.62 low angle jack is possibly the most versatile and easy-to-set-up plane available and the No.5½ sits half way between the No.5 and No.6. When compared with the No.5, its longer length and wider blade make it a good choice for flattening boards and truing panels. A spare blade and plane sock are included with both planes.

For a small extra cost, you can have your Rider plane engraved with a personal message or as a way of identifying your plane on site. The bench plane engraving service is available exclusively on new plane purchases.

These tools are made with care and attention to fine detail, setting them apart from other run-of-the-mill tools. Rider planes only require the bare minimum of initial preparation. The blade comes honed with a secondary bevel ready to take shavings. Axminster Rider planes represent a good standard of traditional, quality plane manufacture and great value.

Contact: Axminster Tools & Machinery
Web: www.axminster.co.uk

Router table top

The UJK Technology professional laminated router table top is high grade birch (*Betula* spp.) ply with a hard wearing, low friction, phenolic laminated surface. The ply core ensures the top will remain flat throughout its working life, and the laminated top ensures workpieces glide smoothly. An extruded aluminium track inset into the table top includes a standard 19mm track for the use of a mitre fence and a T-track slot for other jigs and accessories. The central aperture (230 x 306mm) will accept any of the UJK router table inserts as well as the UJK router elevator.

The top measures 800 x 600mm and is pre-drilled to fit the UJK Technology professional router table leg stand, fence assembly or optional dust collection box.

Contact: Axminster Tools & Machinery
Web: www.axminster.co.uk

Three-piece cabinet scraper set

It is a three-piece cabinet scraper set in a nice velour leather wallet consisting of one each square, 150 x 60mm, thickness 0.8mm, hollow as well as goose neck, thickness 0.8mm. All scrapers are made of the finest quality steel.

Contact: Kirschen
Web: www.kirschen.de

High-impact chisel

Irwin Marples' new high-impact chisel features a fully-forged steel core and a hardened and tempered blade for long life and durability. An extra large steel striking cap withstands hammer pounding at different angles. They have a ProTouch overmould grip for added ergonomic comfort and a split-proof acetate handle for reinforced handle toughness. The chisels are available in 3mm, 6mm, 10mm, 13mm, 16mm, 19mm, 25mm, 32mm, 38mm and 50mm sizes. Three-piece sets and five-piece wallets are also available.

Contact: Irwin Tools
Web: www.irwin.co.uk

Bosch EneRacer batteries

Bosch claim the EneRacer batteries to be the most compact and lightweight high power battery on the market. Compared to current 18V XL battery packs, the GBA 18V 6.3 Ah Professional EneRacer offers 80% higher power output and increases runtime by up to 90% for heavy duty applications and more runtime. The improvement is largely due to optimised component design, better cooling and intelligent battery management. Intelligent technology is used to control energy consumption according to the application's demand. These factors not only increase runtime, but extend the lifetime of the battery. As part of the Bosch flexible power system, it is 100% compatible with all 18V Bosch Blue Li-Ion tools.

Bosch is developing a new generation of 18V tools optimised for use with the new battery – starting with the GWS 18 V-125 ICE/ICE angle grinder. Batteries and tools are available from specialist retailers.

Contact: Bosch
Web: www.bosch-professional.com

Clarke Tool chests and cabinets

The CBB209B nine drawer chest and CBB217B seven drawer mobile cabinet feature extra double wall steel construction, big 125mm industrial chrome spoked wheels with foot brakes, rubber grip side handles, extra large chrome steel side handles for easy movement, extra large drawer pulls with protective anti-slip drawer liners and ball bearing runners for super smooth sliding action. It has a safety 'push-lock' drawer design preventing drawers accidentally opening when tilted and all drawers lock simultaneously when the top lid is closed. The tool chests and cabinets are available in a range of colours, including blue line industrial, black and gold as well as Clarke Contractor yellow. Also available are three drawer step-up cabinets and two to eight drawer side lockers, which can be added to this model.

Contact: Machine Mart
Web: www.machinemart.co.uk

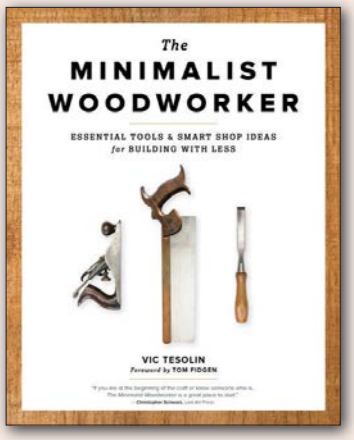
Woodjoy spokeshaves

Classic Hand Tool's woodjoy spokeshaves have an extra thick A2 steel blades round off the high quality built into the performance range of spokeshaves. The 3mm thick brass sole is longer than the mouth opening, allowing the fixing screws to be sited outside the cutting path of the shave giving an uninterrupted smooth contact with the workpiece. Classic Hand Tools claim the innovative micro-adjust hex key blade adjustment is the quickest way to fine-tune a spokeshave. The durable and attractive maple (*Acer* spp.) body features a hex key that has a notable advantage over hand tightening the blade, which means only a tweak is needed to lock the blade securely in place.

Contact: Classic Hand Tools
Web: www.classichandtools.com

BOOKS

The Minimalist Woodworker: Essential Tools & Smart Shop Ideas for Building With Less



Canadian Vic Tesolin is a 'larger than life character' and firm believer in the priciple of 'less is more', which he sets out to prove in this book. Vic gives you the low down on his own workshop and pared-down toolkit. He explains how you can create a workshop space even in the the most unlikely domestic settings, apartment, town house or basement for example. He discusses the essentials for creating a safe workshop environment including good lighting, ventilation and flooring solutions.

Vic shows you what hand tools you can use in smaller spaces; bench planes, block planes, hand saws, chisels, measuring and marking tools, etc. and how to use them. He discusses practical sharpening and tool maintenance, particularly the all-important 'hone and polish the secondary bevel' section, which gives a step-by-step guide demystifying the whole process.

Perfect for the craftsman who doesn't have a lot of space to do their work, or possibly looking to downsize. In summary, this book provides all the necessary information to help you arrange your workshop in the most effective way and learn all the associated working techniques. A really useful, well illustrated book suitable both for beginners and more advanced woodworkers.

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Getting to grips with Carving gouges

Peter Clothier introduces the humble gouge and how best to use one

This series of articles will try to make clear which tools are most useful for the woodcarver, and how and when they are used. For the beginner, it is perhaps advisable to start with six or ten chisels or gouges, adding to this collection when a particular piece of work demands a specific tool.

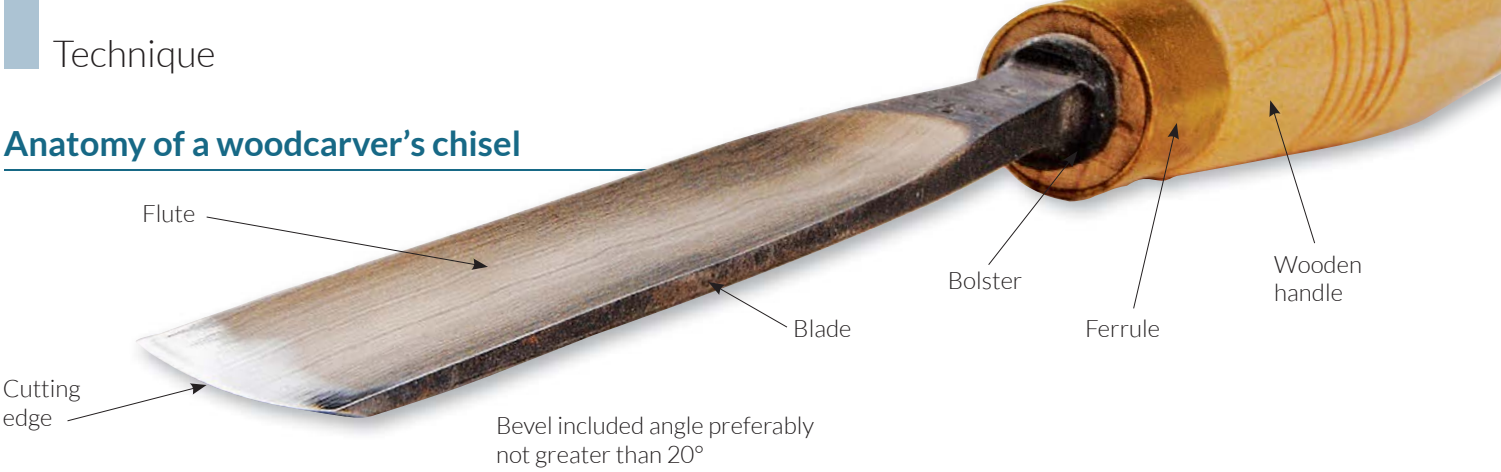
Many manufactures offer beginner sets of chisels and a suggested set would be: No.1½in, No.2⅜in, No.6⅜in, No.8½in, No.10¼in, No.11⅛in, No.39¼in and as the work becomes more ambitious, add No.3⅝in, No.5¾in, No.10⅝in and No.11⅜in. Many good quality modern tools, such as Swiss tools, now have the addition of metals such as vanadium and chromium to the steel, giving a tougher edge and more rust resistance. Modern tools are hardened to a Rockwell standard of between 58–61. ➤

Sweeps and numbers

The word gouge describes any chisel with a curved cutting edge. This curvature is described as the sweep of the tool and is denoted by a number that was designated by an association of British tool manufacturers, mainly based in Sheffield. Thus the Sheffield List set the standard shapes and nomenclature for all carving tools made in the UK.

PHOTOGRAPHS BY TABITHA MCBAIN

Anatomy of a woodcarver's chisel

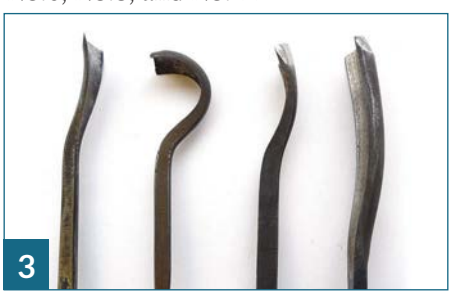


Sweeps, width & pattern

Chisels can be described in three ways (see photos 1–3):

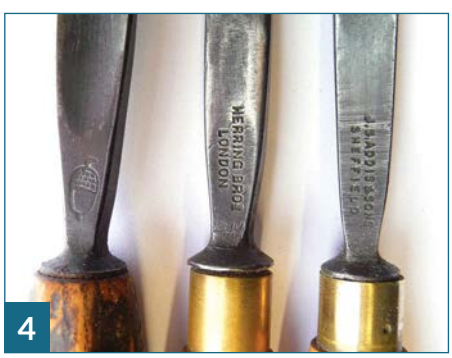
1 By the width of the cutting edge – the photo shows a 15mm wide No.11 gouge (Swiss tool)

2 By the curvature or sweep of the cutting edge – here we have a selection of gouges showing different cutting profiles. From the left: No.3, No.6, No.8, and No.11



3 By the pattern or shape of the shaft of the tool e.g. short bent, long bent, etc. Here we have a selection of gouges. From the left: back bent, deep hollowing bent, short bent, and salmon or double bent

The manufacturer's name and the number referring to the curvature of the edge are often stamped where the steel shaft fits into the handle, just below the swelling in the shaft called the bolster, although this is not always the case.



4 Old chisels showing manufacturers' marks – Addis, Herring Bros, and the Acorn trade mark of Henry Taylor Tools

5 Swiss tools showing the manufacturers' mark of an arrow with the curvature number or sweep stamped below

Name that tool

Showing the variation in straight tool shaft shapes. From the left: straight sided chisel, fishtail, pod, allongee, and straight sided skew or corner chisel

In the Sheffield list, straight-shafted tools are listed with the number 1 for flat chisels. Gouges are listed from number 2 which is very shallow, to number 11 which is very deep. Chisels with small widths are referred to as veiners – used for carving leaf veins – and in the larger sizes referred to as fluters. Some tools are made with a tapering shaft and are called pods or allongees, when the taper is along the whole length of the shaft. If the shaft is fairly parallel and fans out at the end, then they are called fishtails. These are lighter tools than the straight sided gouges and really should only be used with very light mallet work.

Tool handles


7


8

Tool manufacturers supply tools with a variety of patterns, quality and timbers. Photo 7 shows the variation of handles typically found on gouges. From left: Swiss tool octagonal, best carving pattern in beech, best carving pattern in boxwood, Hazel branch, ladies or amateurs, best London octagonal boxwood, best round beech, best carving pattern, and firmer type. If ever you need to fit a new handle, start by wrapping the cutting edge of the tool with tape to prevent accidents and after removing the old handle, clean any rust or debris from the tang of the tool using coarse abrasive wrapped around scrap wood (see photo 8). Next, make sure the diameter of the hole in the handle is about the same measurement as half way down the tang (see photo 9). Hold the chisel shaft wrapped with cardboard to prevent it being scratched in a vice, lower the handle onto the tang and gently tap it on. Rotate the handle so that it reams a hole, and continue gentle tapping and twisting until the ferrule is within 3mm (⅛in) of the bolster. Then tap the handle firmly into place (see photo 10).


9


10

Holding the gouge

For beginners in woodcarving, the main questions are how to use the tools and which tools should be used for specific activities. Gouges, which means any tool with a curved cutting edge of one sort or another, are used most of the time. The gouge is held like a dagger in either hand, and the cut is made by gripping and pushing the handle with the other hand and slicing the wood with the sharp chisel edge. Holding the sweep correctly, the heel of the lower hand pivots on the surface of the wood (see photo 11). A less controlled cut will result from not having the lower hand in contact with the wood being worked on.


11

Using a mallet

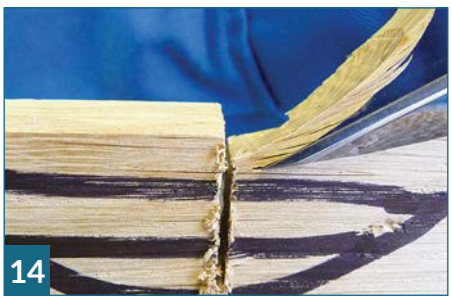

12

The alternative way to use the chisel is when the cut is assisted with a mallet blow. The cut is made with one hand holding the chisel handle and with gentle taps from the mallet on the end of the handle, a controlled cut can be made. A woodcarver's mallet is cylindrical so that when it is being used, the mallet face gives a consistent striking blow without the carver having to look at it, so full attention can be paid to the chisel's cutting edge. When you are using a mallet, it is a good idea to grip the chisel handle with your thumb next to your index finger, rather than wrapped around the chisel handle so that if you miss hit the end of the chisel handle, your thumb does not get hit by the mallet (see photo 12). When the thumb is wrapped around the chisel handle, a miss hit can be painful. Shop-made one-piece mallets are much cheaper than two-piece types, work just as well, and the head won't come loose. Generally, 75–100mm (3-4in) in size is perfectly adequate for medium-sized work.

Cutting wood

When carving timber, particular attention must be paid to the direction of the wood grain – the result of long cells which grow in alignment with the long axis of the trunk and branches. Driving a chisel into the end of the grain will cause these cells (grain) to split. Cuts may be made across the long direction of the grain, at an oblique angle along the grain, or even at right angles to the grain. Problems occur when the chisel makes a cut that creates a split along the grain. By making a cut that follows the grain, it is possible that the wood will split. In order to avoid this from happening (see photo 13), it is better to cut so that the gouge is working 'downhill' across the length of the grain. By making a 'stop cut' with a saw, the wood cannot split where the pattern being carved rises against the grain (see photo 14). The most usual way to hold a gouge is so that the hollow (in cannel) is facing upwards as wood is cut away. When using a gouge, it is important that the outer corners of the blade do not go under the surface of the timber – this is because firstly the corner is likely to be broken off and secondly, if the wood is not being cut cleanly, it is much more likely to split. Photo 15 shows the correct depth to sink the edge of a tool so that the sides cut cleanly.


13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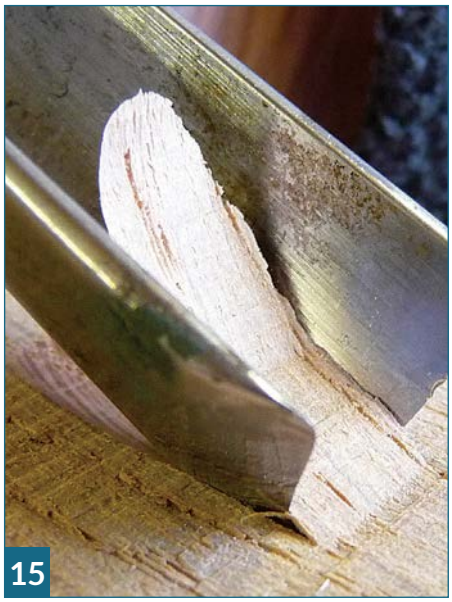
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Roughing out

Removing the bulk of waste wood from a carving is called roughing out and is almost exclusively carried out with gouges of varying sweeps. It is usual when making a relief carving, to make a relieving cut around the main shape, allowing easier removal of the marked waste wood. This stage is carried out with a deep No.11 or similar straight gouge and mallet, steering the gouge around the shape, paying attention to grain direction and removing the waste down to the line (see photo 16). The deep gouge leaves quite coarse marks and these can be reduced by taking off shavings with a flatter (e.g. No.3) gouge, leaving a smoother surface (see photo 17).


16


17

Shaping

After the bulk of the waste has been removed, it is time to define the shape. Using the gouge in a vertical position, take off shavings down to the ground level. Remove wood back to the marked line using whichever gouge's curvature fits each part of the profile of the shape accurately. Importantly, gouges can be used so that either the concave or convex face is following the shape.


18

Using the 'in cannel' face to cut down around the convex leaf outline shape


19

Now the outside face of the gouge is used to form a concave shape on the leaf

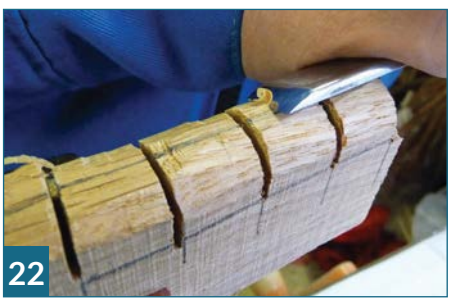

20

Once the vertical cuts have been made, use horizontal cuts with a No.3 sweep to remove the chips

Using the in-cannel of a gouge

Another important function of the curved shape of the gouge's cutting edge is when it is used hollow side downwards to form convex shapes, such as balls on mouldings. The wood is prepared by marking off square shapes that will accommodate the size of ball to be made, and then relief saw cuts are made to the correct depth (see photo 21). The top edge of the wood is then shaped to a half round section using the inside face of a gouge (see photo 22). Using the in-cannel face of a gouge that closely fits the profile of the ball to be carved, shape it by taking off manageable sized shavings until the ball is formed (see photo 23).


21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23

Setting in and removing the chip

Sometimes only small amounts of wood need to be removed to produce a carving e.g. letter cutting. In order to do this, simply cutting across the wood grain before attempting to take an angled cut will allow a chip of wood to fall out, and splitting the grain will be avoided. The letter O is marked out and only the wood within the letter shape needs to be removed. Using various gouges with curvatures that fit the centreline of the letter shape, make mallet assisted vertical cuts all along the centerline (see photo 24). Holding a gouge that exactly fits the outside shape of the letter at 45°, gently tap the chisel handle. The chip should pop out and if it does not, then set in again gently and repeat the angled cut (see photo 25). Tidying the cut is best done with the two-handed carving technique. Cutting the inside shape requires a specially shaped gouge with a round cutting edge, which will be studied in a later article.


24


25

Gouge cut surface

In order to produce a fairly smooth surface that will not need sanding, use a very sharp shallow sweep, e.g. No.2 or 3 held at a low angle, and cut with a forward slicing action. This is a most effective finish that catches the light and shows that the piece has been hand carved.

Fitting a Kitchen worktop

Last month James Hatter described assembling a flat pack kitchen cabinet, this month we show you how to machine standard postform kitchen worktops

Nowadays there are different choices of worktop material – F-jointed wood in several species such as oak (*Quercus robur*), ash (*Fraxinus excelsior*), maple (*Acer saccharum*), etc. granite, corian and even compressed bamboo. However the old mainstay laminate covered chipboard is still popular, relatively cheap and easy to self-install unlike granite or Corian which are specialist jobs. There are some tips you need to follow though, if you want to avoid problems…

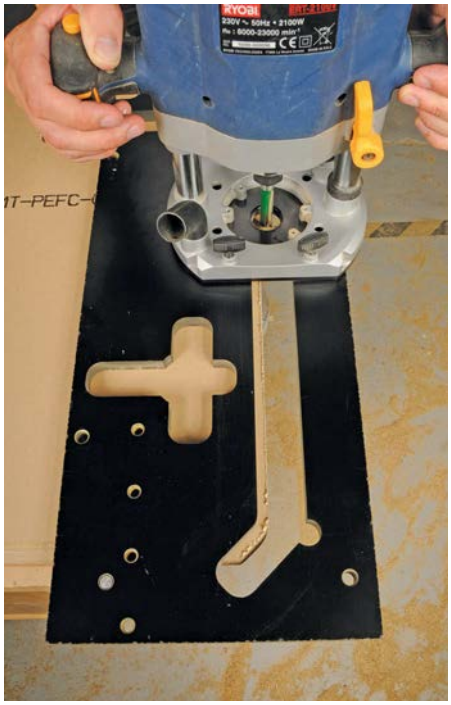
1 Whether you already have cabinets in place or not, you need a simple plan drawing. This will tell you where the worktop needs to be and have accurate dimensions marked on it. From this you can work out where the joints are and how much worktop to buy so you avoid waste.

2 Although you can do cuts to length with a handsaw, it will cause edge chipping of the laminate and be hard work. A circular saw is better, but you need to mark and cut from the underside to reduce breakout. Rest the worktop upside down across a couple of firm work supports and get someone to hold the waste section as it gets cut free.

If you machine from the back to the front of the worktop the laminate will breakout

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Machine the recess first; always pull the router towards as it will naturally stay pressed against any jig or workpiece



Turn the other component to machining the mating half of the joint. Always work from the front edge to avoid breakout

Two matching recesses are needed at each bolt position so the joint will close up properly

3 A large router is a far better option and it is the tool you will need for making the joint edges in any case. You need a long, strong straight cutter to do this. The joint needed is called a 'postform joint', rather like a 'dog leg' shape as it has to take account of the rolled-over front edge.

4 Use a kitchen worktop jig; you can make your own out of MDF to save cost. It needs a parallel slot to take a large guidebush (normally 30mm diameter). Work from the inner end of the worktop where the dog leg starts to avoid breakout right on the postform front where it will be highly visible. Depending at which end of the worktop the joint is, you will need to choose whether to have the worktop right way up or upside down.

5 The piece that will butt neatly into the joint recess needs the same shape cut but the worktop will need to be the opposite way up, so the machining is from the front edge to the back so it can't breakout. Carefully think this joint arrangement through, before you start machining so you don't mess it up!

6 In theory the two halves of the joint should fit snuggly together. Seal the raw chipboard edges against water damage with some varnish. The next job is to fix the two halves together with worktop connector bolts.

These need machined out recesses to fit them in. Manufactured jigs have guidebush cutouts for machining these. Again, you can work out your own jig to do this but practice on some scrap board first. You need two or three bolts per joint edge.

7 To stop the two halves of the worktop moving up and down a biscuit jointer and several biscuits will ensure the surfaces are locked level with each other. Plastic assembly or Corian-dedicated biscuits won't rot, but ordinary beech (*Fagus sylvatica*) ones should last quite well too.

8 Doing up the worktop bolts when they are underneath is quite tricky. Trend Ltd supply standard bolts, but also produce a Zipbolt which is tightened by using a cordless drill driver which is much easier.

9 There is always going to be some gapping at the back edge of the worktop. If it is minor, wall tiles may close the gap, but any more of a gap will need an upstand, usually made of wood. This can be biscuit jointed so it will fit on to the back of the worktop after installation. Any gap can be closed with mastic, but at least it is above the worktop surface.

10 Exposed worktop ends are covered using a supplied strip of laminate and some contact adhesive. Leading corners can be a nuisance if people bump into them, so neatly bevel the corner off by a small amount and fit a piece of laminate to finish the job off. ■

Below: This Trend kitchen fitters pack provides a biscuit cutter for the router rather than using a dedicated biscuit jointer

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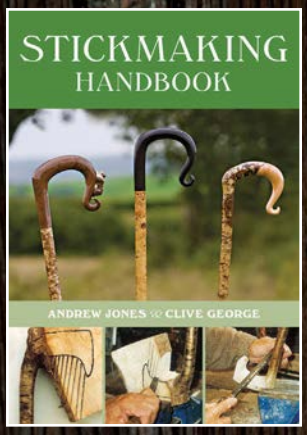

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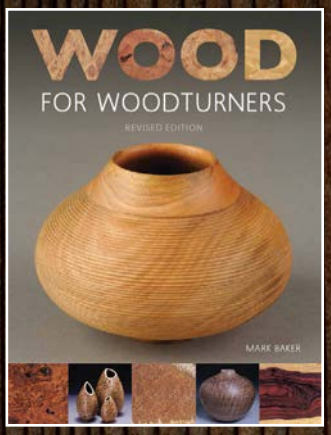

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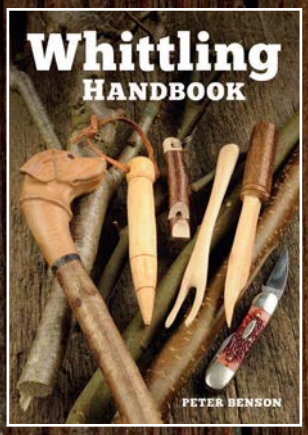

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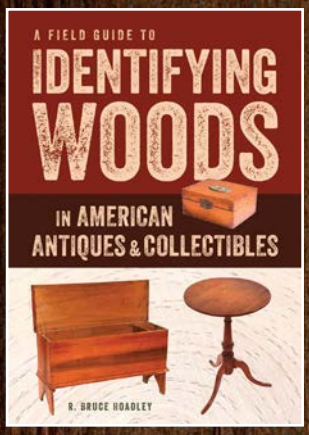

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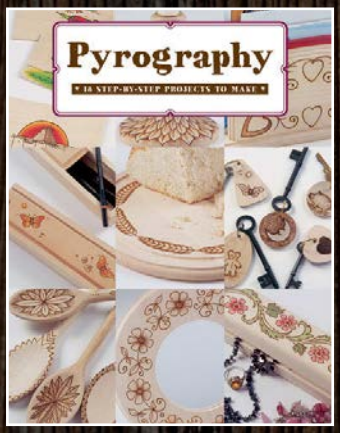

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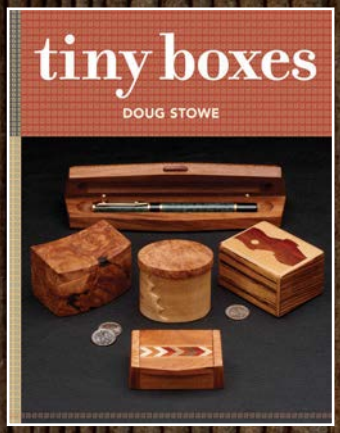

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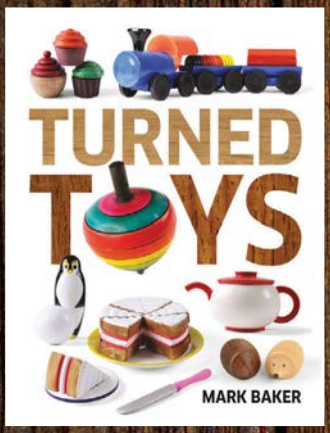

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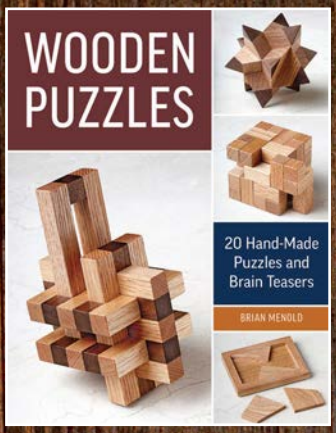

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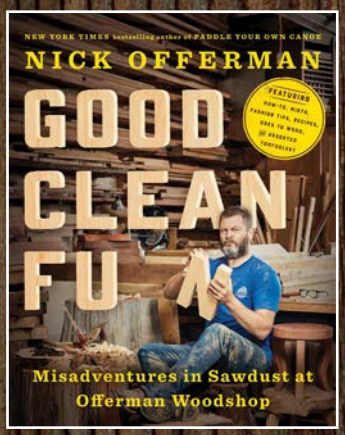

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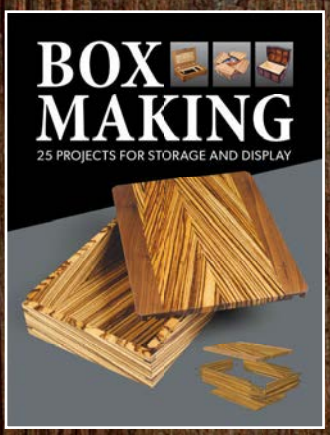

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Focus on…

Michael Thonet and his chairs

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An intricate Thonet rocking chair

This month, we're looking at Thonet chairs

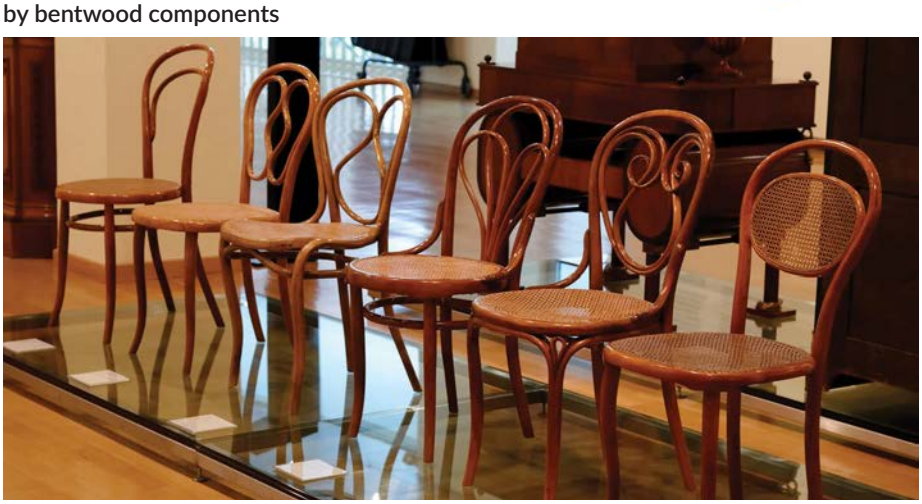
Chairs are such an everyday object that we don't really think about the history of them or about where they came from or the fact that there was one individual who came up with a number of designs that are still around today. Michael Thonet was a famous German-Austrian cabinetmaker that is known for his invention of bentwood furniture.

Born in July 1796, Thonet set himself up as an independent cabinetmaker in 1819. In the 1830s, he began trying to make furniture out of glued and bent wooden slats and his first success was in 1836. Thonet's crucial breakthrough was due to his success in having light, strong wood bent into curved shapes, which were formed in hot steam. Managing to do this, he was able to design lightweight, elegant durable and comfortable furniture that would later inspire designs that we still use today.

A chair with a modern touch and very ahead of its time, 'chair No.14' made Thonet a global company meaning numerous piece of bentwood furniture soon followed. 'Chair No.14' is called the 'chair of chairs' and is still produced today with a record 50 million chairs having been sold since it was first manufactured. Today, some of his models have become icons such as the rocking chair made in 1860 with Thonet's production peaking specifically during the 1912 in which two million different chairs were manufactured and sold worldwide.

Michael Thonet died in 1871 in Vienna, and there's a museum in the factory (built in 1857) in Frankenberg dedicated to the company and the Thonet design. Thanks to Michael Thonet, we have a number of beautifully designed chairs of all shapes and sizes today that are still widely used today almost 200 years after their initial concept. ■

Conventional back splats and rails in Thonet designs are replaced by bentwood components



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A selection of Thonet chairs in an exhibition at the Wien Museum

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Equipped with a powerful 500W motor and all-metal gearing, the Triton Eccentric Orbital Sander tackles the most demanding sanding and polishing tasks with two sanding modes in one tool.

A forced orbit rotation mode is used for rapid material removal on the toughest surfaces, while free-run random orbit mode delivers fine, uniform sanding results for perfect finishing.

For every sanding task, the Triton **TGEOS** gets you through the tough starts to leave a fine finish.

TGEOS

triton®
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