WOODWORKING CRAFTS

Hand, Power & Green Woodworking • Turning • Restoration • DIY

Domino Joiner upgrades **Garden gate** Tool box **Walnut side table** Bird table
Modular bookcase Mini router plane **Furniture restoration** Chip carving basics

MASTERS OF WOOD

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Mini Planer 60mm

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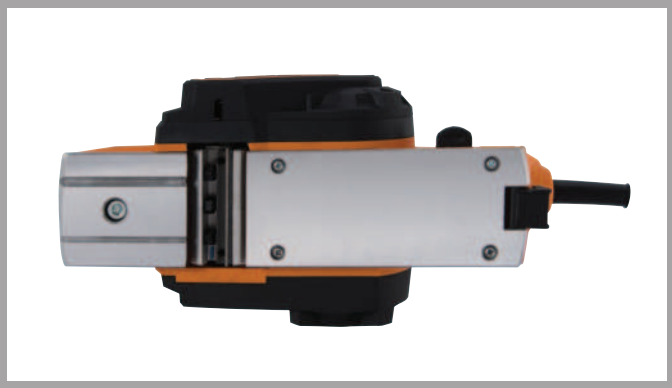

The adjustable front shoe can be stepped to planing depths up to 1.5mm, and the rear shoe features a rear parking rest to prevent blade damage when not in use.

Rounding off this full-featured planer are two V-grooves, which are ideal for edge-planing sharp corners and chamfering edges.

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3YR GUARANTEE

WOODWORKING
CRAFTS

Issue 74

I have been in the woodworking business for a very long time and have been to more woodworking shows than most people have had hot dinners, as they say. That was until Covid hit and everything shut down, including the woodworking shows, which used to be on virtually every other weekend, especially in the USA. The shows were always a great source of information on new tools, where bargains could be had and also a place to catch up with old friends from far away. Let's hope they are coming back soon so we can continue to enjoy all those things that enhance our woodworking lives. I did however, recently go to a different kind of woodworking show and it was an event for woodworkers involved in social media. There were only a few booths/stands of tool companies there, but the show was all about networking and the point of it was to walk around and meet people with the purpose of finding mutually beneficial projects to work on. They were speakers giving talks on their specialist subjects, which were mostly on how to become a social media influencer and how to get sponsorship or stuff they can use and promote. The woodworkers at the show displayed a wide range of talents from the professional furniture makers to the home hobbyists, they all had the same thing in common and that is a passion for making things in wood. In conclusion it was a refreshing experience to attend the show and meet a lot of new and very talented woodworkers who I may have never met at a traditional woodworking show. You may well see some new faces in the magazine as a result. If you have any info on forthcoming woodworking shows please let us know so we can feature them on our events pages.

Now on to what you will find in this issue: for all you tool people Charles Mak gives you tips on how to get more from your, already incredibly useful, Domino joiner and Mitch Peacock shows how to make a lovely little hand router. You might want to keep them in a millennia-old design Japanese toolbox that Vic Tesolin shows us how to make. Moving on to how tools are used, Anthony Bailey takes an in-depth look at hand plane techniques to plane wide boards. The simple wedge is featured, and Paul Maddock pays tribute to them by showing us some of their many uses. Moving on to projects for the home we have Steve Bisco's carved candlestand, Les Symonds's Macintosh-inspired side table, David Barron's three-plank table and Alan Holtham's delightful garden gate. We also show you how to restore an old chest of drawers and last, but not least, we have a profile on Sylvain Seguin who sculpts amazing creations from foraged timber.

Happy woodworking, Alan Goodsell

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Woodworking Crafts magazine
(ISSN 1365-4292) is published every eight weeks
by Guild of Master Craftsman Publications Ltd,
86 High Street, Lewes, East Sussex BN7 1XN
T: +44 (0) 1273 477374

For article submissions and editorial enquiries:
E: WWCEditorial@thegmcgroup.com

Editorial Christine Boggis, Karen Scott, Jane Roe
E: karensc@thegmcgroup.com
T: 01273 477374
Designer Oliver Prentice
Advertising Guy Bullock
gmcadvertising@thegmcgroup.com
T: 01273 402855

Publisher Jonathan Grogan
Production manager Jim Bulley
T: 01273 402810
Marketing Anne Guillot
Printer Poligrafijas grupa Mukusal, Latvia
Distribution Seymour Distribution Ltd
T: 020 7429 4000

Subscription enquiries:
E: pubs@thegmcgroup.com

To subscribe online go to:
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Cover photograph:
Alan Holtham

Welcome page photograph:
Anthony Bailey/GMC Publications

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

WOODWORKING CRAFTS

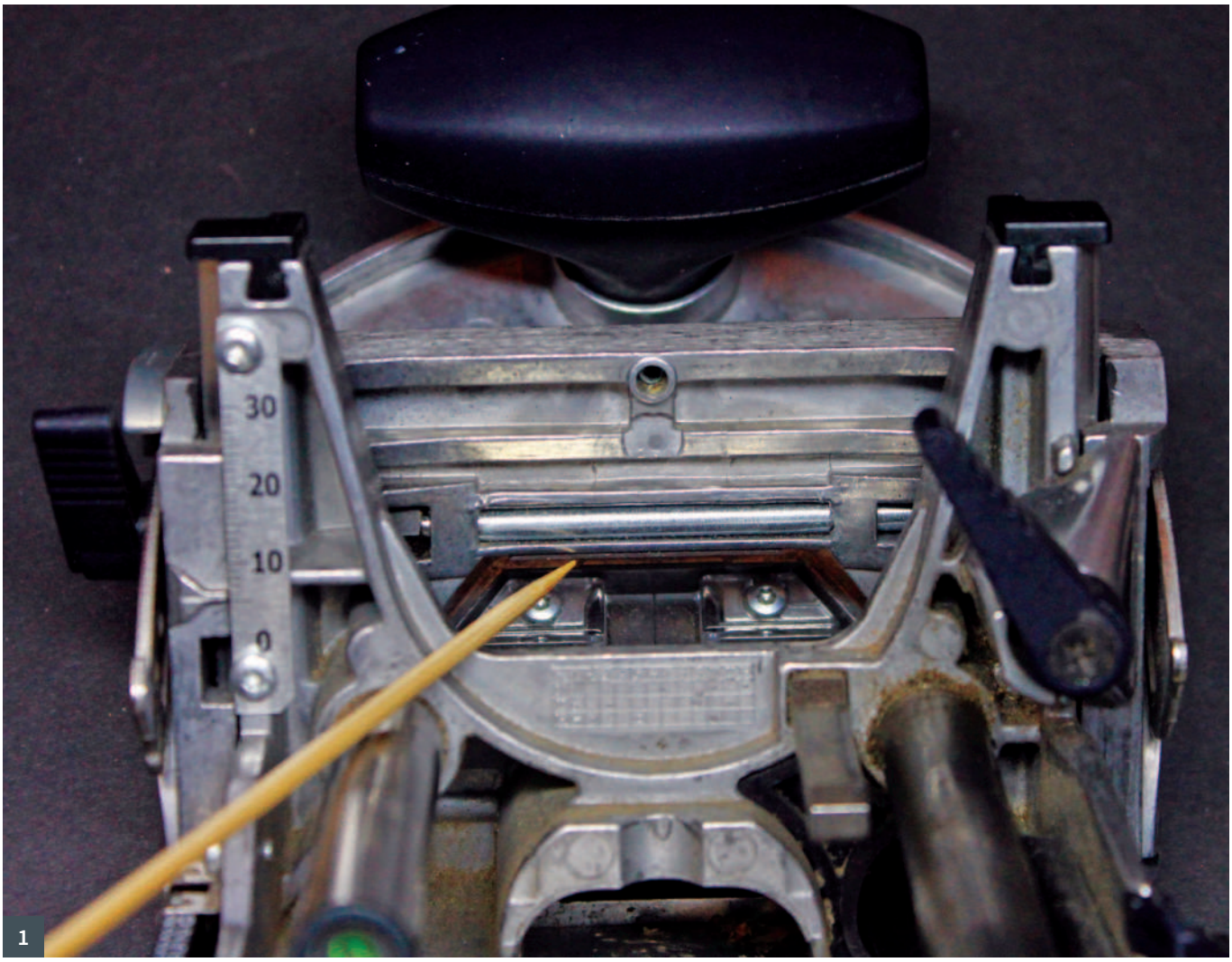
If you would like to be featured in *Woodworking Crafts* please email wwceditorial@thegmcgroup.com

HANDY UPGRADES FOR YOUR DOMINO JOINER

Woodworker Charles Mak shares three tricks for getting more from the Domino machine

In *WWC* issues 65 and 69, I employed a couple of shop-made jigs to produce angled mortises with the Domino Joiner (DF500). Here, I will share a few more upgrades to further enhance the capability and efficiency of the joiner.

PHOTOGRAPHS BY CHARLES MAK



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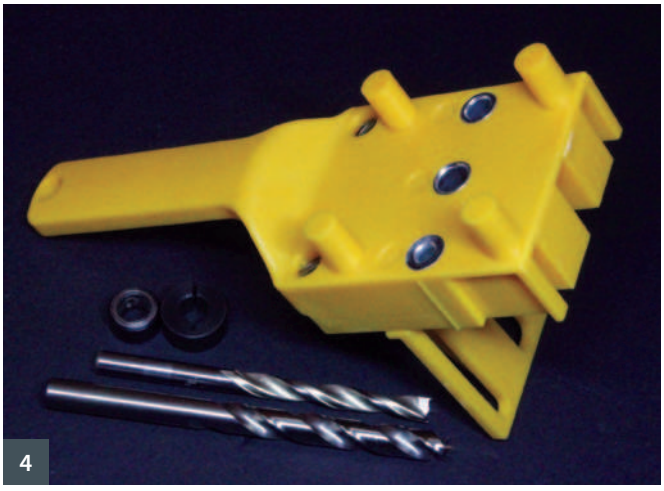
Enhanced lighting

Good lighting makes it easier to use the sight gauge to align the Domino machine to a placement/pencil line on a workpiece. Some users will place a task light on the bench to help, while others may use a flexible-neck clip-on light. But they require repositioning the task light after every cut, or adjusting the clip light for focus.

Here is a better way to light up the sight gauge: cut a self-adhesive magnetic strip to fit into the underside of the bridge of the fence, and add a rare earth magnet to one of those self-adhesive LED button lamps (**photos 1 & 2**). When I need extra light, I switch on the button lamp and attach it to the magnetic strip (**photo 3**). Let there be light!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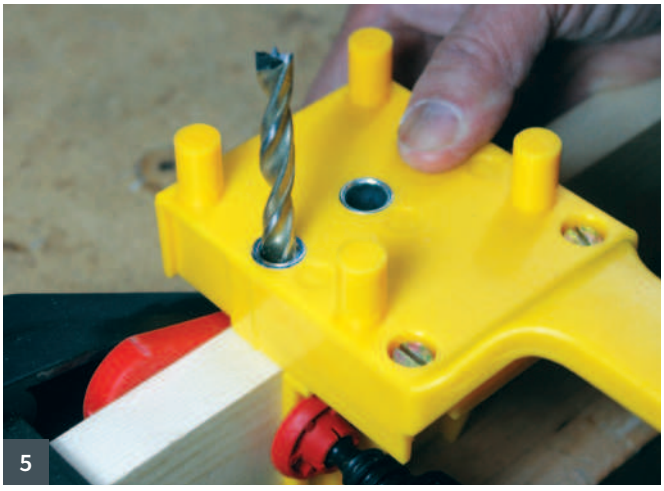
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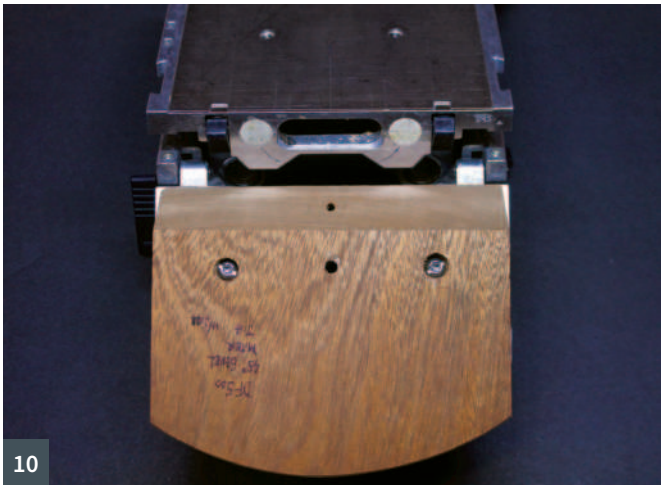
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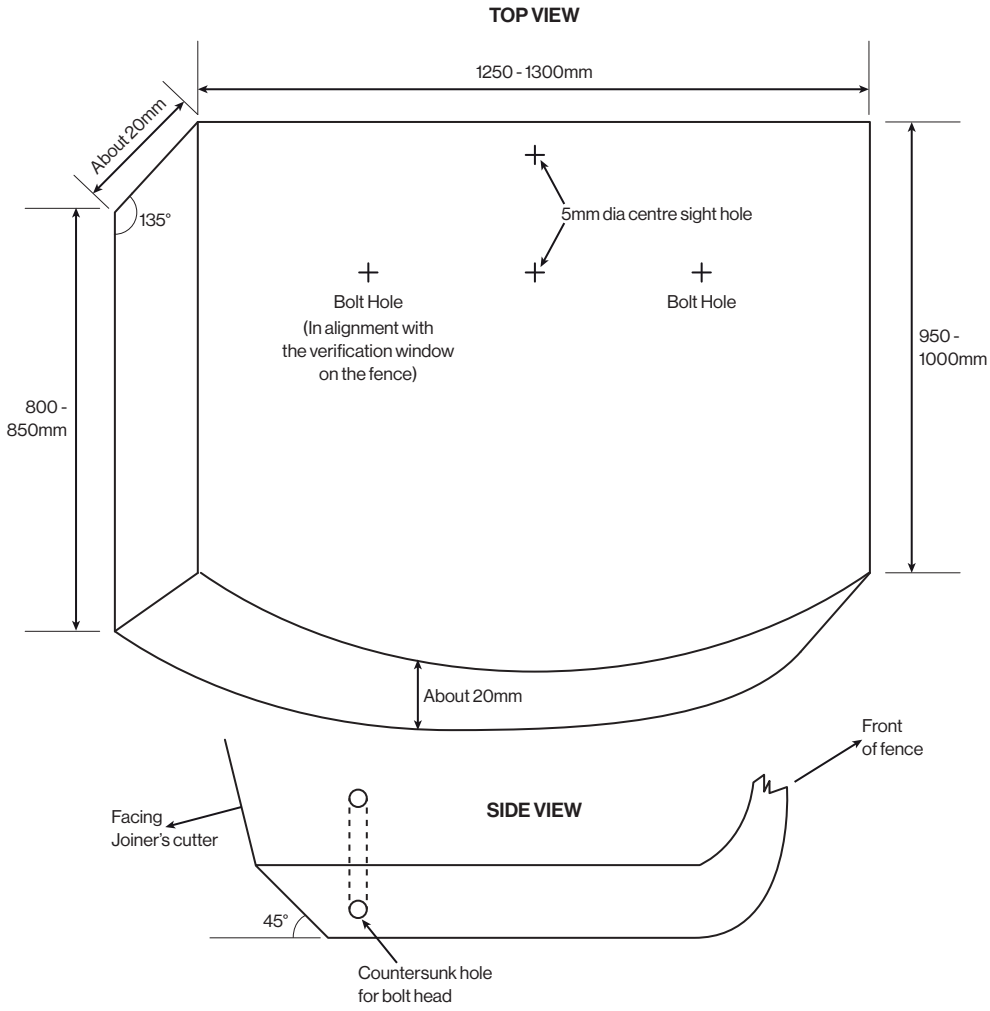
Drilling trick for stronger joinery

The small Domino Joiner (DF500) can mill mortises only up to 28mm deep. But there is a way to mill a small number of deeper mortises even if you do not have the large Domino Joiner (DF700). Here's how:

- First, you will need (or make) a drilling guide with metric bushings of 6mm, 8mm and 10mm, and the corresponding drill bits (**photo 4**).
- Next, cut the mating mortises as usual at the appropriate maximum depth setting with the small joiner.
- With the aid of the proper drill bit, position the drilling guide on the work in alignment with one end of the milled mortise (**photo 5**).
- Drill the first hole to depth (**photo 6**).
- Reposition the drilling guide and drill the next hole (**photo 7**).
- Continue the procedure until the mortise is drilled to the desired depth (**photo 8**).

Bevel registration jig

The Domino machine produces strong mitred or bevel joints with tenons. The standard technique is to set the fence to 45° at the



appropriate height, and register the fence on the inside face of the joint (**photo 9**). Because the registration is made against the inside face of the joint, any imperfections in the mitres/bevels or in execution can show on the outside edge of the joint where the mating pieces meet. Woodworker Boris Beaulant fashioned a bevel jig to register the fence against the face side of the work, thus ensuring that the bevel or mitre joint is tight on the outside edge. His bevel registration jig consists of two components: i) a shim with one end bevelled at 45° and with holes drilled for the passage of bolts, and ii) nuts, bolts and washers. The jig is bolted to the bottom of the fence with the shim's bevel edge flush with the inside edge of the fence (**photo 10 & the diagram above**).

In use, with the fence set to 90° at the appropriate height, register the fence on the work with the shim tight against the workpiece (**photo 11**). Plunge the machine to mill the mortises on the joint (**photo 12**). This method produces reinforced mitre/bevel joints that look watertight on the face side (**photo 13**).

Armed with these upgrades, your Domino machine will allow you to take on future Domino projects with enhanced precision and confidence!

HEALTH AND SAFETY GONE TOO FAR?

Kevin Alviti discusses attitudes to health and safety in the woodworking industry and the long-term consequences of ignoring personal protection

All four heads in the room turn to look at me, I look back not really knowing what I'd done this time. I hadn't broken wind, so for a rare instance, I wasn't guilty of that. Thirty slow seconds pass where their expectant gazes don't change or break from me. Then in a semi-huff, my wife gets up and goes to the kitchen, even though I'm the one baking. The bread I was cooking was done, and I hadn't heard the high-pitched beeping that the oven timer makes. I'd always joked about how I'd ruined my hearing …

These days I live what some of my friends call a 'charmed life'. I work from our home, around the children's schedules and spend my days living my life's passions: woodwork, self-sufficiency and writing. And although I don't earn huge amounts, I wouldn't change a thing.

Well, except maybe one thing. As I turn 40 next year, looking back I wish I'd taken health and safety a bit more seriously in my younger years, when I was starting out in the trade.

HEALTH AND SAFETY GUIDELINES

You can find the latest UK guidelines for woodworking health and safety at: **www.hse.gov.uk/woodworking**

Before carrying out any woodworking project, you should always check the relevant HSE website or the health & safety advisory body in your country.




PHOTOGRAPHS BY KEVIN ALVITI

Kevin had a much more blasé approach to health and safety when he was an apprentice

Attitudes to health and safety

The building industry has certain elements of 'toxic masculinity' to it, in quite a big way in fact. Now I'm a big guy who knows what he's doing after 20 years and will happily walk off a job if things aren't done right (one of the reasons I tend to work alone these days), but early on I was certainly keener to fit in and not stand out. I witnessed some terrible bullying, like a young lad being shut in a shipping container for a day or some poor person having their vehicle tampered with. In those early days, my mentor taught me to keep my head down and to have a good firm answer to anyone that tried to bother us (a phrase ending in 'off' he told me worked). He looked after me well, protected me from it and that is probably why I have zero tolerance for anything like it now.

But there was a very negative feeling to health and safety in the industry and personal protective equipment (PPE) especially. Trade people would love to moan about it, like the people making the rules were interfering just for the sake of it, and their chatter would rub off on impressionable minds.

I used to spend one day a week at carpentry college and the staff would try to drill into us the importance of wearing PPE. Most of the teachers had a lifetime's practice in the trade; they knew from bitter experience and had old wounds to show us. But that didn't change people's views, we were all teenagers and thought we were invincible to the harms of the world. One lad on the joinery course gained an injury in the second year where he lost his two middle fingers on his left hand, a spindle moulder accident at his work, but that was like water off a duck's back to us. Anyway, we all laughed with him as he said it made him better at playing pool as he never needed to use a bridge …

There was certainly the same attitude on site as, well, older men would moan about how 'health and safety had gone too far'. Even with my teenage eyes, I could see that every time we cut corners on health and safety it was always to save time or money and never to our benefit. Earmuffs were left in the van, the ringing in your ears only lasted for a few seconds after the saw stopped after all. Who needs safety glasses when you can squint? And dust masks? Well, they were normally so covered in dust from the tools in the back of the van that you were better off without them.

Consequences of ignoring health and safety

It was when I started working for a friend that I realised that maybe the blasé attitude I'd picked up from working on-site all those years was wrong. He was obsessive about putting earmuffs on every time I had the saw running, or quickly putting his fingers in his ears if I didn't give enough warning. At first, I thought this was a massive overreaction, I chuckled a bit about it and tried to make light of the situation. But during those first few weeks we worked together his father would come to the workshop every day to visit us. I have a loud voice (and personality, so I'm told) and his father would still struggle to hear me. I'd speak clearly and slowly and it was easy to see how he was quickly isolated from conversations.

My friend confided in me one day that people often treated his dad like he'd already lost his mind and gone simple. But really, he just couldn't hear anything anyone was saying. Daily he'd fall out with his temperamental hearing aids, so would shut himself off that bit more.

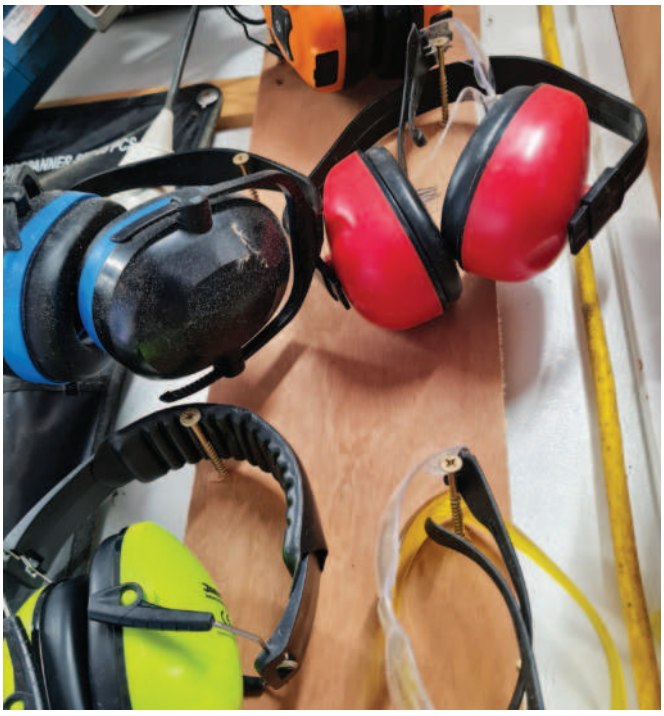
Twenty years later, Kevin's attitude has changed and he uses PPE when he works

'Don't do something just because a rule tells you that you have to, do it because it's the right thing to do.'

Making changes

From that day forward I decided I was going to up my game. I equipped my workshop with more PPE. Some fixes were cheap – earmuffs and goggles by every tool costs next to nothing. Some fixes were more expensive – I started to worry more about the finer particles of dust I'd probably breathed too much of already, so I upgraded my extraction and got a large air filter that could clean the air many times in an hour. I now wear earmuffs probably 90% of the time I'm in my workshop; it's easier just to have them on than to keep swapping. I've gone towards having ones that link to my phone, so now as well as protecting my hearing it means that boring jobs, like three hours of sanding, can be enjoyed with the company of a good book being read to me and the extraction means my lungs are just as clean as when I started.

A dust filter is essential in a woodworking workshop



Earmuffs for every occasion!

Dusty work is sometimes unavoidable but now Kevin has all the right equipment to protect his lungs

Changes still need to be made

But I'm disappointed the message still isn't getting through on the whole. I see YouTube videos with guards missing, or no hearing protection being worn, drive past building sites where builders look like they could still be walk-on parts of a poorly humoured 1970s sitcom. If you ever mention it to anyone then they take it as a personal affront to their identity or how good they are at their trade.

Just the other day I got annoyed when I was in a workshop I frequently visit and a young man in his early twenties was working with an angle grinder. When he stopped, I motioned for him to put on his earmuffs. He laughed and said, 'Doesn't matter, I'm deaf anyway.' Then carried on. He was repeating what he's heard the older operative around him say when challenged, not thinking about it. He was just pushing back against 'the health and safety nonsense' and winning approval from his peers as he did so.

Now he's not deaf, nor does he have any inkling of what it would be like to be even slightly deaf, not really anyway. The trouble is he's young, headstrong and thinks it won't happen to him.

I was him.

And I'm not sure how to break the cycle. When I started in the trade I wondered if things would be unrecognisable in 20 years' time, things seemed to be moving at such a pace. But the same problems are still there and it's largely down to attitude. Thankfully it is far better in workshops and home users than it is on sites.

But I urge you when equipping your workshop or upgrading your tool kit to think about your health and your safety. Don't do something just because a rule tells you that you have to, do it because it's the right thing to do. Not breathing in lung fulls of dust is a good thing, going inside without your ears ringing is how it's supposed to be. If it can't be done safely then it's better just not to do it.

Although I'm not going to say that having a little selective deafness isn't without its advantages … 'Sorry my love, I didn't hear you say I needed to do that …' I just wish I was pretending ...

JAPANESE-STYLE TOOL BOX

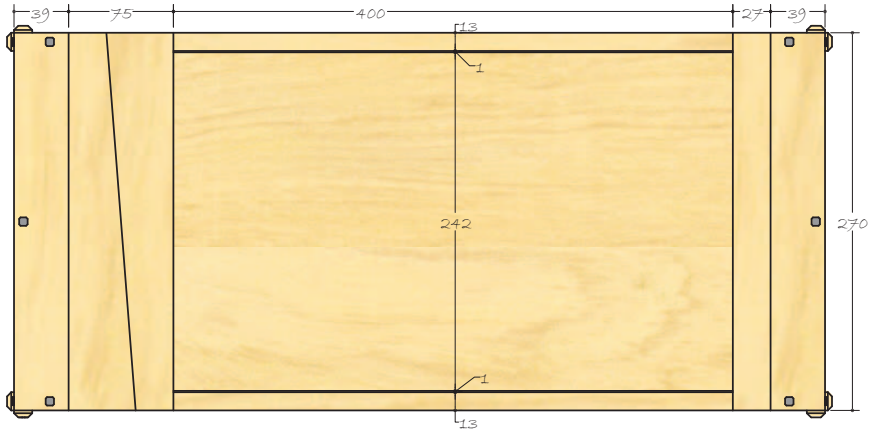
Vic Tesolin builds a tool box based on a millennia-old design

I'm a believer in the axiom, 'A place for everything and everything in its place'. This couldn't be truer when it comes to my woodworking tools. Not only does this keep your space organised but it also keeps your precious tools safe. You also spend less time searching for tools when you are in the throes of a build. The Japanese certainly understood this and their tool boxes are a testament to that. With their simple designs and easy building techniques, these boxes make great storage solutions. You can make them big or small, fancy or spare, either way you will have a classy home for your tools. The one in this article is on the large size designed with Western tools in mind.

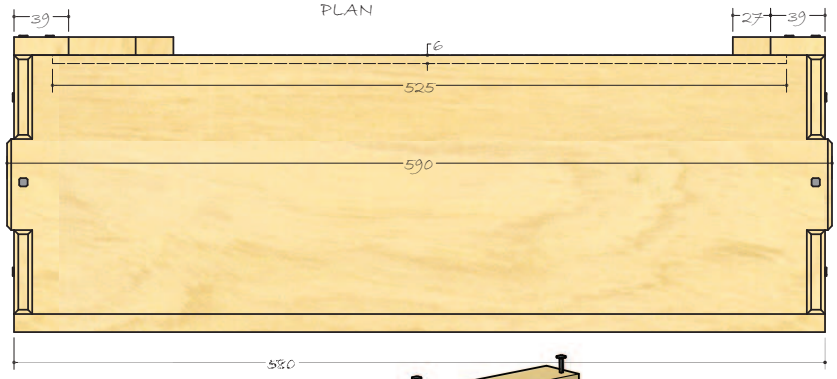
The traditional material for this tool box is softwood, in this case I'm using eastern white pine. You can make these boxes out of any species you like, just keep in mind that the box will weigh much more if you make it from a hardwood. I started with 20mm stock and brought it down to 12mm to make the box lighter. Unless you plan on chucking your box down a flight of stairs, building it out of thicker material is overkill. Begin with the grunt work and break out your timber for the sides and ends according to the cut list.

CUTTING LIST

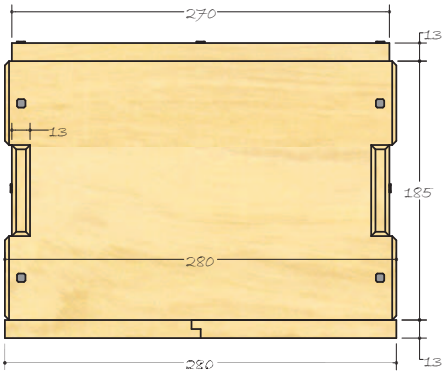
Part name	QTY	Length	Width	Thickness
Side	2	590	185	13
End	2	280	185	13
Bottom	2	580	140	13
Top	1	525	243	6
Fixed batten	2	272	39	13
Lid batten	1	272	27	13
Locking batten /wedge	1	272		13



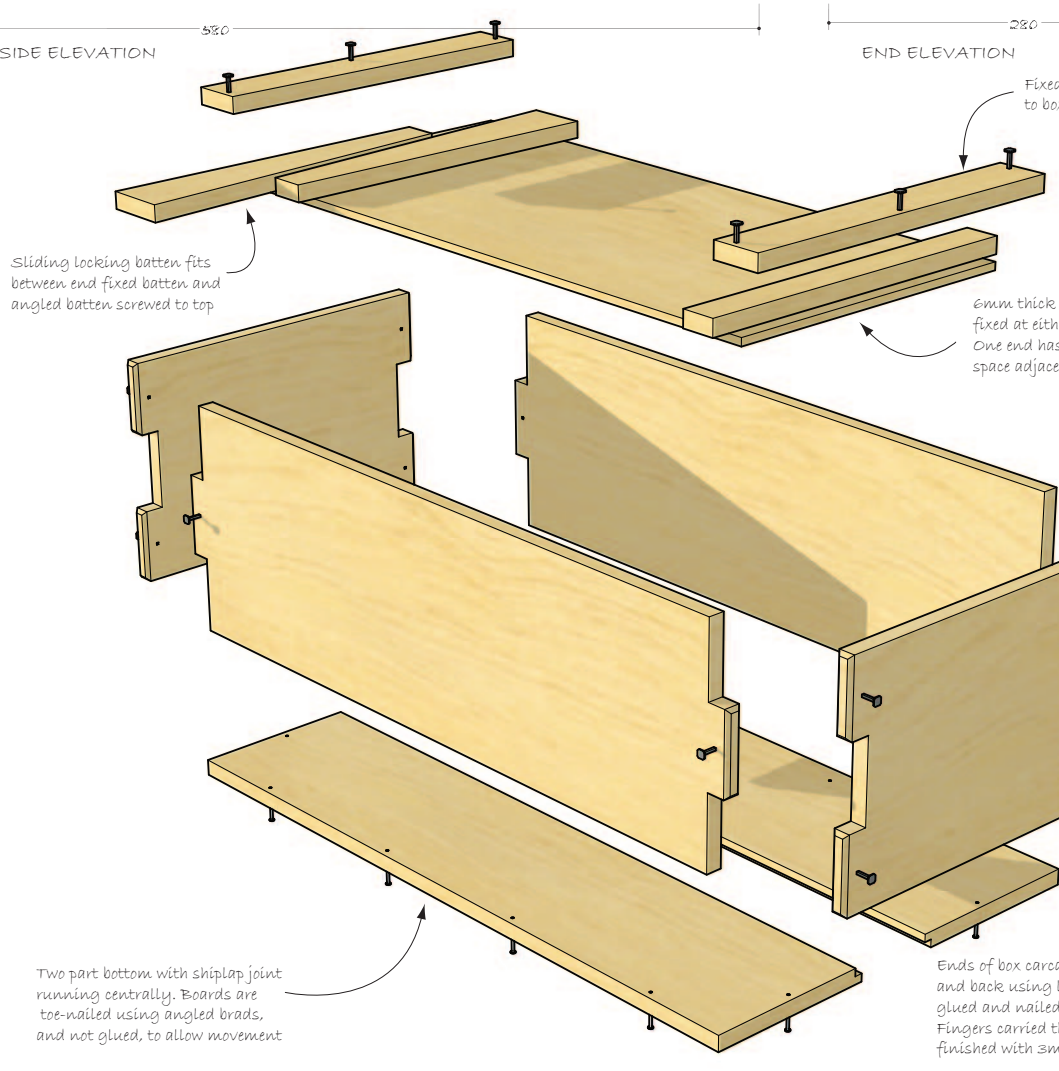
PLAN

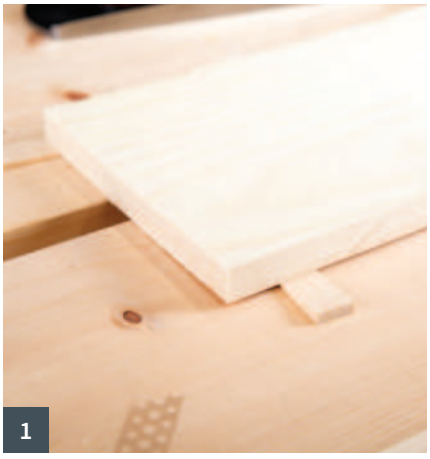


SIDE ELEVATION



END ELEVATION





PHOTOGRAPHS BY VIC TESOLIN

1 Wedges will keep the boards from rocking as you work **2** Start by working across the grain to get boards flattened by hand **3** If you are thicknessing by hand, strike a line for your final depth and work towards that line **4** The cabinetmaker's triangle makes orienting parts a breeze **5** Mark the depth of your fingers using a wheel marking gauge **6** The humble divider once again takes the maths out of woodworking

Flattening a board by hand

You don't need a machine for this, you can easily create a flat surface with a hand plane. My 'go to' plane is a low-angle jack as it truly is the workhorse of all my bench planes. I begin by placing the board on the bench with the cup facing up. To support the board and prevent rocking while I work, I use small wedges to take up the space. To start, lay the plane across the board tilting it so that only the edge of the plane is touching. Next, sight down the board and note the high spots, you're essentially using the plane as a straightedge. The first passes happen at roughly 45° starting at one end to the other, then flip the plane 90° and cover the entire board again. This flipping of the plane helps ensure that the board becomes flatter, not just thinner. Next, make passes with the grain to remove the cross-hatching pattern you just put there. Once you get full-length shavings, gauge the board with the edge of the plane again to see how you did.

Once one side of the board is flat you can use that side as a reference surface on the bed of a thickness planer. No thickness planer? No problem! Grab a wheel marking gauge and set it for the thickness you're after then referencing the flattened surface, gauge a line all around the board. Now you can grab your jack plane and remove material stopping when you reach those lines. Who needs a gym membership?

Orient the boards

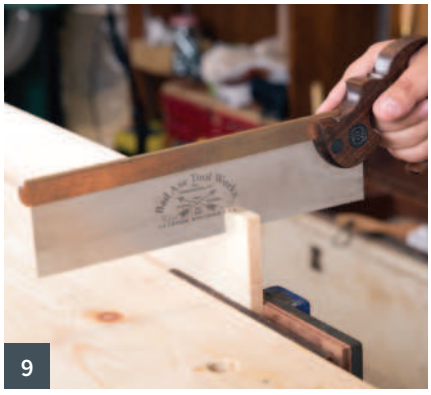
Once you have all your side and end pieces, scrutinise the grain and mark a cabinetmaker's triangle on the parts. One of the great advantages to being a woodworker is being able to orient the boards to make the best use of the wood's natural beauty. I take my time with this step no matter what the project is.

Lay out the fingers

The finger joints on this box are probably not what you think of when you hear finger joints. We're used to imagining many tiny fingers that require a power tool to cut and patience to assemble. Not here. Each corner will have a total of three fingers: two on the sides and one on the ends.

Start by setting a marking gauge to the thickness of the sides plus 4mm. If you're scratching your head at this don't worry, it will all make sense in future steps. Scribe the two surfaces of the side boards at each end and the surfaces and edges of the end boards.

You could reach for a ruler and divide the boards into threes using maths, but why frustrate yourself? Reach into your tool kit and pull out the tried and true dividers. Set the dividers to approximately one-third of the side width and start walking the dividers along the end-grain. Go lightly at first to ensure that you don't end up with multiple holes as you sneak up on the perfect third. If you are hanging off the board at the count of three, you have gone too far. Two? Too little. Once you can go edge to edge with a count of three, press the tips in a bit deeper so that you can see your marks. Use a square to mark the end-grain then carry the lines on to the surfaces and mark the waste with an 'x'.



7 Saw as straight as you can because this half of the joint becomes the pattern for the other half **8** Making a knife wall is a great way to ensure you are sawing in the right spot **9** The shoulders need to be right on the line. If necessary, pare to the line after sawing **10** Use a sharp knife like this blacksmith-made kiridashi to transfer the first half of the joint to the mating board **11** Remove the waste slowly. Rushing this step could lead to blowing past your knife line **12** Mark out the small chamfers that will adorn the protruding fingers **13** Keep it between the lines to create those delicate chamfers

Saw away

Start with the two rip cuts, being sure to stop at the line you struck. Then rotate the board to make the shoulder cut. Start this cross cut with a small notch (known as a knife wall) by placing a chisel into the knife line then coming in from the waste side, removing a small fillet of material creating a space for your saw to drop into. Saw the cross cuts on the waste side of the lines and try to make them as straight as possible. This half of the joint will become the pattern for the other half so it's important that your cuts are square and plumb. If your cuts are less than perfect, you can tune them up by paring them with a chisel. It would be helpful to make some practice cuts in some timber that isn't for this project just to get warmed up.

The transfer

This is where having your boards marked with a cabinetmaker's triangle pays off. Orient your parts so that they create a triangle and start transferring the marks. Take one corner (one side and one end), place the end board in the vice, then lay the side board onto the end grain. Line up the sides to ensure that the boards will line up during assembly, then apply pressure with your hand and use a knife to trace the finger. Start with a light cut first then deepen it to ensure a mark that can be easily seen. Remove the side board but before you go too far with it, mark an 'x' on the waste.

Removing more waste

Once you have the location of the finger marked, you can then saw the waste out. Be certain that you saw on the waste side of the line

(the wood with the 'x' on it). If you saw on the line or in the save side of the line, the joints will be loose and not fit together properly. Next, slide a coping saw into the kerf you made and turn the saw so that you are cutting parallel to (but above) the struck baseline. Using a chisel, chop the remaining waste away by halving the waste until you get to the line. Don't take off too much at a time. Taking too big of a bite will cause the chisel to be forced past the baseline creating an unsightly gap in the joint. If the joint is too tight, pare material off the two sides of the socket until the joint goes together with moderate hand pressure. Repeat these steps with each corner.

Chamfers all around

Mark the finger ends by setting your gauge to 3mm, then strike lines around the fingers and on the top. Use a block plane to remove the corners of the fingers stopping at the knife lines to get the chamfers all looking the same. The fingers protrude to protect the outside of the box and the chamfers prevent splitting if the finger does take a pounding – it looks pretty nice as well.

14 Apply glue to all the surfaces but don't go overboard. Cleaning up excess glue around joints is a pain **15** The last board to go in will slide into the two end pieces **16** Put a clamp across each set of fingers for a solid glue-up **17** The nails may seem like a belt and braces kind of move but they look so good on there **18** Rebate planes are the bee's knees when working on one-off projects **19** Angle the nails in to give them more holding power

Assemble the side and back

Once all your joints are fitting well it's time for the glue-up. Orient your parts according to the triangle and get the clamps you will need ready prior to letting the glue flow. There is nothing worse than looking for clamps in a panicked frenzy. Start by gluing one end to a side. Put glue on all the surfaces then press the joint together. Then glue and assemble the second end onto the side. Flip the partial assembly and apply glue to the two ends, then slide the side into the two ends. Apply a clamp on each set of fingers to close the joint, check that the box is square, then let the glue dry. The glue will do a fine job at holding this box together but why not add a bit of insurance that adds an aesthetic charm as well? Drill pilot holes into the centre of each finger and drive in a square nail. Choose a pilot bit that will allow the fattest part of the nail to bite into the wood.

A solid base

Prepare the two bottom boards according to the cut list. You can leave them a few millimetres oversized; you will trim them to final length just before you install them. Run a rebate on the two inside surfaces to create a shiplap joint. This will allow for movement of the bottom boards to happen without opening a gap in the box for small tools to fall through. Place the boards on the bottom and nail them into place with small brads. You won't be gluing the bottom on so angle your brads so that they go in at an angle; a technique called toe-nailing. Gluing the top would cause a wood-movement nightmare and the absence of glue allows you to replace the bottom one day if required.

Nifty sliding top

Prepare the boards for the sliding top. If you have timber wide enough to get it out of one piece then lucky you! If not, joint two boards to prepare them for gluing them up. Leave them a tad over-sized for now and you can size them exactly after the glue dries. On thin boards like these, I often prefer to use binding tape to clamp things up; clamps can easily twist and cup thin boards. Place the boards together and start placing tape across the joint every 25mm or so. Plant one side of the tape

20 Binding tape is used extensively by guitar makers and there is lots of use for it when making furniture **21** A narrow bead of glue is all you need to create a seamless top joint **22** These fixed battens are what keep the top captured, securing your tools **23** With careful layout, taking the wedge and the locking batten out of one board will almost guarantee a great fit **24** Go easy when you are driving in these small screws. One slip of the trigger finger and you'll sink them in too deep **25** The simple wedge keeps it all together

with your thumb, stretch the tape across the joint and then smooth the tape down. Next, run a long piece down the joint to hold it securely.

Flip the taped boards over and open up the joint. Lay a small bead of glue on one edge of the board then let the boards lay flat. Repeat the same process with the tape to complete the clamp up. No need to run the long piece of tape on the second side as it will be difficult to apply with the glue squeeze-out in the way. Let the glue set up so that it is rubbery, then remove the squeeze-out with a chisel.

Prep the box top

Prepare the fixed battens and nail them to the top of the box as indicated using more of the decorative nails to fix them in place. These battens are what will trap the top when slid into place.

Size the lid according to the drawings and prepare the lid batten as well. The lid should just fit into the box's width without a lot of space to spare. The locking batten and wedge are created by one piece of wood. Simply mark the board as indicated, connect to the two lines, then saw down the line cleaning up your saw marks by clamping the two pieces together and planing them at the same time – this will ensure that they match.

Place the lid batten and the locking batten on the lid in the locations indicated and clamp them in place. Traditionally the battens would be clinch nailed into place but I opted for screws instead. Create a pilot hole with a bradawl so you don't split the wood and drive small pan-head screws in securing the battens to the top.

Using the lid

Slide the lid under one of the fixed battens leading with the end that has the locking batten, lower the other end down and then slide the lid to the other side of the box. Now you can slide in the wedge that will lock the lid in place. I typically don't apply finish to these tool boxes because I like the way the raw pine develops a patina over the years. However, your favourite finish or even a bit of wax will make the box look fantastic. Your tools now have a home that hasn't changed in design and function for millennia.

GIFTS FROM THE FOREST

Canadian wood sculptor Sylvain Seguin tells us how he creates one-of-a-kind pieces from foraged timber

'When I start working on a piece I always feel like I am opening a Christmas gift without knowing what I'm going to get, because it's hard to imagine what it's going to look like'

Sylvain Seguin is a professional roofer in Ontario, Canada, but in his spare time he creates remarkable abstract sculptures from timber found in his local forest. Here he discusses his work and explains his process.

Could you tell us a bit about your background; do you have any formal training in woodwork or sculpture?

I am 49 years old and I am the youngest of three children. I was born in a small town east of Ottawa called Casselman, Ontario. That's where I grew up and graduated from high school. After school I started working in the construction industry building houses, additions, decks, roofing, etc. Eighteen years ago I decided to go out on my own and open up a roofing company called Seguin Roofing and I've been self-employed since then.

I've always loved working with my hands and building stuff with wood such as furniture, but never thought in my life that one day I would be making the kinds of things I make now. I never took art classes at school and I didn't go to university or take any training from anyone.

For the last four years I have been fascinated by working with wood and can't stop doing it; it is such a relaxing hobby and I have a lot of imagination for more sculptures…

Tell us about your workshop and where you live.

Now I live in Embrun, a small town about 12km from where I was born and that's where I established my roofing company. I've been living here for the last 18 years. I started sculpting wood in my shop, which I built at the back of my property near the forest. I can walk through the forest and choose some pieces of wood that are just laying on the forest bed.

I never knew I'd be doing this kind of work when I first built my workshop. Its dimensions are 7 x 9 metres, with walls 3 metres high. When I started making my sculptures I was very grateful the shop was so big: my biggest sculpture stands at 2.8 metres tall!

My workshop is a really cosy place to work in.

Where do you find the inspiration for your works?

Someone in my family who is a really talented artist in the pottery world has really inspired me. When I started carving wood she gave me some very helpful advice and that's the reason I'm doing this today.

But what really inspires me the most about doing woodcarving is I like to give a piece of wood that was just lying down in the forest a second chance at life. When I start working on a piece I always feel like

PHOTOGRAPHS BY LEXINE MÉNARD PHOTOGRAPHIE/COURTESY OF SYLVAIN SEGUIN

I am opening a Christmas gift without knowing what I'm going to get, because it's hard to imagine what it's going to look like. I really like the challenge and it is the best relaxing method for me.

Where do you source the wood that you use and what timber species do you work with?

I source wood by simply walking through the forest looking at trees or branches that have been knocked down by the wind or lightning because I don't believe in cutting down a tree just to get a piece out of it. I love riding my ATV in the nearby trails looking for material that has just been left on the ground to rot. The best time to do this is in the autumn with all those beautiful fall colours. And there are no more bugs around.

I have worked with all kinds of word, both hardwood and soft. They all have different wood grains and that's the reason I like working with this material: what I make is always a one of a kind piece.

What kinds of tools do you use?

The tools that I use always depends on the form I'm creating. I usually start working on a piece with an electric carving chainsaw, special grinder discs to get most of the big stuff off and, to clear the rest of the waste, I use a wood chisel and round-shaped sanding blocks. The reason for this is that electric sanders don't work well on a round surface.

I have created more than a dozen handmade tools to work with, which are impossible to buy at the store – with a little bit of imagination you can create anything!

The other important tools are winches and chain blocks to move the sculptures around the shop. The heaviest piece that I have made weighed in at 1,360kg. Moving these pieces is a slow process and there is no room for mistakes!

Have you ever exhibited your work and do you have any plans to exhibit?

I never thought about exhibiting my work when I started this hobby, but now I would really like to do it. What I'm trying to do right now is to reach out to the right people to talk about it and to exhibit at the right places.

What's in store for you in the future?

I really hope in the future that carving is something I can do as a retirement hobby. You never know what can turn out to be a life-changing experience. I encourage anybody who is starting a new hobby never to quit because you're only going to get better and better as the years go by.

And I would like to specially thank all my family and my friends for supporting me in this wonderful journey. 'To be remembered when we leave this beautiful world is all that I wish.'

Instagram: @ssoriginalwood

In recognition of the wedge

Paul Maddock pays tribute to the versatile wedge

PHOTOGRAPH BY DANIELA PELAZZA/SHUTTERSTOCK

While taking a break in the workshop the other day I started thinking about the humble wedge; it's the simplest of devices yet has virtually unlimited uses and applications in the carpentry, joinery and construction world.

The principle of the wedge

In essence a wedge is a simple device that converts energy from a percussive force such as the blows from a hammer or mallet to pressure at right angles to the direction of those blows by virtue of its downward movement (**picture 1**).

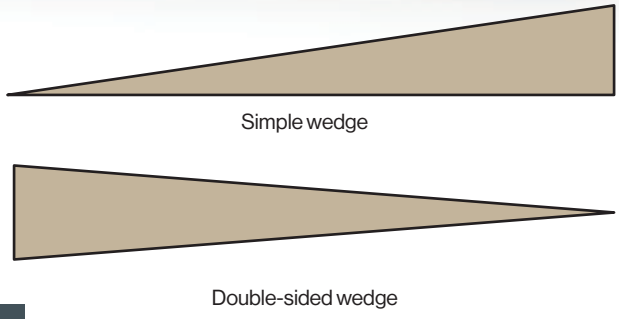
The single wedge versus folding wedges

A double-sided wedge works well if it is being driven into a V-shaped socket but if the socket is parallel sided, excessive pressure will be applied to the top of the socket, which can cause unwanted bruising and damage to the surrounding timber. This is not always a problem, however, if, for example, you are driving a splitting wedge into a socket formed with a chainsaw when splitting firewood (**picture 2**).

The way to avoid this situation is to use two wedges sliding past each other, known as folding wedges (**picture 3**).

The principle behind folding wedges is that as the two sloping faces slide over each other the flat faces move apart in parallel directions, thus applying pressure evenly in an outward direction.

Large forces can be applied using folding wedges, as demonstrated at a historic windmill where I work as a volunteer. The trestle, or frame, that supports the 20-ton mill needed to be raised on one side to correct a lean on the centre post on which the entire mill sits. This was achieved using large folding wedges 75mm thick and 400mm long driven in under the end of the cross tree, the beam that had to be lifted (**photo 4**). Two people, one either side, worked along the row of wedges driving in one pair until they sounded 'tight' and then moved on to the next pair. By working to and fro along the line of wedges in this manner the alignment of the centre post was corrected (**photo 5**).



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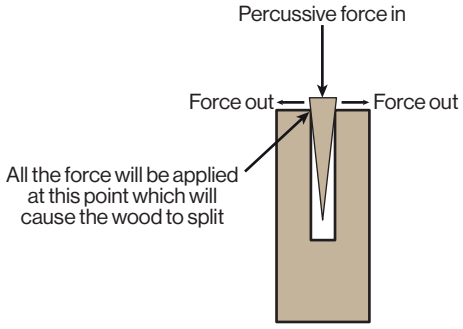

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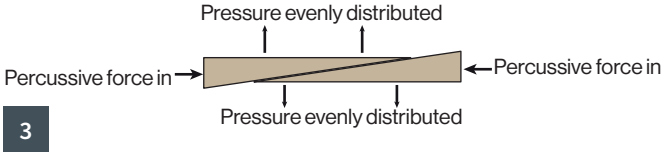

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Folding wedges to lift cross tree

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Wedges fitted and ends trimmed off

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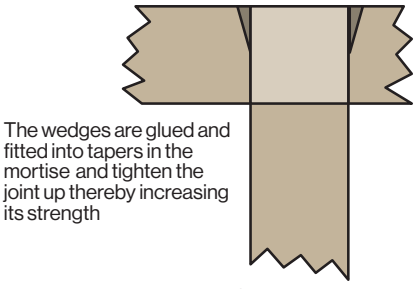
PHOTOGRAPHS BY PAUL MADDOCK, UNLESS OTHERWISE STATED



Simple wedging

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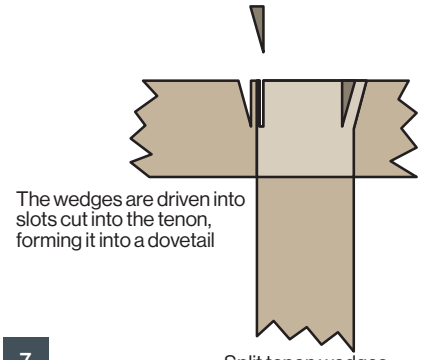

Split tenon wedges

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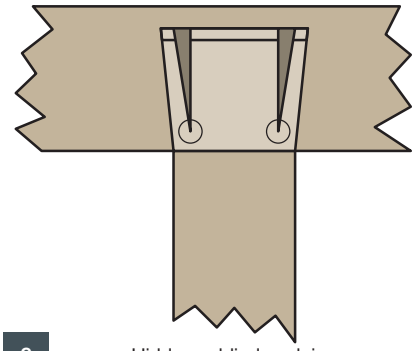

Hidden or blind wedging

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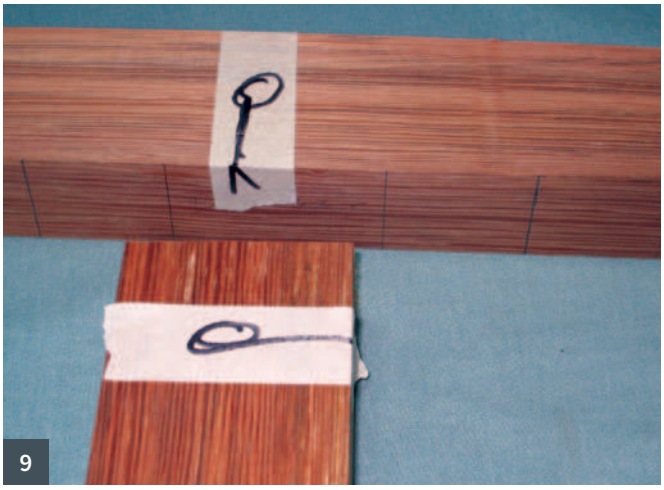

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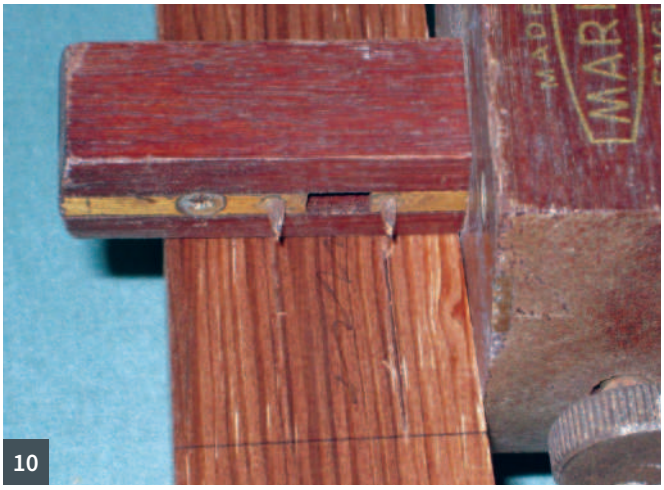

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Use of wedges in joinery

Wedges can be used to increase the strength and rigidity of various tenoned joints, which are known as fox wedged tenons. There are three ways of wedging the joint: simple wedging (**picture 6**), split tenon wedges (**picture 7**) and hidden or blind wedges (**picture 8**).

Making mortise & wedged tenon joints

MARK OUT THE MORTISES

- Check the timber is square and mark the face sides and edges. Always work from these faces when measuring or using a gauge (**photo 9**).
- Mark the length of the mortise on both edges for the through mortise but just on the face edge for the blind mortise.
- Using a mortise gauge, mark the width of the mortises, usually around one-third of the width of the wood, and extend the length by around 6mm at each end on the face where the wedges will be inserted (**photo 10**).

MARK OUT THE TENONS

- Mark out the shoulder lines for the tenons, I usually allow 1–2mm additional length for through tenons to allow for cleaning up the joint.
- Use the mortise gauge to mark the width of the tenon.

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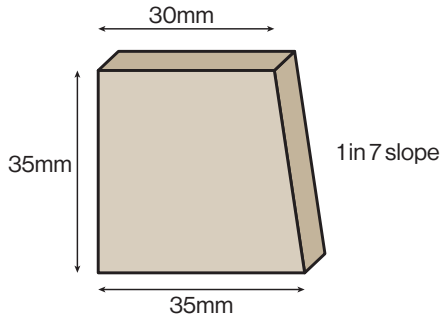

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Wedge template

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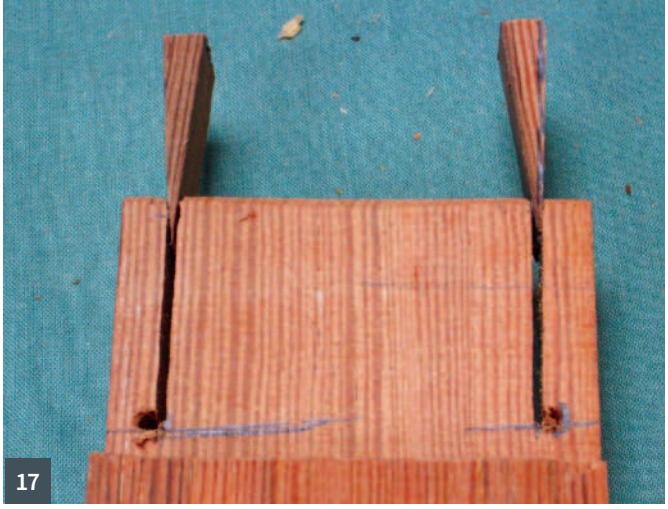
CUTTING THE MORTISES AND TENONS

- As I don't have a mortising machine, I use a drill press to bore a series of holes to take out the bulk of the waste and then work from both sides with a mortise chisel and a bevelled edge firmer chisel to clean out the mortises. The blind mortise should be around four-fifths of the width of the wood. Setting the depth stop on the drill press is a good way to achieve this (**photos 11 & 12**).
- I cut the cheeks of the tenons using a bandsaw but a stiff back tenon saw will work just as well (**photo 13**).
- Mark the shoulder lines on the tenons with a knife and a square and then with a sharp chisel cut away a small amount of wood on the waste side of the line to form a sloping groove. This provides an accurate guide to start the shoulder cut and prevents the saw sliding off line. I like to use a 22tpi pull saw for these cuts (**photo 14**).
- Fit the joints together making any adjustments as necessary, keeping the face sides showing together.

MAKING A WEDGE TEMPLATE

- Cut a wedge template to suit your mortises from 6mm ply. The slope should be one in seven and the length of the slope two-thirds the depth of the mortise. Form the slots for the wedges keeping the top of the template level with the surface of the wood as a guide. The slots for the blind mortises entail undercutting the ends of the mortise and the template can be reversed to gauge these (**picture 15**).
- The template can also be used for making the wedges. Cut a piece of timber to the same thickness as the tenons and use the template to mark out the wedges. Maintain the slope but make the wedges for the through mortises 4–5mm longer to allow for tapping in and then trimming off (**photo 16**).
- The wedges for the blind tenon have to be cut to the exact length as they have to be forced into the tenon as the joint is assembled.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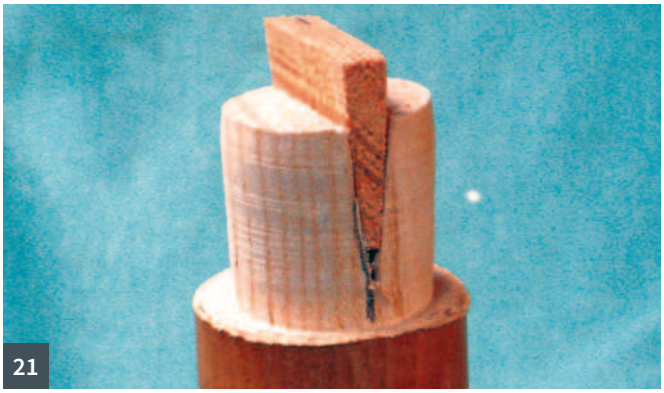
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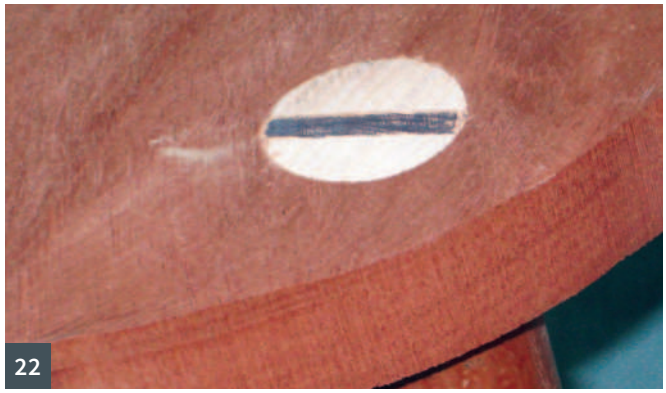
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FORMING THE SLOTS IN THE TENONS

- The slots are cut into the tenons starting around 4mm in from the edge and two-thirds the depth of the tenon. Drill a 3mm hole through the tenon nearest the edge to form a hinge point and prevent the wedge splitting the tenon any further (**photo 17**).

Analysing the finished joints

I cut a section through the finished joints with the bandsaw to show how the wedging works (**photos 18–20**). The simple wedges and the split tenon wedges look OK but the blind tenon is not so good! I find this a very tricky joint to make as you are working blind and you only get one attempt as you cannot disassemble the joint if things don't fit. On the plus side, provided the shoulders butt up tight to the adjoining timber, you will never know what it looks like inside!

Framing up

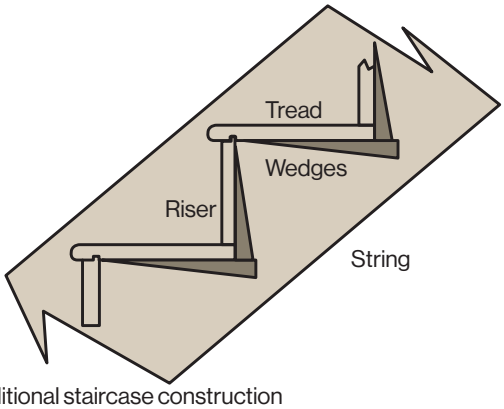
With simple wedging and split tenon wedging a frame can be glued up, assembled, squared up and clamped before driving in the wedges. The wedges should be inserted before the glue dries, left proud and planed off when the glue has set.

If you are making joints with blind or stopped tenons the wedges have to be positioned in the tenon before the joint is assembled. The wedges locate against the bottom of the mortise and are forced into the tenons as the joint is clamped up. This is not a joint for the faint-hearted as once the pressure is applied and the wedges are forced in to the tenons, the joint cannot be disassembled to make adjustments if, for instance, the wedges are too long and the shoulders are not butting up tight together.

Windsor chair legs

Another example of wedging can be found in the fixing of the legs in a traditional chair or bench. The legs are turned with a circular tenon to fit into a hole in the seat, a V-shaped notch is cut into the top of the leg, which is in fact the tenon and is inserted into the hole in the seat and then a wedge is inserted after assembly to ensure a tight-fitting joint (**photos 21 & 22**).

This principle works wherever there is a circular tenon that needs to be a tight fit. The joint can be strengthened further if the hole, or circular mortise, is tapered so the wedge provided a dovetailing effect to the joint.



23 Traditional staircase construction

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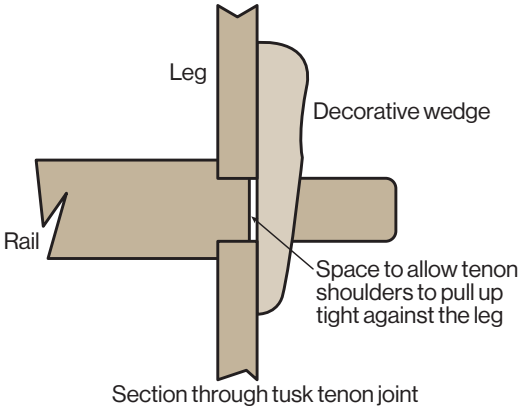
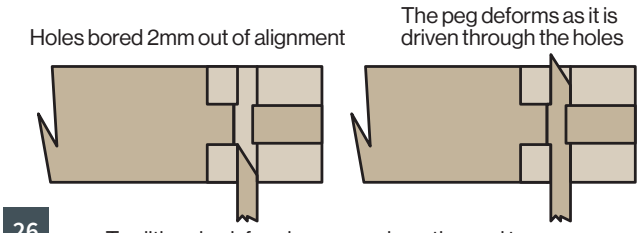
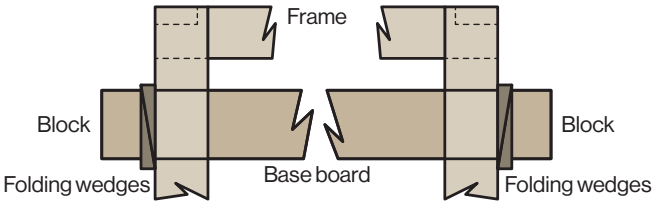


25 Section through tusk tenon joint



26 Traditional oak framing pegged mortise and tenon



Clamping a frame using wedges

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The traditional staircase

A creaking staircase can be due to loose wedges. The treads, (horizontal step) and the risers (vertical part) are housed into the string (sloping side member) in tapered slots (**picture 23**). Wedges are driven in to hold the risers in place which are cut off flush with the underside of the tread and wedges are then inserted to hold the tread in place and prevent the riser wedges dropping out.

Over time the wedges can work loose and cause the staircase to creak but if the loose wedges are driven in this annoying problem can be resolved.

The tusk tenon

With a tusk tenon joint the wedge forms a decorative element of the joint. This joint is used when making items like benches and tables that may require occasional dismantling and reassembly so there is a need for dry joints (**photo 24**). When the joint is assembled the wedges are tapped to hold the rails in place but can be easily removed if necessary. The elongated tenon prevents the wedge from splitting the wood as it is driven in (**picture 25**).

Traditional oak-framed buildings

The joints in traditional timber-framed building are secured with a tapered dowel which is in fact a type of wedge, and these are usually visible when viewing these buildings. When the mortise and tenon have been cut, holes, usually two, are drilled through the tenon and corresponding holes offset by 2mm through the mortise (**picture 26**). The traditional oak pegs are made with a taper or wedge on the end which will pass through the partially aligned holes and as the peg is driven in it pulls the shoulder up tight to the mortise. The pegs are soaked in water to make them flexible and they distort as they pass through the joint, holding it firmly together .

Folding wedges in joinery

One of the uses for folding wedges in joinery is to make a sash clamp. This can be useful if you need to clamp a piece of work that your standard sash clamps cannot accommodate. A block of wood is screwed to either end of a base board, typically a length of 50 x 100mm, the frame is placed between the blocks and a pair of folding wedges are driven at either end to apply pressure to the joints (**picture 27**).

Conclusion

This article has shown a few of the myriad of uses there are for the humble wedge, an incredibly simple device for transforming the percussive force of hammer or mallet blows into pressure that can move great loads and has probably been used by humans for thousands of years. While you are in your workshops or out and about on site, see how many others you can spot.

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IMPROVISED MINI ROUTER PLANE

Mitch Peacock makes a useful little tool from workshop scraps

I've had an idea for a cutting gauge and mini router plane for years, and finally I decided to try it out. It has some minor flaws, which I'll discuss and iron out later, but it works in either role and can be easily made from scraps found in most sheds or garages.

Materials

1 For my prototype I gathered a piece of mild steel flat bar, an offcut of rosewood, and some stainless steel nuts and coach bolts. The bolts would be used for the cutters (two different widths), and ideally would have been carbon steel, which can be easily hardened and sharpened to a good edge. The finer the thread the better, since it will be used to advance and retract the blade. Four short, countersunk screws were also used.

Tools

As well as simple layout tools, a pillar drill, drill bits, countersink and a screw tap matching the bolt thread were used. If a screw tap isn't available, then a second nut could be mortised into a thicker hardwood sole.

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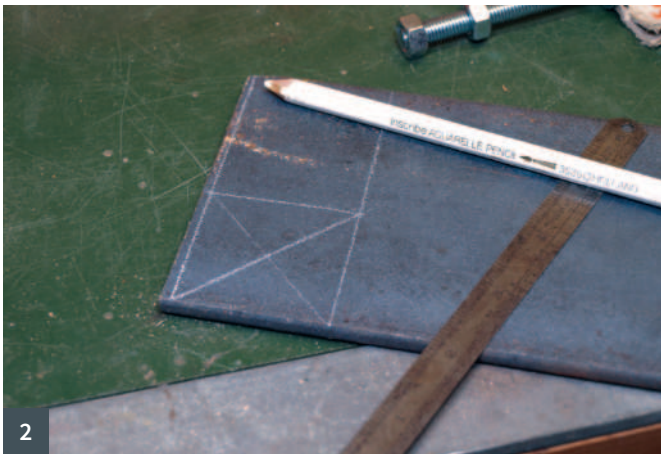
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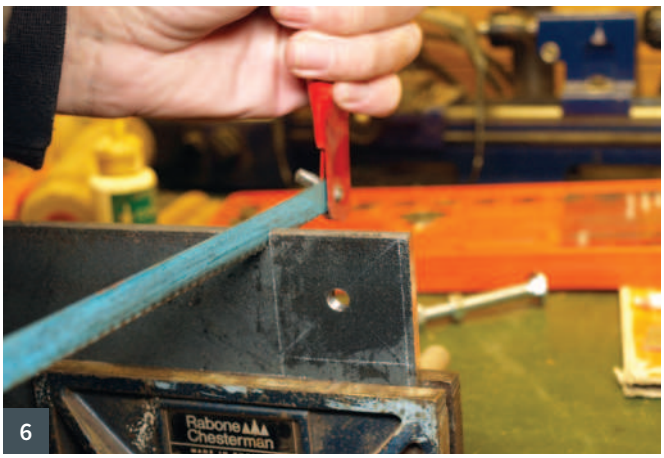

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Construction

2 A base was marked out on the steel, and bisected to find the centre.

3 The centre hole was bored at the pillar drill to help keep it plumb, although it could have been done freehand with care. Be sure to clamp the workpiece, which could be dangerous if it started to spin with the bit.

4 I threaded the centre hole with the tap, using a cutting solution to ease the operation. The tap was started in the pillar drill chuck, turning by hand, to help keep it aligned with the hole.

5 Taps cut the thread progressively, so once the hole depth was reached the workpiece was repositioned over the edge of the table and the tap run right through the hole, leaving a consistent, clean thread.

6 With the thread cut, I separated the square base from the flat bar. In retrospect, I should have waited until I had bored all the holes I needed, but thankfully I do have a drill vice to hold the small piece safely.

7 Taking a break from the base, I shaped the heads of the bolts into cutters. Notice the spark trails (ignoring the slight confusion at the end of the wheel guard). These long trails with little forking at the ends are indicative of 400 series stainless steel. A high carbon steel, ideal for a cutter, would produce a very bushy spark trail, forking straight off the grinding wheel.

PHOTOGRAPHS BY MITCH PEACOCK

8 A hole was added to potentially allow shavings to eject out of the top. As it turned out, the shavings rolled up within the base, and some experimentation with cutter shape should solve that.

9 To attach the hardwood sole, four countersunk holes were bored on the base. For the prototype, the whole screw head was countersunk so that the screw slots would be preserved and allow disassembly.

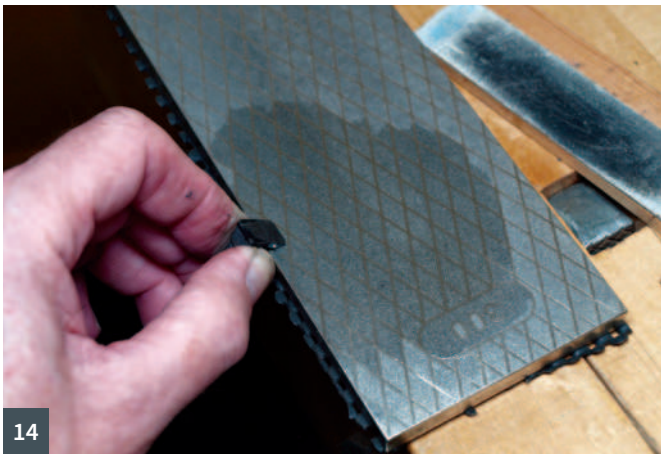
10 Some stainless-steel grades will harden with heat treatment, so I proceeded to heat the cutter end up to a light orange (cherry red for O1 tool steel) …

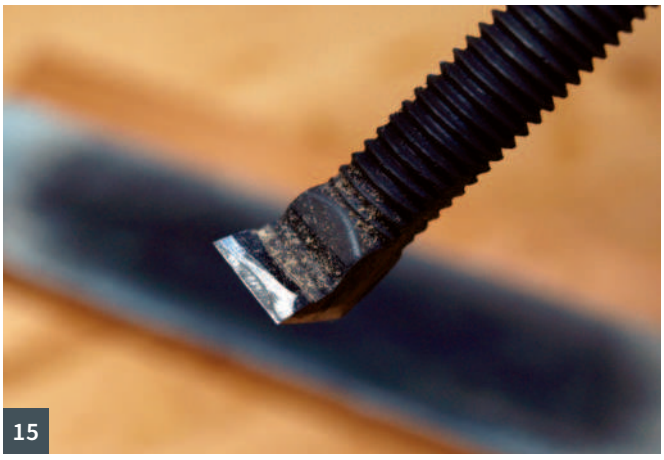
11 … and quenched it in vegetable oil. Sadly, this steel could still be scratched with a scribe, so I don't expect the edge to be retained for long.

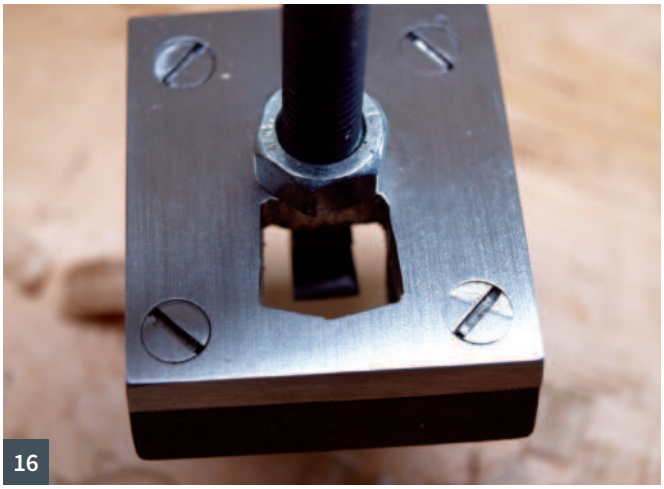
12 After boring a relief hole for the cutter in it, the rosewood sole was sawn to rough size …

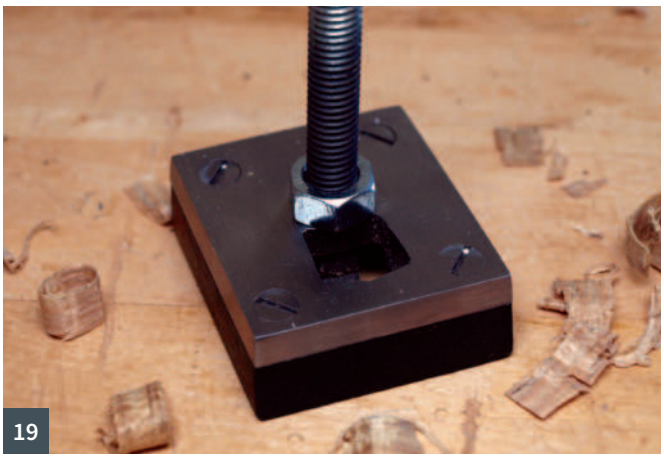
13 … and the joined base and sole filed to a slightly tapered shape. All sharp edges were removed externally, and the body finely sanded.

14 The cutters were sharpened on diamond plates, and stropped with polishing compound.









15 Sharpening such a small cutter freehand doesn't produce the greatest looking bevel. Maybe a sharpening jig should be the next project.

The result

16 With a nut added to the cutter stem, the cutter can be locked at the desired depth of cut. I found a spanner necessary to truly lock the cutter, but a wingnut would probably suffice.

17 The recess allows the cutter to be buried within, and fully rotated, so it can start cutting from a flat surface.

18 The rosewood sole, finished with mineral oil and wax, presents very little friction in use.

Conclusions

19 Although the tool works both as a mini router plane and a cutting gauge, when used for the former purpose the coarseness of the thread produced too thick a shaving when aligning the cutter with the shaving escapement, and the body is a little small for pushing a cutter the same width as the bolt used. Making the tool was really quite easy and, having identified some areas to improve on, I feel confident that the next one will be worth waiting for.

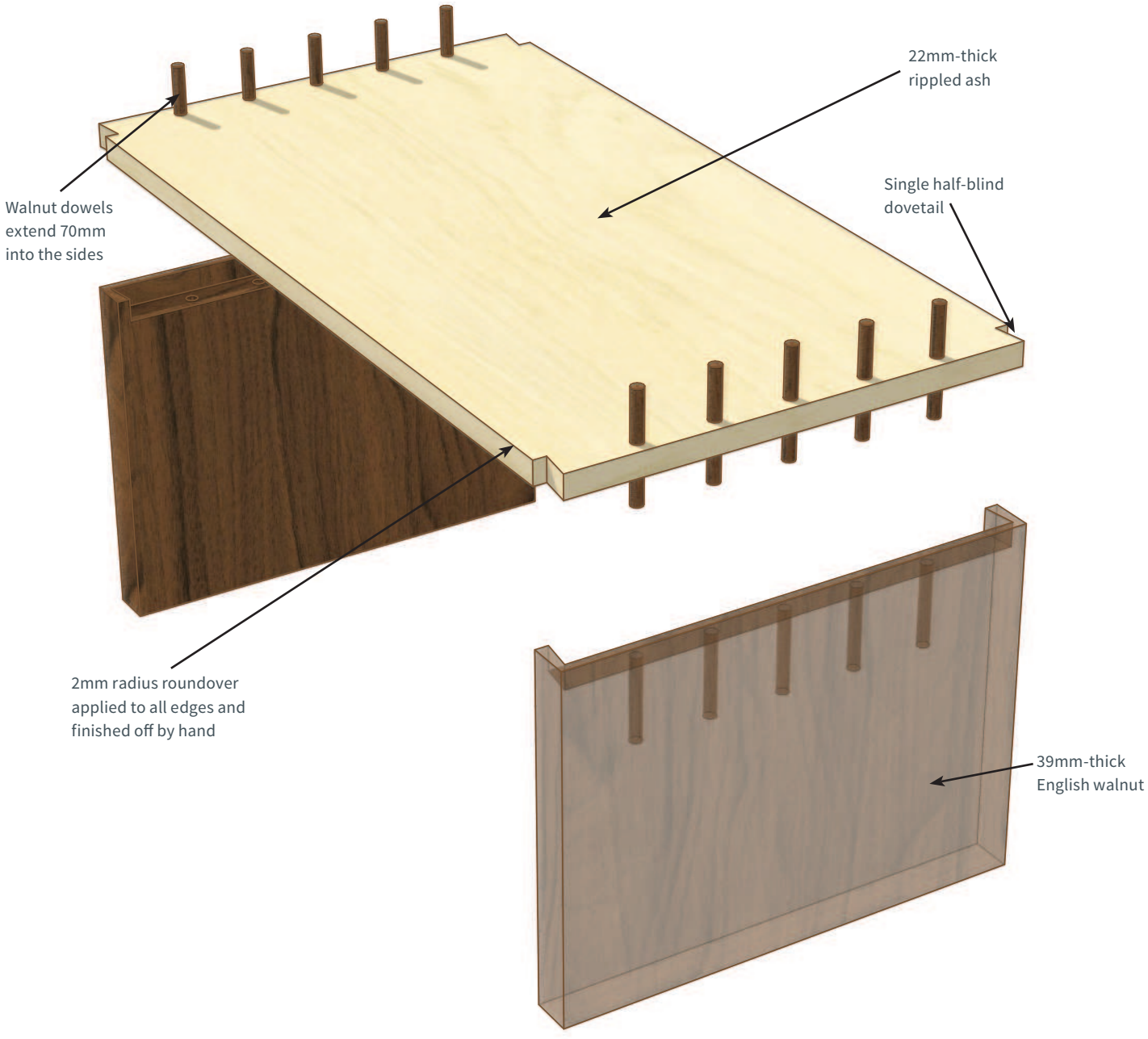
THREE-PLANK PROJECT

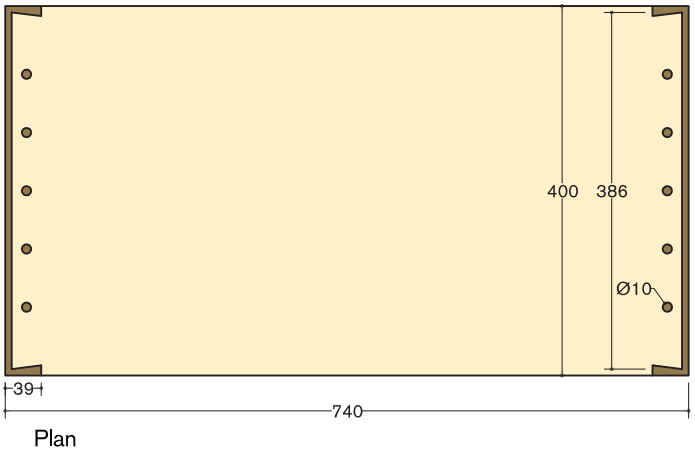
David Barron makes economical use of a beautiful piece of walnut to create a simple side table

I'd had some magnificent English walnut in stock for some time and I felt this simple table would allow it to shine without using up too much. As a nice contrast I selected some rippled ash for the top. I've made a few similar tables with through dovetails but looking for a change I decided to try one large half-blind dovetail with a row of evenly spaced dowels.

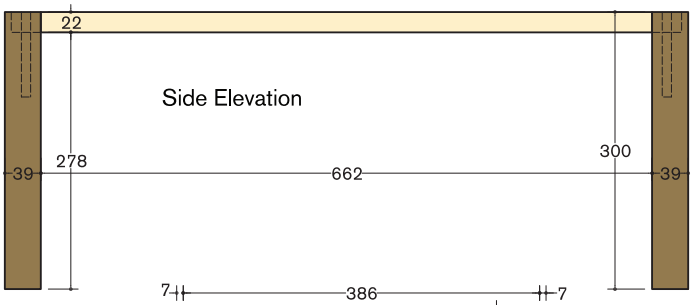
I thought this would also be less time consuming and a bit less taxing than cutting such large dovetails by hand. As it turned out, it took 10 hours to complete which was two hours longer than normal.

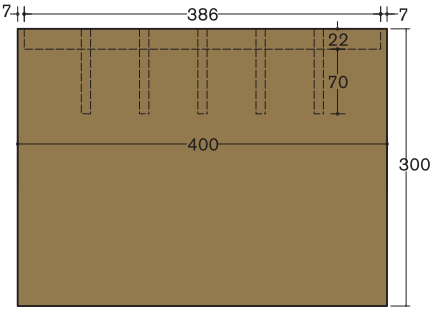
When designing such a simple piece with only three parts it is essential that the proportions are pleasing. I wanted the legs to have a much more chunky appearance than the top, which I felt would suit a low modern design. With a bit of trial and error I settled on the final dimensions shown in the drawing on the following page, which work nicely.



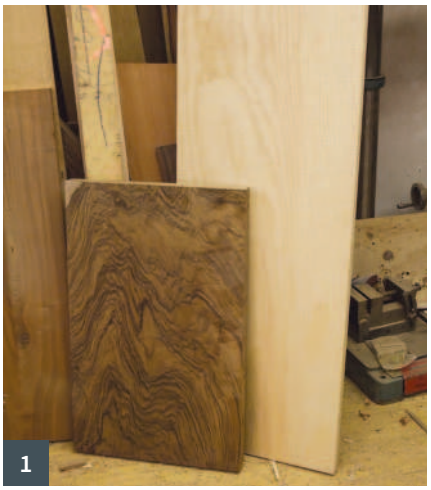


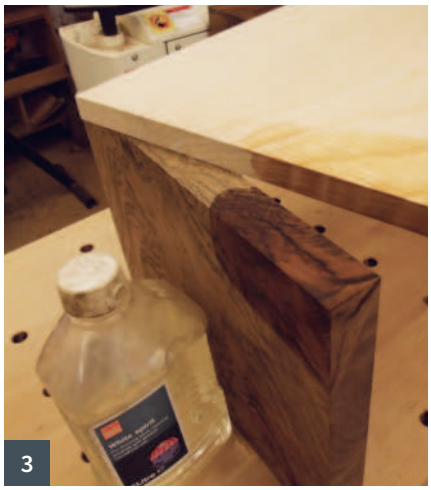
Plan



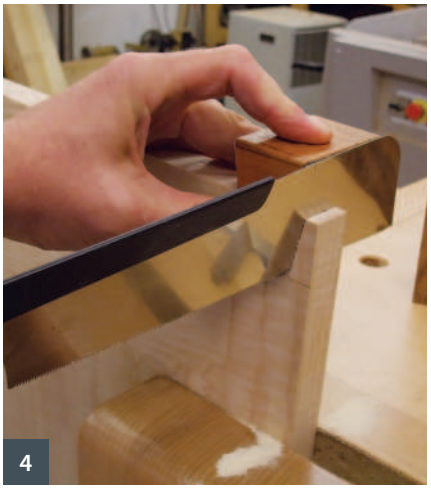


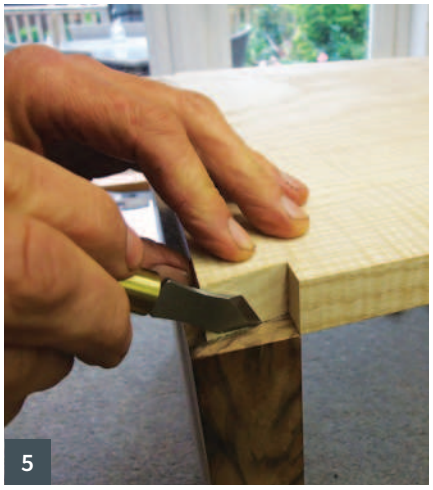
End Elevation





PHOTOGRAPHS BY DAVID BARRON





1 The two boards planed up and ready to cut to length **2** Assessing the proportions, so important with such a simple piece **3** Using white spirit to reveal the finished colours of the end and flat grain. A marked difference in colours would have ruled out the use of plugs **4** Using my magnetic guide to cut the tails. Note the shortened spine on the saw enabling me to cut to the 32mm depth required **5** Marking out the pins **6** Removing the waste, note the backing board at the rear to give support

Half-blind dovetails

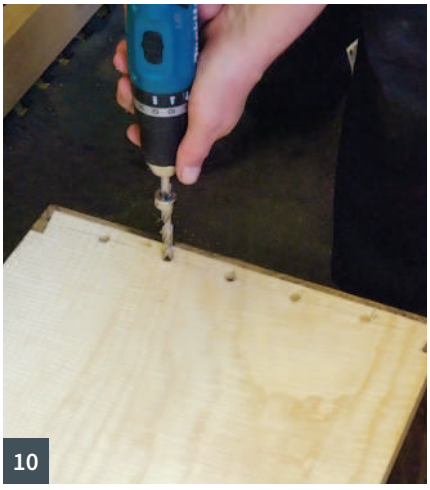
By using a half-blind dovetail the walnut sides would be uninterrupted and be shown off to their best effect. It was the chopping out of the dovetail socket which took the time, even though I removed the bulk of the waste with a router. The remaining edge was quite delicate and required care with the chisel to avoid splitting. The marking out of the sides of the large socket again took care, it was certainly too big to use my dovetail alignment board. I pulled the board forward about 1mm so that the knife lines would give a nice tight fit and achieve the maximum mechanical strength from the joint. With everything glued up and square it was set aside to dry.

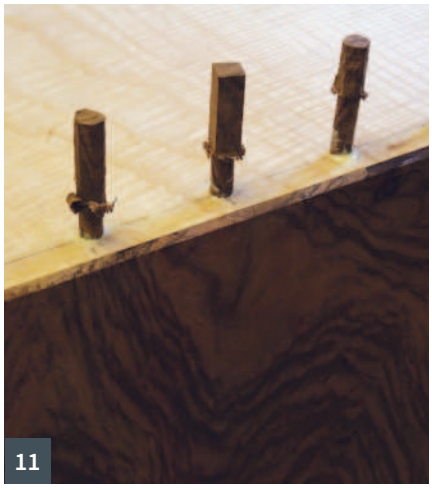
The next job was to look at the pegs. These certainly needed to provide extra strength and I considered a few options. Large Miller Dowels would have been the easiest solution and these would have been quite strong and ensured a nice clean finish. I have used these successfully in the past. However, you are limited to the standard colours and I wanted to get a perfect match with the walnut end grain. I thought about using countersunk screws, finished off with walnut plugs, although screwing into end grain is not the strongest solution and half of the thickness of the 20mm top would have to be saved for the plug. Threaded rod and epoxy resin would be stronger. In the end I decided to use 10mm walnut dowels formed with a Lie-Nielsen dowelling plate. I've had this plate for years and never used it, always finding an easier/quicker method.

My first couple of attempts were OK but there was some tear-out. I tried shaping the rough blank so that there was less waste to remove and this helped, although success finally came when I sprayed the blank with water about 30 seconds beforehand. I use a similar technique on the surface of figured boards on the final pass through the planing machine.

Drilling out

Having taken the time to make sure I had nice round pegs I wanted to make sure I drilled clean holes. With such a simple piece it is vital that the visible joints are perfect. I carefully marked out the positions and identified the centres with an awl, which gave the spur something to drop into. Again I dampened the wood and carefully used a Forstner bit to start the hole off. I swapped to a lip and spur bit, which is more suitable for drilling 70mm into the walnut. I proceeded carefully to avoid widening the hole at the top, which would have caused a poor fitting peg. I made sure that I matched up the shade of the walnut dowel and of course lined up the grain direction, before knocking home.





7 Walnut dowels being sized on a dowel plate over a dog hole **8** Carefully marking the pin positions **9** Lightly dampening the area to be drilled helps to avoid tear-out **10** Drilling holes as accurately as possible using a depth stop on the drill bit **11** Pegs ready to be cut off and carefully mushroomed **12** With a piece of veneer placed beneath the flush cutting saw the dowels are trimmed to 1.5mm proud of the ash top **13** Planing the plugs flush

I used water-based yellow glue, which would expand the dowel giving a nice strong joint. I cut each dowel off with a flush cut saw resting on a piece of thick veneer to act as a spacer.

This allowed me a protrusion of about 1.5mm, which I gently mushroomed over with the rounded end of a hammer. This would ensure a tight finish after planing flush. All this trouble paid off and the finished joinery looked crisp.

I used a small roundover bit in a router on all edges finishing them off carefully by hand to give an attractive and easy handle. The finish I used was the thin version of Osmo's Wood Wax Oil, which soaked into the wood without getting sticky. This allowed me to keep applying generous coats with a brush every 30 minutes or so until the wood couldn't take any more. I then wiped off the excess and gave a vigorous buff with a cloth until the surface felt completely dry to the touch. Single coats were added over the next four days, again buffing each dry. This left a wonderfully smooth satin finish with the grain of the wood, detectable to the touch.

The oil finish made the ash slightly yellow which happens to ash in time, whatever finish is used. The walnut really benefited from the oil turning a fabulous dark chocolate colour and I felt happy that I had done this special wood justice.

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GARDEN GATE

Alan Holtham gets back to basics with classic mortise and tenon joints for his new garden gate

In the modern woodworking world of biscuits, dominos, dowels and fast-setting glue, it is very refreshing to return occasionally to some tried and tested traditional jointing techniques. The more measured approach that this requires generates a huge amount of satisfaction that is lacking in the hectic frenzy of powered woodworking.

With a bit of spare time on my hands, this gate project seemed a good excuse to revisit mortise and tenon joints, securing them by draw-boring using homemade dowels and wedging for extra strength. The slats are secured with brass slotted screws put in by hand and covered with plugs. Sadly, the traditional image is then spoiled a little by some judicious use of the powered router and sander, but it was fun while it lasted!

The gate is designed to fit at the end of a large, raised vegetable bed, and while it didn't need to be particularly high, I thought the curved top leading up to the matching side panel gave it a bit more style than just a straightforward oblong shape. I'd previously made one for the other end in softwood but this was already beginning to show signs of decay, so this one had to be hardwood and what better than oak?


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Preparing the timber

1 I had a large slab of 75mm material that looked as if it would be big enough to provide sufficient material for the whole job; the only problem being that it was extremely heavy, but a few minutes with the chainsaw made it a bit more manageable.

2 When you are working with rough sawn, waney-edged material like this, never underestimate both the amount of waste and the time taken to reduce it to usable machined-up sections, particularly if there is a lot of sapwood. I produced a pile of offcuts and half filled two extraction bags with shavings in the process.

3 Here you can see the converted timber ready for jointing. As the sections are all quite chunky, you will need a full-length piece for the hanging post to provide enough support for the finished gate.

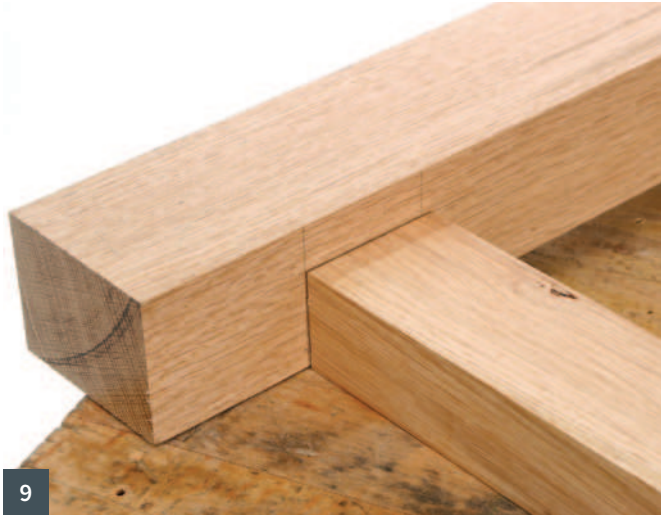
Mortise and tenon joints

4 Start by marking out the joint positions and labelling them clearly – the gate is handed and you don't want to mix up the orientation later.

5 Draw the mortise position for the bottom rail across both stiles, allowing for a small haunch on the tenon.

6 The mortises can be quickly cut with a mortiser but where they are through mortises, I prefer to cut from both sides of the stile, rather than going right through onto a piece of scrap, as this always leaves some breakout, no matter how careful you are.

PHOTOGRAPHS BY ALAN HOLTHAM



7 Next, cut the tenons to suit the mortise – my preference is to use the bandsaw to cut down the cheeks. Don't try and be too clever here by making them really tight – a sliding fit is all you need as the glue will make them swell and the wedges will finally tighten them.

8 For accuracy, I have found it is better to cut the shoulders by hand. I use a stiff Japanese-style saw to do this.

9 Cutting shoulders by hand gives you the opportunity to undercut them very slightly, which ensures they fit up tight against the stiles.

10 With the bottom rail in place and the frame squared up, lay the components on top of the wide board to mark out the position of the joints for the top rail.

11 To mark the curve for this rail, I used a windlass-type bow with different string positions, which I can tighten to create exactly the right radius.

12 The shape can be cut on the bandsaw, a wider blade being better for these long, shallow curves.

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13 If you are making several identical components, it is probably better to make a template and then trim them back with the router, but for a one-off like this, cut carefully to the line and then sand it with a random orbit or belt sander.

14 Now you can cut the tenon – the curved shape of the rail makes this a bit more complicated, but it's no problem if you hold it in the vice and cut by hand.

15 A trial assembly of the frame allows you to check that everything is square – I had to make a slight alteration to the shoulders of the top joint where the curve meets the stile.

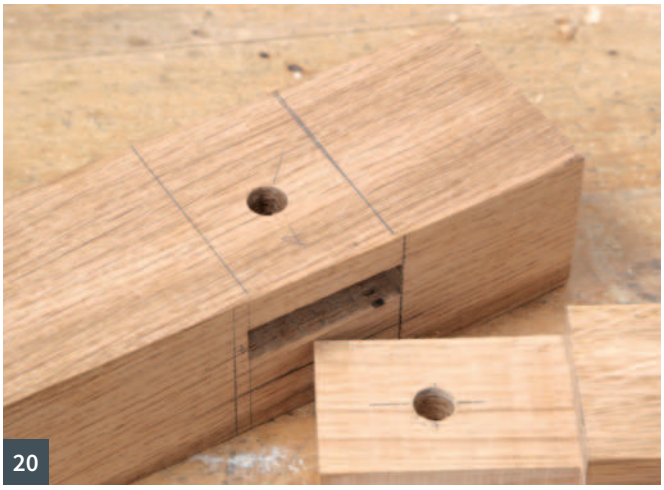
16 The top edge of both rails are chamfered to help any water to run off. For this, I used a large, shallow angle router bit, but stopped the chamfer short so that I didn't cut through into the tenon and reveal the mortise.

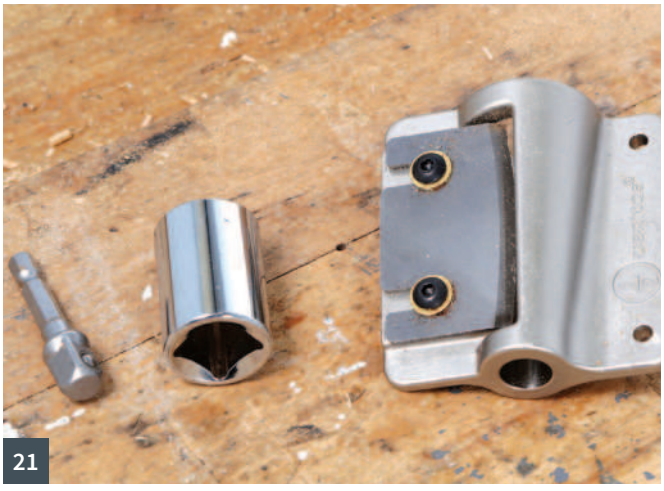
Draw-boring the joints

To assemble the mortise joints, I used the handy technique of draw-boring, as this serves several purposes. As well as adding strength to the standard mortise and tenon joint, it ensures that the shoulders of the joint are pulled up really tight. The other advantage is that the joint is put under constant tension, so the effects of subsequent shrinkage are less important.

On a normal joint, the timber of the mortise will shrink more across the grain than the lengthwise grain of the tenon. In severe cases, this results in the shoulders of the joint opening up and as well as being unsightly, the joint loses much of its strength.

To make the joint, cut the mortise and tenon in the normal way, then mark the position for the dowel. Small joints will be strong enough with just the one dowel, but larger ones may need two or more.





17 Drill right through the mortise using a Forstner or saw tooth bit for a clean entry and exit. If the wood is very brittle, it may help to cut a piece of scrap to fit into the mortise to prevent internal breakout.

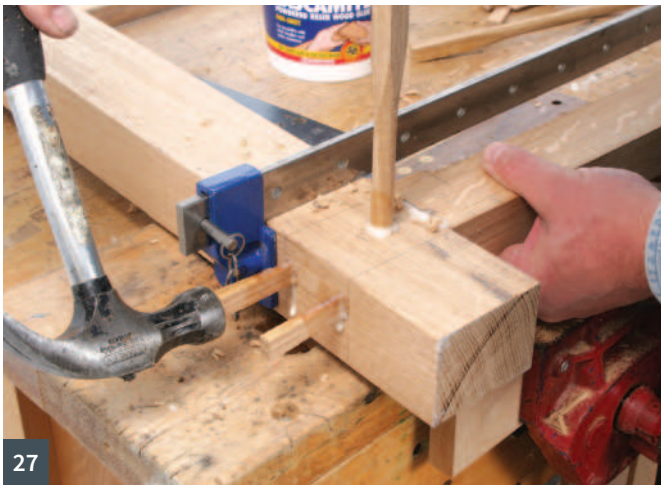
18 Fit the tenon into the mortise and use the drill bit to mark the centre of the drilled hole onto the tenon.

19 Take the joint apart and re-mark the drilling point a couple of millimetres in towards the shoulders of the tenon. The exact amount depends on the type of timber and the size of the joint, but don't overdo it, particularly in hardwood, as you may not get the dowel to go through and/or you may break out the end of the tenon. Experience will soon tell you how much offset is needed, but it doesn't need much.

20 Then drill the same sized hole through the tenon at the new centre point, again onto a piece of scrap to avoid breakout.

21 Dowels can be turned on the lathe or trimmed from square material by hand, but I have just discovered the superb Veritas dowel makers, which make the process quick and foolproof.

22 These work like a giant pencil sharpener, using a socket in the drill to provide the rotation.



23 It takes just seconds to turn out perfect dowels – this is one of those tools I wish I had found years ago!

Wedging the tenons

24 For additional security, I wedged the tenons as well. To do this, make a cut down their length, about 5mm in from the edge, and cut some very slightly tapered wedges a bit longer than the length of the cut.

25 To glue up these outdoor projects, I prefer good old-fashioned Cascamite, both for its strength and its gap-filling properties.

26 Hammer the dowel right through the assembled joint, and you should see the shoulders pull in as you do so.

27 Then bang in the wedges, having coated them in glue on both faces – this should spread the tenon and create a dovetail effect so that they cannot come apart.

28 Once the glue has set, you can cut off the excess dowel and wedge and sand the joint flush for a really neat finish. For a more decorative effect, you could make the dowel and wedge from a contrasting timber.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Final touches

29 At this stage, with everything glued up, I realised that in my enthusiasm I had forgotten to shape the tops of the two stiles, but a decent blade in the jigsaw soon sorted that out.

30 The diagonal brace is cut to fit and then chamfered and dowelled in place.

31 To remove any sharp corners that can potentially splinter off, round off all the square edges using a tiny radius cutter in the router, although the bearing prevents this getting right into some of the tight corners.

32 The slats are ripped down from the thicker material and laid out on the frame. Cut spacer blocks to ensure an even gap between them.

33 The tops of the slats are cut with 45° points. Measure from the top of the points to keep each of them the same distance from the rail. Maintain the curve and trim the bottom end parallel to the bottom rail.

34 To fix them in place, counterbore a suitable hole deep enough to take the screw – you will have to use brass ones with oak as it will react and discolour with steel ones.


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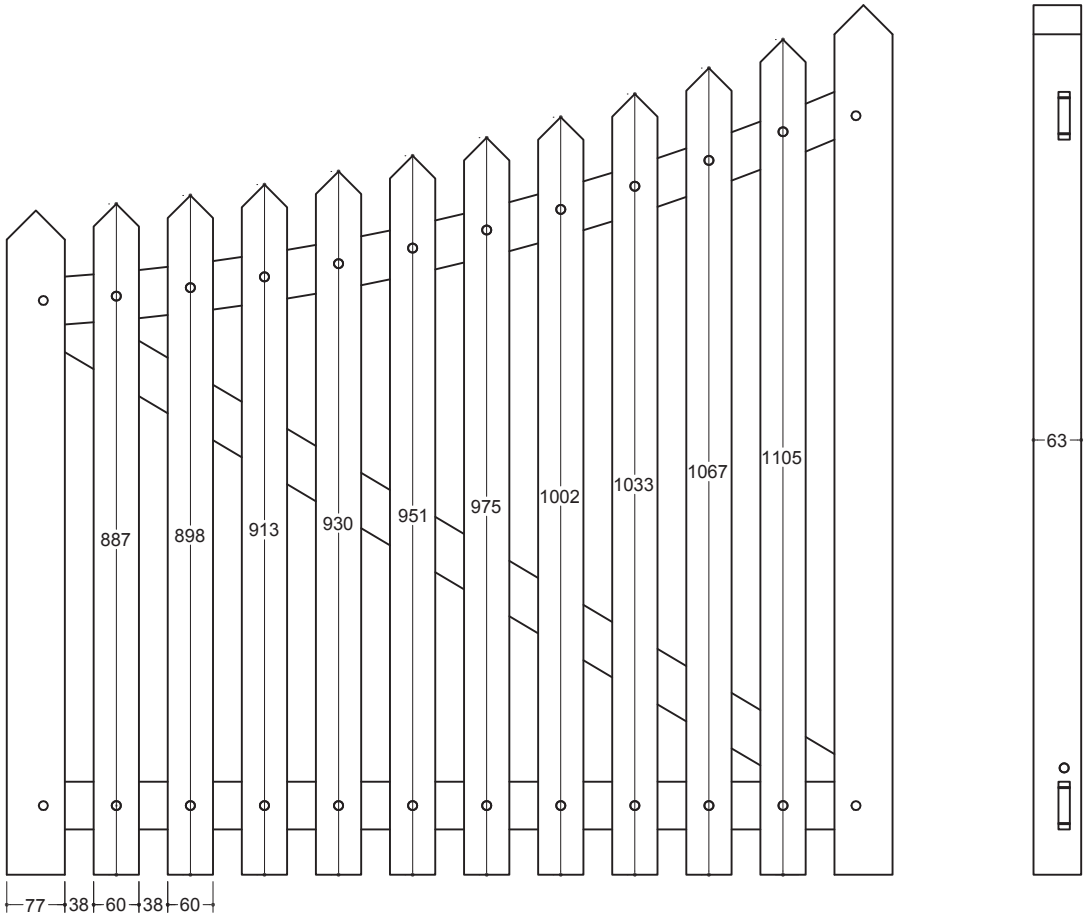
35 Screw them in place after first drilling the correct sized pilot hole, or you risk snapping off the soft brass screws.

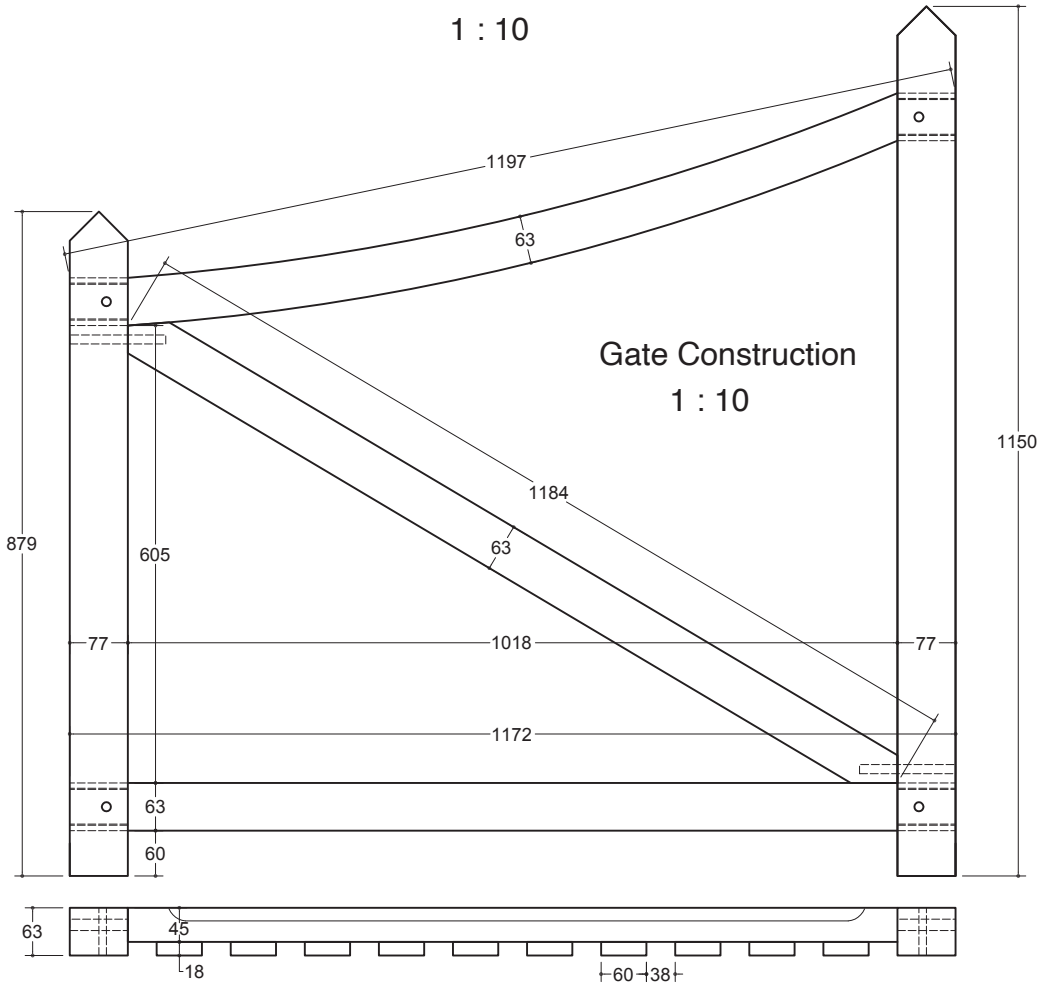
36 Use a plug maker to cut some plugs in an offcut of the same material. Free the plugs by slicing down on the bandsaw, keeping your fingers well out of the way.

37 Use a small brush to thoroughly coat the counterbored hole with glue, then tap in the plugs, orientating the grain the same way as the slat.

38 When dry, cut off any excess, sand thoroughly and then complete the radiusing on the front edge of each slat. A little hand finishing is usually necessary to clean up any excess glue or router burn marks. The side panel is made up in much the same way using mortises and dowels to attach it to the hanging post. For finishing, I used three coats of a marine oil finish that ended up a bit glossier than I would have liked, but I am sure it will dull down quite quickly. Remember that hinges and the latch should be galvanised to prevent any reaction with the timber. There we are – a lovely oak gate that should last and last.



Gate Elevation
1 : 10

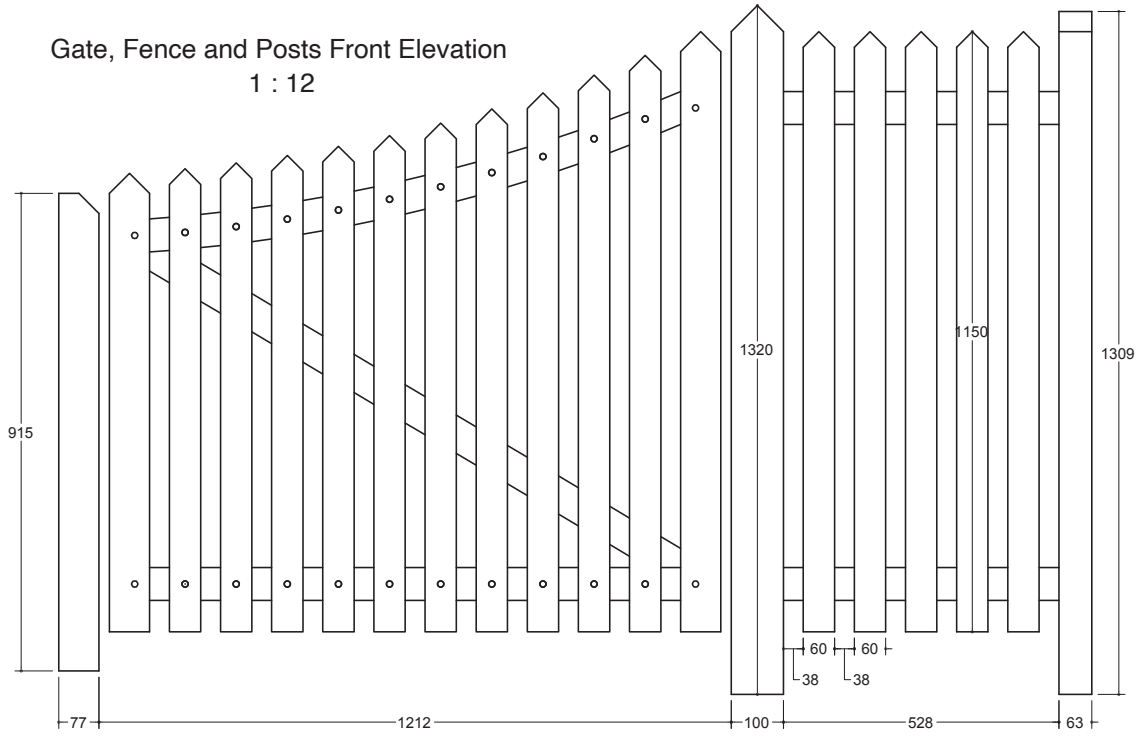


Gate Construction
1 : 10

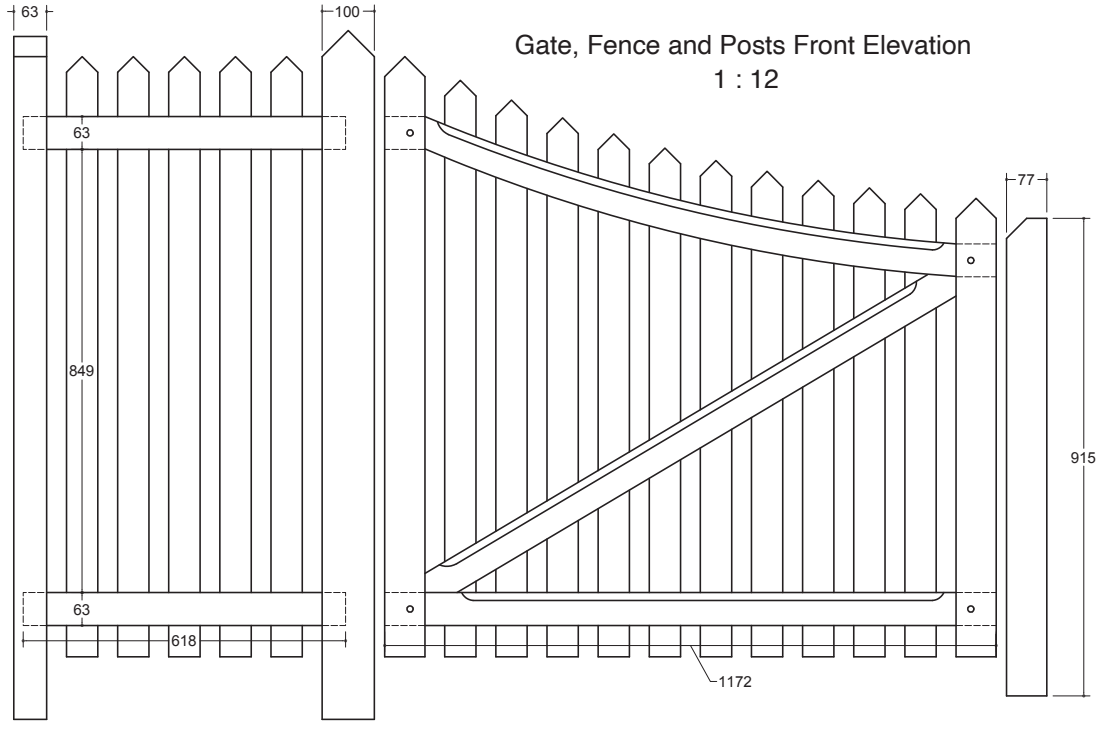
CUTTING LIST

Gate

- **Long stile:** 1 @ 1,150 x 77 x 63mm
- **Short stile:** 1 @ 879 x 77 x 63mm
- **Top rail:** 1 @ Ex 1,250 x 120 x 45mm
- **Brace:** 1 @ Ex 1,200 x 63 x 45mm
- **Bottom rail:** 1 @ 1,172 x 63 x 45mm
- **Slats:** 10 @ See drawing for length x 60 x 18mm
- **Hanging post:** 1 @ 1,300 (to fit) x 100 x 100mm
- **Latch post:** 1 @ 915 (to fit) x 77 x 77mm
- **Side panel post:** 1 @ 1,200 (to fit) x 77 x 63mm
- **Side panel rail:** 2 @ 618 (to fit) x 63 x 45mm
- **Slats:** 5 @ 1,150 x 60 x 18mm



Overall dimensions shown, including post heights, to be adjusted to suit site conditions



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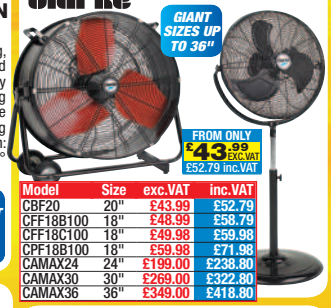

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CIG81216	4.9 x 3.7 x 2.5m	£329.00	£394.80
CIG81020	6.1 x 3 x 2.4m	£359.00	£430.80
CIG81220	6.1 x 3.7 x 2.5m	£399.00	£478.80
CIG81224	7.3 x 3.7 x 2.5m	£499.00	£598.80
CIG1432*	9.7x4.3x3.65m	£1159.00	£1390.80
CIG1640*	12x4.9x4.3m	£3250.00	£3900.00

Clarke 1" BELT/ 5" DISC SANDER

- Includes 2 tables that tilt & lock
- Quality Induction 250W motor

£86.99 EXC.VAT £104.39 inc.VAT

CBS1-5B

Clarke DUST EXTRACTOR/ CHIP COLLECTORS

CWVE1

CDE7B

FROM ONLY £119.00 EXC.VAT £142.80 inc.VAT

- Powerful 1100W motor
- 50 litre bag capacity
- Flow rate of 450M3/h

Model	Motor	Flow Rate	Bag Cap.	exc.VAT	inc.VAT
CWVE1	1100W	183 M3/h	50Ltrs	£119.00	£142.80
CDE35B	750W	450 M3/h	56Ltrs	£179.98	£215.98
CDE7B	750W	850 M3/h	114Ltrs	£189.98	£227.98

Clarke 8" TABLE SAW

CTS800C

NEW

- 500W motor
- 200mm Blade Dia.

£84.99 EXC.VAT £101.99 inc.VAT

Clarke PLUNGE SAWS

CPS160

FROM ONLY £69.98 EXC.VAT £83.98 inc.VAT

INC. 2X 700mm GUIDE RAILS

Model	Motor	exc.VAT	inc.VAT
CPS85	550W	£69.98	£83.98
CPS160	1200W	£119.00	£142.80

Clarke BELT SANDERS

CBS2

Makita

ABRASIVE SANDING BELTS IN STOCK

- Ideal for surface removal, sanding and finishing

FROM ONLY £39.98 EXC.VAT £47.98 inc.VAT

Model	Motor	M/Min	exc.VAT	inc.VAT
Clarke BS1	900W	380	£39.98	£47.98
Clarke CBS2	1200W	480	£89.98	£107.98
Makita 9911	650W	75-270	£99.98	£119.98

Clarke 4" BELT/ 8" DISC SANDER

- Includes two tables
- 550W 230V motor

£189.00 EXC.VAT £226.80 inc.VAT

CS48

Clarke 6" BELT / 9" DISC SANDER

CS6-9D

- 1100W motor
- Use vertically or horizontally

DUST PORT

£329.00 EXC.VAT £394.80 inc.VAT

BELT/DISC TABLE ADJUSTS 0-45°

INCLUDES STAND

Clarke ELECTRIC POWER FILE

CPF13

- Variable belt speed
- Tilting head

*Black & Decker

FROM ONLY £49.98 EXC.VAT £59.98 inc.VAT

ARM ADJUSTS

Model	Motor	Belt Size (mm)	exc.VAT	inc.VAT
CPF13	400W/230V	13x457	£49.98	£59.98
KA900E*	350W/230V	13x455	£59.98	£71.98

Clarke CIRCULAR SAWS

- Great range of DIY and professional saws
- Ideal for bevel cutting (0-45°)

NEW

AVAILABLE IN 230 & 110 VOLT

*Includes laser guide

FROM ONLY £44.99 EXC.VAT £53.99 inc.VAT

CON185B

Model	Motor	Max Cut 90/45 (mm)	exc.VAT	inc.VAT
CCS185B	1200W	65/44	£44.99	£53.99
CON185B*	1600W	63/43	£59.98	£71.98

Clarke 18V CORDLESS LI-ION STAPLE / NAIL GUN

- Includes 300 nails and 400 staples
- 1x 2Ah 18V Li-ion battery

SPARE NAILS / STAPLES IN STOCK

1x2Ah Li-ion

CONSN18LIC

£124.99 EXC.VAT £149.99 inc.VAT

ELECTRIC AND CORDLESS MODELS IN STOCK

Clarke CONTRACTOR 18V BRUSHLESS COMBI DRILLS

- 2 forward and reverse gears

FROM ONLY £99.98 EXC.VAT £119.98 inc.VAT

Powered by Li-ion

CON180LI

Model	Volts	Batteries	exc.VAT	inc.VAT
CON18LIC	18V	2x 2.0Ah Li-Ion	£99.98	£119.98
CON180LI	18V	2x 4.0Ah Li-Ion	£129.00	£154.80

Clarke SHEET SANDERS

CON320

- Ergonomic design for optimum comfort

VARIABLE SPEED

FROM ONLY £24.99 EXC.VAT £29.99 inc.VAT

Model	Sheet Size	Motor	exc.VAT	inc.VAT
COS210	190x90mm	200W	£24.99	£29.99
CON320	230x115mm	320W	£35.99	£43.19

Clarke PALM SANDERS

- Ideal for detail sanding of corners & hard to reach areas

CPS125

£22.99 EXC.VAT £27.59 inc.VAT

INC DUST EXTRACTION

Clarke DISC SANDER (305MM)

- Powerful, bench mounted
- 900W
- Dust extraction port

£169.00 EXC.VAT £202.80 inc.VAT

CDS300B

VAC KING WET & DRY VACUUM CLEANERS

FROM ONLY £57.99 EXC.VAT £69.59 inc.VAT

- Compact, high performance wet & dry vacuum cleaners for use around the home, workshop, garage etc.

* SS = Stainless Steel

Model	Motor	Dry/Wet Capacity	exc.VAT	inc.VAT
CVAC20P	1250W	17/13 ltr	£57.99	£69.59
CVAC20PR2	1400W	14/12 ltr	£71.99	£86.39
CVAC20SS*	1400W	17/13 ltr	£69.98	£83.98
CVAC25SS*	1400W	20/17 ltr	£77.99	£93.59
CVAC30SSR*	1400W	24/22 ltr	£99.98	£119.98

Clarke DRILL PRESSES

- Range of precision bench & floor presses for enthusiast, engineering & industrial applications

FROM ONLY £84.99 EXC.VAT £101.99 inc.VAT

B = Bench mounted
F = Floor standing

CDP102B

model	Motor (W) Speeds	exc.VAT	inc.VAT
CDP5EB	350 / 5	£84.99	£101.99
CDP102B	350 / 5	£99.98	£119.98
CDP152B	450 / 12	£189.98	£227.98
CDP202B	450 / 16	£239.00	£286.80
CDP352F	550 / 16	£298.00	£357.60
CDP452B	550 / 16	£299.00	£358.80
CDP502F	1100 / 12	£739.00	£886.80

Clarke POWER PLANERS

FROM ONLY £36.99 EXC.VAT £44.39 inc.VAT

CON950

Model	Width of Cut	Motor	exc.VAT	inc.VAT
CEP450	60mm	450W	£36.99	£44.39
CEP720B	82mm	720W	£44.99	£53.99
CON950	110mm	950W	£69.98	£83.98

Clarke 3-IN-1 MULTI SANDER

CMS200

£49.98 EXC.VAT £59.98 inc.VAT

1/3 SHEET SANDER

DISC SANDER

Clarke DETAIL SANDERS

- Perfect for smooth and fine finishing along with hard to reach areas or curved surfaces

CDS-1V

£27.99 EXC.VAT £33.59 inc.VAT

280W

ALL MODELS INC. SANDING SHEETS

Clarke RANDOM ORBITAL SANDER

- Adjustable front handle improves control
- 7000-14000rpm

CROS3

£36.99 EXC.VAT £44.39 inc.VAT

INC DUST BAG AND SELECTION OF 125MM DIAMETER SANDING DISCS

Clarke OSCILLATING BOBBIN SANDER

COBS1

- Dust collection port
- Inc. 6 sanding sleeves/bobbins

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Clarke BOLTLESS SHELVING/ BENCHES

- Simple fast assembly in minutes using only a hammer

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150 KG PER SHELF (evenly distributed) Strong 9mm fibreboard shelves

350 KG PER SHELF (evenly distributed) Strong 12 mm fibreboard shelves

CHOICE OF 5 COLOURS RED, BLUE, GREY, SILVER & GALVANISED STEEL

Model	Dims WxDxH(mm)	exc. VAT	inc. VAT
150kg	800x300x1500	£35.99	£43.19
350kg	900x400x1800	£54.99	£65.99

Clarke WHETSTONE SHARPENER (200MM)

CWS200B

- Produces razor sharp cutting edges on chisels, planes, etc.
- Inc. 3 tool holding jigs, workpiece clamp & support frame, polishing paste & water trough

£139.98 EXC.VAT £167.98 inc.VAT

Clarke PLANERS & THICKNESSERS

CPT800

- Ideal for DIY & Hobby use
- Dual purpose, for both finishing & sizing of timber

FROM ONLY £229.00 EXC.VAT £274.80 inc.VAT

Model	Planing Width	Max Thick Capacity	exc.VAT	inc.VAT
CPT600	6" (152mm)	120mm	£229.00	£274.80
CPT800	8" (204mm)	120mm	£279.00	£334.80
CPT1000	10" (254mm)	120mm	£379.00	£454.80

Clarke OSCILLATING BELT & BOBBIN SANDER

- Sand concave, convex, straight or multi-curved pieces
- Dust collection port
- Inc. sleeves, drum & belt

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COEBS1

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Clarke 40" WOODTURNING LATHE
Ideal for woodturning in the workshop
• Distance between centres allows for turning longer spindles • Inc. tool rest, tail stock, drive centre & face plate • Large turning capacity of 350mm • 4 turning speeds

CWL1000B
£159.98 EXC.VAT
£191.98 inc.VAT

Clarke 40" WOODTURNING LATHE WITH COPY FOLLOWER
Ideal for DIY, furniture or joinery workshops where repeat quantities are required
• Large 980mm distance between centres • Variable speeds 600-2200rpm • Inc. copy follower assembly, tool rest, drive centre tail stock assembly, face plate, eye shield & stand

CWL1000CF
£439.00 EXC.VAT
£526.80 inc.VAT

Clarke BENCH BANDSAWS
• Produces fast, precise mitre & longitudinal cuts • 250W motor • 8" throat size • Cuts in all types of woods

CBS205
£119.98 EXC.VAT
£143.98 inc.VAT

NEW
• Great for both home & professional use • Induction 300W motor • Table tilts up to 45° • 9" throat size

CBS225
£219.98 EXC.VAT
£263.98 inc.VAT

Clarke PROFESSIONAL BANDSAWS
Top Quality Bandsaws - ideal for professional workshop use. Strong steel body with solid cast iron table
• Table tilts 45° • Adjustable blade guide • Supplied with stand, 4TPI wood cutting blade, rip fence, mitre guide, mitre gauge and push stick • Induction motors

CBS300
FROM ONLY £229.00 EXC.VAT
£274.80 inc.VAT

MODELS ALSO FEATURE:
MULTI-STEP DUST EXTRACTION OUTLET
FLEXIBLE LED WORKLIGHT
REMOVABLE DUST TRAY
BLADE TENSIONING CONTROL

Model	Throat Depth	Max Cut 90°	Max Cut 45°	exc.VAT	inc.VAT
CBS250C	245mm/10"	115mm	65mm	£229.00	£274.80
CBS300	305mm/12"	165mm	115mm	£498.00	£597.60
CBS350	340mm/14"	225mm	160mm	£639.00	£766.80

TURBO AIR COMPRESSORS
airmaster • Superb range ideal for hobby & semi-professional use

Model	Motor	CFM	Tank	exc.VAT	inc.VAT
Tiger 8/260	2HP	7	24ltr	£119.98	£143.98
Tiger 11/550	2.5HP	9.3	50ltr	£189.98	£227.98
Tiger 16/550	3HP	14.5	50ltr	£249.00	£298.80
Tiger 16/1050	3HP	14.5	100ltr	£319.00	£382.80

Clarke 13" MINI WOOD LATHE

CWL325V
• Ideal for enthusiasts/ hobbyists with small workshops • 325mm distance between centres • 200mm max. turning capacity (dia) • 0.2HP motor

Clarke STATIC PHASE CONVERTERS
• Run big 3 phase woodworking machines from 1 phase supply • Variable output power to match HP of motor to be run

PC60
CONVERT 230V 1PH TO 400V 3PH
FROM ONLY £269.00 EXC.VAT
£322.80 inc.VAT

Model	Max. Motor HP	Fuse	exc.VAT	inc.VAT
PC20	2HP	10Amps	£269.00	£322.80
PC40	3.5HP	20Amps	£329.00	£394.80
PC60	5.5HP	32Amps	£389.00	£466.80

Clarke CONTRACTOR ROUTERS
• Powerful heavy duty machines ideal for trade and DIY use

CR4
FROM ONLY £47.99 EXC.VAT
£57.59 inc.VAT

Model	Motor (W)	Plunge (mm)	exc.VAT	inc.VAT
CR1200	1200	0-55	£47.99	£57.59
CR4	2000	0-66	£99.98	£119.98

Clarke GRINDERS & STANDS
• Stands come complete with bolt mountings and feet anchor holes
6" & 8" AVAILABLE WITH LIGHT
STANDS FROM ONLY £65.99 INC.VAT

FROM ONLY £42.99 EXC.VAT
£51.59 inc.VAT

Model	Duty	Wheel Dia.	exc.VAT	inc.VAT
CBG6RP	DIY	150mm	£42.99	£51.59
CBG6RZ	PRO	150mm	£59.98	£71.98
CBG6250LW	HD	150mm	£59.98	£71.98
CBG6250L	HD	150mm	£68.99	£82.79
CBG6SB	PRO	150mm	£74.99	£89.99
CBG8370LW	HD	200mm	£94.99	£113.99

RECIPROCATING SAWS
CON850B
FROM ONLY £37.99 EXC.VAT
£45.59 inc.VAT
AVAILABLE IN 230 & 110 VOLT

NEW
• 850W motor • Includes 3 wood & 3 metal blades

Model	Motor	exc.VAT	inc.VAT
CRS710V	710W	£37.99	£45.59
CON850B	850W	£49.98	£59.98

Clarke 10" SLIDING MITRE SAW
• For fast, accurate cross, bevel & mitre cutting in most hard & soft woods • 2000W motor
CMS10S2B

Model	Blade Dia/Bore (mm)	Max Cut Depth/ Cross	exc.VAT	inc.VAT
CMS10S2B	255/3	90/340	£159.00	£190.80

Clarke WOODWORKING VICES

Model	Mounting	Jaw (Width/Opening Depth) mm	exc. VAT	inc. VAT
Clarke CHT152	Bolted	150/152/61	£14.99	£14.99
Record TV75B	Clamped	75/50/32	£24.99	£24.99
Clarke WV7	Bolted	180/205/78	£36.99	£36.99

Clarke CONTRACTOR Clarke JIGSAWS

Model	Power (W)	Depth of Cut (Wood/ Steel)	exc. VAT	inc. VAT
CJS400	400W	55/ - mm	£15.99	£19.19
CON750	750W	80/10mm	£29.98	£35.98
Bosch PST700E	500W	70/4mm	£48.99	£58.79

Clarke SCROLL SAWS
• 50mm max cut thickness • Air-blower removes dust from cutting area • Table tilts 0-45°

CSS400C

Model	Motor	Speed RPM	exc.VAT	inc.VAT
CSS400D	120W	400-1600	£99.98	£119.98
CSS16VB	90W	550-1600	£114.99	£137.99
CSS400C	90W	550-1600	£144.99	£173.99

Clarke MULTI FUNCTION TOOL WITH ACCESSORY KIT
• Great for sawing, cutting, sanding, polishing, chiselling & much more • Variable speed

CMFT250
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DARLINGTON 214 Northgate. DL1 1RB	01325 380 841	**MAIDSTONE** 57 Upper Stone St. ME15 6HE	01622 769 572	**TWICKENHAM** 83-85 Heath Rd.TW1 4AW	020 8892 9117
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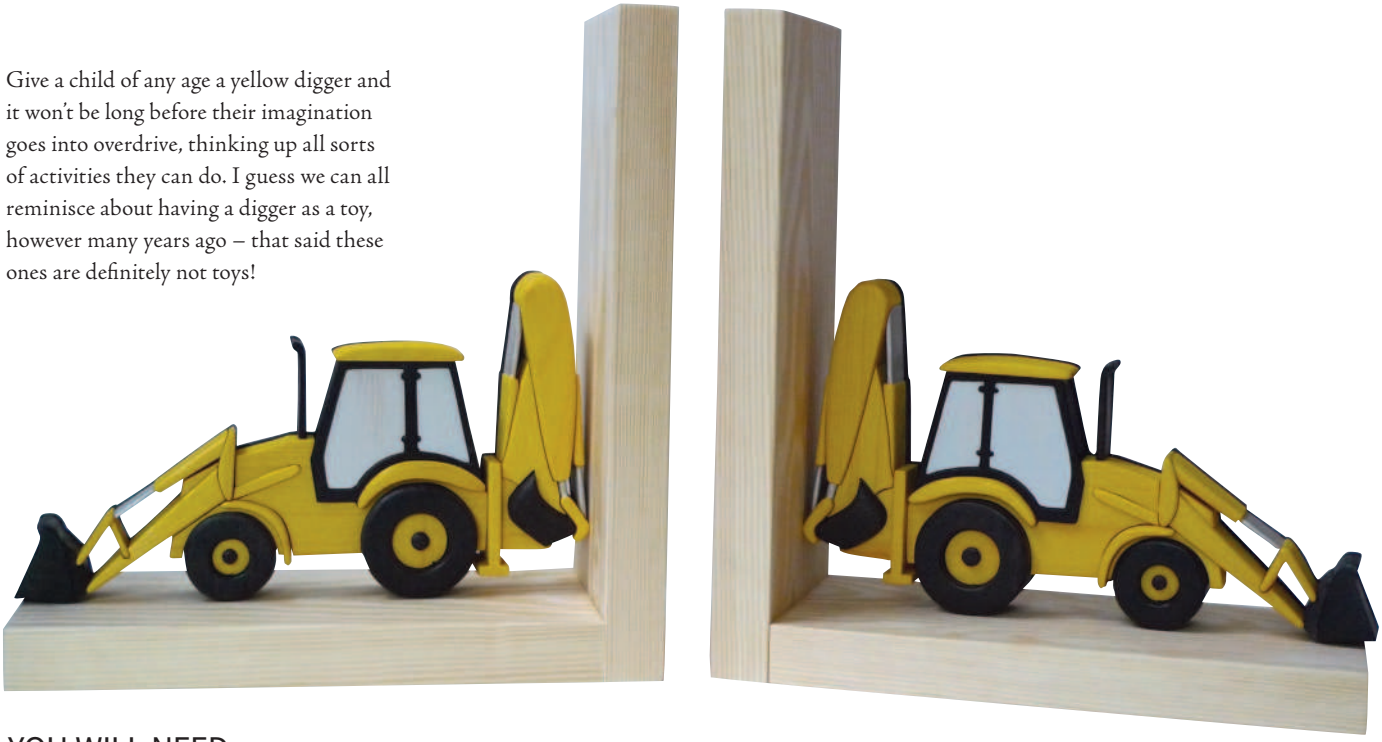
YELLOW DIGGER BOOKENDS

Fred and Julie Byrne dig out a great project for the scrollsaw

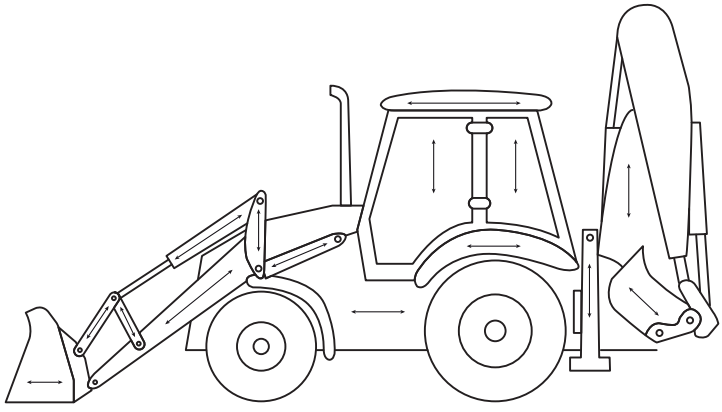
Give a child of any age a yellow digger and it won't be long before their imagination goes into overdrive, thinking up all sorts of activities they can do. I guess we can all reminisce about having a digger as a toy, however many years ago – that said these ones are definitely not toys!



YOU WILL NEED

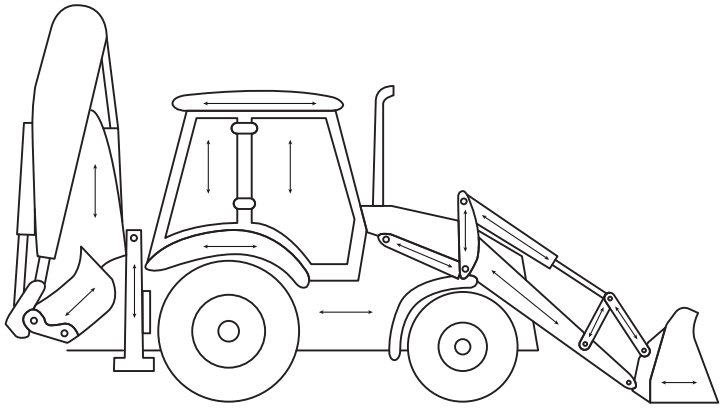
TOOLS:

- Scrollsaw – No.5 & No.2 blades
- Pillar drill – 0.5, 5 & 6mm drill bits
- Disc sander – optional
- Small diameter drum sander – optional
- Pattern – 6 copies in total (3 flipped to make a mirror image)
- Pencil, steel ruler & square
- Grades of sandpaper
- Sanding block
- Masking tape
- Glue stick
- Wood glue



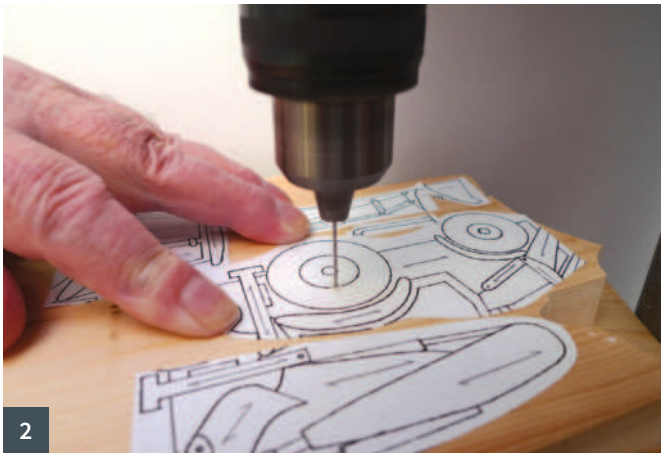
MATERIALS:

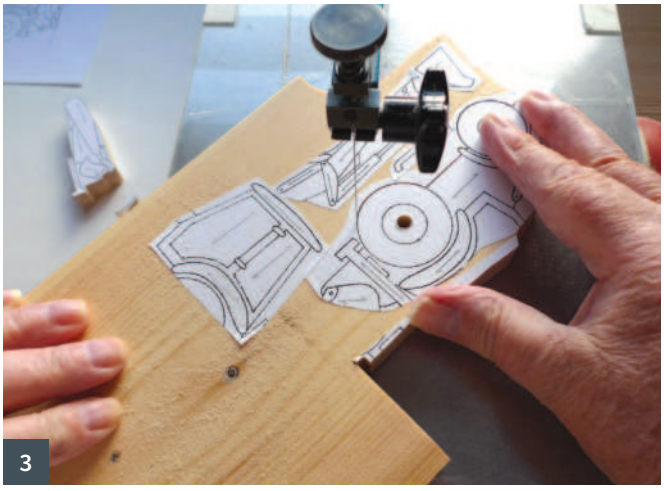
- Quantity of 19mm wood of choice: pine – 100 x 860mm (bookend framework)
- Small quantity of 6mm plywood
- 5 & 6mm dowel

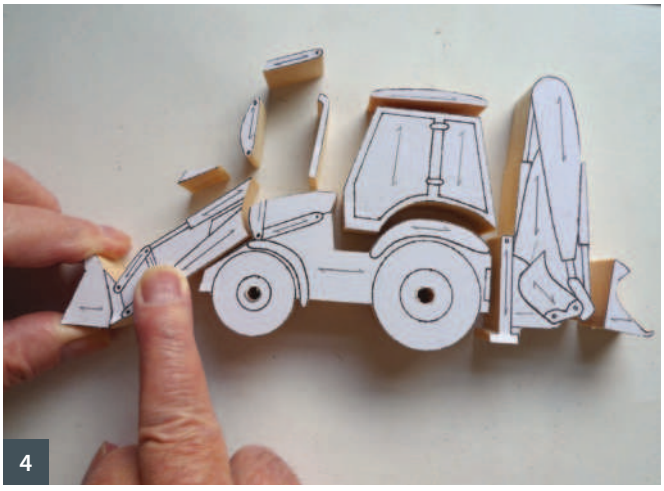


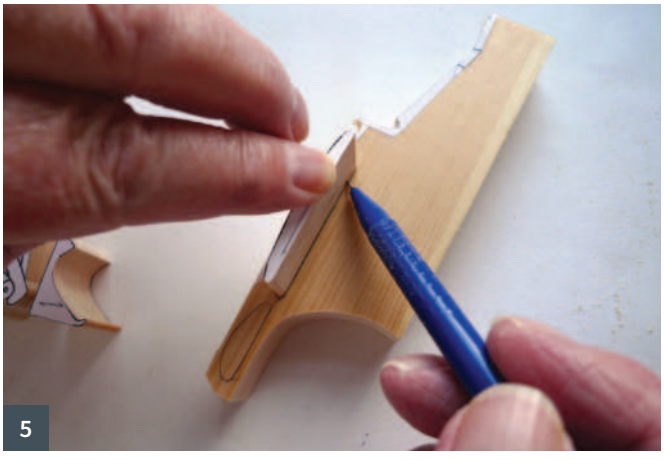
FINISHES:

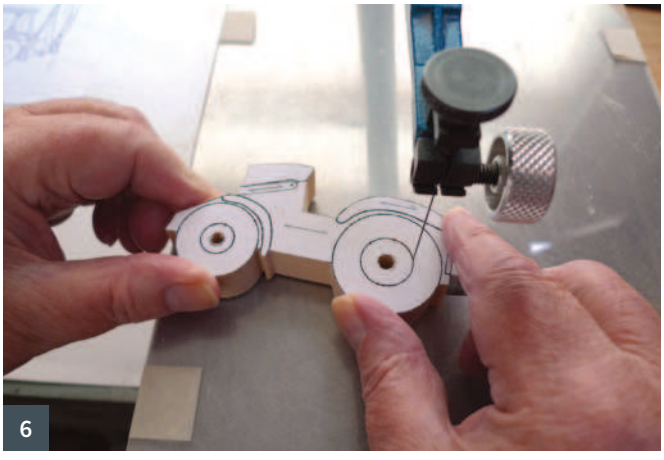
- Acrylic paints – yellow, black, light grey & silver
- Acrylic slow dry medium – optional
- Black marker pen
- Acrylic matt varnish
- Artist brushes
- Clear wax polish
- Soft cloth & buffing brush











Making the diggers

1 Make three copies of the pattern for each digger and cut them into the four main sections. Lay out the sections onto your wood selection, lining up the directional arrows with the wood grain.

2 Drill the blade entry holes using the 0.5mm bit. Drill into the line of each wheel hub and another two to gain access to the cab windows. Change to the 5mm and then 6mm bit to drill out each of the inner wheel hubs.

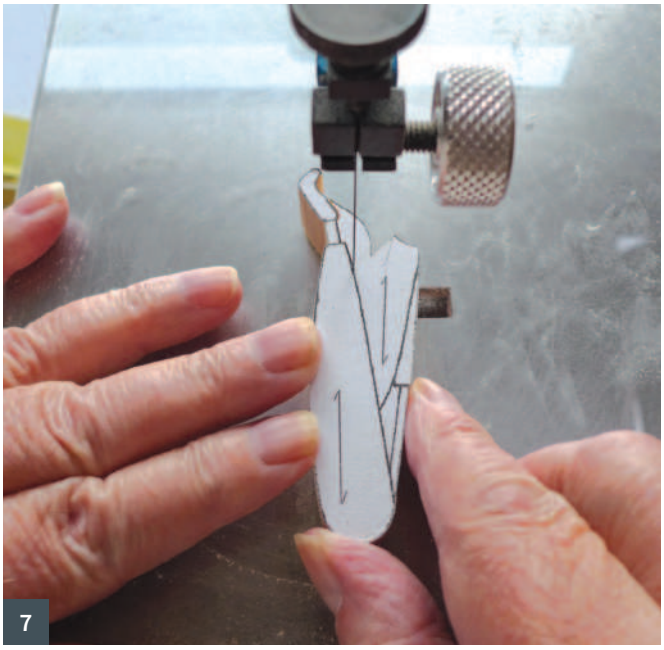
Cutting out

3 Set the scrollsaw with a No.5 blade; check that the table is square to the blade with a small set square and then cut around each section.

4 Sand away any burr from the underside so the pieces lay nice and flat, then check the fit of the pieces.

5 Where one or two pieces within the sections go in the opposite direction, sometimes it's easier to cut the piece out even though it is against the grain – use it as a template for cutting out a new piece going with the grain, as in this case the roof of the cab.

6 Before cutting out any of the inner pieces, change to a No.2 blade – this will keep the gap between the pieces to a minimum. Start by threading the blade up through the pre-drilled hole in one of the wheel hubs …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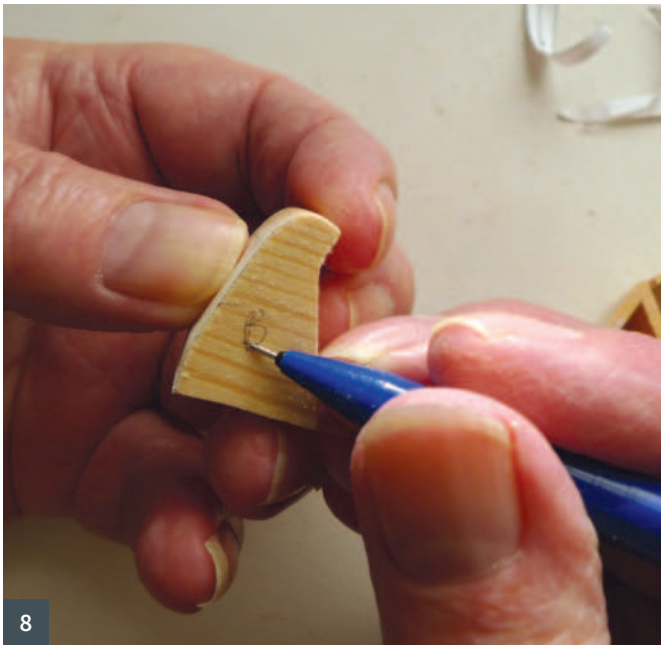
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PHOTOGRAPHS BY FRED & JULIE BYRNE


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7 … then continue to cut out all the pieces.

8 Remove as much of the pattern as you can – the rest can be sanded off. Mark the underside of each piece for easy reference. You wouldn't believe how many times we've sanded the wrong side only to discover the mistake when the piece is replaced!

Sanding and shaping

This part of the making process couldn't be easier. Giving the individual pieces even a slight 3D form really does bring the whole project to life. Always start with the lowest piece and rise up with varying heights from that starting point, trying to visualise how it will look. If you don't have a disc sander, the pieces of the digger are fairly small so they could carefully be sliced through with the scrollsaw.

9 Begin by lowering the height of the three pieces that make up the body by 5mm to a height of 14mm.

10 Mark the position of the body onto the cab and then sand the cab down to approx 1mm above your pencil line, making the cab sit just proud of the body, then lower the window down to 0.5mm below the cab. Continue in this way, marking the heights on all the adjacent pieces: i.e. mud guards, foot stabiliser, roof piece and the front and rear digger sections, sanding down little by little until you are happy with the way the digger is looking.

11 Place the 5mm dowel into the small wheel hub and the 6mm dowel into the large, mark the height and cut to 2mm above.

12 Next, sand all the pieces smooth, going with the grain to remove scratch marks, rounding over any outer edges – a small diameter drum sander comes in very handy for the smaller pieces. Note that the outer section of the wheel has been rotated 90° but the inner hub has been left horizontal.

13 Assemble all the pieces onto the 6mm plywood and trace around the outer edge. Next remove one piece at a time to trace around the inner pieces – making a sort of map of all the pieces.

14 Make this simple jig to hold the wheels steady while drilling the holes to take the 5mm support dowels. Use a 5mm drill bit and drill down to a depth of 6mm in each wheel.


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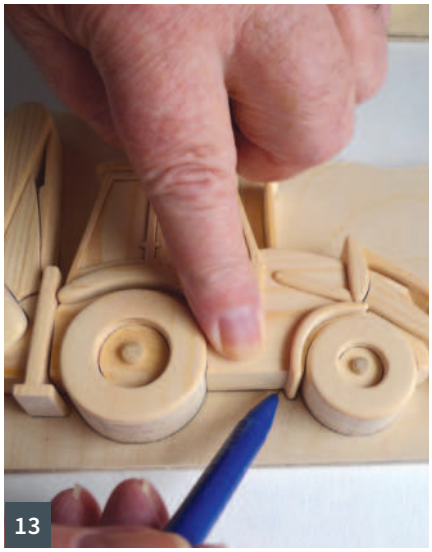
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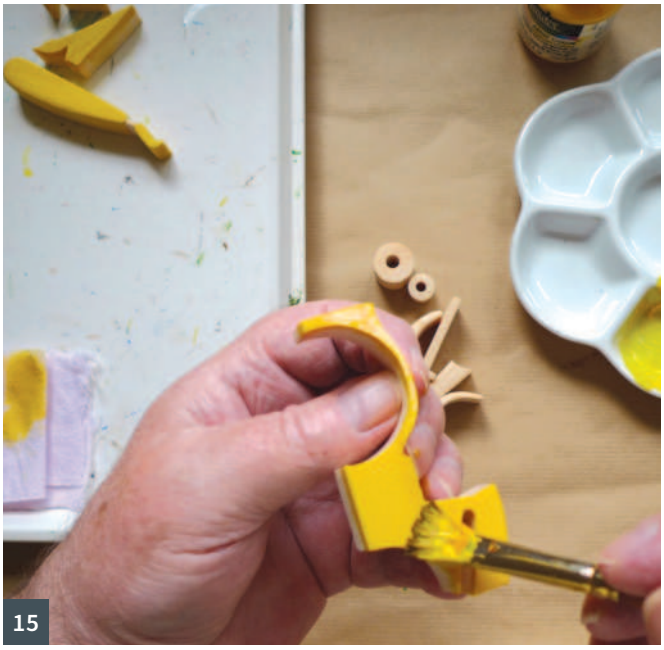
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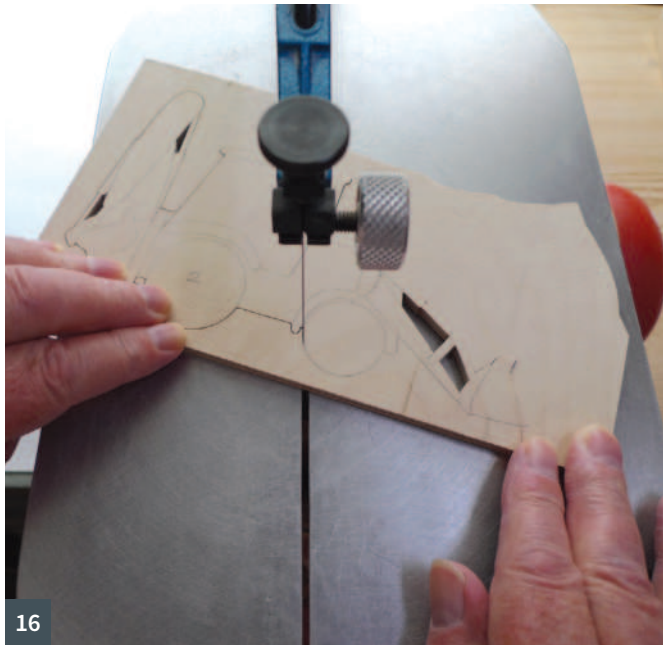
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Colouring

15 First remove any dust and place the pieces into groups of colour, referring to the finished picture. We like to mix an approximate 50/50 ratio of acrylic paint with a slow dry medium – this thins the paint without lessening the colour and also stops the paint from dragging on the wood. Any excess can then be easily wiped off, allowing the grain of the wood to show through. When dry, lightly nib down with a fine grade sandpaper. Apply a coat of matt varnish to all the pieces and again allow to dry, then nib the pieces down once more. Adding a wax polish to the pieces is entirely optional as the pieces are completely protected by the varnishing process, but polishing does make the wood feel nice and smooth.

Making the backing

16 Returning to your pre-traced piece of 6mm plywood, first drill the blade entry holes and set the scrollsaw with a No.2 blade. Remove the inner pieces first and then continue to cut around the outer edge. Lightly nib any burr from the cut lines. Apply a varnish/wood sealer to the reverse side of the backing and allow to dry. Paint all around the edges with black paint and then use a black marker pen to trace over your pencil lines – doing this will make any gaps between the pieces less noticeable and will enhance the finished piece.

Gluing up

Working on a flat surface, lay all the pieces out in order, temporarily placing short lengths of dowel into the support holes within the wheels, which lets you see at a glance that they are in the correct downward position. Start by applying glue to the body and aligning it in the correct position on the backing, and then glue on each adjoining piece in turn. Allow to dry.

Bookend framework

Lengths of 19 x 100mm pine are used for the main upright and base pieces, which are held together with simple finger joints, with the digger being dowelled onto the bottom using the holes in the bottom of the digger wheels.

A 400-year-old oak tree from Poland won this year's title

EUROPEAN TREE OF THE YEAR 2022

PHOTOGRAPH BY CONCELLO DE SANTIAGO

The Oak of Conxo's Banquet in Santiago de Compostela, Spain, was voted into second place

PHOTOGRAPH BY MANUEL PITEIRA

Portugal's Big Cork Oak finished third

Poland's 400-year old Guardian of the Forest won the European Tree of the Year competition

PHOTOGRAPH BY TOMASZ KAMIŃSKI/COURTESY OF EUROPEAN TREE OF THE YEAR

PHOTOGRAPH BY DREW PATTERSON

The Leaning Tree in Kippford, Scotland came sixth

The Guardian of the Białowieża Primeval Forest, a 400-year-old oak tree in Poland, won this year's European Tree of the Year competition with a record 179,317 votes from across Europe. The awards were announced in March at a ceremony in Brussels.

The Guardian of the Forest

The winning tree grows at the edge of the Białowieża Primeval Forest, a lowland forest close to the border between Poland and Belarus. The ancient tree has long been admired by locals and tourists and has inspired artists. It looks beautiful in every season, both during full vegetation but also when it loses its leaves and reveals its mysteriously curved branches.

For Polish people, the tree has also become a symbol of resistance to aggression of all types. This began after a recent proposal to build a concrete wall through the Białowieża Primeval Forest; this threat attracted a great deal of attention to the Guardian tree, and, in combination with the war in Ukraine, the message of 'protection' associated with the tree became even more important.

Success for oak trees

Two other oak trees took the runner-up places. Spain's Oak of Conxo's Banquet took second place. The 250-year-old tree is known as the Tree of Liberty because in 1856 it was a 'witness' to the Democratic Banquet of Conxo, a revolutionary act that vindicated the ideals of the new Europe: liberty, equality and fraternity. In the 19th century the tree was defended by Galician poet Rosalía de Castro who founded a pioneering ecological protest in Spain. Its forest in Santiago de Compostela was opened to the public in 2018 after remaining inaccessible for more than a century.

Third place went to another 250-year-old oak tree, the Big Cork Oak in Vale do Pereiro, Portugal. This large tree harbours a variety of wildlife and offers a shady spot to relax for villagers.

The UK's entry was a hawthorn, the Kippford Leaning Tree which grows on the Dumfries & Galloway coast in Scotland. It finished in sixth place.

About the competition

The European Tree of the Year is a contest that highlights the significance of trees in the natural and cultural heritage of Europe and the importance of the ecosystem services trees provide. The contest is not looking for the most beautiful tree, but for a tree with a story, a tree rooted in the lives and work of the people and the community that surrounds it. The European round is a finale consisting of the winners of the national rounds. Every year, the online voting for the European Tree of the Year is organised by Environmental Partnership Association (EPA).

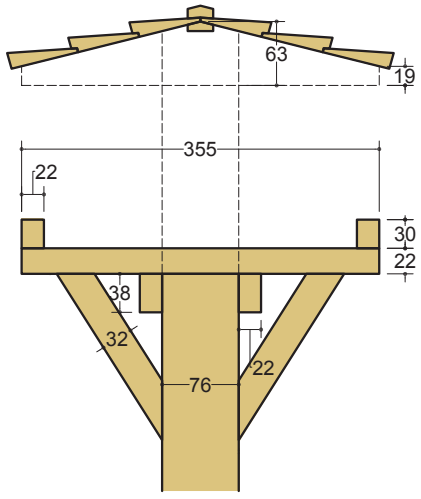
treeoftheyear.org
@treeoftheyear

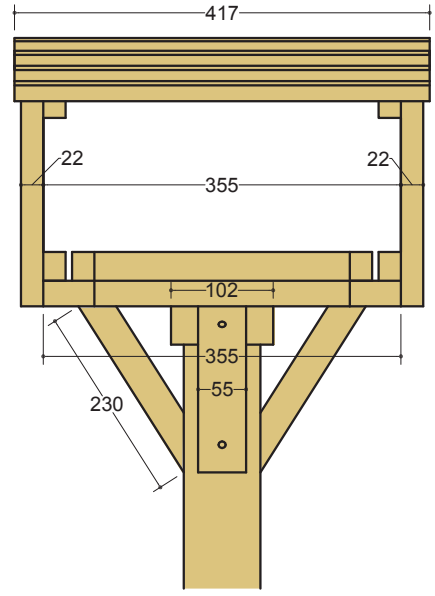
PHOTOGRAPHS BY JIM ROBINSON

BIRD TABLE

Invite nature into your garden with Jim Robinson's design for a simple feeding table

I had several short ends and oddly shaped pieces of wood left over after making a garden chair, and rather than burn them I decided to make a bird table. The wood used was the remains of some old teak laboratory bench tops so the bird table will last some time without any maintenance.





CUTTING LIST

Description	Qty	L	W	T
Base	1	355mm	355mm	22mm
Side strips	4	355mm	30mm	22mm
Pillars	2	367mm	75mm	22mm
Gables	2	380mm	63mm	22mm
Slats (note: these are resawn)				
From 3 rectangles	6	417mm	75mm	22mm
Ridge	1	417mm	30mm	20mm
Braces	4	230mm	55mm	32mm

Small strips to position pole to underside and underside piece of ridge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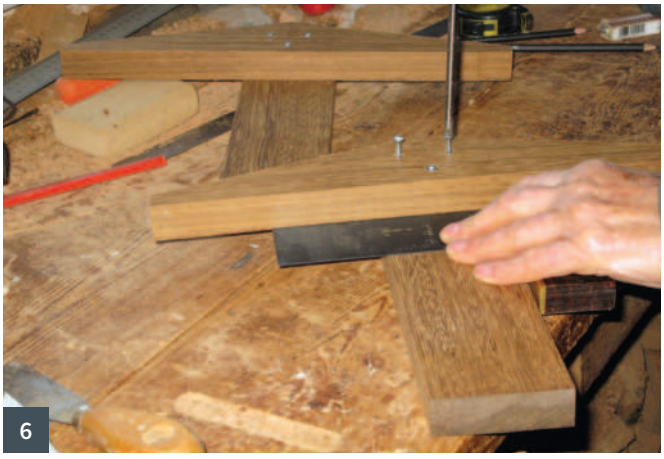
Making the bird table

1. Make up the table base by gluing together boards using waterproof glue. Biscuits are not necessary because the surround screwed to the top helps to hold things together, as do the short pieces screwed to the underside near the square post.
2. The base surrounds are cut from any odd-shaped pieces of wood that are left over.
3. These four surround pieces are planed and thicknessed to size before drilling and countersinking screw clearance holes.
4. The snail countersink on the drill gives a smooth finish.
5. When you have screwed these surrounds in place use the bandsaw to make a 45° cut at each corner of the table; this forms a slot at each corner that enables water and waste to escape.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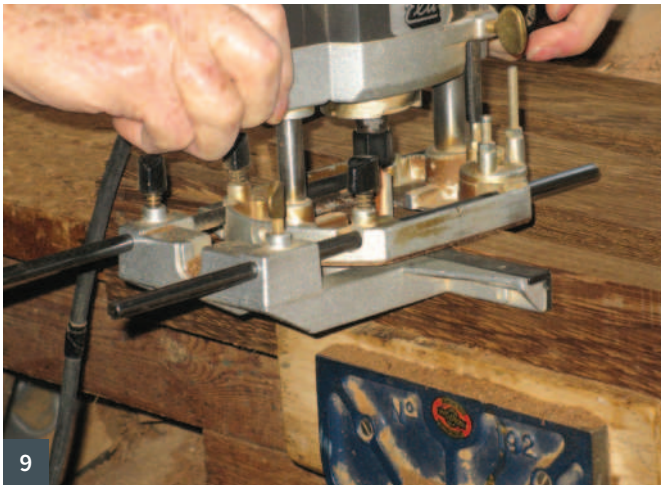
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6 The roof slats are fixed to a gable at each end which in turn are supported by a central pillar measuring 75 x 22mm. The gables are also 22mm thick and are sloped to the angle you want for the roof. I made my roof fall fairly shallow but it is simple to increase this if preferred. The gables are screwed to the inside face of the pillars; you will need to shape the top of these pillars to match the roof angle by trimming any surplus off the top so that they are level with the top of the gables.

7 Screw some small pieces of wood on the underside of the table to locate the top of the post in the correct place and then reinforce the fixing by fitting four braces in place.

8 The bird table is now ready to receive the roofing.

9 To make your own roof slats, first plane and thickness rectangular sections of wood to about 22 or 25mm thick and 75mm in width. Using a router, take out an 8 x 8mm rebate at alternative corners.

10 Then, using the bandsaw with the table tilted to the correct angle, saw along the diagonal to produce two of the roof slats from each rectangle.

11 The roof slats will need belt sanding or planing to remove teeth marks, then they are ready for fixing to the gables using No.4 screws from above, after drilling clearance holes and countersinking.

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12 When the roof slats are fixed in place, plane a small flat surface so that the ridge can make good contact. The ridge piece is made by planing a slope on each side of the top of a rectangular section. To fix the ridge in position I drilled and countersunk clearance holes in a small strip which fitted between the inside face of the pillars. Drive screws into the underside of the ridge piece to hold it in position.

13 Screw some small pieces of wood on the underside of the table so that you can locate the top of the post in the correct place, then reinforce the fixing by fitting four braces in place. The post was longer than I needed so I cut a section off and by resawing obtained the wood for the braces; these were cut at an angle at the end, and after drilling clearance holes, they were fixed underneath to result in a firm table to post fixing.

14 The post for the table is a 75mm square pressure-treated post. I got mine from my local sawmill but you should be able to source a suitable fence post from a DIY store.

15 I dug a hole and inserted my post in the ground, but if you prefer you can form a cross which can then be braced to the bottom of the pole in a similar manner as the top. I used teak so I decided a finish was not needed and if you can use oak instead, this also does not need an applied finish because it will turn to a mellow silver colour in time; however, other woods may need some form of preservation.


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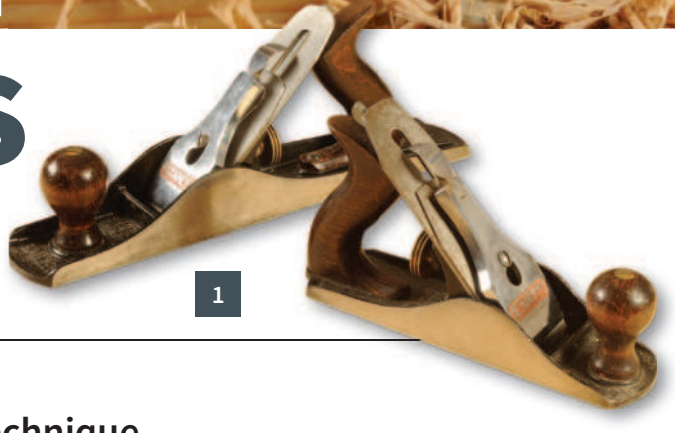
PLANING TECHNIQUES

Anthony Bailey takes an in-depth look at blade preparation, plane use and flatting wide boards



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If you already have some understanding of the restoration and sharpening of hand planes and their basic use, maybe it is time to consider how to create prepared surfaces by hand without an electric planer/thicknesser in sight. It gives you the freedom to work without noise and hone your handwork skills at the same time. For the purposes of this article, let's consider how we can take a sawn board with the intention of making it flat and square all round using just two planes, a No.5 jack and a No.4 smoothing plane.

Plane choice

The choice is very simple – for a decent sized sawn board I would suggest a No.5 jack plane. This has the right sort of length for board levelling operations when you are faced with sawn boards rather than already prepared timber. It is also not too wide or heavy, because our first task is going to be a series of quite rapid diagonal strokes across a board that may be the equivalent of a ploughed field, i.e. a bit rough. The larger No.6 fore and No.7 jointer models suit edge planing better.

Technique

Conventional modern wisdom has it that planes are moved in-line with a board that is being worked on, but even when planing a board edge it can help to run the plane at a slight angle. The reason is that the blade creates more of a slicing action than a straight-ahead position.

Having started on the skew, you can then finish the job with lighter passes, working straight-ahead for an even finish taking out any high spots for a level finish.

Performing the same task on a flat board face is a bigger undertaking. The area is larger, wider and let's face it, some effort is involved, so the more efficient we can be, the easier the task is to complete. This time the plane can be skewed at more like a 45° angle across the job. The slicing action is pronounced and once the high spots are trimmed off, the planing action becomes more productive as you quickly move the plane across the board taking off shavings as you go. Once the surface is reasonably level you can change to working straight ahead with the grain, to level the surface out. There is a trick to all this of course and that is blade preparation.

PHOTOGRAPHS BY ANTHONY BAILEY/GMC PUBLICATIONS

1 Just two hand planes will allow you to 'flat' wide boards **2 & 3** Skew planing is quicker but you need to finish 'on the straight' **4** The same process works well with wide boards **5** Finishing with a No.4 smoothing plane 'with the grain'

Blade choice

Whether you own a new cheap jack plane, an expensive and exquisitely engineered one or, like me, old restored hand planes being given a new lease of life, it is the blade that matters most. Generally, even cheap, new cast-iron hand planes are reasonably well made. What lets any plane down isn't how flat the sole is – although it does matter – or whether the frog – the casting the blade rests on – is well seated and adjusted, it's the blade that can be problematic.

OLD BLADES

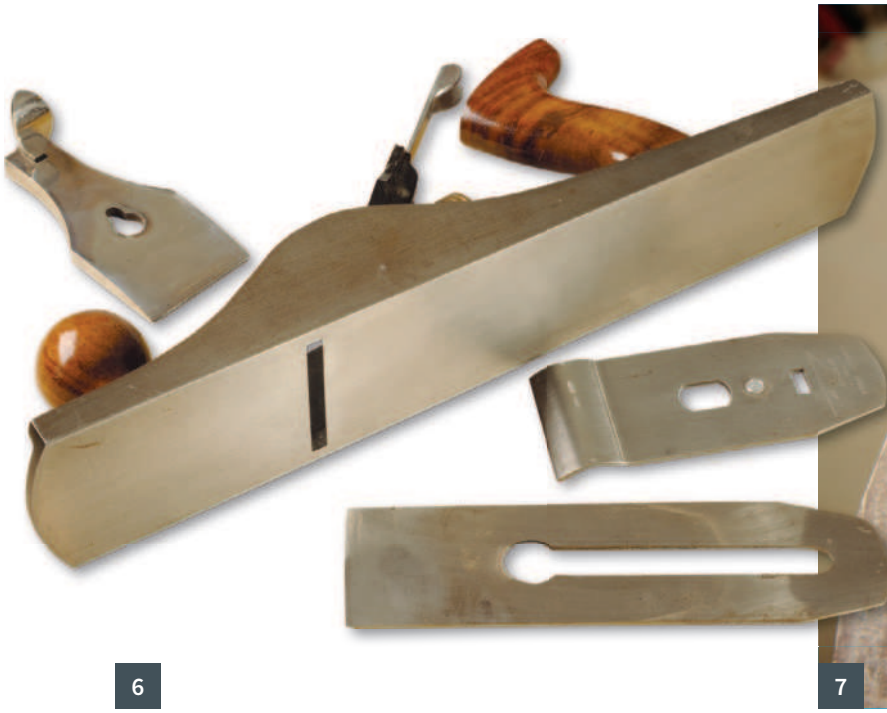
Old or vintage blades, which are made of carbon steel, are worth hanging on to and using, because it is the carbon that creates the added hardness in the metal. I found this out at my technical school – a long time ago of course – when I case-hardened a small engineer's vice I had made, using carbon granules and the heat of the forge. I forgot to file the jaw serrations in the mild steel. Unfortunately, after hardening, the file just skated off the jaws without leaving so much as a scratch!

MODERN BLADES

Later, plane blades made with more complicated alloys came along, which were created for specific advantages – chrome for instance adds corrosion resistance, but if you visit plane blade maker Ron Hock's website – www.hocktools.com – you can see his enlightening explanation about tool steel and his own dismissal of the need for corrosion resistance when sharpen-ability and edge holding are considered more important when creating the best quality blade steel. Unmarked blades in cheap planes could be made of any old steel alloy and are unlikely to be much good.

Many of the plane blades made in the last 40 years or so lack the edge holding ability of genuinely older carbon steel blades or the much newer, expensive ones that you can buy nowadays in order to upgrade a plane. Personally, I try using the blade that comes with a plane and if it doesn't perform as I would expect then I usually buy a reasonably priced Ray Iles 01 carbon steel blade. The thicker blade resists bending and chattering and the steel gives a far better edge.

A point to consider is that old blades may have been overheated on



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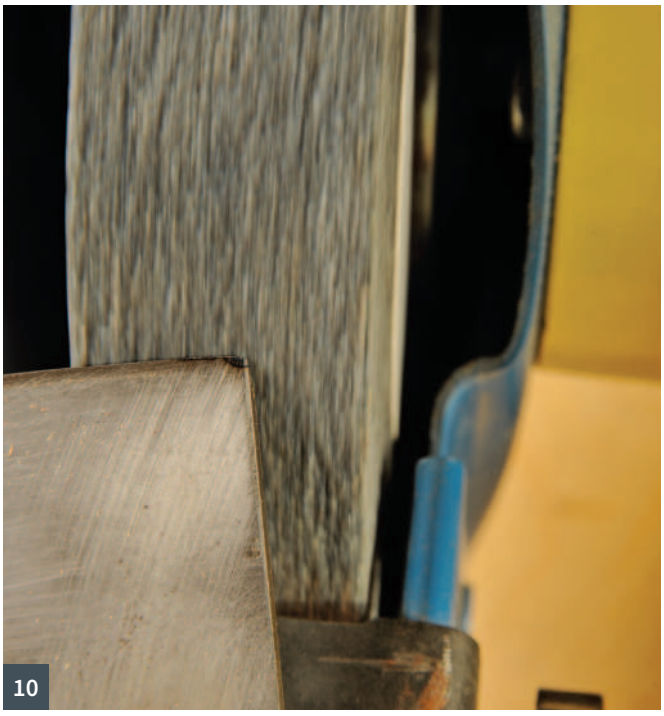
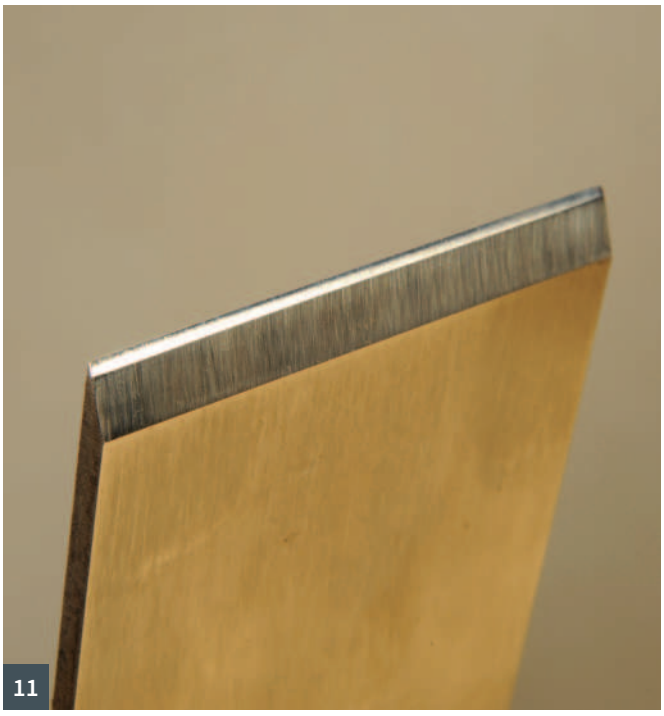
6 Even a cheaper plane will do the job **7** A vintage blade will hold a good edge **8** We know what the left-hand blade is made of but the right-hand one is anonymous **9** A replacement blade that is thicker and stiffer

a dry grinder causing the steel to 'lose its temper', which won't help edge holding at all. Signs of a defective blade can include rapid edge blunting, making planing hard work, reduced shavings output or even scoring of the blade edge, which will leave tiny tramlines on the work. This last fault suggests a very uneven alloy composition in the metal leaving it soft in places. So in short, make sure you have a really good, reliable blade in your jack plane.

Hand tool use has changed and this is nowhere more evident than with the changing shape of hand planes. In the olden days plane blades were often shaped to suit the work. Nowadays, expensive planes with nice quality blades are usually left with the blade dead square and only a tiny final edge 'micro-bevel' to do the cutting. That is absolutely fine for edge preparation, but hopeless for wide flat faces.

If we assume that a jack plane is used to 'flat' a board face then a straight blade edge is not only harder to push across the workpiece it will also 'dig in' everywhere causing gouge lines that will be hard





10 Grinding a camber can cause the edge to overheat **11** A secondary micro bevel is the one that performs the cuts **12** A straight-edged blade will 'dig in' **13** A straightedge is needed for trimming end grain

to rectify afterwards. Following the jack is the shorter smoothing plane, which needs a square blade to clean up after the jack, but again it will 'dig in' so clearly we need to use the traditional types of blade preparation if we want to achieve a decent result easily.

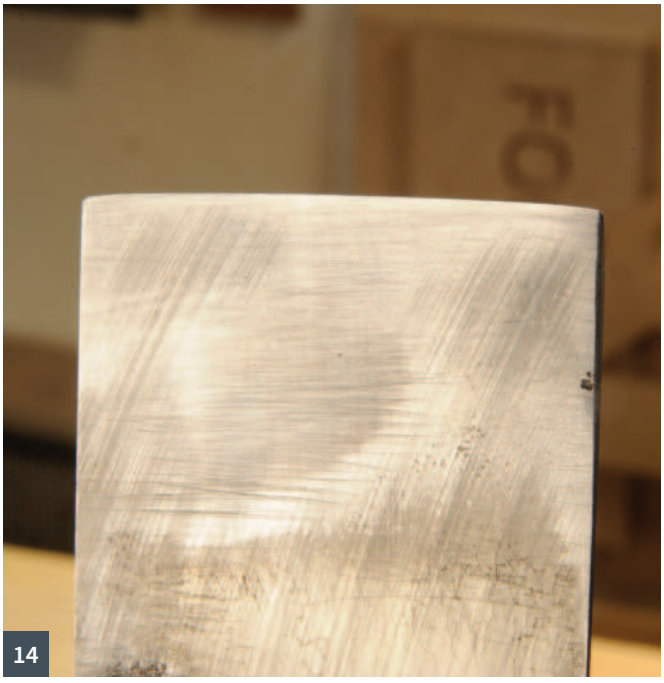
Blade shapes

SQUARE – NO.5 JACK

As previously discussed, a square edge is perfect for crisp square board edges, it is also necessary for shooting end grain accurately.

CAMBERED – NO.5 JACK

To flat a board we need a gently cambered blade in our No.5 jack. It won't need so much effort and the hollows it creates will overlap each other as we progress. Sharpening to this profile means using a dry grinder, but the outer 'wings' of the blade are vulnerable to overheating so it needs to be taken gently, quench the blade in water quickly to keep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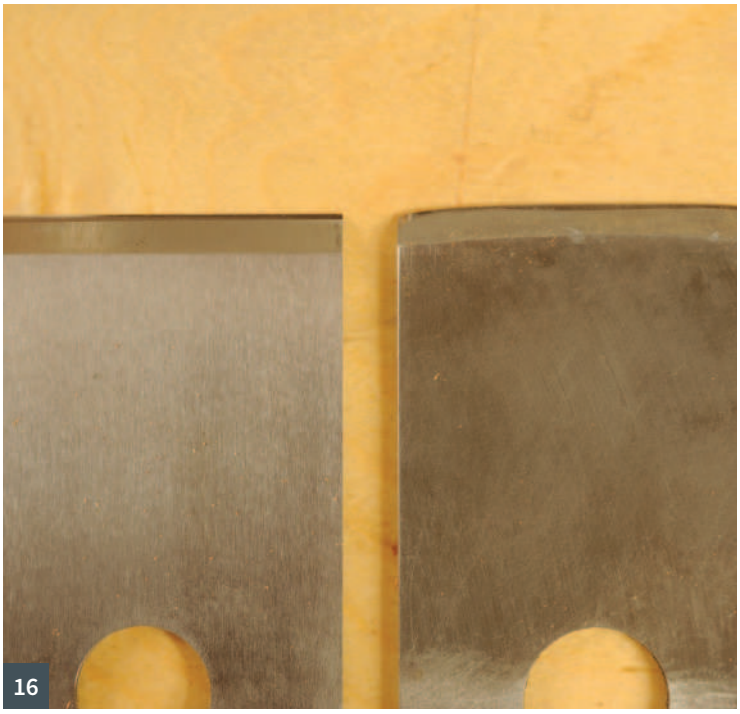
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14 A cambered edge, ready to strop **15** An automotive grinding paste will polish the edge **16** The difference between straight and cambered **17** A smoothing blade with rounded ends. As you can see, the cap iron is set back slightly

cooling it down. It needs a bit of careful hand-eye coordination to keep the right sort of grinding angle too.

Once this is done then use a fine diamond plate or water stone to give a final cutting edge, followed by stropping to polish the burr away. When the cap iron is assembled it needs to be set back from the blade edge by a reasonable amount.

SQUARE WITH BEVELLED CORNERS – NO.4 SMOOTHING

This is easier to do as only the corners need to be reshaped and this can be done on a coarse stone followed by a fine one and then stropped. The cap iron sits back behind the bevel but as close as possible to the leading edge.

If you decide to upgrade your jack plane blade to a better quality one, try cambering your old blade first to see the result before reshaping your new acquisition. Remember that you will still need a straight blade for shooting end grain as well.

Flatting boards

At this point we should have a No.5 jack plane with a good quality square-edged blade for edge work and shooting end grain, and another possibly unmarked blade that came with the plane, which may not be the best steel but has been reshaped with a gentle 'camber' ready for flatting wide boards. Lastly, we need a No.4 smoothing plane with a good quality square-edged blade with just the corners ground back slightly to avoid 'dig-in'. Now we need to assess how to deal with a board that needs treatment.


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One flat face

1. The key to the entire process is to create one flat, true reliable face first. Hopefully your bench top is flat or you have a machine table that is flat, a straightedge can help identify the condition of the working surface. Whether the chosen board is just sawn or merely out of shape, i.e. not flat, place it on the surface you consider to be flat and press one or more corners down to see if it rocks and where it does so.
2. Boards often 'cup' across the grain, twist from corner to corner or bow from end to end. Timber, being a natural product, will often misbehave. Cupping can be checked easily with a steel rule, which can be used across the grain and also from corner to corner if it is long enough or use a 'known' straightedge that you can rely on. Using this method, you get a positive demonstration of the board's faults before you start the flatting process.
3. Place the board with any cup or bow upwards, on the bench located between bench dogs or stops so it is firmly fixed. Use some slim wedges under the ends if necessary, so any rocking is prevented completely. At this stage the board is very raw, straight from the sawmill, but that doesn't matter.
4. The top of the board is clearly bowed upwards reflecting the cupping underneath. Obviously, the high areas will need removing first of all using our No.5 jack plane.
5. As discussed earlier, we need our cambered edge blade for rough flatting work. The camber can vary in shape but the plane I'm going to use here has a very gentle curve. It is worth experimenting with a blade that doesn't matter much, by creating different curvatures. However, the more extreme it is the lesser amount of blade can be allowed to protrude through the base as the cut over the centre section of the blade will be more severe.
6. Earlier I alluded to the technique of planing at 45° across the grain of the timber. When experimenting with the amount of blade projection, at first not much wood will be removed as you will only be cutting away the high spots. As you progress the blade will bite more and the plane becomes harder to push so the blade may need to retract slightly.


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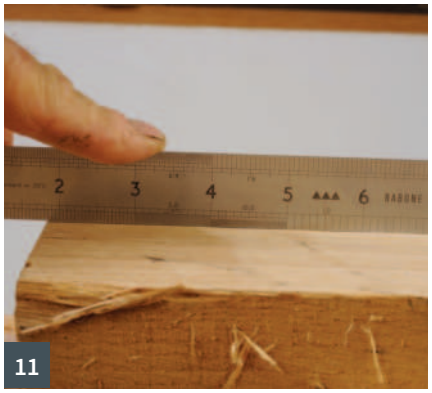

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7 The golden rule is to withdraw the blade by turning the adjustment knob, then wind it forward again because there is too much slack in the threaded mechanism to be able to keep the blade in the desired position. Gradually the whole board becomes planed all over.

8 Be daring and try working across the grain at 90°. Whereas a 45° cut allows the plane sole to 'test' the area ahead of it and keep some semblance of levelling, a 90° cut won't do this but it removes wood fast and in shorter shavings too.

9 Sighting along the board will allow you to see whether it is 'in wind' – twisted – or 'out of wind' – untwisted. In this case it looked fine, but a straightedge revealed a hump in the middle where it previously had a dip in its sawn state.

10 The same problem was revealed by placing the planed face downwards on the bench. It wasn't serious, but you can see it isn't flat towards the front corner. Try the rocking test as well as sighting it on the bench at eye level.

11 More shavings are taken off as necessary in the high areas and the surface checked again. Here it looks pretty good, the uneven scoop shapes made with the cambered blade will be removed in a while.

12 Don't forget the sensation of touch. Feeling across a board will also help you identify particular unevenesses in the surface.

13 I won't pretend that getting a board to an acceptable state of flatness is an easy task – there is a lot of physical effort, but it is quite satisfying. The rocking test shows this board is now within an acceptable tolerance of what we would describe as flat. If you want the rustic 'look' to a surface, the scoop or scallop shape created so far can look good on a bench or table surface without much more flatting.

14 You also need to give it a last visual check. You may have heard of the use of special 'winding sticks' to check the twist in a board, loved by some but not by me, my bench I feel, is a good enough guide.


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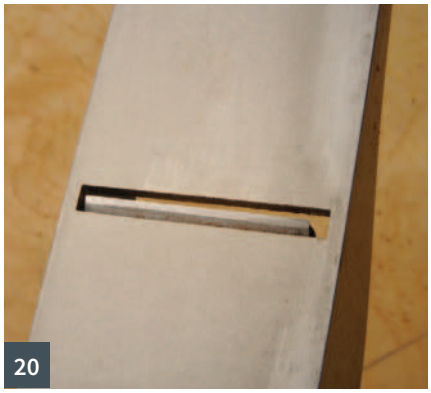
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15 Now to 'resume normal service' – planing with the grain as everyone expects to do. Even here it pays to plane at an angle because it gives a smoother, easier slicing action rather like a wooden 'badger' plane of olden times. The shavings become much longer but are narrow because only part of the cambered blade projects.

16 Once the wood gets used to the change of plane direction and is cutting nicely, you can then run straight 'fore and aft' cuts. Again, the shavings change in quality as you do this. Make sure you plane evenly all over; this will ensure that the surface remains relatively flat.

17 These shaving samples I saved illustrate the difference between each stage clearly. Left – very short curled-up shavings cut at 90°; next – slightly longer less tight shavings at 45°; then – narrow long shavings cut with the grain at an angle and right – wider shavings cut parallel to the board.

18 Now it's time to flat away the scallop shapes created by the No.5 jack plane using our No.4 smoothing plane with a modified blade, which is 'nicked back' at the corners to avoid 'dig in'.

19 Plane with the grain, taking light passes to level off the high spots. Don't expect full width shavings to start with because you are only removing the highest areas.

20 Now our No.5 jack needs a blade swap, unless, like me, you have several planes to choose from! This one has an entirely straight edge, which is perfect for edge planing. I use a diamond plate as it gives a good flat result because it doesn't wear out of shape.

21 Plane parallel with one board edge until it is flat and true. You can swing the plane at an angle or tilt the blade a fraction if you need to get the edge exactly perpendicular to the already planed face.

22 Check with a reliable square that the edge is indeed perpendicular and replane if necessary, until it is correct and flat in length too.

23 Apply the traditional 'face and edge' marks that denote these are true and good to work from, when completing the rest of the board preparation.

24 Mark the ends with a square resting on the good edge. Now, use a decent size backsaw to saw to your marked lines keeping the blade vertical. Do this using a bench hook.

25 A shooting board is needed for planing the board ends smooth and truly square. Bear in mind that the blade is hitting the end grain with some force, so only a slight blade projection is necessary.

26 Edge shavings made with the grain, contrast with the very short shavings created by trimming the end grain.

27 A marking gauge is used to work off the good face when marking a line all around the board, ready for flatting the second face. You need to prepare all the edges first, otherwise the gauge line would not show up properly. This contrasts with modern machine planing where the ends are left untrimmed until the planing is completed.

28 Finally, sand your board all around ready for use, or complete the process in the traditional way using a card scraper with a raised burr on the edge.

Does it all add up?

Alan Goodsell takes a workshop break to think about the key numbers in woodworking

PHOTOGRAPH BY SHUTTERSTOCK

It is known that puzzles help to keep minds active, so enjoy completing the brainteasers on this page. Sudoko is a particularly challenging type of puzzle and a good mind for numbers is useful for solving these challenges. While we are on the subject of numbers, I find that in my life, and in my woodworking, there are numbers that crop up often and become embedded in my brain, so they are instantly recalled when needed. The first one that come to mind for me is 1728, which is the number of cubic inches in a cubic foot. This was a useful number for when I was involved with a sawmill, and it was how we calculated the price of the wood we were selling. Wood is sold by other calculations such as board feet, but this is the one that worked for us then and I still use it now. The next one is 25.4, and that is how many millimetres there are in an inch. Remembering this number makes metric/imperial conversions a lot easier to do in the head without a calculator. For the workshop, especially for me in Florida, another useful conversion number is a temperature one: 28° Centigrade equals 82° Fahrenheit, as we use Fahrenheit in the USA that number makes it easier to gloat to my UK friends about how warm it is here! Lastly, another number that always sticks with me is 1760, which is how many yards there are in a mile. That is exactly how far I walked from my parents' home to the train station where I used to catch the train to school. I remember counting every step, approximately a yard, especially in the cold and rain on the way home and sighing with relief when I knew I was only a few paces away! Please let us know if you have any significant numbers that you have stored in your head and why.

Happy solving!

WORDSEARCH

Abrasives
Cabinetry
Carving
Chamfer
Drawknife
Groove
Intarsia
Outfeed
Pallet
Screwdriver
Stool
Sycamore
Timber
Wardrobe
Whittle

O	W	W	A	I	S	R	A	T	N	I	S	A	E
O	A	S	A	T	C	R	E	I	S	A	B	S	D
R	R	I	B	I	A	D	T	R	T	C	M	Y	B
E	D	I	R	M	R	R	L	T	T	A	V	A	T
V	R	E	A	B	V	A	O	R	C	O	G	R	I
I	O	W	S	E	I	W	O	I	R	L	R	Y	B
R	B	E	I	R	N	K	T	L	B	E	O	R	S
D	E	A	V	A	G	N	S	E	S	R	O	T	D
W	B	R	E	T	S	I	T	A	M	O	V	E	E
E	N	S	S	O	C	F	I	D	I	M	E	N	E
R	E	V	I	R	G	E	A	A	C	A	L	I	F
C	M	B	O	P	A	L	L	E	T	C	S	B	T
S	C	H	A	M	F	E	R	E	R	Y	L	A	U
B	A	W	H	I	T	T	L	E	T	S	N	C	O

SUDOKU

Sudoku is a great activity to sharpen the mind. The object of Sudoku is to fill in the empty spaces of a 9x9 grid with numbers 1-9 in such a manner that every row, every column and every 3x3 box contains all numbers 1 through 9.

		2		3			9	
3		7	5		2			1
					4		3	2
					3	1	4	9
	9						5	
4	7	5	6					
6	2		3					
9			4		7	6		5
	5			6		3		

GOTHIC CANDLE STAND

Steve Bisco carves a medieval-style masterpiece in fumed oak

Much as I like making thin and delicate carvings in limewood, it makes a refreshing change occasionally to carve a block of solid oak into something heavy, dark and Gothic. As most Gothic carving was done for churches and cathedrals, we usually need to adapt the style for domestic use, so I have created this candle stand inspired by the roof bosses found at the junctions of the ribs in a Gothic vaulted ceiling.

The Gothic style uses a wide range of decorative features and medieval carvers rarely made two bosses the same. But despite this wide variation there is an unmistakeable style that distinguishes Medieval Gothic. It is based mainly around stylised plant forms depicted in a fluid and organic style known, somewhat paradoxically, as 'stiff-leaf'. Although it is indeed 'stiff' because it is carved in wood or stone, the effect is of an organic growth creeping along a frieze or wrapping around a boss or capital. This is the look I have gone for with this design. Each 'leaf' emerges from under the base and curls upwards to clasp the candle in the embrace of its leaf tips. The stem of each leaf is 'pierced through' as is commonly found in Gothic carving.

It can be difficult to source thick pieces of seasoned wood, as kiln-drying doesn't penetrate much beyond 100mm thickness, so you may have to look for old oak beams or use 'green' oak that has been air dried from logs. 'Green' oak carves more easily, but expect some shrinkage cracks as it dries out.

For an authentic medieval look you can darken the oak by 'fuming' it with ammonia. This is a very simple process using 'household' ammonia, which is sold in hardware stores as a strong cleaning fluid, and an airtight plastic crate.

Gothic style

The Gothic style started around 1150 in France and spread quickly to Britain's churches and cathedrals. Its key features were pointed arches with large windows and delicate tracery, together with steep crocketed pinnacles, flying buttresses and clusters of thin columns soaring upwards to ribbed vaults and carved bosses in impossibly high ceilings. Carved ornament abounded in wood and stone, much of it featuring stylised plant forms such as the 'stiff-leaf' ornament used extensively on capitals, bosses and friezes. The wood used was nearly always the oak that was growing abundantly in the surrounding forests and noted for its durability.

Medieval Gothic lasted until around 1500, before returning in the spectacular Victorian Gothic Revival that dominated the 19th century. One of the best source books for Gothic design is Pugin's *Gothic Ornament*, first published in 1828 and still available today from Dover Publications.

YOU WILL NEED

TOOLS:

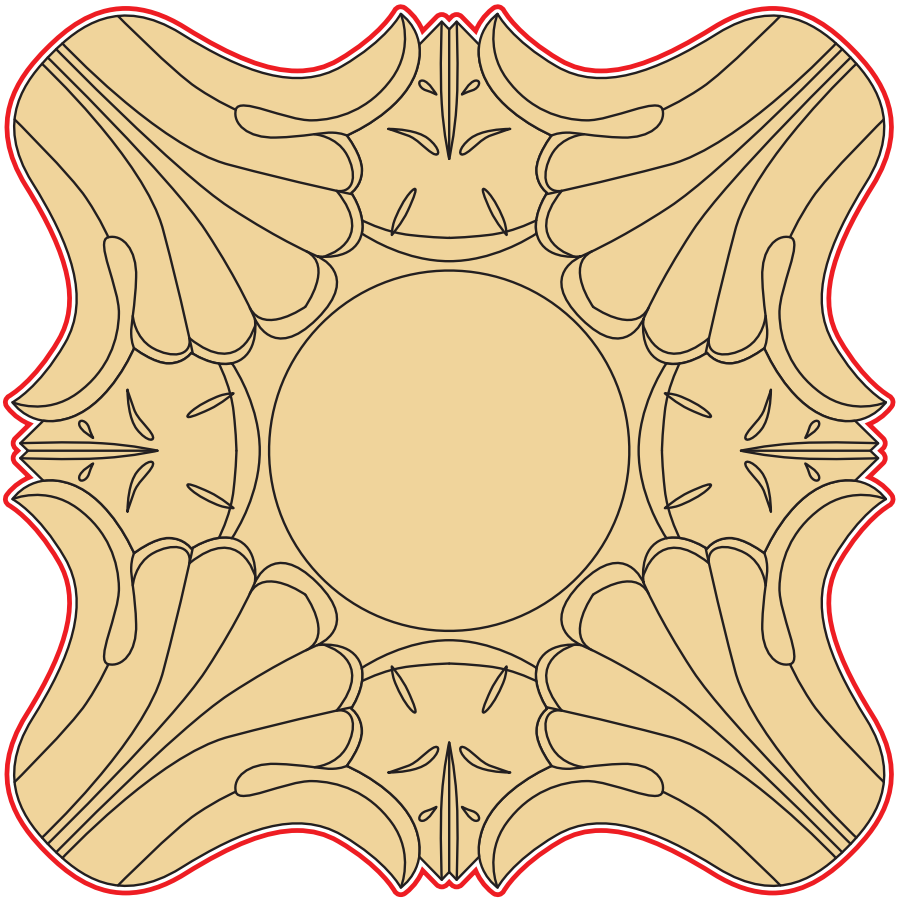
- No.3, 20mm fishtail gouge
- No.6, 25mm gouge
- No.3, 10mm gouge
- No.8, 8mm gouge
- No.5, 7mm gouge
- No.9, 16mm curved gouge
- No.5, 13mm curved gouge
- No.8, 8mm curved gouge
- Straight V-tool
- 25mm flat chisel
- 10mm skew chisel
- 3mm chisel
- Round wood rasp
- 20mm drill bit

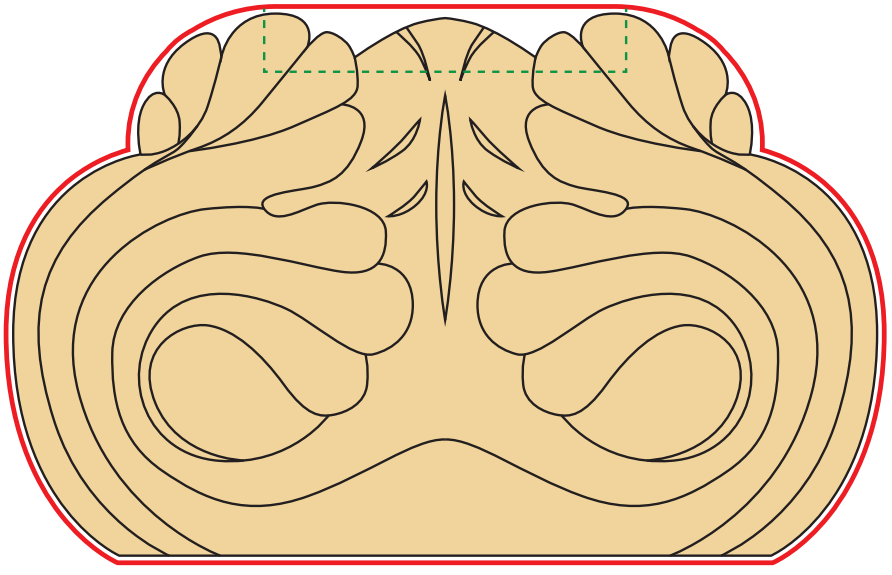
MATERIALS:

- Oak: 200mm square x 125mm thick

FINISHES:

- 'Household' ammonia for fuming
- Dark wax polish for finishing





Using the pattern

You can enlarge the pattern to any size that suits you, but I made my candle stand 200mm square x 125mm high. You can reproduce the pattern on an enlarging photocopier, or you can use a scanner or digital camera to copy it into a computer. Either way you can print the 'plan' pattern onto an A4 page to get it to the size you want. The side pattern is for reference only.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PHOTOGRAPHS BY STEVE BISCO


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Preparations

1 Get some oak 200mm square x 125mm thick. 'Green' oak is easier to carve than fully dried oak, but a block this thick may develop splits as it dries. You will also need a glass, metal or ceramic dish into which an 80mm-thick 'church' candle can sit. I used the base of a 90mm Petri dish – the base is 85mm diameter x 12mm deep – which you can buy cheaply online. You will also need carbon paper and a full-size copy of the drawing.

2 Tape the drawing, with the carbon paper under it, securely to the block and trace the top pattern onto the wood. Place your candle dish in the dead centre and draw round it.

Roughing out the block

3 Chisel out a circular recess 12mm deep x 85mm diameter in the top centre into which your dish will fit snugly. If your dish is a different size, adjust the pattern to suit.

4 Use a bandsaw if you have one or make handsaw cuts down to the line and chisel away the surplus wood outside the top pattern.

5 Place the block upside down, preferably in a bench vice, and roughly shape the underside as indicated by the side drawing. Err on the side of caution and don't remove wood you may need later.

6 Now put it the right way up and, again using the side drawing as a guide, chisel away the surplus wood from the upper parts. Leave a ring about 18mm thick around the centre hole. This will become the tips of the leaves that hold the dish.

Carving the features

7 You can now start to shape the leaves. Secure the wood, either to a backing board by screwing into the underside as I have done, or to a carver's clamp. Carefully measure and draw the position of the four main leaves. Use a V-tool to make a defining cut around each leaf.

8 Separate the main leaves by carving out the four smaller leaves between them. Scoop out the hollows at the top and sides of the small leaves until you get them back to the depth illustrated. Round over the top of the leaf so it sits snugly around the circle where the candle dish will sit.


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9 Now to the most significant feature of the carving – the four trefoil leaves. Shape the curve of the top leaf where it clasps the candle dish. Cut the two 'eyes' in each leaf with a No.8, 8mm gouge and scoop out hollows around the edge of each trefoil so that the whole thing wraps around the corner of the block. You may need to adjust the smaller 'in-between' leaves again to achieve the wrapping effect. Carve the corner 'stem' so it is the right thickness and flows smoothly from the top to the underside.

10 To shape the lower parts you need to place the piece back in the bench vice, with some wood in the candle circle to protect the leaf tips from the vice jaws. Hollow out under the lower part of each leaf and shape the stem so it merges smoothly into the base of the 'in-between' leaf.

11 At this point we can drill through the 'pierced' corners with a 20mm drill. Take extra care to place the centres all in the same position – 37mm up from the base and 45mm out from the centre line. Try to get the drill holes to line up from both sides of the corner.

12 You can use a wood rasp and gouges to finish the hole neatly and carefully shape the stem around it.

13 With the shaping finished, you can now begin to carve the surface detail. Use a V-tool to cut a deep vein from the 'eyes' of the corner leaves back along the stem, gradually getting thinner towards the bottom. Divide the top segment of the main leaf into five sections using the V-tool and reshape the top edge. Scoop out the top three sections into concave hollows and merge the V-tool cuts into a large central vein down the middle of the stem.

14 Divide the side segments of the main leaf into three sections and use the V-tool and a small gouge to run grooves and veins round the sides of the stem and into the lower centre.


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15 The small in-between leaf can now be finished with several deep 'gashes' using a No.3, 10mm gouge and a V-tool. There are two curved gashes made in the top of the leaf, a deep one straight down the centre and then two more curved gashes each side of the centre line.

16 The candle platform can now be levelled off around the leaf tips, and the underside of the stems can be tidied up in the vice. The carving work is now completed and should be left with a good tooled finish. This photo shows how your piece should look from the top …

17 … and here you can see how it should look from the diagonal view.

Finishing

18 For an authentic medieval look it is possible to darken the oak by 'fuming' it with ammonia. To do this, get an airtight plastic tub and put about 50–80ml of 'household' ammonia (see below for more details about where to buy this and how best to use it) into a shallow dish. Wear eye protection and rubber gloves when pouring the ammonia. Work in a well-ventilated space and try not to get too close to the fumes as they may sting your throat and eyes. Place the carving in the tub, raised above the dish on wooden supports, and then seal the tub.

19 Leave it until the oak 'ages' to a pleasing dark brown – about 6–12 hours depending on the temperature, the concentration of ammonia and the amount of tannin in the oak. Open the tub, stand back while the fumes disperse and take out the carving.

20 The finished carving now looks like a relic from the Middle Ages. Go over it with a dark wax polish and set in place the glass dish and 80mm-thick candle.

Fuming oak with ammonia

Ammonia fumes change the colour of oak to a rich dark brown by acting on the tannins in the wood. It looks more natural than stains as it replicates the natural darkening caused by centuries of exposure to air, but at the rate of about a century an hour! The tannins are only present in the 'heartwood', and the paler 'sapwood' near the bark will not be darkened, so avoid pieces with sapwood.

Use 'household' ammonia, a product sold in hardware stores as a strong domestic cleaning fluid. Although the fumes are quite pungent, it is safe to use in a well-ventilated place using rubber gloves and eye protection. You do not need industrial ammonia, which is a more hazardous substance.

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MACKINTOSH-INSPIRED SIDE TABLE

Woodturner Les Symonds makes an oak side table using elements of design favoured by Charles Rennie Mackintosh

I have always admired the work of Charles Rennie Mackintosh and his associates at the Glasgow School of Art and visiting an exhibition of his work filled me with enthusiasm and ideas.

This little side table is not an attempt to replicate a Mackintosh design, rather it is my take on a simple piece of furniture, the design of which is heavily influenced by his early work. Most people will be familiar with his later style of high, lattice-backed and grid-patterned chairs, of sinuously flowing curves and organic forms, but I take my influence from designs such as his Domino Table (1897) and an even earlier coffee table which I saw at the exhibition, but to which I have been unable to find any further reference or uncover an image.

These early designs had legs with distinct, flared feet – a little heavy by his later standards – but which swiftly taper above the foot, becoming lighter as they rise. This, of course, is a very organic form, rather like the way a tree broadens at its base. What is unmistakeable, though, is the light, uncluttered overall style, free of beads and coves so that its lines flow uninterrupted by details. Mackintosh often used diagonally arranged rails under his chairs and tables to promote the lightness of the design, so I have done likewise. However, as a woodturning project, the cross-junction of turned rails causes a slight problem, so I hope that my solution does not break the mould of the Mackintosh style.

Sourcing materials

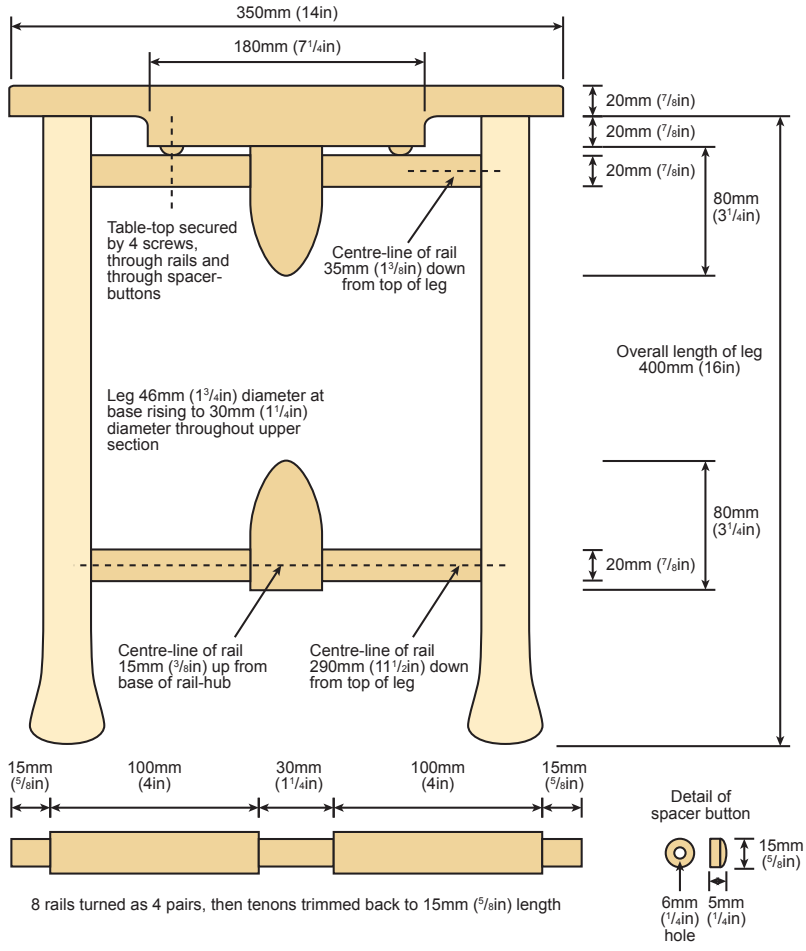
As you will see, this project uses an offcut of laminated oak kitchen worktop as its table top. This material can often be sourced through kitchen suppliers and/or fitters, who occasionally have offcuts, or cut-outs from where appliances have been inset.

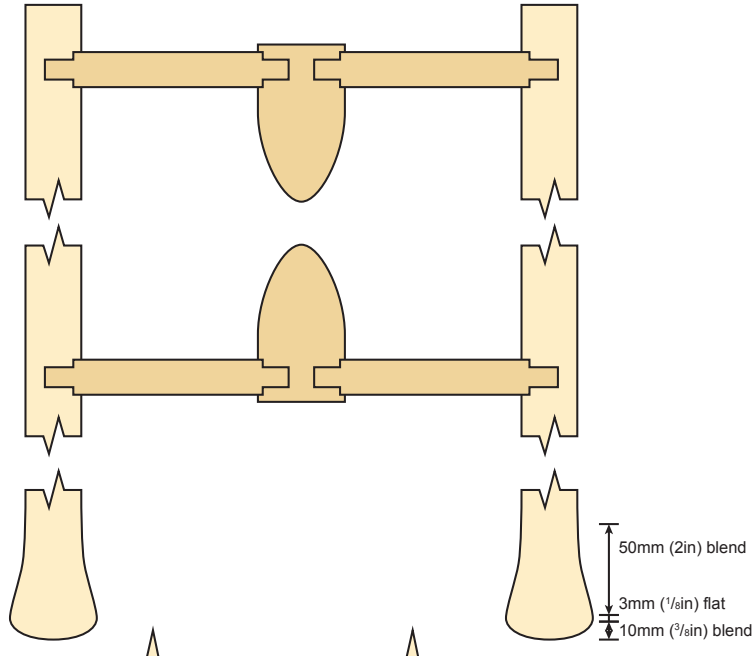
Drilling platform

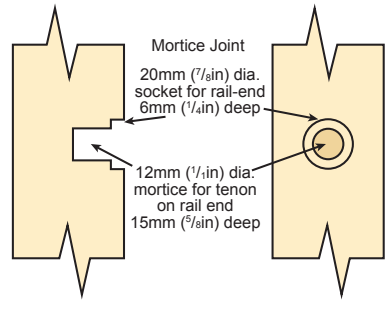
Drilling the sockets and mortises on the lathe ensures precision of depth and angle of cut, but only if you have a bought, or a simple homemade, drilling platform to support and guide the drill.

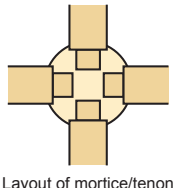
Safety when turning

The bulk of this project uses quite basic spindle-turning techniques, with the table top being a little more advanced. Caution should be exercised if you are not used to turning diameters as large as that of the table top, especially in step 4, where you will briefly be working behind the workpiece. Keep the toolrest close up to the timber and use light cuts.









Layout of mortice/tenon joints in each rail-hub

YOU WILL NEED

TOOLS:

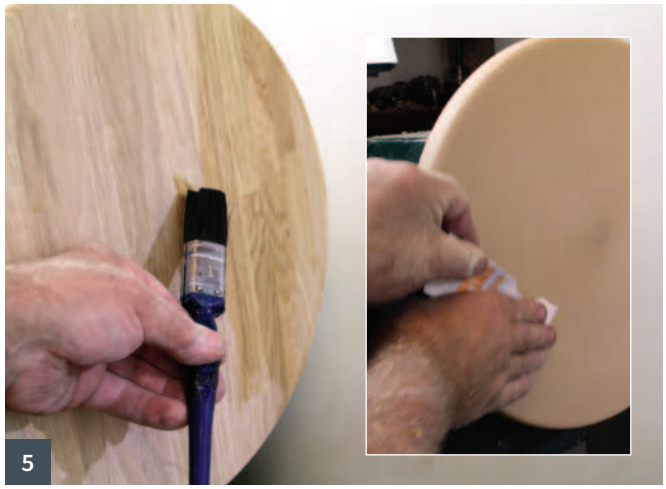
- Personal and respiratory protection (PPE & RPE)
- Lathe with indexing system or graduated spindle lock
- Spindle roughing gouge
- Bowl gouge
- Spindle gouge
- Skew chisel
- Parting tool
- Drive centre
- Revolving tailstock centre
- Chuck with 25 or 35mm jaws
- 150mm four-hole faceplate
- Electric drill (mains or battery)
- Drilling platform (see text below left)
- 12 & 20mm Forstner bits
- Jacobs chuck to fit tailstock
- 6mm twist drill or similar
- Steel rule/straightedge
- External callipers
- Dividers or pair of compasses

MATERIALS:

All major components are oak

- Top – 1 @ 350 x 40mm thick
- Legs – 4 @ 400 x 50 x 50mm
- Rails – 4 @ 300 x 25 x 25mm
- Rail hubs – 2 @ 100 x 50 x 50mm
- Spacer buttons in beech cut from 50 x 18 x 18mm
- Scraps for gluing jig:
- 1 pc MDF/ply 200 x 200 x 12mm
- 8 pcs softwood 75 x 18 x 18mm
- Optional faceplate disc (if needed), 160mm diameter x 25mm thick
- Abrasives to 400 grit
- Sundry items – pencil, masking tape, suitable clamps
- Two-part epoxy adhesive
- Sanding sealer
- A suitable finish of your choice

PHOTOGRAPHS BY LES SYMONDS



The seat

1 Select straight-grained timber and prepare all the major components in advance. Cut the legs precisely to length, then mark and centre-punch the centres on each end of each spindle. For the table top I used a pre-thicknessed offcut of laminated kitchen worktop, but you can substitute your own, pre-thicknessed blank, solid or laminated, if you wish. Note the extra piece of 160mm disc of timber in the image, which is needed only if you do not have the type of faceplate mentioned in step 2.

2 Set a 150mm-diameter faceplate centrally on to the underside of the table top blank, securing it in place with four screws long enough to penetrate at least half the thickness of the oak. These screw holes will eventually be used to fix the table top on to the framework. If you do not have the size and type of faceplate stated, please use the extra piece of timber referred to in step 1, cut to 150mm diameter with four equally spaced holes 18mm in from its rim, mount it on the blank and fix your faceplate (centrally) to it. Now mount your blank on the lathe with the toolrest parallel to the edge.

3 Rotate the work by hand to ensure clearance before switching on the lathe at a suitably low speed. True up the rim of the table top using a bowl gouge. Once trued up, increase the lathe speed slightly and finish the edge. Then swing the toolrest diagonally across the top corner and cut a slight radius on the top edge to soften the edge. Set the toolrest behind the table top, parallel to the face of the wood, and use your bowl gouge with a pull cut to reduce the thickness of the blank from the edge of the faceplate out to the rim.

4 Reduce this outer part of the table top to 20mm thickness, sharply down from its full thickness near the faceplate to its reduced thickness elsewhere, and check that it is flat with a steel rule or other suitable straightedge. Use the straightedge to check regularly as it is important that you keep to the 20mm stated.

5 Abrade all accessible areas down to 400 grit, stopping the lathe after each grit to abrade along the direction of the grain. Once abraded apply a sealer, buff dry then set aside.

Rails

6 Commence work on the rails, with each blank providing a pair of rails. Mount the wood between centres and use a spindle roughing gouge to reduce it to 20mm diameter.

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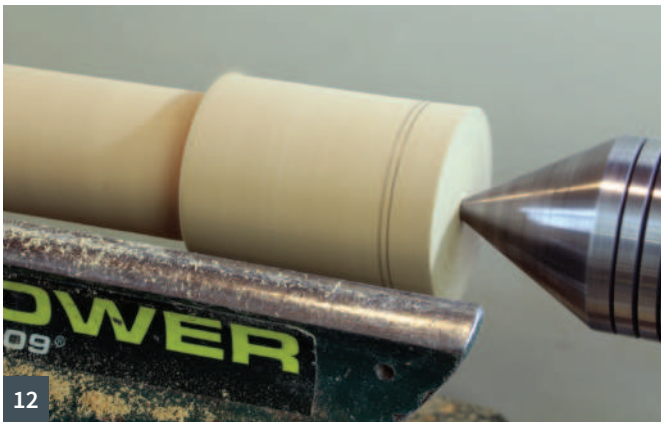
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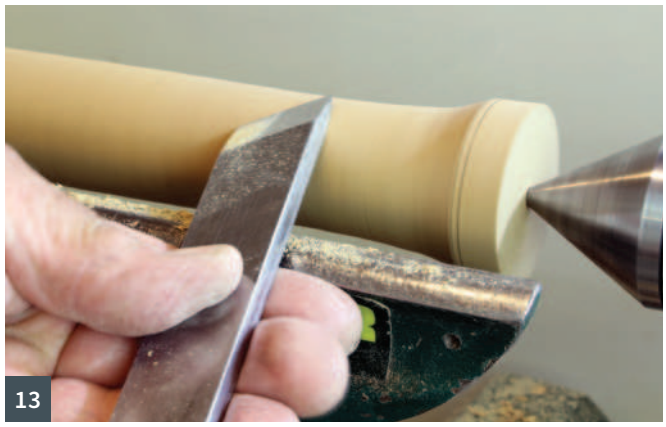

13

7 With a freshly sharpened pencil, mark out the end tenons and the pair of centre tenons, taking the measurements from the drawings provided. The sizes quoted in the cutting list leave an allowance for avoiding working too close to the drive centre, although you can work right up to the live centre if you wish.

8 Next, cut a groove on the waste side of each pencil line, cutting to 12mm depth, avoiding any tear-out on the shoulders.

9 Continue with the parting tool or a small spindle gouge to reduce the rest of each of the tenons to 12mm diameter. If in any doubt, cut a hole in a scrap of timber with whichever 12mm drill you have for this project and try one of your tenons for a fit in it. It sometimes pays to cut the tenon very slightly oversized if your drill bit cuts a slightly oversized hole.

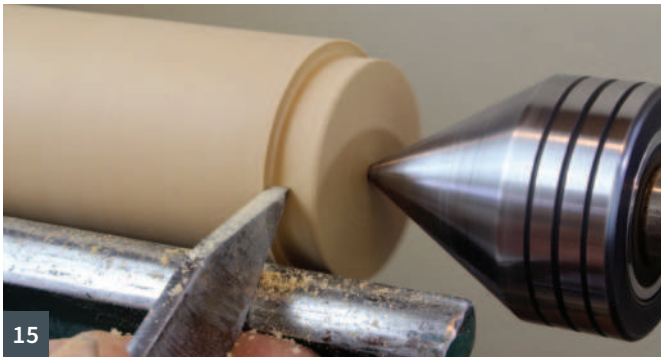
10 Make further cuts with a parting tool or a fine-toothed saw to reduce the tenons to the lengths shown on the accompanying drawings, taking care not to part right through at this stage – that operation should be done only when the wood is off the lathe. Abrade to 400 grit and repeat for the other three pairs of rails.

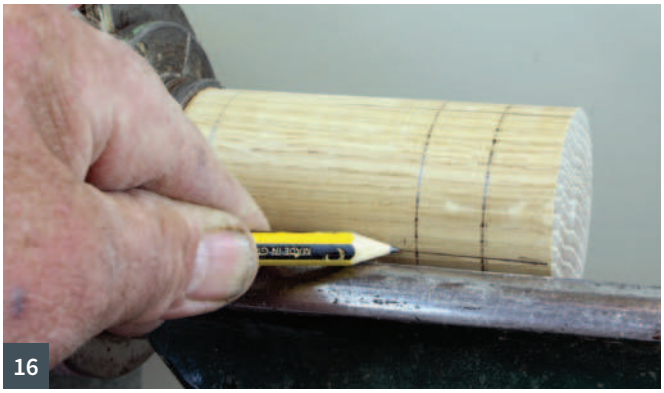
Table legs

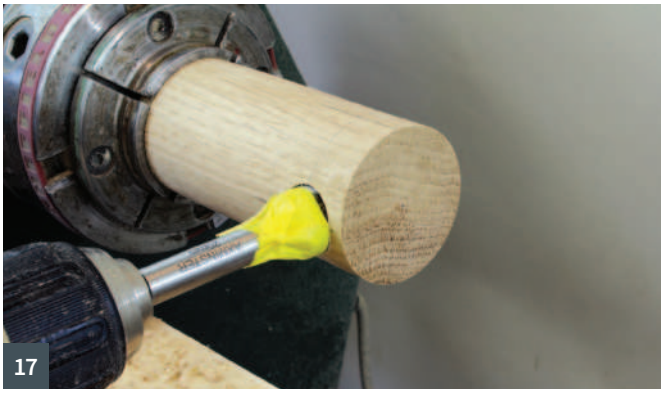
11 Mount a table leg between centres. If you have a preference as to which is top or bottom, place the top at the headstock end and turn it down to a 46mm diameter. Mark out three pencil lines to define the shaping on the bottom of the leg – 10mm for the end radius, 3mm for a flat surface and 50mm for the blend upwards into what will become the thinner part of the leg. Then use a spindle roughing gouge or a skew chisel to reduce everything above these three lines to diameter.

12 Your table leg should now look like this and you can work on the details on the bottom of the leg, first rounding-over the underside but retaining a central flat area, about 18mm diameter …

13 … then blending the full 46mm diameter gently down to the 30mm diameter section. This is a good project for practising basic planning cuts with the skew chisel, which is ideally suited to parallel-edged cylinders.







14 Abrade the leg using your abrasive to soften and blend the 3mm flat surface into the curves above and below it. Work up to 400 grit, then repeat the process for the remaining three legs.

15 Place one of the rail hubs between centres, reduce it to 46mm diameter and cut a chuck tenon on the tailstock end to suit your chuck jaws. Remove from the lathe and repeat the process for the other rail hub.

16 Place one of the rail hubs into your chuck, mount on the lathe, clean up the end face and mark with a pencil – three lines around the rail hub at 15mm, 30mm and 80mm in from the tenon. Using your spindle lock or indexing head, mark four lines along the length of the timber, each equally spaced around the circumference. Where these four lines intersect the 15mm line previously drawn is where the sockets for the rails will be drilled. Repeat for the other rail hub.

Drilling

17 Set up a drilling table/platform such that the centreline of your drill chuck is exactly at lathe centre height. Put a 20mm Forstner drill into the drill chuck, ensure that the drill is quite square to the workpiece, advance the drill and cut a socket just about 5mm deep. Keeping the drill in the socket that you just cut, switch off and then wrap a piece of masking tape around the drill bit to make the depth that it cuts into the wood clearly visible. Retract the drill and then cut the three remaining sockets to the same depth.

18 With the workpiece still in place, swap the Forstner bit for a 12mm bit and, using the four centre marks of the sockets you just cut, drill four mortises into the centre of the workpiece. These must be at least a full 15mm deep to accept the rail tenons, but can be deeper. Repeat the operation for the other rail hub.

19 Keep the drilling platform in place and set a table leg between centres. If you have a preference for which side of the leg is going to be the inside, rotate it towards the drill platform and then lock the spindle. Make two small pencil marks at the position of the sockets/mortises for the rails, one at 35mm and one at 290mm down from the top of the leg. Set the larger Forstner bit into the drill and drill the shallow socket for the upper rail.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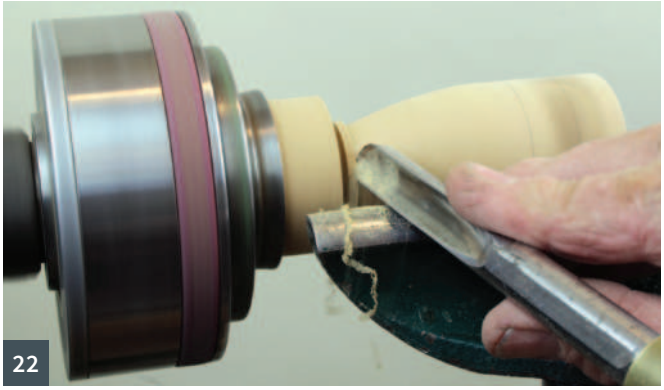
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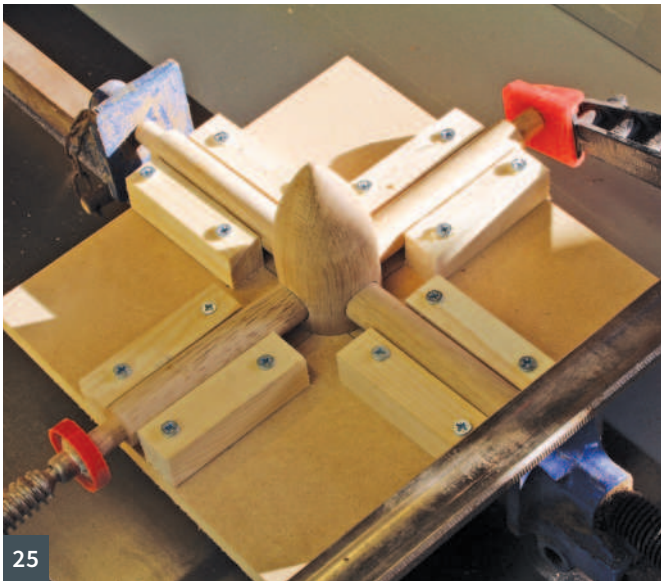
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20 As with the sockets and mortises in the rail hubs, swap the drill bit for the smaller drill and drill out the mortises to at least the length of the tenon, plus an allowance for adhesive to gather.

21 Keep the spindle lock engaged, slide the drilling platform down to the lower mark on the leg and repeat the process for the lower socket and mortise. Repeat the process for the other three legs.

Conical hub

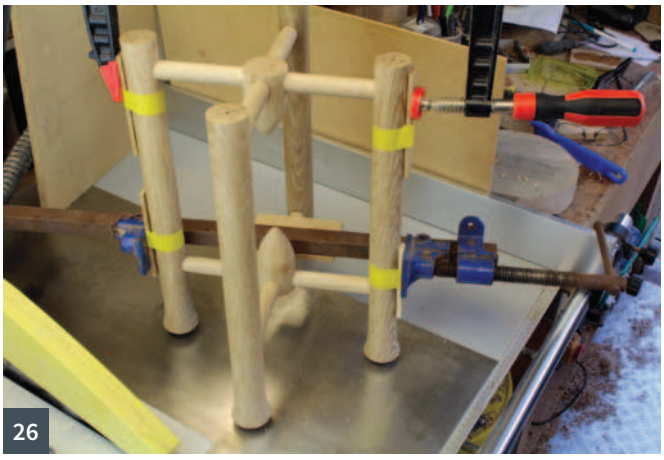
22 Set the legs aside, remove the drilling platform and place one of the rail hubs back into your chuck. Now start to shape the conical end of the hub between the 30mm and 80mm lines. Work the shape as precisely as possible, keeping a pencil-sized core of wood to keep the chucking tenon in place. Abrade to 400 grit and repeat for the other rail hub.

23 Make a simple jam chuck out of a piece of scrap wood for the blunt end of the rail hub to slip into. This does not have to be a tight fit but is used just for support to reverse-turn the chucking tenon away. Set one of the hubs into the jam chuck, advance the tailstock and continue shaping the cone of the hub, working down to the smallest core that you feel comfortable with. Abrade to 400 grit, cut away the waste with a fine saw and finish the abrading by hand. Repeat for the other rail hub.

24 Your batch of finished pieces should now look like this.

Assembly and finishing

25 Make a simple jig out of MDF or plywood, with softwood blocks to hold a hub and four rails in place. Have a dry run first before mixing two-part epoxy adhesive and using a pointed probe, such as a dental pick or toothpick, to smear adhesive on to each tenon and into each mortise. Avoid putting any adhesive on to the edges of the larger sockets, but smear a little on to the step cut by the end of the Forstner bit. Clamp the rails into place and, when cured, repeat for the other set of rails and hub.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26 Once the adhesive on the rail hubs and rails is properly cured, glue one pair of legs into place, then the other. This can be very fiddly, so use masking tape to hold protective pads in place and have a dry run to appreciate and overcome the problems of gluing up such a framework.

27 Once the adhesive on the legs has fully cured, place the table top upside-down on a protective surface and measure the distance between the screw holes. Set dividers or a pair of compasses to a half of this measurement.

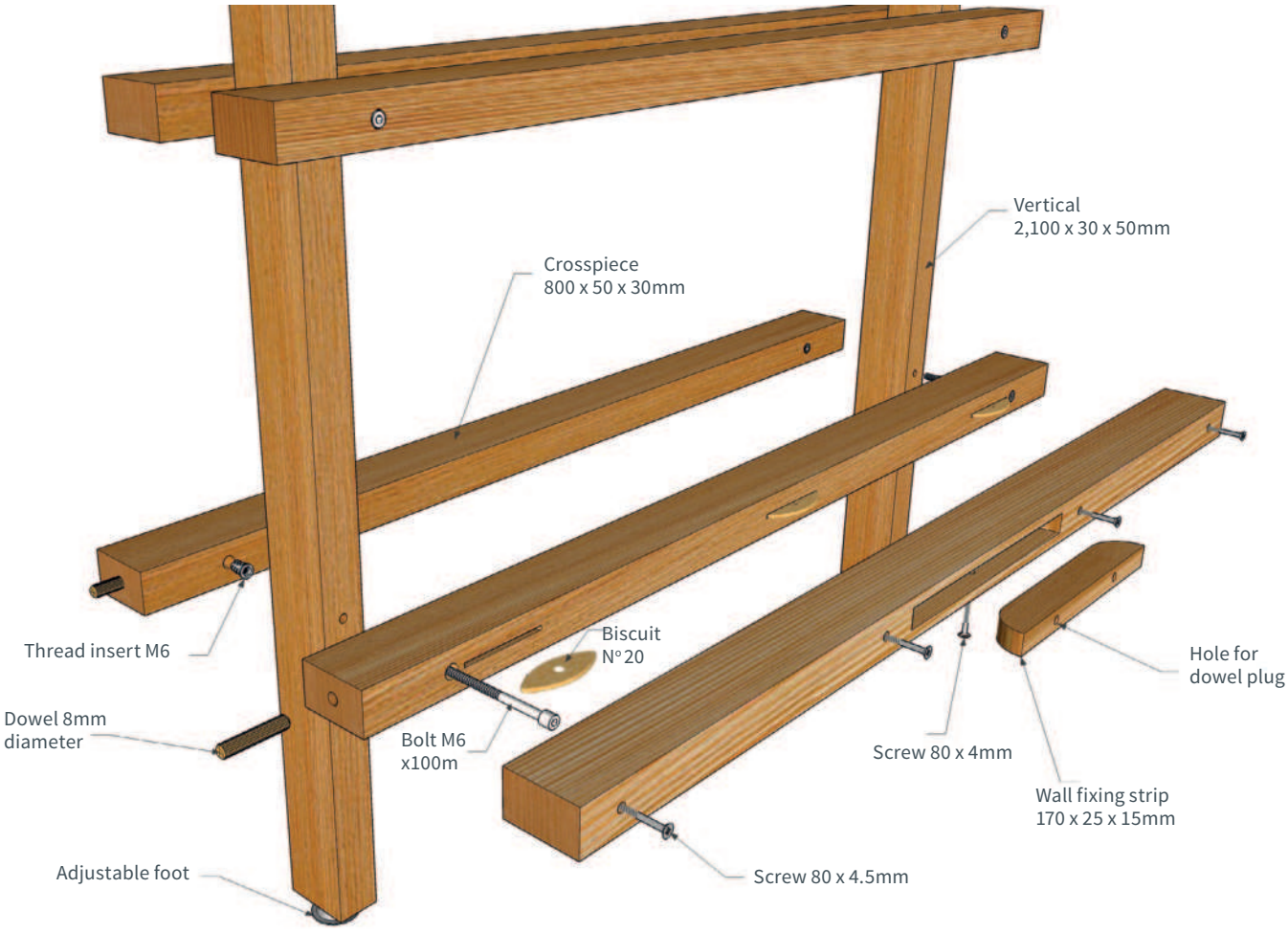
28 Set one leg of the dividers or pair of compasses on the centrepoint of the upper rail hub and make a mark on the top face of each rail, indicating the positions for four fixing screws. Drill four 6mm holes, one through each rail, very carefully to avoid break-through, and then countersink the underside of each hole.

29 Set a 50 x 18 x 18mm piece of beech into a chuck and turn it down to a 15mm cylinder. Drill a 6mm hole down the centreline and then radius the end over – refer to the drawings for details of this. Part off at just 5mm long and repeat another three times. These are the spacer buttons which sit on top of the top rails, underneath the table top.

30 Screw the framework to the table top using 50mm brass screws and then use a suitable finish, such as melamine or hard-wax oil to finish the table.

31 The finished table should look something like this.

MODULAR BOOKCASE



Mattia Migliorati's simple project can furnish a wall in a minimal way

Solid wood by its nature has limits that do not always allow us to proportion the dimensions to our liking. If we reduce the measurement of the pieces, unfortunately, the rigidity of what we build is also reduced: a frame can twist, a top can flex under the weight of the one it supports or bend due to the nature of the wood. The problem is more pronounced when the piece of furniture has to give a slender, light appearance and at the same time support a considerable weight, books for example!

This bookcase has been reduced to a minimum, but instead of cutting away on the pieces to lighten it, I have limited the size of the surfaces. The piece is composed of linear elements crossed with each other, alternately with solids and voids that give the bookcase a larger imagined size of a classic box-shaped bookcase. It is a simple project that can be enhanced by adding small shelves made from leftover timber; they can be made in countless variations of shapes and colours to add a personal touch to the construction.

PHOTOGRAPHS BY MATTIA MIGLIORATI/LEGNO

1 Planning the cuts is based on the defects in the larch boards and trying to reduce the amount of waste. The straighter wood is destined for the uprights, the rest for the crosspieces which, due to their reduced length, make it possible to make better use of the less consistent quality material **2–4** Cutting the boards to length allows you to have more manageable pieces and to waste less material in the following phases: the crooked or curved profile of a 4m board can become almost straight on 800mm pieces. For longer boards it is advisable to cut by hand, for others that can be moved more easily, it is done first with the mitre saw or bench saw **5** If the pieces have good support on the saw table, you can proceed with trimming the pieces using the bandsaw or bench saw. In the second case the cutting is faster and more precise, the pieces must however have a regular shape

The project

The bookcase is made from 40mm larch. It's designed to stand against a 3,200mm-long wall and is made up of four modules measuring 800mm wide by 2,100mm high. The strips that it is made from have a section of 50 x 30mm. The structure is simply formed from the repetition of a cross between a vertical element and two horizontal elements that make up the support surfaces. A bolt placed at each intersection holds the three elements together while remaining invisible from the outside. The first, middle and last shelves have an extra crosspiece, positioned at the rear, which distances the bookcase and acts as an intermediary for fixing to the wall. On these pieces there is a cavity in which some strips fixed to the wall with expansion plugs are inserted; a screw then makes the two components integral, allowing a solid anchoring to the wall.

Preparing the wood

One of the great advantages of lattice or slat structures is that of being able to work solid wood with the same confidence that one has with panels; even if the sections are long, the intertwining of the pieces and the wall fixing neutralise the tendency of the solid wood moving or warping, which must be accounted for in other projects.

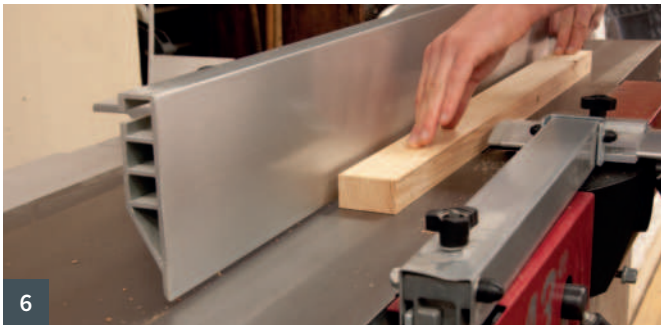
The modular structure of this bookcase, thanks to the small size of its elements, also allows you to optimise the material even when the boards are not really top quality. In fact, the most defective ones can be assigned to the 800mm crosspieces and the best and straighter ones to the 2,100mm uprights. The first thing to do is to section the material into pieces of those lengths.

If at this point the wood is regular enough, you can trim it directly with the bandsaw or tablesaw, leaving a few millimetres of margin to allow for any movement that the wood might make when it is dimensioned, so as not to go under the required size with subsequent planing.

How much margin to take depends mostly on the length of the pieces and the potential warping of the wood, that is, its tendency to move when it is cut. It is advisable to do some trimming with a generous margin, even 5 or 6mm for the 2,100mm strips, and observe the reactions of the wood; if the pieces remain stable, you can halve the excess.

After having straightened and squared two contiguous sides of each strip with the planer you can bring the section of the pieces to the final dimensions. To do this efficiently, work first on the piece with the smallest section, that is, the one that required the most steps to be smoothed with the surface planer. In this way, by setting the planer to a thickness slightly less than that of the piece, or its width, you will be able to bring all the others to the same size. It may seem like an exaggerated process, but when there are so many pieces and the infamous Murphy's law gets in the way, it happens that the last one piece fails, and you have to plane all the others too.

The last phase of the preparation is to bring the strips to their final measurements. There are only two lengths and by placing a stop on the mitre saw the work can be completed rapidly. The only precaution concerns any tear-out that the blade may produce when exiting the wood. The strips will have two exposed sides on the heads, three in the case of the uprights, and you must try not to damage them. If you do have a problem with tear-out, you can place a sacrificial strip against the stop that reduces or eliminates tear-out on the good side of the strip.



6–8 Achieving well-squared, 90° pieces with planing is the basis of every wooden construction. Any inaccuracy on the corners would affect the subsequent drilling and assembly of the structure. Better to spend two minutes fine-tuning the planer guide before starting! **9** Proceed in order and start planing the wood with the smallest section. Stack the pieces in order and always with the same direction **10** Use a stop on the saw to obtain the same length on all the pieces **11 & 12** The holes for the front crosspieces are 9mm in diameter and have a depth of 18mm; they are used to recess the threaded nut screws into which the bolt that tightens each intersection of strips is screwed together

Assembling the modules

In order to assemble the strips, you now have a long drilling session ahead on the drill press. Adjust the fence of the drill so that the holes are precisely in the centre of the thickness of the crosspieces; the holes are mirrored and are 65mm from the ends so you can just turn the piece round to switch from one to the other. For the front pieces you'll have to drill a 9mm hole for the insertion of the threaded nuts, while on the rear ones you'll make a double concentric drilling: a recess to embed the bolt head, 12mm, and a 6mm diameter through hole. Being able to set a stop, you can proceed in sequence, first making all the shallow depths and then the through holes.

The uprights are a bit more laborious because you have to drill them every 300mm and there are no simple systems to index the placement under the drill bit. It is therefore necessary to mark them out well and align the pieces by eye. To ensure that at the end of the work, the holes are well levelled between all the uprights, group the pieces and mark them together. You can then proceed to individually create the series of 6mm through holes and at the end try out the assembly of the modules.

The wall fixing system

The wall fixing system is used to ensure the squaring of the modules, and therefore of the entire bookcase. It's created using a strip identical to the crosspieces, which is added to the rear of the first, fourth and seventh pieces. There are then three additional strips for each module, each of which reaches the crosspiece facing it with three No.20 biscuits. The purpose of these biscuits is only to keep the two pieces aligned during assembly. The biscuits can possibly be glued during installation, however, to make the two elements integral, I've come up with a more practical four-screw system; so, to prepare it on the fixing crosspiece you need to make the holes it needs.

The fixing crosspiece is anchored to the wall by a dowel that goes inside a groove. It is a rather large and deep hole to be made in the rear edge of the crosspiece itself; the most practical tool to use to make it is the spindle moulder, but in its absence and with a few more steps, even the router table can do the task well. In both cases it is a question of making stopped cuts and you'll have to set start and end stops or visual references.

13 & 14 For the holes on the uprights the pieces are placed together and all marked, then they are processed individually to create the through holes. It's essential to position a pair of rollers to the right and left of the drill to support the ends of the strips **15** The first assembly uses the locking system that tightens the pieces together but does not guarantee the squaring of the module, which will instead be provided by the wall mounting. The purpose of this assembly is to verify the alignment between the holes in the uprights and transoms but also allow a first view to check everything fits together **16** For the rear crosspieces the shallow 12mm hole is created first and then, at the end of the process, the Forstner bit is replaced to make the 6mm through hole **17 & 18** The crosspiece for fixing to the wall and on the corresponding crosspiece, the slots for three biscuits are cut, which will align the two pieces when fixing the bookcase to the wall

The connection between the modules and the ground levelling

The last two processes concern the alignment system between the modules and the floor levelling system. In both cases you have to make holes, in the first on the heads of the crosspieces, to insert 8mm dowels, and in the other on the lower ends of the uprights where we will insert the adjustable feet.

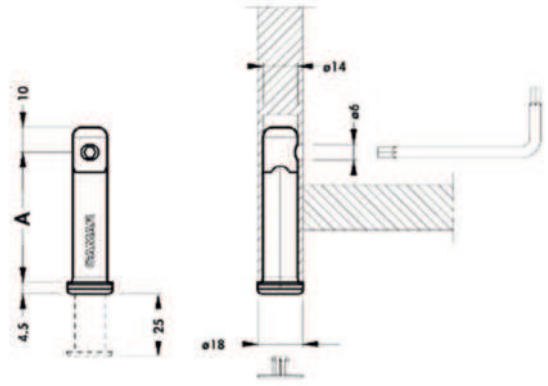
To drill the crosspieces you could use the mortiser but with the uprights, given their length, it is almost impossible so it's best to work with a hand drill, first assembling a sort of open box at the top in which to hold the head of the pieces.

Once this series of holes has been completed, put the uprights back on the top of the drill press to make the perpendicular hole for adjusting the foot.

Compared to other projects with a similar footprint, finishing this piece is really simple. After rounding off the sharp edges, you can group the pieces together to smooth them in a more practical and safe way. The same for finishing. To preserve the appearance of the bookcase, I chose water-based products and applied two coats of base and one of transparent finish with a brush.

The disappearance of the levelling foot

This is a hardware item that allows you to level the furniture on the ground discreetly with minimum clearance. The foot is designed to be inserted in the thickness of the sides (starting from 16mm) or in the uprights of the construction. Its installation provides two holes: one of 14mm in which the body of the mechanism must be placed and the other of 6mm that is used for the inserting the Allen key with which the adjustment is carried out. It can support vertical loads up to 300kg and cross loads, in the sense of the depth of the cabinet, up to 150kg. It is available in various online stores.

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19 The slot for the fixing plug must be made in the centre of the crosspiece with a blind cut so it is necessary to mark the start and end positions. On the machined pieces you can see the holes prepared for screwing to the crosspieces of the modules **20** In order to easily square the bookcase, the pieces must be prepared slightly shorter than the length of the slots. The two holes are then drilled in them for the expansion anchors for anchoring to the wall, while on the crosspiece the hole is drilled for the screw that locks the two elements together **21–23** In photos 21 and 22 you can see the depth setting and the drilling for the feet, and in photo 23 the one for the plugs that connect the various modules together

Assembly

To assemble the bookcase it is useful to have a laser level, but if one isn't available, you can use a spirit level and a fairly long mason's ruler instead; it just takes a little more patience and time, but good results are guaranteed either way.

Once the modules have been assembled and the height from the floor established so as to determine where to fix the three rows of dowels, use the level to transfer the dimensions back to the centre of each module and mark the two drilling points for the dowels. Drill the wall in those places and screw the anchors into place.

You can then assemble the modules one by one and connect them together using the dowels that keep them aligned. Level and square the bookcase through the levelling feet and then fix everything by screwing the crosspieces to the anchors anchored to the wall. Now you just need to fill the library with beautiful editions and enjoy your work!


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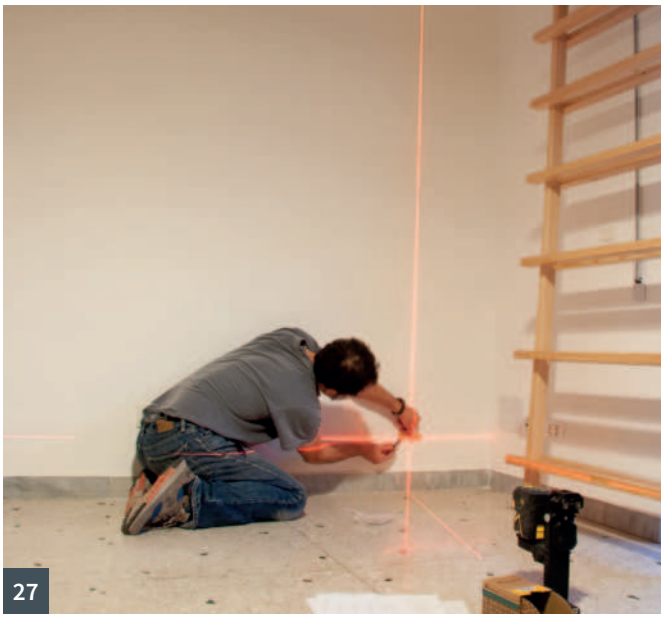
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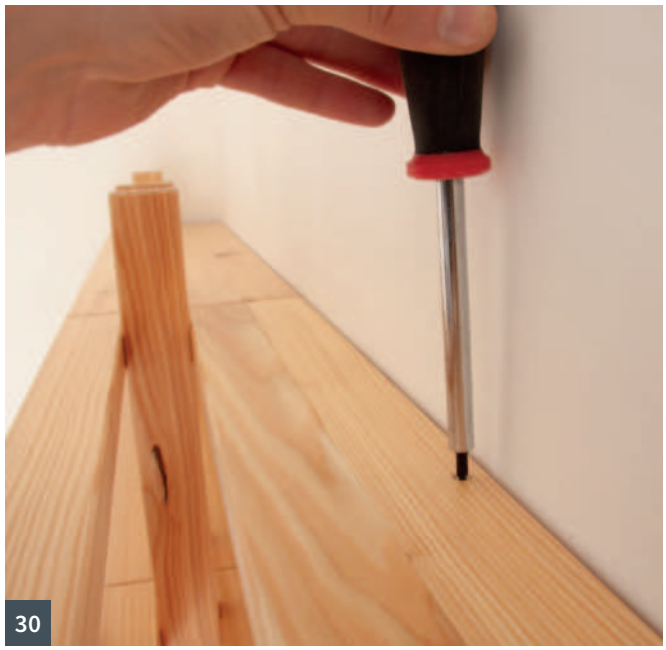
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24 The hole for adjustment requires the minimum 6mm hole for the Allen key, but by slightly increasing the diameter of the hole you make it easier to line up and use **25 & 26** Assembly phase 1: once the modules have been assembled, the wall fixing crosspiece is prepared **27 & 28** Assembly phase 2: at the intersection of the laser beams, the two points in which to drill the wall for fixing the anchors are marked **29 & 30** Assembly phase 3: the modules are assembled by connecting them together with the plugs, then the fixing crosspieces are screwed to the anchors anchored to the wall

Product news

Find out about the latest kit and tools for your workshop

Makita plunge routers

Makita UK has added two new plunge routers to its range. Engineered for finish woodworking, the RP1111C ¼in Plunge Router and the RP1803 ½in Plunge Router deliver a smooth plunge action and powerful precision.

Driven by a 1,100W motor, the RP1111C Plunge Router with ¼in collet, delivers 8,000–27,500rpm for the most demanding applications. It has a compact design for precise routing work and has a plunge depth capacity of up to 57mm for easy penetration into the work piece, and a soft start feature for smooth start-ups and increased user safety.

The RP1803 ½in Plunge Router provides a deep 0–70mm plunge depth capacity, a quick-release plunge depth adjustment feature and three pre-set depth stops for added precision. It is driven by a 1,650W motor that offers 22,000rpm for clean, consistent results. It also features an electric brake and soft start.

Notably, the RP1111C and RP1803 features an anti-restart function to minimise accidental start-up even if the tool is plugged into the power source with the switch on. Furthermore, both offer variable speed control to adjust the output to the application, as well as constant speed control to maintain speed under load.

Designed with superior finishing in mind, these new tools also feature fine bit depth adjustment to achieve exceptional accuracy, and both units can be connected to a dust extraction unit and a range of accessories, such as nozzles and straight guides, which can be purchased separately.

www.makitauk.com

Clarke Contractor combi drill range

Available now from Machine Mart, the Clarke Contractor CON180Li and CON180LiC Cordless Combi Drills are heavy duty, high quality tools with brushless motors to help increase power as well as battery life. The CON18LiC is supplied with two 18V Lithium-ion 2AH batteries and the CON180Li comes with two 4Ah batteries for greater power.

The drills are designed with two forward and two reverse gears for use with a variety of tasks. They feature a handy forward/reverse switch and a variable speed trigger to change between the two available speed ranges, 0–400rpm and 0–1,500rpm.

With 21 torque settings, both products can be used as a cordless screwdriver, while a hammer setting allows both the CON180Li and CON180LiC to be used on masonry. Both drills have a capacity of 25mm on wood, 10mm on steel and 8mm on masonry. Other handy features on both products include, a belt clip, LED work light and 13mm keyless chuck, allowing for fast and convenient usage and no more lost chuck keys!

www.machinemart.co.uk

SUPPORTING BRITISH CRAFT

We learn how a QEST scholarship is helping wood sculptor Philip Walker broaden his carving skills

'Indecisive' sculpture, made from carved and scorched English oak

Hand-carved cube made from English oak

Carved and scorched oak spheres

Carved English oak wall hanging, called 'The Right Wrong Path'

PHOTOGRAPHS COURTESY OF PHILIP WALKER/QEST

Hampshire-based artist Philip Walker began his career as an arborist, before turning to wood sculpture using a variety of timber species, particularly English oak. He creates seating and sculptures with emphasis on the form, flow and texture of the design. A range of tools are employed to achieve his desired effects, from a chainsaw to a gouge and mallet, and he adds texture and contrast by scorching.

Philip has worked as a sculpture assistant for accomplished sculptor and furniture maker, Alison Crowther, for five years, learning the skills and vision to create large scale works.

'The aim of my work is to provide a form from which the natural beauty of wood can be displayed, and to take advantage of the materials characteristics though carving and texture,' Philip says.

The benefits of a scholarship

In 2020 Philip was awarded a Queen Elizabeth Scholarship Trust (QEST) scholarship to fund further training alongside Alison where he will learn new hand carving techniques and gain a greater understanding of carving tools, equipment and related processes. He hopes that these skills will enable him to become a full-time maker and develop his own individual carving style. His goal is to produce large scale works in the private and public sectors that will be easily recognised as his.

www.philipjameswalker.com
Instagram: @philiptreewalker

SUPPORTING EXCELLENCE IN BRITISH CRAFTSMANSHIP

QEST SCHOLARSHIP APPLICATIONS

QEST offers scholarships of up to £18,000 for the training and education of talented craftspeople. For each successful scholar QEST will also fund a place on a Professional Development Programme, run in partnership with Cockpit Arts.

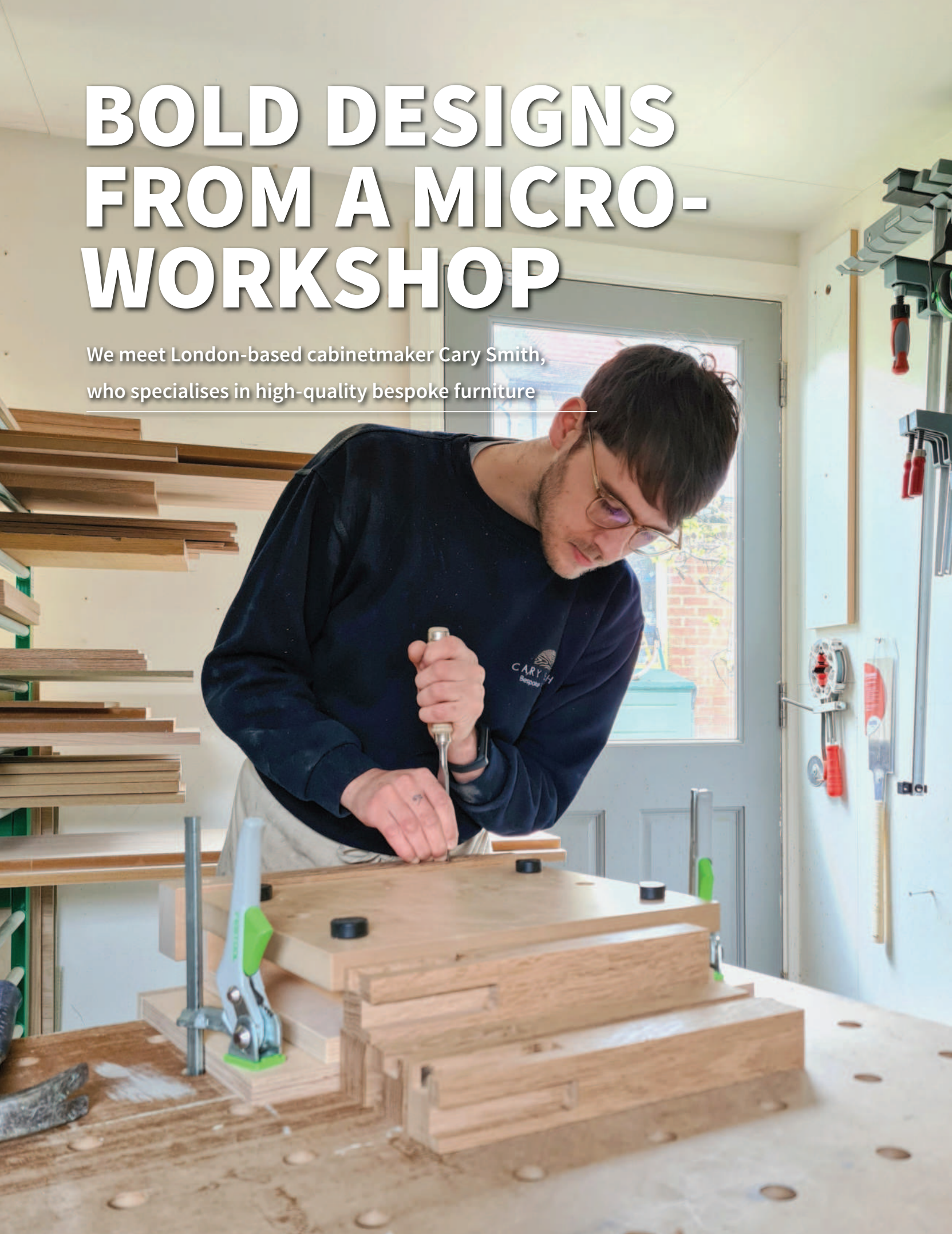
The scholarships are open to any UK resident, aged 18 or over, who would like to improve their craft skills. QEST welcome applications from all talented craftspeople, regardless of race, gender, sexual orientation, religion, disability, or nationality; and particularly encourage those with protected characteristics that are under-represented in the craft sector to apply.

The funding supports traditional college courses, vocational training or one-to-one training with a master craftsperson, and can also cover some additional costs including transport, equipment and materials.

The latest round of applications will be open from 11 July to 15 August. For more information about applying, visit: qest.org.uk/apply/scholarships/
Support is available for dyslexic applicants – for more information email: katy.neusten@qest.org.uk

BOLD DESIGNS FROM A MICRO-WORKSHOP

We meet London-based cabinetmaker Cary Smith, who specialises in high-quality bespoke furniture



From a small workshop in his parents' garden in north-east London, cabinetmaker Cary Smith builds bespoke fitted and freestanding wardrobes, kitchens, cupboards and bookcases. His work shows an eye for detail and a flair for design, topped off with a bold use of colour. Here he tells us about his design process and how his business has taken off.

Could you tell us a bit about your background and how you got into furniture making?

As I was getting ready to leave school my parents were having some work done in their home, by a cabinetmaker my dad had known for many years. In conversation I mentioned that I wasn't sure what I wanted to do after leaving school, and it just so happened my soon-to-be employer was looking for an apprentice. I finished a week of work experience and then started full-time the following September.

Do you have any formal training in woodwork and furniture making?

Yes, I was apprenticed for four years. Three years were spent visiting the Building Crafts College in Stratford in what was called block release. I would spend roughly six weeks at work full-time, then spend two weeks in college to complete practical and written assignments, and gain my qualifications. After achieving my NVQ Level 3 and showing competence with my hand tools, I was then gradually introduced to more complex machining methods and started to learn how to run a project on my own.

How does your design process work when working with a client on a commissioned piece?

I will always first ask the client to show me any inspiration they might have, to give me an idea of the approximate style they're trying to achieve, whether it's traditional Shaker cabinets or a more modern, modular appearance. I will also look around the room or area the finished piece will sit in, because, for example, there may be certain interesting mouldings on the skirting or fireplace which can be complemented in the design.

Unless a customer is trying to achieve an exact replica of something they've already seen, I will always try to put my own spin on it, and I like to give a gentle nudge in the direction of bold colours and design ideas. If you're having something made bespoke, you might as well make it truly unique! I will always send the client a sketch, and then there is usually some back and forth until the perfect solution is achieved.

Are there particular furniture styles that you like to follow, or do you let the client take the lead on the design?

I was taught to make furniture in the traditional way, and I still really enjoy making furniture to fit the many Victorian and Edwardian homes in my local area. I love incorporating the many interesting features in these properties into my designs, so that the finished item looks as though it was always there. That being said, I have also worked for clients who are from a design background, and are very enthusiastic about the specific aspects of the piece. Sometimes that makes life easier for me!

PHOTOGRAPHS COURTESY OF CARY SMITH

Do you ever make any speculative, non-commissioned pieces?

This is something I would really like to move into. I am usually very busy so this has always taken a back seat, but circumstances have changed for me recently, and I think it might help me to be able to work entirely from home.

What types of wood do you prefer to work with and why?

I like to work with walnut. It's easy to work and machines beautifully, and the finish you can achieve with oil is great. I also made a study last year which had solid London plane worktops. The plane tree was felled in a London park, but saved from the woodchipper and cut into boards for furniture. These are very common trees locally and the grain pattern is amazing.

Could you tell us a bit about your workshop?

I think of it as my 'Micro-Workshop'! After eight years at my previous company I expressed to my parents that I wanted to make a go of it on my own. We chatted about the situation and they eventually asked if I wanted to use the end of their garden to build a little workshop for myself.

I spent about four months building it, and although it's tiny I feel very lucky to have somewhere of my own, especially in London. Not needing to pay rent for a workshop means I have the luxury of a bit more time to complete my jobs, so I get around issues any way I can. It's hard to believe sometimes that whole kitchens and wardrobes have been built in a space that's around 15 square metres.

What kind of tools do you use?

Due to my limited space, I break down sheet materials with a track saw, using a grid-style workbench and various fences and squares to achieve repeatable cuts. I also have an open access workshop I can visit if I need to machine solid timber. Otherwise I am mostly machining on my router table or using hand tools. I'm very grateful that I was brought up using hand tools If you need to use them where space is limited, they really get you out of trouble, and it's usually a more mindful process than using only machines.

What kind of finishes do you like to work with?

This is usually down to the client, although I always talk them through the various options. I like to have a hand-painted finish on traditional cabinetry, and for a more modern look a spray finish. On solid timber and veneers I always use oil, I think it accentuates the grain patterns in such a way that you can't achieve the same finish with anything else.

What has been your most challenging project so far?

At the start of the year I took on a small kitchen project, but it required

complete renovation. The work that had been carried out in the house previously was awful. I removed two dropped ceilings, which gained 20cm of head space. I also had to build a stud wall to support some floor joists above, which were just being held up by a skin of plaster, it was all quite dangerous and I just kept uncovering more and more.

All the wiring and pipework was removed and replaced, walls plastered, and then finally I made and fitted a new bespoke kitchen. The transformation was pretty incredible but it did stress me out a bit!

What are your favourite types of projects to work on?

I like to work on freestanding furniture, incorporating traditional joinery techniques and solid timber where possible. However, I have made a name for myself locally by making bespoke wardrobes, which are also nice to do; this is the thing I'm probably most accomplished at.

It's nice to do a kitchen every now and then, but my capacity in the workshop is fairly small and I don't love having to organise every other aspect of the job, it's a lot for one person! I guess I like being able to stay in the workshop as much as possible.

How did the Covid-19 pandemic and lockdowns affect your work?

Covid was tough, although the effects weren't immediate. I was actually renting a permanent space at a shared workshop near me, which was expensive but manageable. Just before Covid came around the rent on my bench space went up almost 50%, so I had to leave and shift to working entirely from home. I'm still trying to re-organise to be honest. This is why I would like to try and move into smaller freestanding items.

I definitely feel my mental health has been affected also, like so many others around the world. I have lost a bit of motivation but I'm working on getting it back, these things take time.

Do you think the lockdowns made people more aware of their home surroundings and perhaps keener to have bespoke solutions?

I definitely did notice this. I think those working from home were able to save money, while also spending more time indoors wondering about what improvements they could make. Especially since people are now working from home a lot more, they want to make their home environment more comfortable for multiple uses.

What's in store for you in the future?

I'd like to create a few designs and open an online shop. I like being in the workshop and want to gradually move towards free standing rather than fitted furniture, or even smaller items for the home.

www.carysmith.co.uk
Instagram: @carysmithbespoke

V-SHAPED LEG GARDEN BENCH

This simple wooden bench will make a great addition to your garden

This bench is large enough for three people to sit side by side. If placed in a garden, you can relax and enjoy looking out over the greenery. When used indoors, cushions or blankets can be added to soften its rustic appearance.

In addition to the four corner legs, there is one in the centre so that three adults can sit on the bench at the same time, without it bending. The corner legs are thin and not strong enough on their own, but by joining them in a V-shape and screwing their tips together, they become much stronger and will not rock back and forth. The centre leg is straight, but it is connected front and back with a cross-brace, so there is no danger of it wobbling.

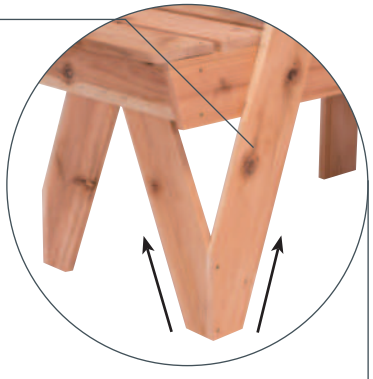
The design of this bench was originally published in 1953 in *Woodworking at Home*, a book by the Japanese design group KAK. It has been updated by group monomono, which was formed in 1970 by Yoshio Akioka, who had been a central figure of KAK. group monomono are based in Tokyo and have been leaders in the revival of woodworking and other handcrafts in Japan.

The original garden bench design in *Woodworking at Home*, 1953

Simple Japanese Furniture: 24 Mid-century Projects For Your Home, compiled by group monomono, GMC Publications, RRP £16.99. Available online and from all good bookshops.

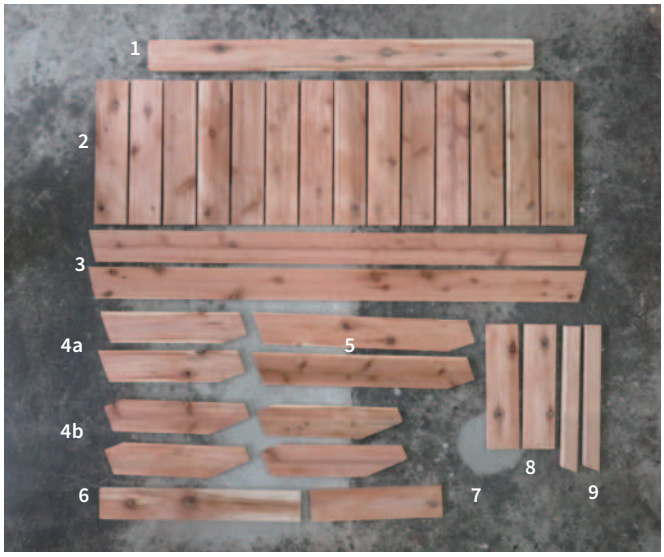
1 The four corners are rounded off to create a softer feel.

2 Joining the legs in a V-shape allows the load on the leg tips to be distributed in two directions, making the structure strong, even though the timber is fairly thin.



3 The seat is quite long, so legs are also attached in the centre. These two central legs are shortened slightly, to prevent rattling.

Parts and materials



t = thickness
1 t13 x 90 x 1,080mm: 1 board
2 t13 x 90 x 405mm: 14 boards
3 t13 x 90 x 1400mm: 2 boards
4 t13 x 90 x 450mm: 6 boards
5 t13 x 90 x 650mm: 2 boards
6 t13 x 90 x 560mm: 1 board
7 t13 x 90 x 365mm: 1 board
8 t13 x 90 x 345mm: 2 boards
9 t13 x 45 x 415mm: 2 boards

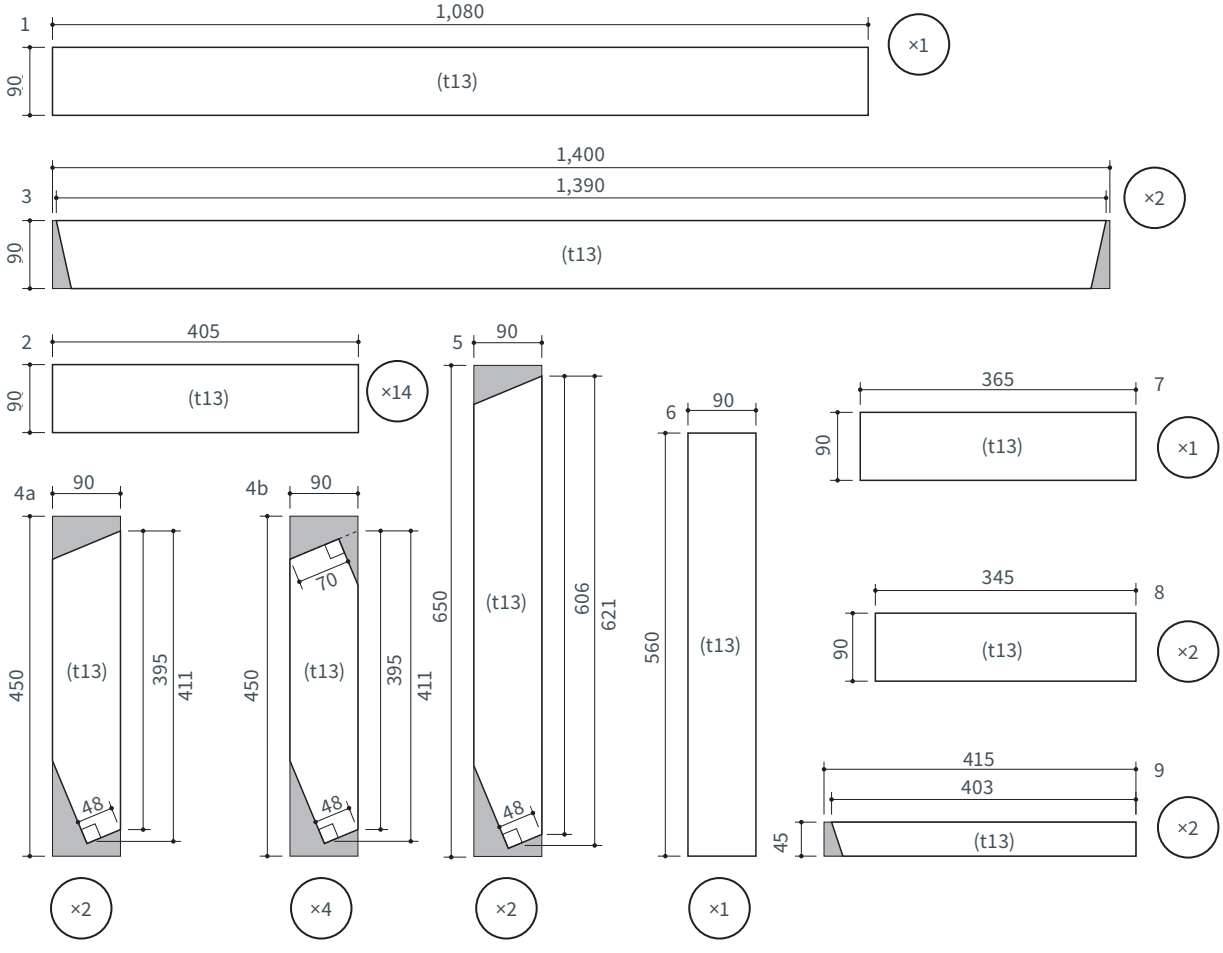
The numbered pieces above are referred to in both the drawings and the instructions.

TOOLS

Double-edged saw, hammer, clamps, ruler and tape measure, carpenter's square, combination square and angle finder, impact driver, screws (35mm, 25mm), brass nails (35mm, 25mm) hand planes, electric sander, sandpaper, wood glue

SIZE OF PARTS

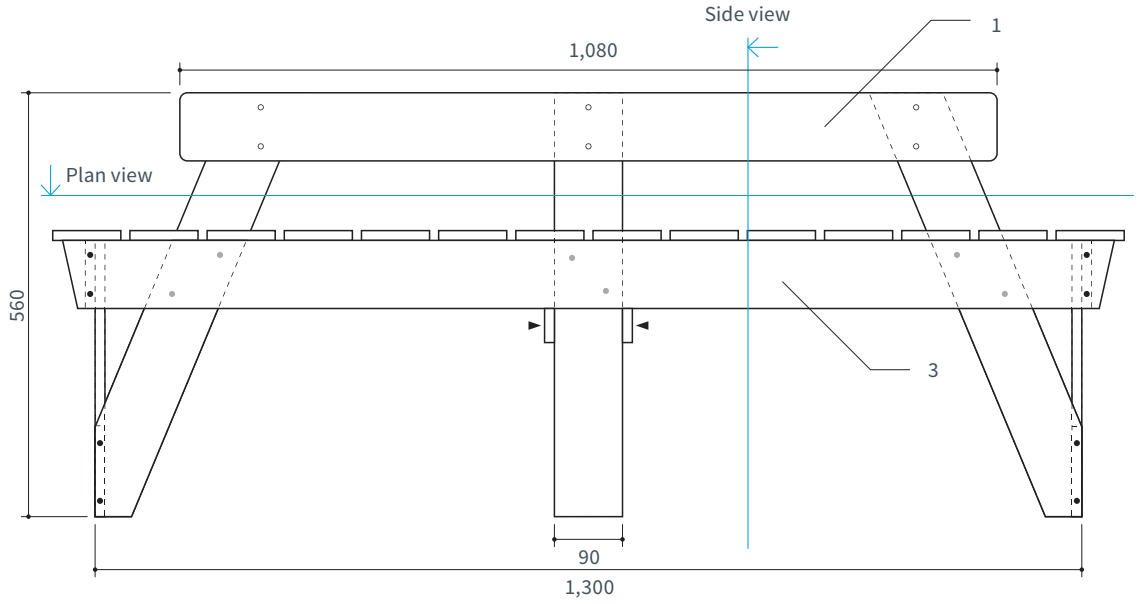
Scale = 1/10
Measurements = mm

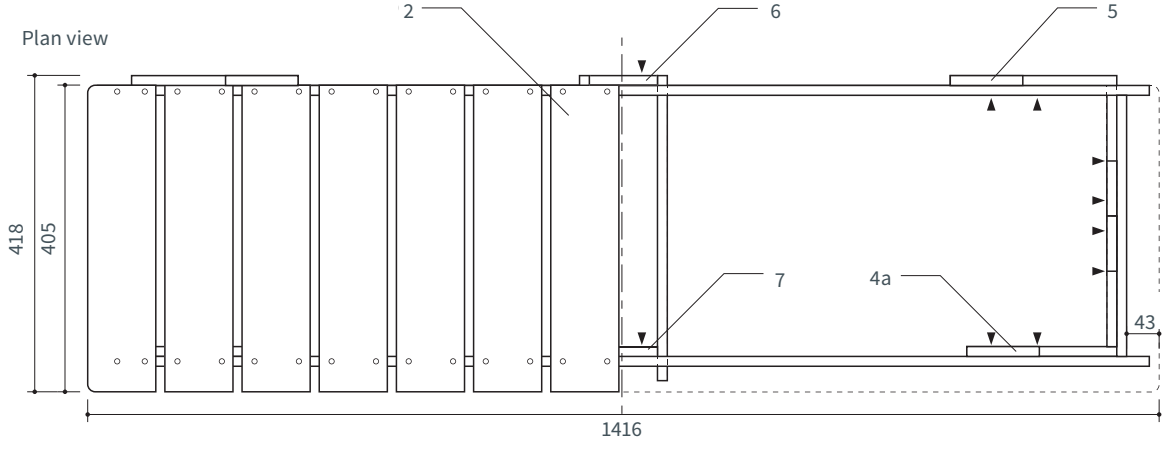


DRAWING

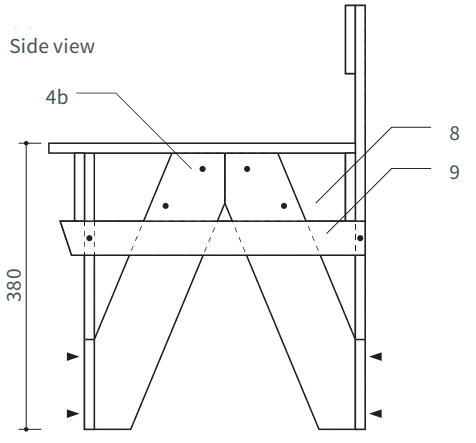
Scale = 1/10

Measurements = mm





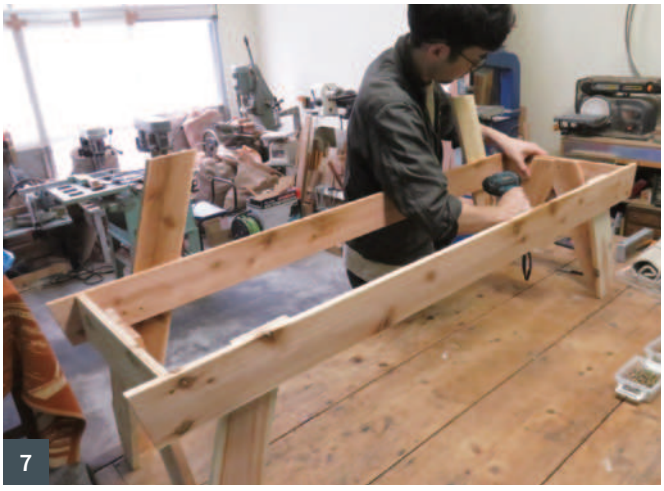
- ● Screw in from side
- ● Screw in from back
- ○ Brass nail
- ▸ Direction of screw (specified as appropriate)



PHOTOGRAPHS BY TAKAYUKI YOSHIZAKI

Making the bench

1. Use a combination square and angle finder to mark out the materials using a pencil. Then use a saw to cut all parts.
2. After cutting the materials, sand and/or plane all pieces. All edges of the backrest and the seat should be rounded nicely.
3. Construct the frame (3, 8) by applying glue to the joints. Press down firmly while screwing pieces together so they don't separate. (Screws: 35mm).
4. To put together the V-legs (4a, 4b, 5), drive the screws in until the tips just pop out the back of the board. Stick the tip of the screw into the side to be joined, adjust if necessary and then fasten. (Screws: 35mm).
5. Align the top of the frame and front legs so that they are flush. Fasten them with screws. Use two screws at the base of each leg. Be careful not to mistake the left and right sides for each other. (Screws: 25mm).
6. Since the back legs will be fine-tuned in the next step, the base of the back legs are temporarily fixed to the frame, screwed together with a single screw. (Screws: 25mm).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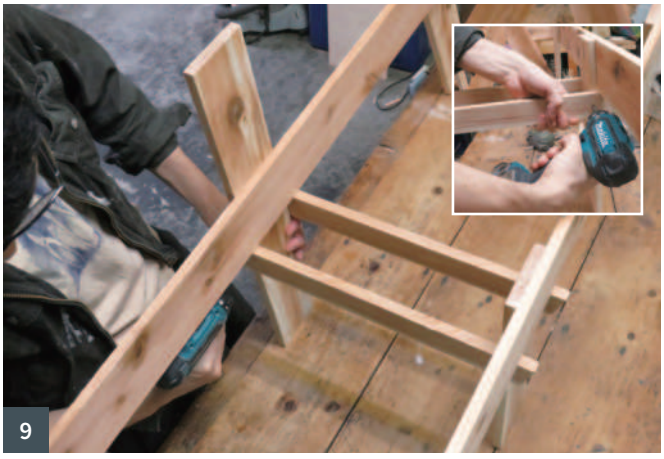
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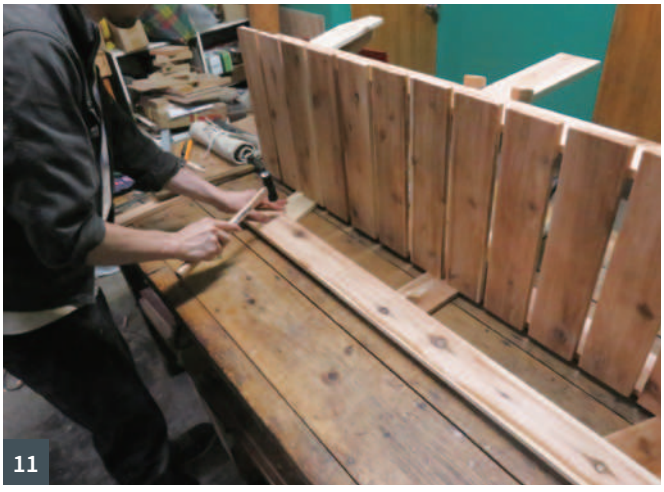
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7 Check for wobbling in the main unit by standing it up. If it rattles, adjust the rear legs by moving them around a bit. Fix with screws when there is no rattle.

8 To attach the front and rear centre legs (6, 7), centre each leg along the frame and fasten with screws. Make sure that the centre legs are not longer than the left and right legs. This will prevent rattling. (Screws: 25mm).

9 Attach the central brace (9) after butting it up against the frame. Make sure everything is level and then screw bracing into centre legs from the side. (Screws: 35mm).

10 Lay out the seat plates (2), check their position and then fix with brass nails. Tack nails in all four corners of each seat plate. (Screws: 35mm).

11 To attach the backrest (1), lay the unit down to make nailing easier. Find the correct position for the backrest and then hammer in brass nails to secure. (Brass nails: 25mm).

12 Place on a flat surface and check for any wobbling. If there is a rattle, adjust by sawing or sanding the leg ends as needed.

ROOM TO GROW

Kerry Dolan uncovers the secrets of the forest canopy

Next time you go for a walk in a forest or woodland, take a moment to gaze above you. You might find that the canopy resembles a breathtaking umbrella of vivid-green crazy paving with channel-like gaps between the tops of the trees. Visually stunning, the phenomenon has been documented worldwide since the 1920s and is called 'crown shyness'. It happens when trees, usually of the same species but not always, appear to give each other space. Each tree crown is perfectly outlined in a halo of light, as though the whole canopy has shattered.

Health benefits

No one really knows why this happens. Scientists have theorised that trees can sense when they're approaching a neighbour and halt their growth to ensure optimal light for photosynthesis. Another hypothesis is that the gaps prevent branches from getting damaged in the wind – although one study found that the spectacle didn't appear to be more common in windier areas. It's also possible that trees keep a respectful distance from each other to prevent the spread of pests and disease.

Even when trees grow close together, they often demonstrate a mutual respect and offer reciprocal benefits. This is true in the case

of inosculating trees – where the same or different species grow so close to each other that their touching trunks or branches graft together. This is also known as 'kissing' or 'married' trees. Furthermore, where a tree known for longevity intertwines with one resistant to disease, it's been found to share the advantages of its friend.

The social life of trees

Peter Wohlleben, author of *The Hidden Life of Trees*, believes that trees are social beings. 'We think about plants being robotic, following a genetic code,' he says. 'But plants and trees always have a choice about what to do. Trees are able to decide, they have memories and even different characters.'

Peter says that when trees don't maintain their boundaries and hog resources or disobey basic tree etiquette, the result is a 'drunken forest'. He compares that image with the 'mature, upright and disciplined' ancient forests, with their 'ramrod straight trunks'.

Whether or not you agree with this anthropomorphic view, it's clear that maintaining healthy boundaries and ensuring mutual respect helps trees to maintain good health, manage resources and protect the forest as a whole.

CHEST OF DRAWERS RESTORATION

Anthony Bailey makes some essential repairs to an Edwardian piece

I was tidying up my workshop when, among a pile of boxes and things waiting to be restored, I found some parts that turned out to be a baby chest of drawers of somewhat indifferent quality with 'foreign' parts added to it. It looked rather unprepossessing, but I felt it had potential, especially as my wife reminded me she needed a way to store her extensive range of cotton reels, being a capable needlewoman in her spare time. Could I make it whole again? I just needed to decide the best course of action.

Restore or conserve?

Nowadays we generally recognise the potential value of anything that is old, i.e. vintage or antique, in a way that didn't often happen in the past. We need to understand the level to which any work should be taken. If something is a genuine antique and possibly very valuable, even if it is broken in pieces, then we need to be quite careful about how to deal with it. In the case of this little chest of drawers it is nothing special, but it does have some useful lessons to teach us when looking at something more valuable. If in doubt about how valuable something may be, talk to an expert.


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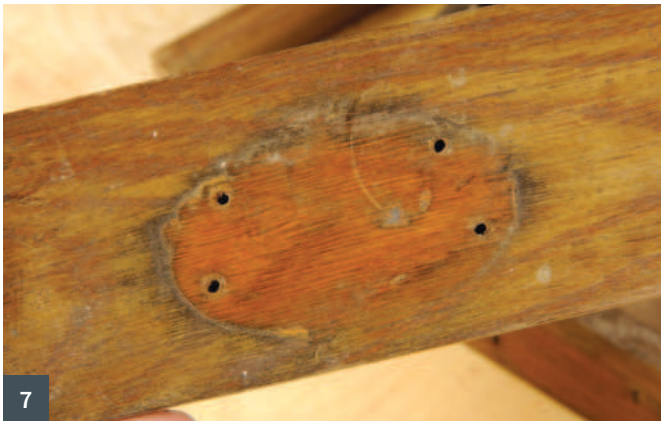
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Assessment

1 When faced with a rather junky looking set of parts, it's always best to start by checking what's there and what's missing. Sometimes other bits and pieces are lying around somewhere waiting to be found. Check before they get thrown out and burnt. Study the pieces and try to work out a number of things: what it is – a chest of drawers in this case – how old it might be and what needs to be done to put it right.

2 The top still had its finish, but a strip was missing from the back edge and a rusty nail showed where it was once nailed on.

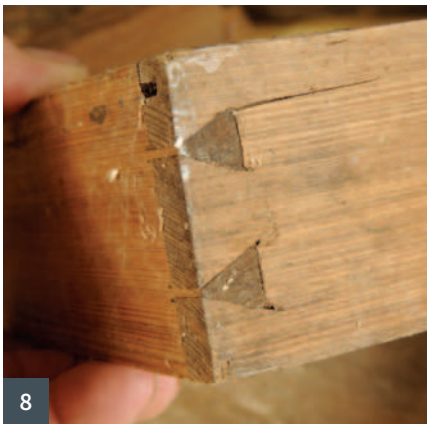
3 The base looked unprepossessing. It needed some kind of infill or appliqué strip to tidy it up.

4 The drawer rails had been badly replaced – apparently made of elm – so they needed to come out. This is an oak chest on the outside, so the rails needed to be made from oak too.

5 Remains of animal glue and nails were visible, the glue needed to be completely removed. The original pencil lines setting out the position of the runners was also visible.

6 These pine runners didn't look original; they had the wrong colour and grain for antique pine. Chances are the original runners were oak, so I would use oak again.

7 The original oval handle metal plate fitting marks were visible. This style of handle is suggestive of the Edwardian era. The choice of oak rather than heavily French polished mahogany also suggests early 20th century. The four pin holes would indicate very cheap thin plates that needed plenty of fixings. The original finish had remained where the handles used to be.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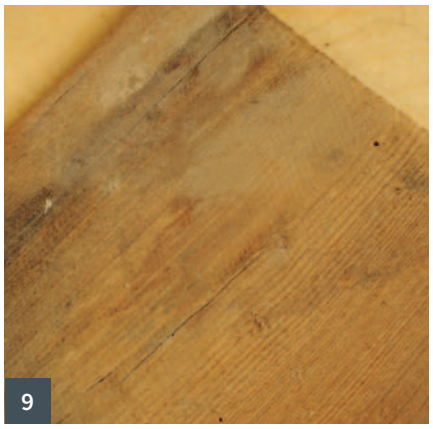
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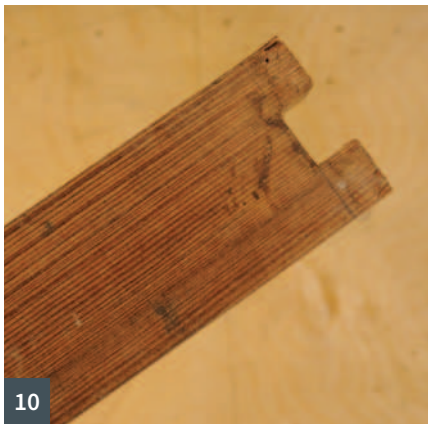
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PHOTOGRAPHS BY ANTHONY BAILEY


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8 The dovetails were crudely done, but they were effective. The angle used was due to the drawers being made of pine, which is softer and needs the dovetails to hold better. One pin split the wood when it was first made because the fit was too tight.

9 The drawer bottoms were made of very thin pine, which is dusty and a bit stained. They were smooth on the upper surface, which you need inside a drawer. The rough underside had been machined on a very large circular saw, not put through a planer as would be the case more recently. This also suggests the chest is late Victorian or Edwardian in age.

10 The very tight, resinous looking grain shows this is from an older pine forest, grown in very cold conditions, hence the closely packed annual ring lines. The wood is almost certainly from Scandinavia, near the end of the period termed the 'Little Ice Age' that finished in 1850. So, bearing in mind when the tree is likely to have been felled, i.e. at the beginning of the 20th century, this ties in nicely with my guess of the age of this chest.

11 Unfortunately there were woodworm holes, and some of the woodworms were possibly still alive, so a thorough treatment with woodworm fluid was the first essential task after dusting everything off.

Preparatory work

12 The components all needed a thorough dusting, while wearing a dust mask and using a clean paintbrush, which is much more efficient than a normal dustpan-type brush at removing the 'dust of ages'.

13 The holes were all thoroughly treated with woodworm fluid. It didn't matter if the fluid spread as it is very 'thin' with a lower surface tension than water in order to penetrate everywhere.

14 There are various wood bleaches that are of varying usefulness and dangerous to handle. In this case all I wanted to do was to clean the wood, not bleach it to death. The best cleaning agent is warm water followed by neat ammonia bleach, rubbed on using proper chemical-resistant gloves and protective goggles. After a few minutes it was washed off thoroughly and left to dry somewhere warm, but not hot.


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15 The freshly dried wood already looked and felt cleaner, but still had all its 'patination' for want of a better term. Unfortunately, all the previous glue repairs now showed up too. It may not always be practical to scrape glue off thin, soft wood like this.

16 A wax cleaning agent or cellulose thinners used sparingly should remove all but the most stubborn marks. Take care because of fumes and its inflammable nature. The French polish was so old it didn't 'move' in this case; however, the whole piece would be over-polished later on. Thicker lumps of paint could be gently scraped off, sometimes just a fingernail is enough to loosen splashes. The surface then needed an overall re-clean to make sure it had been done properly.

17 The two crude elm drawer rails were sawn out carefully to avoid damaging the carcass sides.

18 The small mortises were cleaned free of wood and old glue, so the sockets were neat and ready to accept the new rail tenons.

19 The last job was to remove all the remaining drawer runners and scrape off the dried glue. Any glue that was stuck fast could be softened with gentle use of a heat gun.

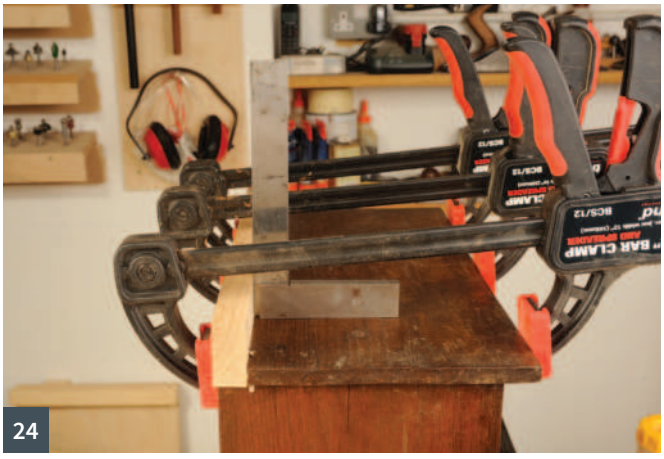
Rebuild

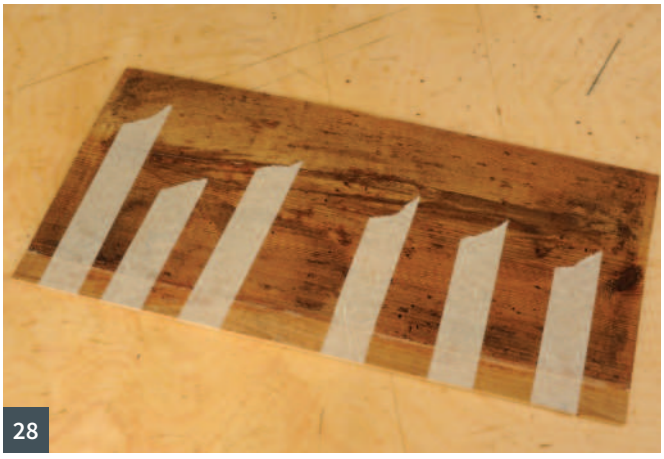
20 The two new drawer rails were prepared on the tablesaw and planer. They were cut slightly short in length so that stub tenons created would make it easier to 'spring' the rails into place. I decided to use aliphatic resin on the carcass for robust strength. Two clamps put pressure on the carcass side, while a third in the middle acts as a spreader to help 'spring' the rail in to the mortise.

21 Now the middle clamp was used to apply pressure to hold the joints tight. A similar 'springing' job was done with the rail above.

22 At the front on the base a section of oak was used to give support for a thick oak veneer to be glued on to.

23 Before fitting an upstand at the back of the top, I decided to remove the exposed housing tenons with a Japanese dovetail saw. Then the upstand would glue directly in place.





24 The clamps were angled downwards to make sure the upstand was perpendicular while the glue set.

25 I was naïve in thinking that the carcass had been made correctly. The left-hand side was longer by several millimetres. It showed, and the bottom drawer would have a yawning gap towards one end.

26 Fortunately, deft work with a thin kerf Japanese rip saw, without any 'set' to the teeth, made fast work cutting through the butt glued faces. Only a couple of minor contacts with metal as the blade moved down.

27 The drawers were not quite so critical strength-wise, so I decided to do what you are always supposed to do with antique furniture and use animal hide glue. In this case easy-to-use, cold application Titebond hide glue. It needs plenty of curing time though.

28 One drawer bottom had a piece missing, so I made the best match I could and glued a newer piece of pine to it. The edge was tapered with a block plane after the glue had set, so it would ease into the drawer groove.

29 The two little cutouts above the housings were given solid patches of oak, to be coloured in later. This time I used a flush cut Japanese saw intended for trimming work like this. In fact Japanese saws are often ideal for restoration work because of their thin kerf, fine teeth and pull action.

30 It was my intention to rebate the new backing board in, whereas the old one was apparently just tacked on to the back of the carcass. I made a slight error: I glued the runners in place before machining the rebate. Happily there wasn't much to chisel away after that.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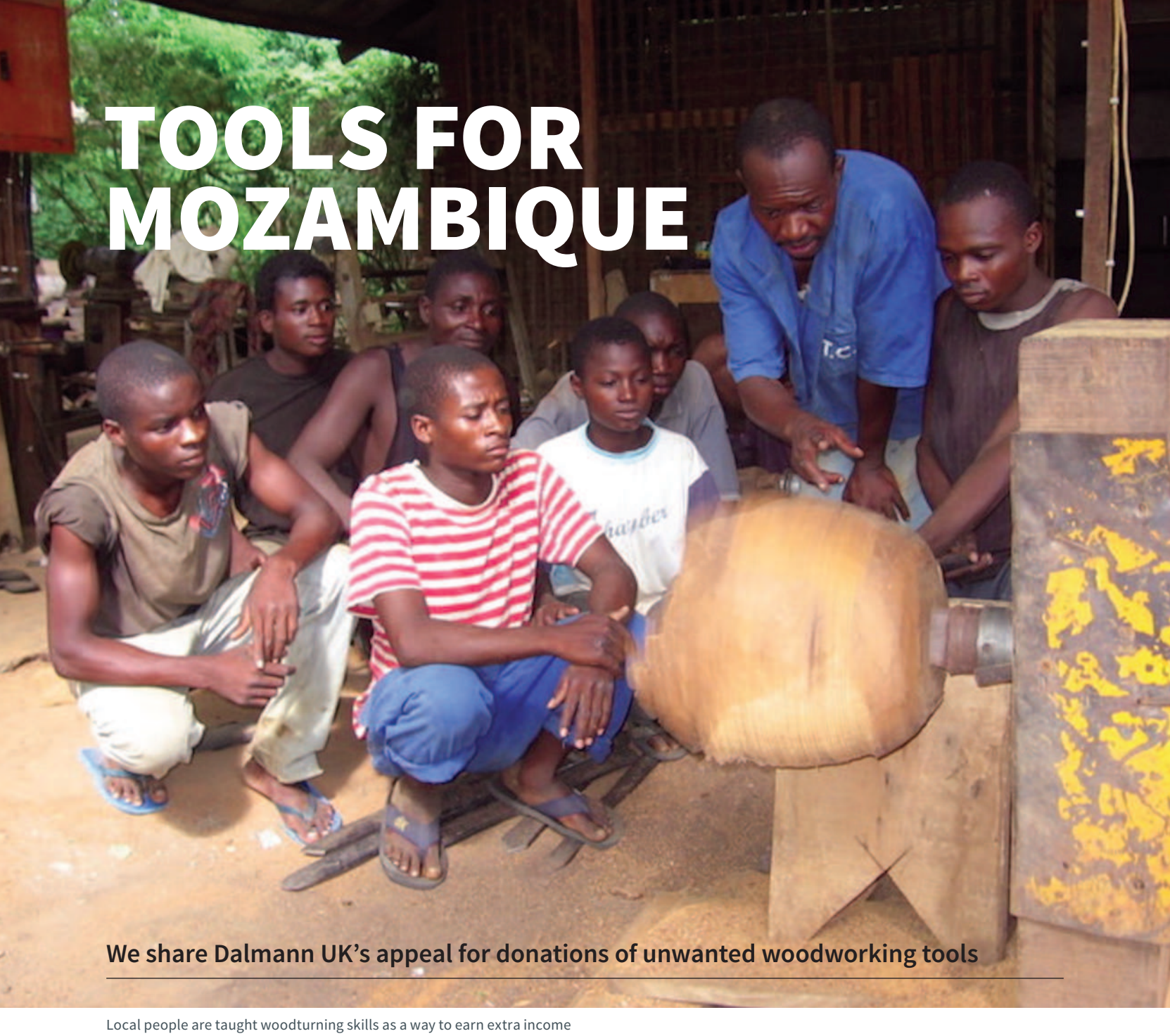
31 The top drawer slide needed to tenon through the back panel, the tenons needed deepening first as the back had moved forward in effect. They were trimmed with a flexible flush cut pull saw.

32 I discovered that the new oak was extremely bright compared to the old, so first a coat of waterborne Vandyke brown-tinted stain followed by some dark brown gel stain to body up the colour. Note the use of masking tape to prevent stain overrun.

33 Now for a coat or two of rich brown French polish over all the cabinet and drawer fronts. All the surfaces then blended in together colour-wise, with a bit of extra attention to any patches or filling. Finally, a gentle wire wool and waxing before fitting the new bolt-through handles and my work was complete.

TOOLS FOR MOZAMBIQUE



We share Dalmann UK's appeal for donations of unwanted woodworking tools

Local people are taught woodturning skills as a way to earn extra income

In our cosy and so often over-equipped workshops, sheds and garages, many of us are still on a quest to acquire the latest tool to make life easier or help us develop a new skill, despite having at our disposal an array of machines, tools and accessories.

Craft workers working with timber to eke out a living in the more disadvantaged countries of the world would surely be agog to see what even modest hobby craft workers in the UK have at their disposal, so hopefully this appeal will strike a chord and enable us all to contribute to a worthy call for charity which will benefit the recipients directly.

Teaching woodturning in Mozambique

At a time when obtaining a truly responsible and sustainable supply of 'exotic' timbers from Africa has become increasingly difficult, Dalmann UK has emerged in recent years as one of the main importers of timber from Mozambique.

Dalmann UK's principal suppliers, TCT-Dalmann Lda, is located in remote Sofala Province. It is an area of rural wilderness with virtually no development of any kind.

The local inhabitants are basically subsistence farmers who eke out an existence by growing a few crops and supplementing their diets by foraging in the bush around them. Employment opportunities are non-existent, except for a few forest concessions in the Gorongosa National Game Park, which is being rehabilitated by The Carr Foundation from America who are working with strong emphasis on environmental preservation and social upliftment programmes for the local communities.

TCT Dalmann are a part of the conservation company Produto Naturias, whose forestry concession is on the periphery of the Gorongosa National Park. Ant White at the sawmill has started to set up a woodturning school offering free training to any interested locals. With this training he is hoping to create self-employment

PHOTOGRAPHS COURTESY OF DALMANN UK

1 A range of the tools made from recycled traps **2** The furnace uses locally made charcoal **3** Poachers' traps like this are confiscated and recycled into woodturning tools **4** The students learn to make products that they can sell **5** The woodturning school currently only has one lathe

opportunities for the students and a market for their turnings. This will enable them to enjoy a cash income from their efforts. Currently all turnings done at the sawmill are made with handmade tools and chisels, as there are no commercially made tools available to them. The same goes for the lathes, chucks, accessories, etc.

The driving motivation is to show that with a little ingenuity and some help, local people can be trained to convert what might otherwise be fire wood, into a commercial product that can become a reliable source of income.

The currents tools in use are hand-forged from confiscated poaching traps using local charcoal and used on their only woodturning lathe.In an effort to assist Ant, Rob Wilson of Dalmann UK sent out a plea to the major UK suppliers to turners and woodworkers to ask customers to donate any redundant tools to this cause. The quality of the tools is not important as 'something is certainly better than nothing'.

Even old carbon steel tools (which most of us have eschewed in favour of high speed steel and other fancy steels) would be gratefully accepted.

The initial list of suppliers who have signed up to support this worthy cause are:

- Stiles & Bates
- Charnwood
- Exotic Hardwoods UK
- Reid Timbers
- Snainton Woodworking
- Surrey Timbers
- Turners Retreat
- WP Hardwoods
- Yandles & Son

These suppliers will install a box for the tools to be dropped in and when there is an adequate amount, Dalmann will arrange and fund the collections and export to Mozambique.

www.dalmannuk.com

CHIP AWAY

Wayne Barton introduces the quick and simple techniques required to get started with chip carving

Chip carving is a great way to begin woodcarving. For those already acquainted with carving, much can be learned from the design and discipline chip carving has to offer. While there are a number of ways this particular style may be executed, the method practised by the Swiss is the quickest, easiest and most pleasurable to learn. The tools required are few – two knives – the execution simple, and the results are attractively decorative.

Chip carving differs in several ways from other disciplines of woodcarving including the tools employed, the manner in which they are held, the way wood is removed and the designs created. As chip carving does not create shapes or forms but rather decorates objects already in existence such as boxes, plates and furniture, geometric motifs that can be easily drawn with a ruler and compass have been traditionally utilised. This is readily understood considering the simplicity of the implements used and the nearly limitless design possibilities that can be made this way, including many that are quite clever and attractive. Designs carved in this fashion are cut into the wood or incised, not relieved.

YOU WILL NEED

Essential tools:

- Cutting knife
- Stab knife

Useful additional tools:

- Bow compass
- Small plastic tee square with metric and imperial increments
- Eraser
- .05mm mechanical pencil with grade B lead

Non-geometric

More recently, a non-geometric design style has been widely introduced to chip carving using a positive image approach that is expressed largely through the creation of, though not limited to, foliage such as leaves and flowers. Positive image design is accomplished by removing the background of a design as done in relief carving, but using chip carving techniques. The result has the design at surface level, not incised as in traditional chip carving.

Precise cuts

Nearly all other disciplines of woodcarving done by hand, as opposed to that which is done with an electric tool, is executed by some form of shaving, whether whittling with a knife or manipulating chisels and gouges. Chip carving is performed by making precise cuts or incisions in wood to remove specific shapes or chips. Interestingly, all chip carving is predominantly an assemblage of two- and three-sided chips of various configurations and combinations. As all cuts by the nature of the style are precise yet often repetitive in their making, chip carving as a style of woodcarving moves along rapidly.

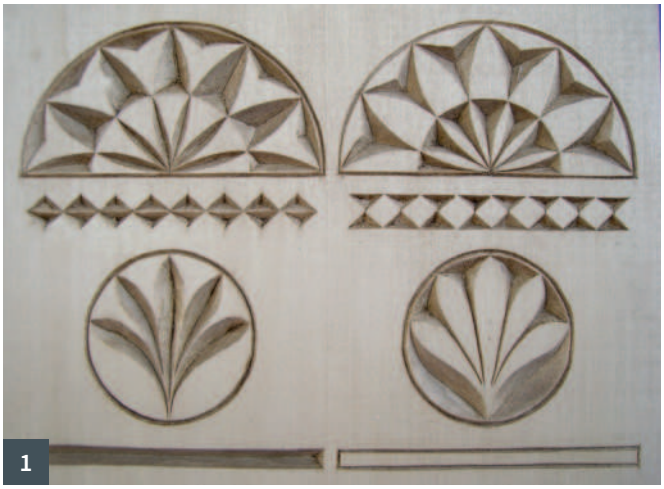
Timbers

Chip carving can be, and has been done in the past using hardwoods – woods that are physically hard. Such woods are normally carved with a chisel/skew and mallet. Today, softer hardwoods are generally used that may be cut easily with a knife. Most popular is the linden family of trees which in Europe is commonly known as linden and as limewood in the UK. The North American linden is commonly known in the US as basswood or whitewood. The linden family of trees produce a tight, straight-grained wood ideal for chip carving. Other woods that do well for chip carving are: butternut which has the grain of and is related to walnut but much softer and easier to carve; jelutong which looks and carves like linden but is more expensive and may prove difficult to locate; and some of the five needle pines such as Eastern white pines which are also easily carved but have a tendency to split.

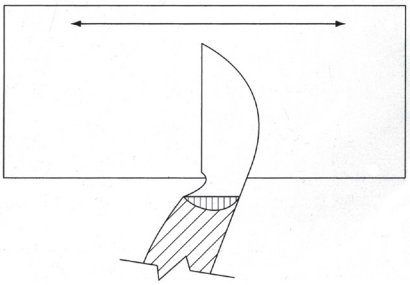
Knives

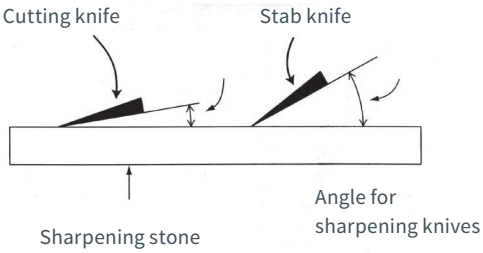
When only two knives are used, give yourself every advantage by acquiring quality tools. The Premier knives shown here were designed by myself and are the result of many years of study and experience. They are manufactured through the Alpine School of Woodcarving in the US. Their blades are high carbon tool steel (not stainless) properly tempered to hold an edge longer; their handles are ergonomically designed for hours of comfortable use.

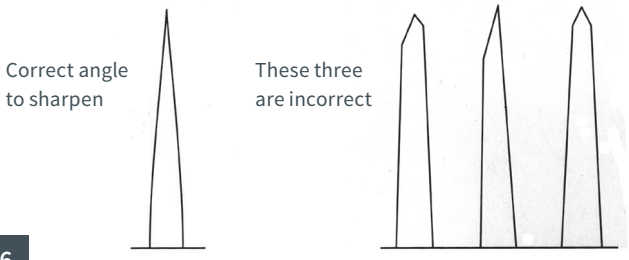
The more used of the two, the cutting knife, is the one that removes



PHOTOGRAPHS BY WAYNE BARTON







1 Positive image design removes the background resulting in the design being at surface level and not incised **2** Use good quality tools like the Premier knives designed by Wayne **3** The stab knife creates wedge-shaped impressions by cutting fibres and spreading them with a downwards thrust **4** Sharpen by sliding the blade back and forth with equal pressure across the edge. The angle of the cutting knife off the stone for sharpening is less than 10°. The stab knife is 30° angle set at the factory **5** When sharpening, the tendency is to push down on the tip of the blade. Be sure pressure is applied equally from the tip to the heel along the blade edge **6** When looking straight onto the cutting knife blade, the profile should appear tapered like the illustration on the left

all the wood, i.e., the chips. Its blade angle is configured downward to facilitate the carving process. The stab knife does not remove wood but rather decorates motifs and designs with wedge-shaped impressions by cutting the wood fibres and spreading them with a downward thrust.

Sharpening

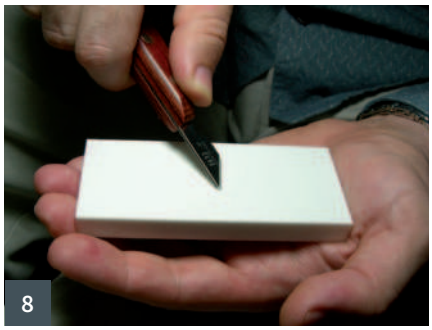
For most beginner carvers and many seasoned ones as well, sharpening knives is often considered a mystery. This may be especially true for chip carving knives for unlike carving disciplines that shave to remove wood, the chip carving process requires the cutting knife to be inserted and then pulled through the wood. The secret to sharpening is knowing what the end result should be and how to get there.

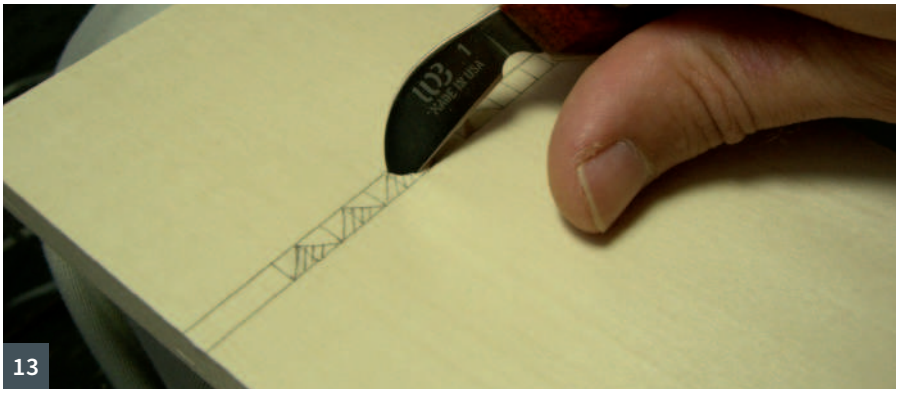
There are three criteria for properly sharpened chip carving knives. They are: a very sharp edge that is straight; an edge that is sharpened at the correct angle; and polishing the blade to a mirror finish.

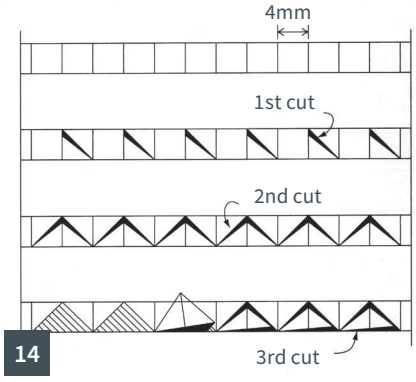
Whatever is used to sharpen, it must be flat or the blade edge will never be straight, forfeiting its efficiency. Ceramic sharpening stones – a medium grade for shaping and sharpening, and an ultra-fine for polishing – will perform the above task quite nicely. They are very hard and will remain flat without the need to be dressed.

When preparing to sharpen the cutting knife, there should be a slight secondary bevel that blends into the primary bevel which has been established by the factory. This is achieved by holding the blade just a couple of degrees off the medium stone when sharpening. Work both sides of the blade equally. Repeat the same process when polishing with the ultra fine stone. The stab knife is prepared in the same way, except the original broad angle established by the factory should not be altered.

If you want to check what you're doing, using a three-power magnifying glass looking head on the cutting blade will make it easier to see if your blade tapers smoothly to the point on both sides.







7 To achieve the secondary bevel on a cutting knife, hold the blade a couple degrees off the medium stone when sharpening, and work both sides of the blade equally **8** The stab knife is prepared the same way as above except the original broad angle established by the factory should not be altered **9** Firstly, grip the handle of the cutting knife, placing the first knuckle of your thumb on the lower side of the handle **10** For the second position, place the first knuckle of the thumb on the spine of the handle **11** The stab knife gets its name from the way it is held, with the thumb over the end of the handle and the cutting edge facing you **12** The stab knife is thrust straight down and the length of the stab is determined by how far the knife is rocked back – it is never drawn back **13** Holding the knife in the first position, cutting one square and skipping the next **14** Spacing and progressive steps 1 through 3 of cutting and removing three-sided chip

Holding the knives

Chip carving knives are held in a particular way. For the cutting knife, when gripping the handle in the first position, place the first knuckle of your thumb on the lower side of the handle. This will place the blade at approximately a 65° angle to the carving surface. The thumb should always be against the handle so all cuts are made by pulling from the shoulder and not made as one would peel potatoes. Nearly all cuts will be made in the first position.

The second position of the cutting knife puts the blade at the same angle but in the opposite direction. This is achieved by placing the first knuckle of the thumb on the spine of the handle.

The stab knife gets its name from the way it is held, with the thumb over the end of the handle and the cutting edge facing you. To make its mark, it is thrust straight down and the length of the stab is determined by how far the knife is rocked back. It is never drawn back.

Cutting tips

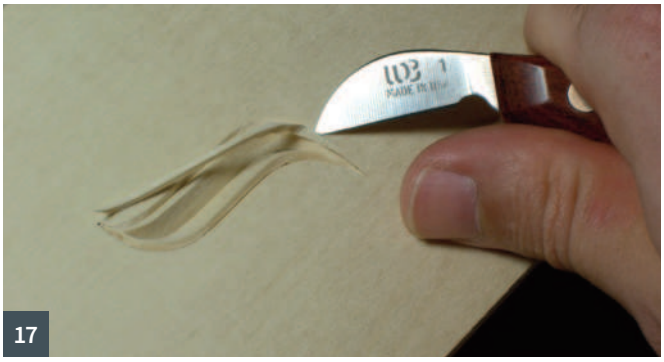
The secret of cutting a straight line is to never look at the blade but look approximately 15mm in front of it and let your eye pull it along.

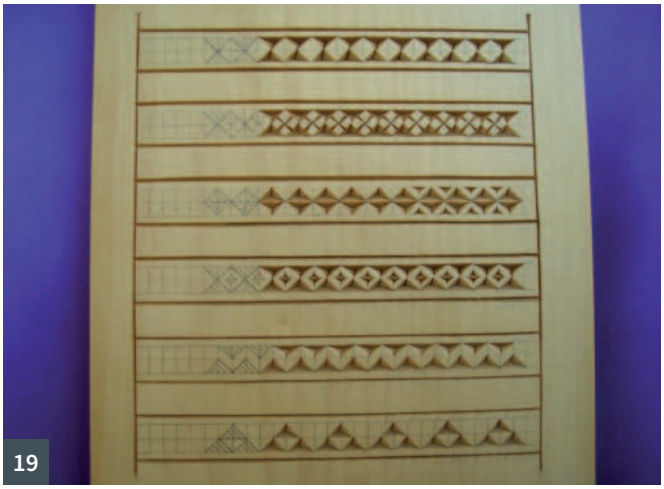
To make a smooth, curved cut, stand the blade up, reducing the distance of the blade in the wood from tip to top while maintaining the 65° cutting angle.

If a chip does not pop out, resist the urge to pry it out risking the chance of snapping off the tip of the hardened steel blade. It's better to cut the fibres holding the chip.

Three-sided chip

It could justifiably be said that the three-sided chip – or three-cornered – is the backbone of chip carving for it is used most frequently. Its configuration may be straight cuts or compound curves. To practise a simple three-cornered chip, start by drawing a





15 Knife is held in the second position, working the skipped corners **16** Draw the blade downward and across the baseline for the third cut **17** Two-sided chips can be expressed in a multiple of ways **18** Drawing of 20cm scoop plate using both geometric and free-form motifs. Note use of three-sided chip to create zigzag border and liberal use of stab knife to accent the centre floral arrangement **19** The three-sided chip can make a variety of borders **20** With practice, you will be able to explore and appreciate the full design possibilities of chip carving

row of 4mm squares on a practice board – 100 x 300 x 10mm will do nicely. The following steps are for right-handed carvers. If you're left-handed like me, just do the opposite.

Starting on the right-hand side of the board and holding the knife as previously described in the first position, thrust – not draw – from the top left-hand corner of the first square to the bottom right-hand corner, skip a square and continue repeating this procedure of cutting one square and skipping the next.

Now turn the board 180° and hold the knife in the second position. With the blade facing away from you, place the point of the knife exactly where the first cut was started and thrust to the opposite corner of the squares that were skipped, cutting from upper right to lower left. Without turning the board, go back to the first position. Because the base of the triangle is longer than the two sides, the third or relieving cut is made by drawing the blade downward and across the baseline. When done correctly, the chip will pop right out. This simple three-cornered chip, when combined with others like it and repositioned or reconfigured, can make a variety of borders that are quite different from each other.

Two-sided chip

The two-sided chip may be expressed in multiple ways including straight or curved lines having the same width value throughout; a chip having one side straight and the other curved; and chips with compound curves of various widths.

While these are only the beginning steps of chip carving, a little practice will quickly give you the discipline and understanding of the complete process. It will also provide the incentive to explore and discover the full design possibilities and joys of chip carving, the most decorative, versatile, functional and fastest style the world of woodcarving has to offer.

The vintage toolbox

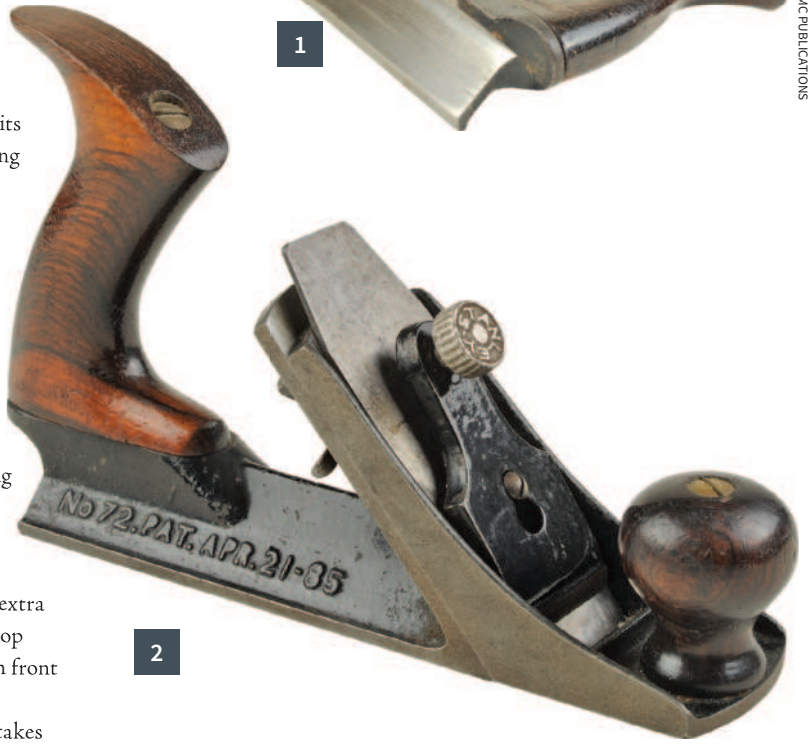
Colin Sullivan casts his eye over the Stanley chamfer plane, which was discontinued in 1938

PHOTOGRAPHS BY ANTHONY BAILEY/GMC PUBLICATIONS

1

The Stanley chamfer plane was first made in 1886 and continued in production, unchanged, through to 1938, a year before the start of World War II and the year Stanley opened its first factory in England. During the war Stanley gave up making several speciality planes. The patent was awarded to Justus A Traut in 1885, one of Stanley's most prolific designers, and inventor of the lateral lever for adjusting steel plane irons, which we use today.

It is referred to as the No.72 chamfer plane, and this is cast on the sole, together with the patent date of 1885. It is an odd looking plane with a V-shaped base, a sliding front section with a large capstan-shaped locking nut, all made in cast iron, with a rosewood handle and knob. The front sliding section is easily adjusted to the size of the chamfer by loosening the capstan nut and moving the front section up and down. Once the plane iron has been sharpened and set into the front section, it can be left until it needs resharpening.



2

It is a very simple and easy plane to use. It was sold with an extra front section for bullnose work and is particularly useful for stop chamfers, the blade and cap iron are transferred from the main front section to use it.

One further clever refinement is another front section that takes scratch stock cutters for decorative work on chamfers. Obviously not a good seller, because it was dropped in 1918. This also makes a plane with all three attachments, that are more scarce and valuable, referred to as the No.72½. When the main front section is adjusted – flush with the base – it can be used as a smoothing plane, no other chamfer plane can do this.

Of course there are many other types of chamfer planes, traditionally the English ones are made of wood with various ways of adjusting and setting the size of chamfer. Preston and Stanley both made spokeshaves for this type of work, and have the advantage of being more versatile for straight and curved work.

There is a good selection of new and modern chamfer planes to see on the web, made from metal and wood, but nothing quite as clever as the No.72½. The electric router is fine for small chamfers and larger ones can be made on the over hand planer, or the spindle moulder if you are lucky enough to have them.

3

4

5

6

1 Here you can see the V-shaped sole, the adjustable front section of the plane and the superb quality Stanley maintained on their pre-war tools **2** The Stanley chamfer plane with No.72 cast on the sole **3** The beading attachment set in position for use on a chamfer **4** Five of the beading cutters supplied with the beading attachment **5** Chamfer shave by Preston of Birmingham – pre-1930 – with adjustable fences **6** Stanley USA version of the chamfer shave No.65 made from 1884 to 1941

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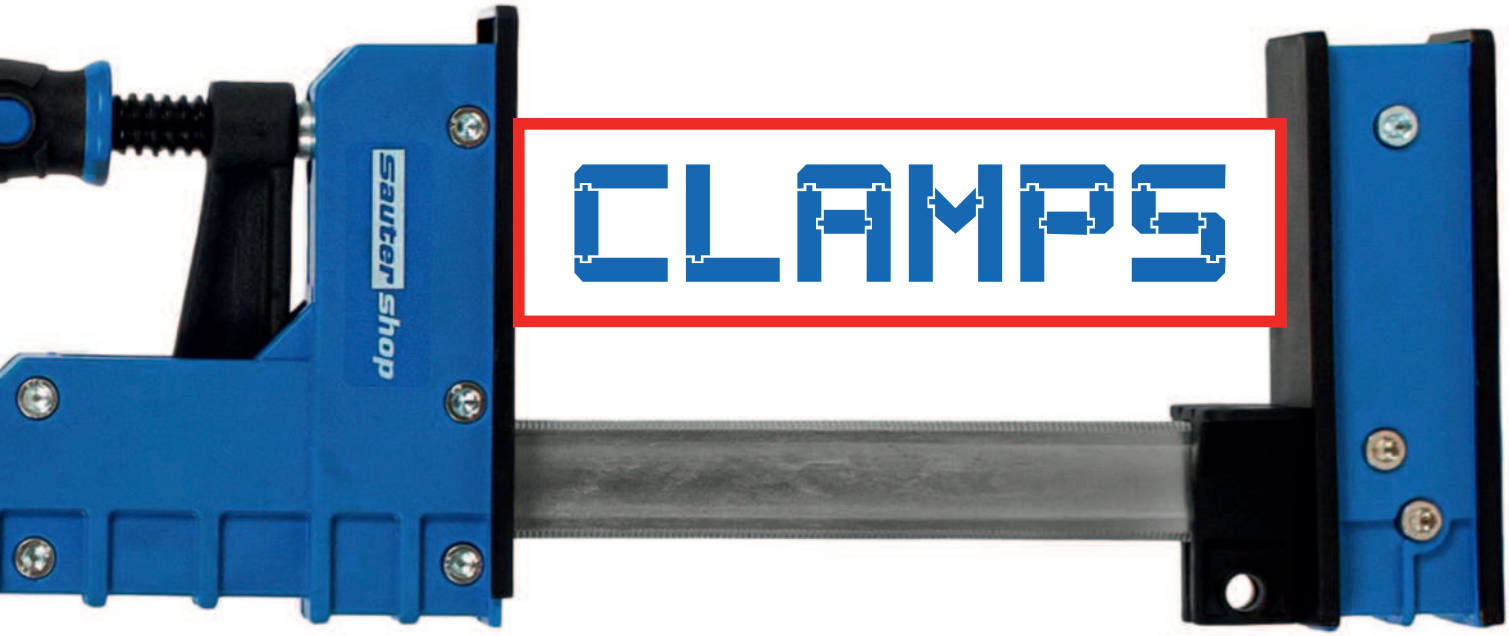

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