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October 2019

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Welcome

Even though this is our October issue, I have to admit to writing this welcome page in August, which may help to give you an indication of just how far in advance we work! So carrying on from last month, where I shared some of my favourite Brighton and Hove sights and historic relics, I thought I'd continue the theme and introduce you to my newly discovered community garden, along with a chap who has quite a lot of character: Captain Bill; the headless statue.

Positioned next to Waterloo Arch, Hove, and part of the historic Brunswick area, there is a nearby notice on the statue, which identifies him as a Light Infantry officer. According to expert James Mulraine, William 'Bill' Pechell, Captain in 77th Regiment Second Brigade Light Division, was the son of Brighton's MP Admiral, Sir George Brooke-Pechell Bt and his wife the Hon Katherine Bishopp. Captain Pechell was killed in the Crimean War, "gallantly doing his duty in advance of the fifth Parallel before Sebastopol September 3rd 1855." He was 25. Captain Pechell had been a hugely popular officer and his death devastated his parents and shocked his regiment. The town went into mourning and decided that a statue was the best way to commemorate a man who was – as the inscription on the original plinth read – 'Beloved by all who knew him'.

Marking the entrance to the Waterloo Street Community Garden, which is lovingly tended by local residents who have been improving the area since the 1980s, you'd be surprised how many people stop and stare at poor Captain Bill, so much so that he has become quite the local celebrity, and certainly captures the spirit of the Waterloo Street residents.

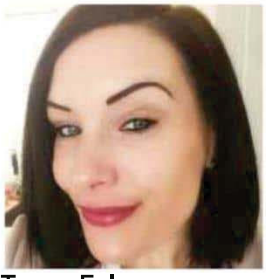
A wonderful resurrection

So how did Captain Bill lose his head and arms, I hear you ask. Well, I had to do some digging. According to a local historian, the commission went to Matthew Noble RA, now famous for the Wellington Monument in Manchester, the statues of Robert Peel and the Earl of Derby in Parliament Square, as well as the effigy of Prince Albert in the Albert Memorial. Noble's statue in Caen stone portrayed Captain Pechell just before he was killed, leading his men on against the Russian redoubt. The statue was set up in February 1859, on a specially reinforced floor in the 'Hall of Worthies' in Brighton Pavilion, a powerful expression of civic pride in a building which had been bought from the Government by the Brighton Corporation nine years before. Then something rather sad happened. A succession of committees moved Captain Pechell's statue on, each time further and further into the shadows. First, in 1914, to the entrance hall of Brighton Museum, then in 1930 he was pushed to the far end of the permanent sculpture gallery. Finally in 1940, he was sent to storage in the Rangers Yard at Stanmer Park, where, in time, his arms were broken, his head was lost, and the elements did their work weathering the limestone. There he remained until March 2015, when he was given to the Waterloo Street Community Garden.

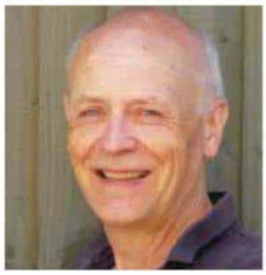
Local volunteering

As well as looking after the garden and making sure it is always in tip-top condition so it can be enjoyed by residents, the team of volunteers who make up the WSCG also look after the statue, which is, hopefully, now in its final resting place. I recently discovered this charming space, which is a perfect haven for reading and contemplation. I have even put myself forward as a volunteer, and look forward to doing my share of weeding, watering and sweeping. I like to do my bit for the community and imagine a lot of you do too. With this in mind, please feel free to share your personal stories with us. As ever, we hope you enjoy our latest issue, and we're so pleased you're part of our woodworking community; your support and encouragement really does mean a lot.

Email tegan.foley@mytimemedia.com



Tegan Foley
Group Editor



Phil Davy
Technical & Consultant Editor

36 MORTISE & TENON JOINTS – THE EASY WAY

Michael Forster prepares to cut the mortise & tenon joints ready to build next month's work table

ERRATUM

In part 6 of **'Woodworker's Encyclopedia'** (August issue), we showed a photo of a woodturner burnishing with shavings on a moving lathe, while wearing gloves. It has been brought to our attention that this is actually a dangerous practice, as if the glove catches, it can pull the hand in and therefore cause serious injury. Apologies again for not spotting this prior to print, and please do heed this advice given by a professional

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See page 85 for details

The Woodworker & Good woodworking
OCTOBER 2019

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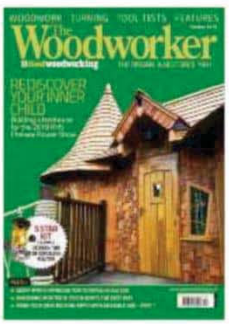

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ARBORTECH MINI CARVER – THE NEXT GENERATION MINI GRINDER

Australian company Arbortech has launched its new Mini Carver, adding to the brand's already well established power carving range. It replaces the current Mini Grinder model offering woodcarvers and wood artists new and improved features and versatility.

This next generation machine will take carvers and artists seamlessly through rough shaping, sculpting and sanding stages. The Mini Carver now offers variable speed, vibration reduction and improved sanding, as well as the ability to hook up to dust extraction during the sanding process. The versatility of this tool will take customers from start to finish in a variety of small to medium woodcarving projects.

Variable speed

The addition of a six variable speed setting, ranging from 6,000-18,000rpm, means users can adjust the speed of their carving and sanding to suit their needs.

Improved sanding

The sanding function has been improved with the addition of a flexible rubber backing pad. This pad will sit behind the sanding disc to add robustness and flexibility, which will increase the life of the sanding disc, resulting in a lower replacement rate. It will also help the sanding discs mould more easily to the timber.

Dust collection

The Mini Carver comes supplied with a dust extraction attachment, which can be fitted to the tool and connected to a vacuum hose during sanding operations. This new feature keeps work spaces free from wood dust, particularly important for those who perform their work in small, inadequately ventilated areas.

CEO Kevin Inkster commented: "Not everyone has access to the ideal workshop space with extraction and ventilation systems in place. Users can simply hook the attachment up to a vacuum and start sanding. This feature will help reduce the spread of wood dust significantly, making for a cleaner and safer environment." The attachment can be easily removed when it is not required.

Vibration reduction

A new and improved motor plus the addition of a vibration reducing handle will add further comfort and ergonomics for users. What's more, the Mini Carver is a compact, lightweight option for power carving and sculpting, yet it does not compromise on performance. "Our intention is for our tools to be as user friendly and ergonomic as possible" said Kevin. "While the previous Mini Grinder operated effortlessly and is used widely within the chainsaw carving and wood sculpting markets, this new version has a quieter and smoother motor as well as a vibration reduction handle, which we think our customers will appreciate very much."

Tungsten carbide carving blade

The new Mini Carver will come with Arbortech's top tungsten carbide tipped carving blade – the Mini Industrial Blade. Compared to standard steel carving blades, this blade will stay sharp for longer, offering optimum performance even in the hardest timbers.

The Mini Carver is supplied with a tool bag, mini industrial blade, sanding discs, rubber sanding pad and dust extraction attachment. More accessories are available online. Currently priced at £219.95 inc VAT, see **www.brimarc.com** for more information.

DIARY – OCTOBER

2–3* Bowls & platters
5* Sharpening woodturning tools with Tormek
8* Pen making
8–9 Advanced turned boxes
14–18 Make a rocking chair
15* & **21** Christmas decorations & gifts
22 Beginners' Woodturning
22–25* Intro to woodworking – side table
23–24 Intro to the small engineering lathe
23–24 Woodcarving
* Course held in Sittingbourne, Kent
Axminster Tools & Machinery
Unit 10 Weycroft Avenue
Axminster, Devon EX13 5PH
Tel: 08009 751 905
Web: www.axminster.co.uk

5–6 Wood machining
John Lloyd Fine Furniture
Bankside Farm, Ditchling Common
Burgess Hill, East Sussex RH15 0SJ
Tel: 01444 480 388
Web: www.johnlloydfinefurniture.co.uk

2–4 Longbow making
5 & **6** Basket making
Greenwood Days
Ferrers Centre for Arts & Crafts
Staunton Harold, Leicestershire LE65 1RU
Tel: 01332 864 529
Web: www.greenwooddays.co.uk

12–13 Dovetailing weekend
25–28 Beginners' four-day course
Chris Tribe
The Cornmill, Railway Road, Ilkley LS29 8HT
Tel: 01943 602 836
Web: www.christribefurniturecourses.com

18–20 Make an English long-bow
25–30 Musical instrument making: violins, violas or cellos – starting or finishing
25–30 Traditional stringed and keyboard instruments – starting or finishing
West Dean College
Nr Chichester, West Sussex PO18 0QZ
Tel: 01243 811 301
Web: www.westdean.org.uk

12 Traditional wooden rake making
19–20 A woven top stool
Weald & Downland Living Museum
Singleton, Chichester, West Sussex PO18 0EU
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The Woodworker Timber Suppliers Directory – October 2019

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Web: www.adhectic.co.uk

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Web: www.aharrisonwoodturning.co.uk

Bennetts Timber (Lincolnshire)
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Black Isle Woodturning (Scotland)
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Web: www.stilesandbates.co.uk

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Web: www.sykestimber.co.uk

The Timber Mill (Cornwall)
Tel: 07966 396 419
Web: www.thetimbermill.com

The Wood Recycling Store (East Sussex)
Tel: 01273 570 500
Web: www.woodrecycling.org.uk

Thorogood Timber Ltd (Essex)
Tel: 01206 233 100
Web: www.thorogood.co.uk

Timberman (Carmarthenshire)
Tel: 01267 232 621
Web: www.timberman.co.uk

Tree Station (Lancashire)
Tel: 01612 313 333
Web: www.treestation.co.uk

UK Timber Ltd (Northamptonshire)
Tel: 01536 267 107
Web: www.uk-timber.co.uk

Waterloo Timber Ltd (Lancashire)
Tel: 01200 423 263
Web: No website

Wenban Smith (West Sussex)
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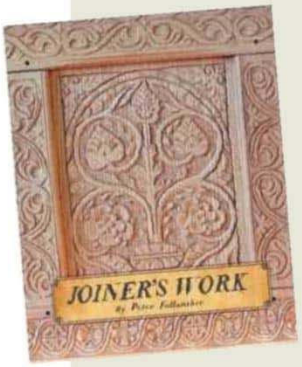
LATEST BOOK FROM LOST ART PRESS – *JOINER'S WORK* BY PETER FOLLANSBEE



Forget what you think about 17th-century New England furniture: it's neither dark nor boring – instead, it's a riot of geometric carvings and bright colours, all built upon simple constructions that use rabbets, nails and mortise & tenon joints.

Peter Follansbee has spent his adult life researching this beguiling time period to understand the simple tools and straightforward processes used to build the historical pieces featured in this book. *Joiner's Work* represents the culmination of decades of serious research and shop experimentation. But it's no dry treatise. Follansbee's wit – honed by 20 years of demonstrating at Plimoth Plantation – suffuses every page. It's a fascinating trip to the early days of joinery on the North American continent that's filled with lessons for woodworkers of all persuasions.

From lumber to tree

If you like green woodworking, *Joiner's Work* is a doctoral thesis on processing furniture-shaped chunks of lumber from the tree using and axe, froe, hatchet and brake. If you are into carving, Peter dives into deep detail on how he festoons his pieces with carvings that appear complex but are remarkably straightforward. And if you love casework, this book is a lesson on the topic that you won't find in many places. Peter's approach to the work, which is based on examining original pieces and endless shop experimentation, is a liberating and honest foil to the world of micrometers and precision routing.

The book features six projects, starting with a simple box with a hinged lid. Peter then shows how to add a drawer to the box, followed by a slanted lid for writing, before he plunges into the world of joined chests and their many variations, including those with a panelled lid and drawers below. He finishes up with a fantastic little bookstand. Construction of these projects is covered in exquisite detail in both the text and hundreds of step photos. Peter assumes you know almost nothing of 17th-century joinery, and so he walks you through the joints and carving as if it were your first day on the job. Plus he offers ideas for historical finishes.

A massive tome

What Peter doesn't provide, however, is detailed construction drawings of each piece with a cutting list and list of supplies you might need. As you quickly learn in the opening chapters, the size of the projects (and their components) are based on what you can harvest from the tree.

There's immense flexibility in this method of work, but to help keep you oriented, Peter provides pencil sketches (made by the wonderful Dave Fisher) that explain the anatomy of each project, plus rough sizes that will help you plan out your work in the woods and at the workbench.

If you are accustomed to CAD renderings, this will feel unfamiliar. But if you are brave, Lost Art Press think you'll find it a freeing way to build these pieces (which frankly look odd when built using contemporary precision techniques).

Throughout the book you'll have the voice of Follansbee to guide you. If you've ever heard him speak, you will instantly recognise the rhythm of the language and the dry humour. Lost Art Press took great pains to retain Peter's voice in this book.

Joiner's Work is a massive tome, coming in at 264 pages in an 8½ × 11in format. The text and full-colour images are printed on coated #80 paper. The pages are bound to create a permanent book. Lost Art Press sew the signatures then glue and tape the spine with fibrous tape. The pages are then wrapped by heavy hardbound covers that are covered in cotton cloth. The whole package is wrapped in a #100 dust jacket that is coated with a supermatte laminate to resist tearing and long-term wear.

Joiner's Work is available for UK deliveries from Classic Hand Tools and priced at £43.50 (EU is £55.50) (both include delivery). For more information, see **www.classichandtools.com**.

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Latest products now in stock at Classic Hand Tools from Saburrtooth are available and complement their range of ¼in burrs. They come in either blue (125 grit) and purple (132 grit), which is described as super coarse. Note the rotosaws are only available in the 125 grit version. More information on the range of burrs available can be found here: **www.classichandtools.com/acatalog/Saburr-Tooth.html**.

Their existing products are available in fine (40 grit), coarse (70 grit) and extra coarse (90 grit).

Ideal for power carving and allowing for rapid stock removal, Saburrtooth tools can be used on a variety of materials although they are not designed to be used on metal or ceramics.

THE 'HARROGATE' SHOW RETURNS FROM 15–17 NOVEMBER

Now in its 27th year, the much-anticipated North of England Woodworking & Power Tool Show (the 'Harrogate' show) returns again this year from 15–17 November. As usual, it will be held at the well-equipped Great Yorkshire Showground and advanced early bird tickets are now on sale. In terms of demonstrators, as with all years you can expect a fantastic line-up including woodturners Chris Fisher, Joey Richardson, Mark Sanger, Tony Wilson and Andrew Hall, among many others, as well as displays of sharpening, carving, furniture making and Windsor chairmaking. All the biggest names in the industry will be selling their machinery and tools, including Robert Sorby, Record Power, Trend, Makita and many, many more! Don't miss out on this opportunity to attend the best woodworking and power tool event in the UK; for more information, see **www.skpromotions.co.uk** or call **01749 813 899** for tickets.

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CHIPPENDALE SCHOOL PRIZE WINNERS

Student of the Year, Christian Burt

Public's Choice Award winner, Paul Hartman

The Chippendale International School of Furniture has announced its prize-winning student graduates for 2019. Each year, the school takes 26 students from around the world for its 30-week professional course, which is a pathway to a career in fine furniture design and making.

This year, the school welcomed students from the USA, UK, Ireland, Canada, Australia, Poland, Germany and Iceland.

Student of the Year

Student of the Year was Christian Burt, from Portland, Oregon, who won the prestigious award for his exceptional furniture made while studying on the professional course. His Japanese-inspired tea cabinet, made in sycamore and beech, showed off his high level of accuracy and craftsmanship. It has a kumiko limewood front panel, which is the delicate and ancient Japanese art of assembling pieces of wood without using nails. Christian's specific design, asanoha, is a particularly popular motif still used in architecture, fashion and graphic design. The asanoha pattern, based on regular hexagons or an aggregate of triangles, is widely used on kimono and baby clothes, and is believed to give health and long life.

Christian is now returning to Portland to set up Christian Taylor Fine Woodcraft.

The Students' Choice Award, chosen by the students themselves, went to Grant Anderson, originally from Zimbabwe but now living in Scotland. His signature piece was a drinks cabinet with some 1.8m of tambour door. The complexity involved in Grant's drinks cabinet is that the external tambour doors also attach to an inner tambour mechanism, giving a real sense of motion as the tambour doors move in opposite directions. Grant will now pursue a new career in fine woodworking.

Best Design Award

The Best Design Award went to Ross Cunnison, originally from Aberdeenshire but now living in Edinburgh, who first came to the Chippendale school on a one-week introductory course. His portfolio included a sideboard made from olive ash, a coffee table in walnut and oak, and a hall table in solid oak. Ross is going forwards with his furniture making business, Ross Cunnison Bespoke Furniture.

Marketing Award winner, Heather Jones

Public's Choice Award

Each year, students show off their pieces at a public exhibition in Edinburgh, with the public invited to vote for their favourite designer. This year's Public's Choice Award went to Paul Hartman from Alberta, Canada whose signature piece was a rocking chair inspired by the late Sam Maloof whose rockers are in national collections, and have been owned by US presidents. Paul is returning to Alberta to set up his own furniture design business, Dry Tree Construction.

Marketing Award

One unique aspect of a professional course at the Chippendale school is that it teaches the basics of business planning and marketing, to give students the best start post-graduation. The Marketing Award is given to the student who creates the best portfolio of marketing materials, and this year's winner was Heather Jones from Los Angeles. She demonstrated a flair for giving personality to her pieces, carrying fun and quirky descriptions into her promotional materials. She's initially returning to the USA and setting up Heather Jones Bespoke Furniture.

Richard Demarco Prize 2019

The Richard Demarco Prize 2019 was awarded to a Northern Irish student who used the Brexit debate to create a humorous, yet pointed, piece of furniture. The annual prize is awarded by the celebrated Professor Richard Demarco CBE, one of the UK's leading arts commentators. Professor Demarco's prize is awarded to the student whose work not only displays design and woodworking skill but also exceptional artistic talent.

Stephen Barr's 'Strong and Stable Brexit Cabinet', in walnut and Japanese ash, depicts the Union Jack on one door, and the EU's stars on the other. Stephen is setting up Starship Unicorn Furniture from premises in West Lothian.

"This has been an exceptional year, with our students designing and making some fantastic pieces," said Anselm Fraser, the school's principal.

"I'd like to congratulate every one of our graduates for their hard work and wish them all well in their new careers," he finished.

For more information on the school, see **www.chippendaleschool.com**.

DAWN OF A NEW AGE IN CUSTOMER SERVICE

Customer service used to be about answering telephones and responding to written requests, but our fast paced, social media driven society has put this function firmly in the spotlight. Consumers now post on a variety of social media platforms about anything from a positive experience with a product to an issue with an item being out of stock.

With the rapid evolution of these channels and the immediacy of the content, we have started to see the likes of Twitter, Facebook and Instagram become customer service portals as well as places where people can publish selfies or thoughts on the job at hand. This change is a good thing for the customer service side of the business, as it allows organisations to see what consumers are saying about their products as well as providing them with channels through which they can build relationships, educate, advise and highlight key messages to a large and engaged audience.

Mirka use Twitter not only to promote their products but also to direct customers to other areas such as customer services. Sometimes 280 characters are not enough to provide all the information required, so they aim to drive traffic back to their website, where users can find out more detailed information and where they can potentially look at other solutions. The company also point users to their added value services, such as their approved service centres and use social media to ask for feedback to help them continually improve what they are offering.

While some companies may view that there is a downside to these channels, as they offer an immediate way to get in contact with the brand, often in a negative way, they have a strong upside if handled correctly. A good customer service team would respond to comments or questions within 30 minutes to one hour of receiving them. Even if the posting is negative, the person should feel warmer towards the company because he or she is being listened to.

With Twitter, businesses should think carefully about the tone of the response. At Mirka, employees aim to answer in a more conversational voice, as it humanises the brand and makes people feel as if they are talking to a real person instead of an automated system that churns out generic answers. They prefer to direct message (DM) or take the query offline so they can make contact and provide full details as required.

For Instagram, the platform is used more as a customer service tool to educate users through product imagery shown in its natural environment, as well as provide them with relevant information. For example, where to find products or how to register a warranty.

The advice and information posted on social media is starting to play a bigger role as part of the customer service strategies of businesses, because having a good online presence shows your customers that you care about them and are willing to listen to their queries or issues and are very accessible. This, in turn, will lead to a greater rapport being built with them, leading to goodwill towards the brand, the end result of which is usually increased sales and greater profitability.

To find out more, see **www.mirka.com/uk/uk**.

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We look forward to seeing you at **'THE' TOOL SHOW 2019** at Kempton Park Racecourse at Sunbury-on-Thames, on the weekend of 4–6 October 2019. **'THE' TOOL SHOW** is the UK's premier hand, power tools and woodworking machinery exhibition for DIY amateurs and trade professionals and is now in its 19th year. Don't miss this opportunity to get hands-on with the very latest tools and equipment demonstrated by experts from all the leading brands. Visitors can pick up exclusive deals and special offers, which are ONLY available at the show, plus the opportunity to take part in our popular Free Prize Draw to win one of 12 vouchers worth £250 to spend on tools. Admission is FREE and there is ample FREE parking.

Also back at the show for 2019 is **Woodworking Live from Record Power** with another three days of woodworking demonstrations, inspiration and fun!

Make a note in your diaries and visit **www.thetoolshow.com** for more details.

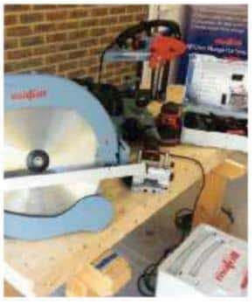
SUMMER DEMO DAYS: FESTOOL ROADSHOW, DEWALT PREMIER CENTRE DAY & MAFELL DEMO DAY

Over the Summer months, D&M Tools were pleased to be able to host a number of manufacturer's demo days and events.

These kicked off with the **Festool Truck Roadshow** back on 16 May, which was held at the nearby Twickenham Stoop Stadium and despite the periods of heavy rain, attracted a good crowd of visitors who were able to enjoy a free breakfast and see demonstrations including a preview of a prototype Festool saw bench with revolutionary SawStop technology, which stops the blade automatically if your fingers are in the way and thus helps to prevent serious injury.

In June we hosted our **DeWalt Premier Centre Demo Day** at our Twickenham Superstore where visitors were able to see demos and try out the latest machines, including the new cordless router and cordless palm sander. There were also experience day prize giveaways and special offers.

Then in July at our Twickenham Superstore, we held a **Mafell demo/sale day**, where customers and staff were able to see demonstrations and chat with Mafell experts Nathan and Jody from NMA Tools and take advantage of special one-day deals.



PLEASE CHECK OUR WEBSITE – WWW.DM-TOOLS.CO.UK – FOR THE LATEST PRICES AND DEALS

DEWALT DCW604 18V XR CORDLESS ROUTER

Although a while in the making, **Phil Davy** thinks this new cordless router from DeWalt has certainly been worth the wait

Micro-adjustable for depth, the fixed base is ideal for edge profiling work

DeWalt may have been slower than other manufacturers in launching a cordless router to the UK, but it's certainly been worth the wait. Like the Makita DRT50 we tested back in *GW*331 (May 2018), this is an 18V model equipped with most of the bells and whistles you could wish for. The DW604 kit comes in a large T-STAK storage container, which can be stacked and transported with other DeWalt tools. I should point out that the router comes bare, without battery or charger, though it's likely some dealers will put their own package together. If you're new to the DeWalt system, reckon on spending about £75 or more for a 4Ah XR battery and charger.

So what's included? At the heart of the router is a brushless motor unit, which can be mounted into either of two different bases. Micro-adjustable for depth, the fixed base is ideal for edge profiling work. Its D-shape provides extra downward grip, while a circular sub-base can be substituted by removing a few screws.

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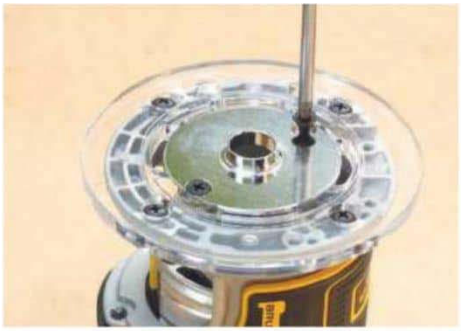

Both plunge and circular sub-base accept guide bushes for template routing, and a 17mm option is provided

Each base has its own adjustable parallel fence, the plunge version slightly more sophisticated and similar to the old Elu favourite

Two clear plastic dust outlets are supplied as standard

The plunge base is better for controlled freehand routing, inlay cutting, cutting joints and everything you'd expect from a compact 230V router. Both plunge and circular sub-base accept guide bushes for template routing, and a 17mm option is provided. Bases are quick to swap, but more on that later. Each base has its own adjustable parallel fence, the plunge version slightly more sophisticated and similar to the old Elu favourite. Two clear plastic dust outlets are supplied as standard, while a centring tool and pin enable you to align bases precisely when necessary.

Everything fits neatly into the T-STAK box (including batteries), though you'll need to remove dust outlets from bases – slightly irritating if you like to pack tools away at the end of each day.

Brushless motor

The cylindrical motor unit is aluminium and has a coarse outer thread, enabling the fixed base depth collar to rotate. At the upper end is a plastic housing for the battery and electronics. This is flat and enables the tool to stand upright on the bench when changing bases or making adjustments.

With a wide speed range from 16,000 to 25,500rpm, the speed dial is located just below the battery and is clearly marked. A rubber-shrouded on/off switch is mounted on one side and is fairly easy to reach. As you'd expect, the motor is brushless, making it compact and noticeably quieter than a mains-powered router.

The Li-ion battery simply slides into place,

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With a wide speed range from 16,000-25,500rpm, the speed dial is located just below the battery and is clearly marked

The Li-ion battery simply slides into place, though it's safer not to fit this until you've installed the motor into a base and made depth adjustments

The tool features a pair of white LED worklights beneath the motor, which focus neatly on the work area

though it's safer not to fit this until you've installed the motor into a base and made depth adjustments. This tool will operate on a 54V Flexvolt battery (as 18V), though you may find this too unwieldy due to the extra weight. With a standard 5Ah, 18V XR battery on board overall weight is 3kg with plunge base fitted.

The tool features a pair of white LED worklights beneath the motor, which focus neatly on the work area. These are activated when you depress the on button. Once the motor is running, hit the off button and braking is instantaneous, thanks to sophisticated electronics, which also include soft-start. Lights remain on for around 15 seconds after switching off.

Cutter change

You need to remove the motor from the fixed base for cutter changing, though with the plunge base fitted this is unnecessary. A spring-loaded spindle lock button and wrench make the process straightforward, though it's a tad awkward holding the motor down on the bench. Both ¼in and 8mm collets are supplied, common with routers of this size. Although both bases have an aperture of 37mm, DeWalt recommends using bits up to a maximum of 30mm diameter.

Fixed base

Installing the motor unit into the aluminium fixed base is dead easy and textured rubber provides a decent grip when routing. You open the hefty steel locking lever and slide the motor into position until it clicks into the plastic depth collar. To adjust depth you just rotate the collar, locking it again with the lever. To release the motor again you squeeze two spring-loaded levers on the collar. Alternatively, you can rotate the collar until the motor is free.

For micro depth setting, a thin ring beneath the collar is used, which has a graduated scale. Each mark represents a depth change of 0.4mm, while a full rotation equals 12.7mm. This works neatly and means you can make precise adjustments, usually only possible with a plunge base.

DeWalt's D-shaped polycarbonate baseplate is 6mm thick and can be re-aligned for accuracy if you've been using the sub-base. First, a double-ended steel pin is inserted into the collet and tightened (it fits either collet), then a plastic cone is pushed over the pin until it meets the baseplate, where retaining screws are then fully tightened. This ensures any cutter is now dead centre to the baseplate.

Plunge base

In the same way as the fixed base, the motor unit slides easily into an aluminium cradle and is secured with a locking lever. This upper housing slides on a pair of steel columns, locked off with a substantial plastic plunge lever. Plunge action is particularly smooth and maximum travel is an impressive 55mm.

Rubber handles on the plunge base are slightly offset, making the tool particularly comfortable to grip and offering greater control. In front of one of the columns is a five-way rotating turret, with a sliding steel depth rod above for setting. Secured with a thumbscrew, there's a knurled

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To install the motor unit into the aluminium fixed base, open the steel locking lever and slide the motor into position until it clicks into the plastic depth collar

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For micro depth setting, a thin ring beneath the collar is used, which has a graduated scale

In front of one of the columns is a five-way rotating turret, with a sliding steel depth rod above for setting

A clear metric scale and sliding plastic pointer helps makes accurate depth adjustment straightforward


The fixed base is equipped with a basic steel fence for straight routing, which slots into place and is secured with a couple of screws


A plastic cone is pushed over the pin until it meets the baseplate, where retaining screws are then fully tightened

fine adjuster screw at the bottom. A clear metric scale and sliding plastic pointer helps make accurate depth adjustment straightforward.

The fixed base is equipped with a basic steel fence for straight routing, which slots into place and is secured with a couple of screws. These are stored on the fence itself when not in use to prevent them getting lost. Maximum width capacity is 128mm, the adjustment locked with a thumbscrew. A couple of holes means you can screw a wooden facing to the fence.

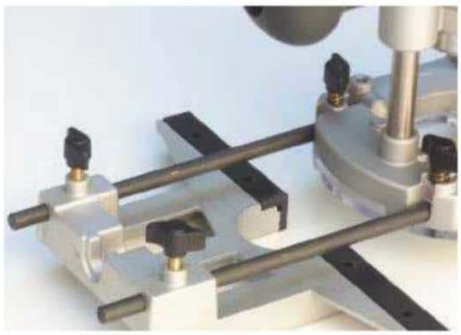
The fence for the plunge base is cast aluminium and more substantial. It uses a pair of standard steel rods, spaced at 84mm centres. These are secured with thumbscrews to the base and routing capacity here is a conservative 125mm. Plastic facings protect the work and can be removed or replaced with hardwood if you prefer.


In the same way as the fixed base, the motor unit slides easily into an aluminium cradle and is secured with a locking lever

Ergonomics

Like any cordless router the DeWalt is slightly top heavy, though you soon get used to applying downwards pressure to keep the baseplate flat on the work surface. With the fixed base fitted there's a clear view of the cutter, although the same can't be said when the relevant dust outlet is installed. This is not a problem with the plunge base, though. Connecting up a dust extractor is recommended for workshop use or when working in a confined space.

At full speed it's pretty quiet for a router, which is good news. Installing the motor in the plunge base so the spindle lock button is at the front means access to the speed dial is not ideal, though this is easy enough to live with.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The DeWalt may not offer the tilt or offset base included with Makita's DRT50, but this is a fantastic power tool for both workshop use and out on site

Conclusion

If you're considering cordless routing you'll want to take a closer look at this DeWalt package. It's a compact tool, so don't expect it to handle the workload that a ½in router is capable of achieving. If you find it top-heavy you could try using a smaller capacity battery to reduce weight, though don't forget a fully charged spare is always recommended.

The DeWalt may not offer the tilt or offset base included with Makita's DRT50, but this is a fantastic power tool for both workshop use and out on site. It's perfect for shopfitters, kitchen installers and in any situation where precision routing work is needed. Plenty of power without the cable...

SPECIFICATION

Voltage: 18V
Battery type: Lithium-ion
Max cutter diameter: 30mm
Collet chuck capacity: ¼ and 8mm
No load speed: 16,000-25,500rpm
Plunge stroke/movement: 55mm
Weight: 3kg

Typical price: £373 (bare) but it's worth having a look at different package deals offered by various retailers
Web: www.dewalt.co.uk

THE VERDICT

PROS

- Quiet; soft-start electronics, fast braking; variable speed; two bases provided

CONS

- Bases do not fit T-STAK with dust outlets fitted

RATING: 5 out of **5**

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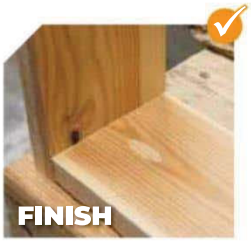

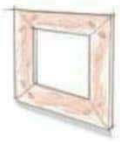

PICTURES FRAMES

ANGLES

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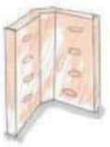

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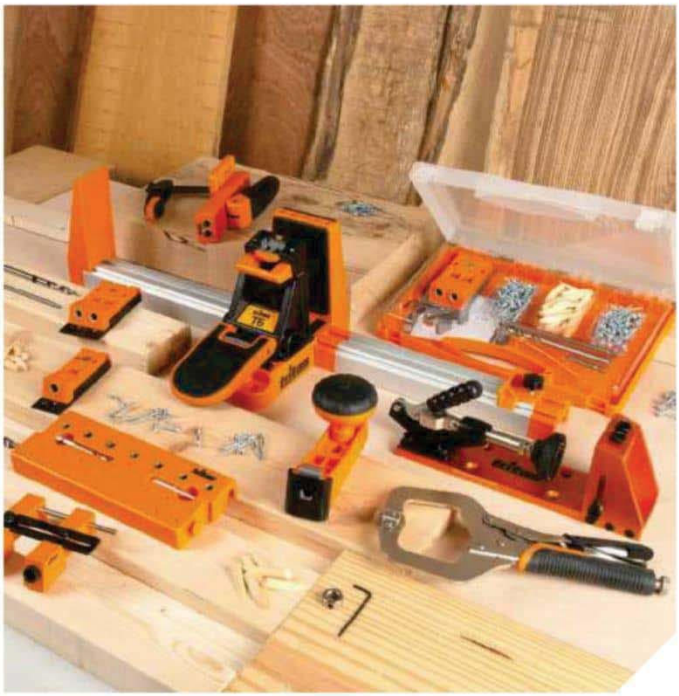
 **T4** PHJ T4 Easy-Set Pocket-Hole Jig	Medium to large scale projects with **1 to 50** Pocket Holes	*Built in*
 **T6** PHJ T6 Pocket-Hole Jig **T6** PHJM T6 Pocket-Hole Jig Master Set 12pce	Medium to large scale projects with **50+** Pocket Holes	*Built In*
 **TW** 7PHJ Pocket-Hole Jig 7pce **TW** 8CPHJ Clamping Pocket-Hole Jig 8pce	Small to large scale projects with **1 to 50** Pocket Holes	*Built In*



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3YR GUARANTEE

SKIL 1580 AA ELECTRIC PLANER

Ideal for planing surfaces, chamfering corners and making rebates, this planer from SKIL represents good value for money, says **Phil Davy**

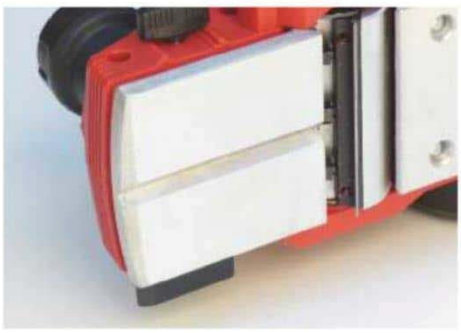
A power planer may not be at the top of your power tool wish list, but it can be a pretty handy item for many woodwork tasks. You probably wouldn't want to risk your prized bench plane to true up the edges of a sheet of MDF or plywood, which are quite abrasive. Or perhaps you want to use some recycled timber for a project, which may have hidden defects that would damage a hand plane blade. Then there's shooting the edge of that sticking door or timber window. Again, it's wise to avoid using your hand tools on any painted woodwork. A portable planer is suitable for this sort of work, though they're restricted to relatively narrow timbers and edges.

SKIL's new 1580 model is a 230V tool, with a cable length of 2.6m. It follows the standard format of cylindrical cutterblock with a pair of replaceable carbide blades. Equipped with a powerful 710W motor, these rotate at 16,000rpm. Located in front of the meaty on/off trigger, the safety lock-off button can be accessed from either side. The rear handle is covered in textured rubber for improved grip. Overall weight is 2.6kg.

Respectable rebates

Its 7mm thick alloy soleplate measures 270 × 80mm overall and has the familiar 'V' groove underneath the front shoe, used for chamfering work. Planing depth is easily set via the front knob, giving a maximum cut of 2mm and marked in increments of 0.25mm. Like most planers,

Located in front of the meaty on/off trigger, the safety lock-off button can be accessed from either side



The planer's 7mm thick alloy soleplate measures 270 × 80mm overall

Planing depth is easily set via the front knob, giving a maximum cut of 2mm and marked in increments of 0.25mm

A plastic stop is provided for rebating and is simply screwed to the side of the tool, giving a maximum depth of 8mm

A steel fence is also included, which you'll need to get a straight rebate...

... this screws to the opposite side and is adjustable for width

The lightweight, rather flimsy fabric dustbag can be attached to either side of the tool

A fair amount of chips were ejected from beneath the planer, though hooked up to a powerful dust extractor these were almost nonexistent

To change the blades a wrench is provided, which is stored in a recess towards the back of the tool

Each blade is secured with three bolts, which are slackened off to free them

there's a parking foot at the rear, so you can put the tool down without fear of dinging a surface with cutters that haven't quite reached standstill.

A plastic stop is provided for rebating and is simply screwed to the side of the tool, giving a maximum depth of 8mm. A steel fence is also included, which you'll need to get a straight rebate. This screws to the opposite side and is adjustable for width.

The lightweight, rather flimsy fabric dustbag can be attached to either side of the tool. Depending on what side you want the chips ejected you turn a central selector lever, which moves a baffle to left or right. During testing a fair amount of chips were ejected from beneath the planer, though hooked up to a powerful dust extractor these were almost nonexistent.

Cutter change

Blades are a standard 82mm in length and have reversible edges. To change them a wrench is provided, which is stored in a recess towards the back of the tool. Each blade is secured with three bolts, which are slackened off to free them. It's then advisable to push each blade outwards with a block of wood as they're a tight fit and obviously pretty sharp.

In use

This tool is a good weight without being too heavy. Easy to control, the blades produced an excellent finish in both softwood and oak, but ideally you need to hook up an extractor to keep your work area relatively clean. Don't expect this tool to cut delicate chamfers, however. Even with the depth knob set at zero, the planer produced a 7mm wide chamfer.

Conclusion

As a DIY power tool the SKIL is actually pretty good. There's not much that can go wrong with a planer, and at £60 it represents good value. Replacement blades are easy to source when you need them.

It's then advisable to push each blade outwards with a block of wood as they're a tight fit and obviously pretty sharp

Easy to control, the blades produced an excellent finish in both softwood and oak, but ideally you need to hook up an extractor to keep your work area relatively clean

SPECIFICATION

Input: 710W
Planing depth: 2mm
Rebating depth: 8mm
No-load speed: 16,000rpm
Weight: 2.6kg
Voltage: 220-240V
Sound pressure level: 88,0 dB(A)

Typical price: £60
Web: www.skil.com; www.diy.com

THE VERDICT

PROS
- Excellent finish; reversible blades

CONS
- Don't expect to cut narrow chamfers

RATING: 4 out of 5

TREND ROUTER POD

Designed for use with jigs and templates when a guide bush is fitted to the router base, **Phil Davy** discovers more about the new Router Pod from Trend

SPECIFICATION

Internal diameter: 65mm
Height: 45mm
Size: 173 × 153mm

Typical price: £9.95
Web: www.trend-uk.com

THE VERDICT

PROS
- Cheap; stackable; increases router safety

CONS
- You may want more than one...

RATING: 5 out of 5

Often the most basic tools work best, where there's very little to go wrong. This is true of Trend's new Router Pod, a simple solution to avoid damaging a bench top or work surface when placing a router down after use. Sometimes it's annoying having to retract a plunge router at the end of each operation when you've a quantity of cutting work to do. Designed primarily for routers fitted with protruding guide bushes, the Pod is just as handy for any portable router with a cutter installed, no matter what the size.

Lightweight but strong

Made from ABS plastic, the D-shaped Pod is lightweight but strong. Measuring 173mm across and 153mm from front to back, the flat top is textured, rather than completely smooth. Four rubber feet prevent it sliding across a surface and there are matching recesses in the top so you can stack another Pod above. This is useful when you're using a big router with a deep cutter. Each Pod stands about 45mm high, so a pair should accommodate the longest bit. The aperture is 65mm across, so there's plenty of room for a large diameter cutter. The base on my biggest ½in router is about 180mm across, which sat firmly on the Pod with no difficulty.

Conclusion

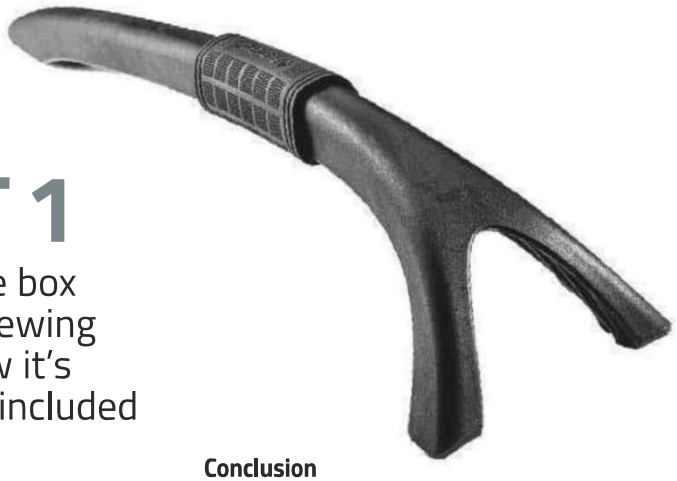
You could make something similar for your router from offcuts, but most of the time we prefer to be getting on with a project rather than building accessories. And if space is tight in your workshop, the Router Pod hardly takes up any extra room as you can store a router on top.

Designed primarily for routers fitted with protruding guide bushes, the Pod is just as handy for any portable router with a cutter installed

Four rubber feet prevent it sliding across a surface and there are matching recesses in the top so you can stack another Pod above

The base on my biggest ½in router is about 180mm across, which sat firmly on the Pod with no difficulty

VARIOUS KIT FROM WOOD WORKERS WORKSHOP – PART 1



Previously, **Jonathan Salisbury** delved into the box sent to him by Wood Workers Workshop, reviewing the ArmorTool Auto Adjust clamp range – now it's time for him to have a look at what else they included

FASTCAP 10 MILLION DOLLAR STICK

Enigma

Are you setting a quiz and looking for a 'mystery item?' If so, look no further! What a funny looking push stick… Actually, this isn't a push stick; it's a clamp.

Safety first

The 10 Million Dollar Stick (10MDS) allows you to keep wood in place on a chop or radial arm saw without risking a trip to A&E if you get it wrong. The 10 in the name refers somewhat ominously to how many fingers and thumbs you ought to have, by the way. The manual holding of wood close to any sharp, fast-moving blade is of course foolhardy and can be awkward, especially if you are cutting an angle and/or the workpiece is relatively small.

The rubber studs provide grip

How it's used

The concept is simple; a 'wishbone' on the end of a long handle provides a finger and thumb that is used to clamp work. It works best if the chop saw table is long enough to put the wishbone end on the material and the other end on the table surface, more or less left to right. It can also be used the other way around; pushing down on the handle in between the two ends creates the clamping force. The bed of the chop saw I used for the test was much too short to do this, so I rested the 'finger' on the material and the thumb on the machine table, the rubber pads on the underside of these stopping it from slipping. The handle can be held at a safe distance from the blade and the slight curve along its length allows sufficient pressure to be applied to hold the wood firmly in place, the arched fingers pressing down rather than sideways, as the chop saw does its job. The tube grip on the handle slides along if you want to reposition it and the 'ergonomic' shape makes it comfortable to use. I showed it to a colleague who does far more chop saw work than me and he rotated it onto a thicker piece of wood so that the arch pushed against the edge.

How to use it

The tubular grip can be repositioned

The trailing end has two studs!

In use on a short-tabled chop saw

Conclusion

If you have a chop saw, I think that the 10MDS would be a very wise investment. It would have been good for it to come with a photo or a little card to show how it is used; it seems so obvious now, but I had to do some research on the internet as I couldn't work it out. The rubber studs could do with being a little softer and they need to be kept clean as they don't grip as well when dusty. They also don't seem to be replaceable. £17.99 is possibly a little on the high side, but can you put a price on keeping your fingers? $10million says you can't!

SPECIFICATION

- Keeps hands away from the blade while cutting small parts
- Ergonomic injection moulded design
- Wishbone shape with gripping, rubber feet

Typical price: £17.99
Web: www.woodworkersworkshop.co.uk

THE VERDICT

PROS

- Provides reliable downwards clamping force; much more secure than using a push stick; quick, easy and comfortable to use; prevents risk to fingers when holding close to a blade

CONS

- Rubber studs would be better if a little softer and they don't seem to be replaceable

RATING: 4 out of **5**

Two of each size


There's no comparison!

WOODRIVER SILICONE CHISEL EDGE GUARDS (SET OF 10)

Sharp edges

New chisels often come with rigid plastic guards to protect you from them, as well as protecting the sharp edge from any contact with anything that will chip it. Guards on old chisels, even if they had them in the first place, are usually long gone; lost, thrown away after splitting, or just seen as a 'useless' bit of packaging. Even after spending hours grinding, honing and polishing chisels and gouges, replacing lost guards was just not something that I'd expect to be able to do, although I did once have a go at making one from wood.

What you get

The WoodRiver silicone chisel guards are slightly larger, chunkier versions of the originals, but they are not made of the same material. Since they are flexible, stretching to fit and grip the chisel end, they stay in place. For the common bevel-edge chisel, sizes are a like-for-like fit (i.e. the size stated fits that width of chisel). They are not specifically for one width, so the smallest fits everything from ⅛in to ¼in, the next ⅜in to ½in, and so on.

Not just for bevels

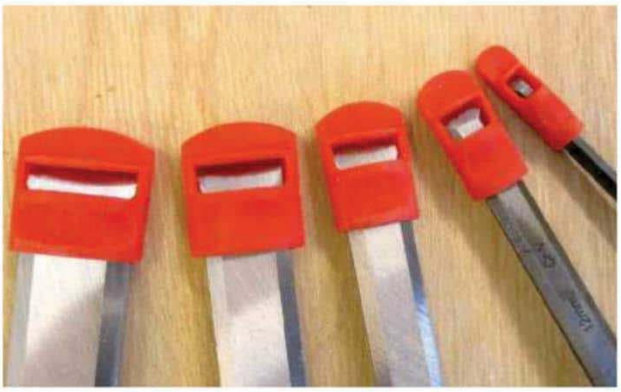
However, you might have more than bevel chisels. What then? Because of their flexibility, the guards can be pushed onto other types too, such as firmer or mortise chisels. At this point you need to just find one that fits well, even if it is a bit baggy. The guards also fit gouges (although the curved edge is not always fully covered), router cutters, plough plane irons – in fact, almost anything thin enough!

Safety first

One thing that concerned me is that the WoodRiver guards require a greater force to push them onto the end of my sharp chisels than the originals, because they grip more. Slipping is really not what you want to do, ever. What seems to be an obvious finger/thumb grip actually doesn't work, but there is a knack! Squeezing the sides opens the gap and allows the chisel to slip in or out. The little window allows you to see if the edge has been pushed in enough.

Conclusion

If you have fixed workshop storage from which your chisels rarely move far, guards are possibly not essential. However, if your chisels occasionally fall off the bench, or get knocked by other tools, one of these on the end would be good insurance. I used to keep chisels loose in a tool box because I had no other choice. They often came out with chipped points because the guards didn't stay in place. The availability of replacements is therefore fantastic, and will stop that horrible shudder I get as my newly polished chisel heads edge first towards the garage floor. The one downside to these guards is that they can only be bought in a set of all sizes; if I order enough for my collection I'll end up with lots of the larger ones left over. Swapsies, anyone?


The full range, beautifully modelled


Larger chisels can also be accommodated

SPECIFICATION

- Soft silicone chisel edge guards go on and stay put
- Protect edges against 'hard knocks'
- Fit chisels from 3-33mm (⅛-1 ¼in)

Typical price: £12.95
Web: www.woodworkersworkshop.co.uk


The indent is not to help you put them on...


Squeeze the edges and slide on very carefully


The window lets you see what's inside

THE VERDICT

PROS

- Flexible to provide a tight fit on almost all chisels and gouges; excellent protection from accidental damage; safer to put on than rigid guards

CONS

- Only available in a set

RATING: 4.5 out of **5**

Wheelbarrow, bed or planter?

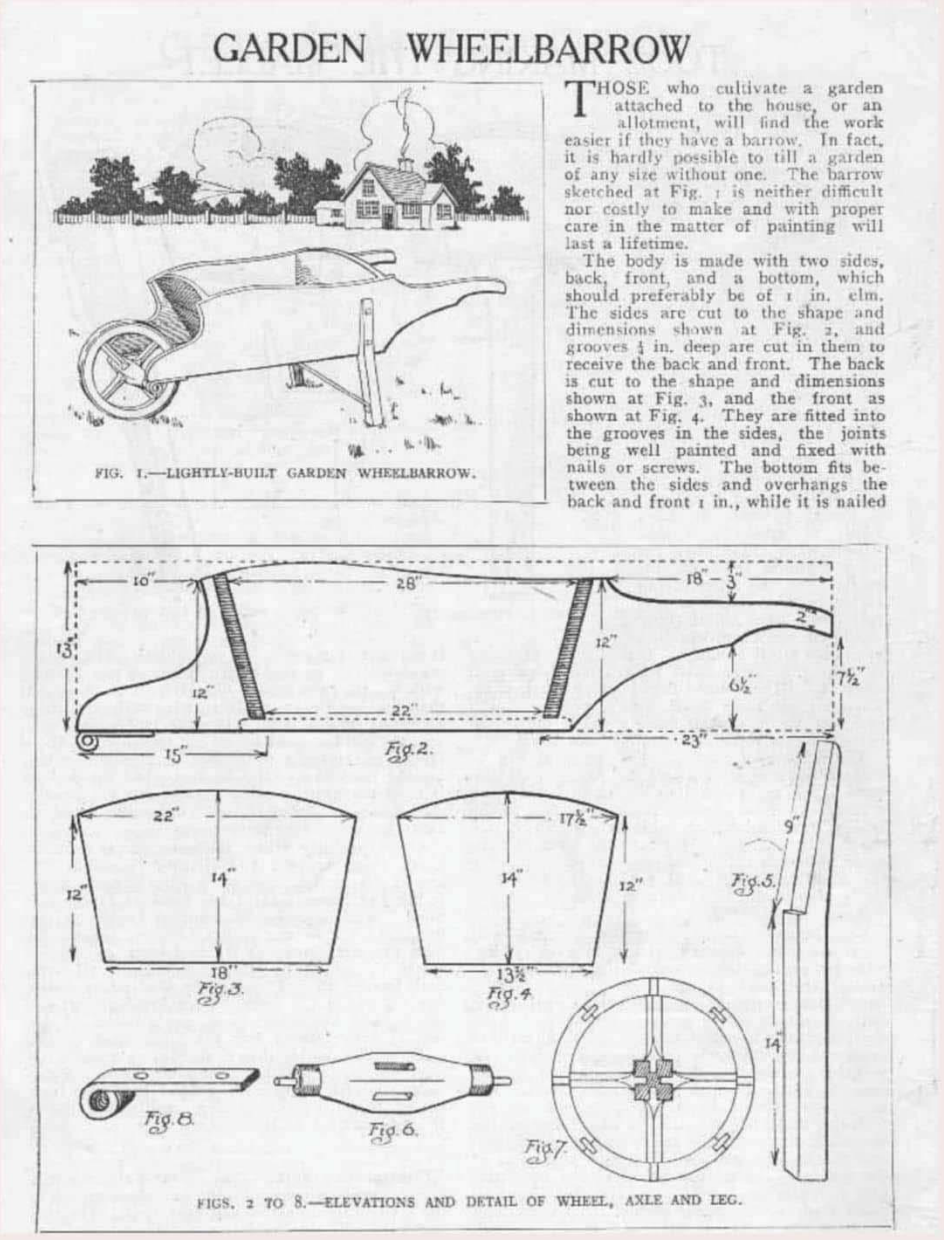
Robin Gates deconstructs a design from the June 1927 issue of *The Woodworker*

Walking me home from primary school in the 1960s, Mum occasionally took the longer route across fields where archaeologists were excavating the remains of Fishbourne Roman Palace. For the interested passer-by they'd lift the corners of tarpaulins to reveal the amazingly well-preserved mosaic floors. But something else which stuck in my memory was the sight of a tired student lying back in their wheelbarrow, fast asleep.

The first thing that occurs to me about this wheelbarrow design from the June 1927 issue of *The Woodworker* is that it'd make a very uncomfortable bed. And for much the same reasons, it wouldn't be the most practical of load carriers around the garden.

The headboard, nearest the wheel, is too steep. Just as you couldn't lie against it, neither would it help with tipping out the load. It ought to be inclined at a more shallow angle, and projecting over the wheel. A wheelbarrow is essentially a class 2 lever, with the wheel being the fulcrum, effort applied to the handles, and the load placed amidships. The further forward the load, the less effort is required to lift it.

At the opposite end, meanwhile, the knee board is not only too steep but also too high. Trying to hook your knees over this for a snooze, you'd certainly be doubled up like a paperclip, but more importantly, clearing a board this high with a spade full of dirt would take double the effort, and it'd almost certainly lead to overloading.



GARDEN WHEELBARROW

FIG. 1.—LIGHTLY-BUILT GARDEN WHEELBARROW.

THOSE who cultivate a garden attached to the house, or an allotment, will find the work easier if they have a barrow. In fact, it is hardly possible to till a garden of any size without one. The barrow sketched at Fig. 1 is neither difficult nor costly to make and with proper care in the matter of painting will last a lifetime.

The body is made with two sides, back, front, and a bottom, which should preferably be of 1 in. elm. The sides are cut to the shape and dimensions shown at Fig. 2, and grooves ¼ in. deep are cut in them to receive the back and front. The back is cut to the shape and dimensions shown at Fig. 3, and the front as shown at Fig. 4. They are fitted into the grooves in the sides, the joints being well painted and fixed with nails or screws. The bottom fits between the sides and overhangs the back and front 1 in., while it is nailed

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

FIGS. 2 TO 8.—ELEVATIONS AND DETAIL OF WHEEL, AXLE AND LEG.

An environmental no-brainer

Weighed against buying a wheelbarrow made of plastic, building one in renewable wood is an environmental no-brainer, but it strikes me this design places looks above practicality. The deep and shapely sides concentrate unnecessary weight around the handles, and there'd be a lot of wastage in cutting boards for the extravagant curves both here and projecting forward to the axle. In 1927, finding the required three elm boards of around 1.5m × 0.4m × 25mm may have been relatively easy, but given the scarcity of elm today, and even substituting another hardwood like oak, we'd probably have to glue up the boards, and perhaps reinforce the rubbed joints with cleats nailed on at right angles.

The head and knee boards are housed in grooves, fastened through the sides into end-grain, and it'd only be a matter of time before the outward force of the load pushed those joints apart. At rest, the splayed legs could counteract this but if a leg were to collide with anything while airborne, it'd exert leverage on the side and extract those end-grain fastenings with the efficacy of a nail puller.

Fine felloes

We're told the wheel, with ash hub, oak spokes and felloes, is 'a rather interesting piece of work, and is not really difficult.' By making a full-size drawing and templates to get the shape and angles of the felloes right, perhaps I'd eventually make a round-ish wheel, but the making of an iron tyre that's 'heated red hot, driven over the felloes, and cooled' is well outside my comfort zone.

In my view, this'd make a pretty wheelbarrow-shaped planter, but not such a workable wheelbarrow. Instead of building with heavy boards assembled like a coffin, I'd try a frame-based body with a pair of shafts, or 'strines', running from handles to axle, joined amidships by rails covered in by tongued & grooved bottom boards – not forgetting drain holes bored at the lowest point. The headboard would slope well forward, and sides would taper to a token knee board. The wheel could be wider than suggested, so as not to dig into soft ground, and instead of an iron tyre I'd recycle the rubber from an old motorbike tyre that'd roll more quietly on paved ground. Now, that might be a wheelbarrow I could sleep on.

Organised by

JEREMY BROUN

In collaboration with

The Woodworker & Good woodworking

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THE WILSON

THE ALAN PETERS FURNITURE AWARD 2020

Don't miss out on the opportunity to be part of this prestigious annual award, which champions UK furniture designing and making talent while celebrating the life and work of the late **Alan Peters OBE**

Alan Peters' 'Fan table'

This newly evolved annual award celebrates the legacy of one of Britain's most prominent furniture designer-makers of the late 20th century – Alan Peters OBE – while aiming to encourage emerging talent in the craft of furniture design and making.

Any woodworker who is a resident UK citizen over the age of 18, and who has a passion and talent for designing and making contemporary furniture, is invited to submit up to two items of furniture that echo the philosophy of Alan Peters. Judging is based on the appropriate use of wood, the quality of workmanship, functionality and originality of design. Both one-off designs and potential batch-produced designs are encouraged.

Applicants should be familiar with the work of Alan Peters prior to applying and are encouraged to read Jeremy Broun's 64-page video-integrated online e-book, which is offered free-of-charge (via the website link opposite).

The man behind the award

Alan Peters OBE (1933–2009) was one of Britain's most prominent furniture designer-makers of the latter part of the 20th century. He was apprenticed to Edward Barnsley and had a direct link to the English Arts and Crafts Movement. He was hugely influential internationally in his practice, teaching and publications. Above all, his respect and understanding of how wood behaves and the value of hand skill, yet moving tradition forward, resulted in the creation of many timeless pieces. He created affordable functional furniture, which was made to last, making an art of his craft in some of his subtle innovations.

History of the award

The original award was called 'The Alan Peters Award For Excellence' and was initiated by Jason Heap in 2010. The prize was offered to three winners, each of whom were given free exhibition space alongside the professionals at his annual furniture exhibition in Cheltenham. The award ran for eight years, and some of the past winning pieces are shown here. The judges were Jason Heap, Keith Newton and Jeremy Broun.

Anais Dancet's '10 Degrees' stackable stool – a 2012 winner of The Alan Peters Award For Excellence

Award judges

Jeremy Broun (organiser) – designer-maker and co-exhibitor with Alan Peters 1978–2002;
Andrew Lawton – designer-maker who worked with Alan Peters and on his last commission;
Keith Newton – early apprentice and employee of Alan Peters for 21 years.

Chris Wiseman's 'Oak Within' sideboard' – 2016 winner of The Alan Peters Award For Excellence

PRIZES OFFERED

1st prize
£1,000 Axminster Tools & Machinery voucher

2nd prize
£500 Triton Tools voucher

3rd prize
£300 Judges' prize

Winning pieces will be exhibited at Axminster's Nuneaton store and then at The Wilson Gallery (Cheltenham Art Gallery & Museum).

Award deadline is **30 May 2020**. Entries can be submitted any time up to this date. A £20 entry fee applies and a maximum of two entries can be made (£20 per entry).

The judging ceremony will be held at Axminster's Nuneaton store on 29 June 2020, and an exhibition at the store will run from 1–13 July 2020.

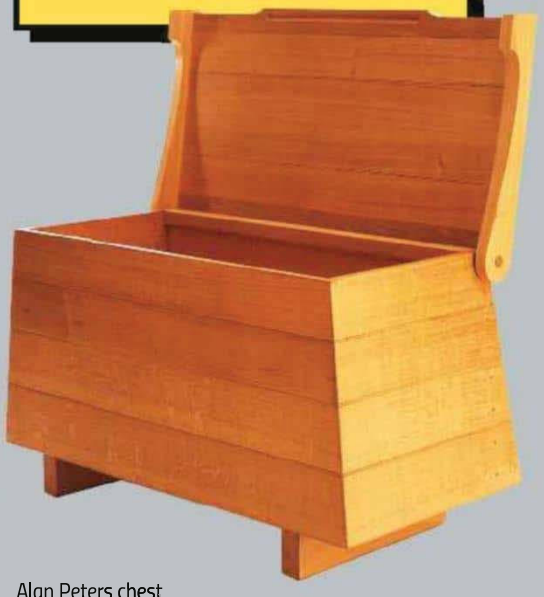
Following this, the pieces will then be exhibited at The Wilson Gallery – dates to be confirmed.

To download an application form and the 64-page e-book, please visit **www.woodomain.com/alanpetersaward**. The form can be found at the right of the page. Payment for entry can also be made securely via the website.

For further information, please contact either Group Editor, Tegan Foley (**tegan.foley@mytimemedia.com**), Organiser, Jeremy Broun (**jb@woodomain.com**)

Alan Peters chest with silver inlay

Alan Peters and Jeremy Broun in 2005



Alan Peters chest

Machine Mart

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Record TV7SB	Clamped	75/50/32	£22.99	£27.59
Clarke WV7	Bolted	180/205/78	£29.98	£35.98

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Ideal for woodturning in the workshop

- 1016mm distance between centres allows for turning longer spindles
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- Large turning capacity of 350mm
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B = Bench mounted
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CDP152B	450 / 12	£149.98	£179.98
CDP202B	450 / 16	£189.00	£226.80
CDP10B	370 / 12	£199.98	£239.98
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*was £35.98 inc. VAT

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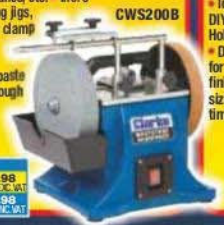

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MISSION IMPOSSIBLE PART 2

In the second of this four-part series, **Shaun Newman** describes how the back of the guitar should be fitted and bindings and purflings put into place

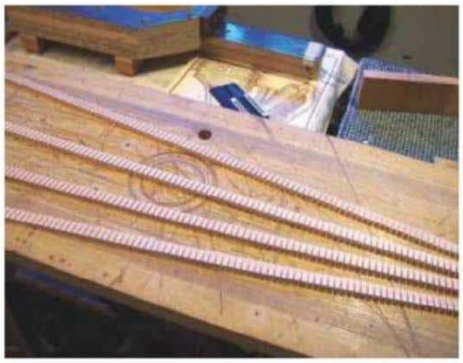
In part 1 I looked at what seemed an impossible task – to get a full-sized classical guitar into a case that could be hand luggage on an aircraft. I had to work differently from the past, using a flat workboard to hold the ribs in place and creating a detachable neck. I also described how to make the back and the heel and tail blocks for the soundbox.

Fitting the back with kerfed linings

Before the back can be secured to the ribs the heel and neck blocks must be gently curved as well as the top edges of the ribs to help create a dish-shaped profile. To ensure that during this operation the whole structure does not jump off the workboard, the two blocks are screwed to the board from below, helping to stabilise everything. If the ribs are too deep then the worst of the waste can be removed with a thumb plane. However, to finish the job the curved sanding stick is once more used.

Once the curve has been satisfactorily achieved, kerfed linings are glued to the inside edges of the top of each rib. These linings are made from strips of mahogany each around 800mm long. They are cut into a triangular profile 6mm wide × 19mm deep. To allow them to bend easily, saw cuts are put along the entire length to a depth just around 1mm from cutting right through. Ready-made linings can be obtained from luthiers' suppliers, but they are easy to make with the right-angle slot of a mitre block. Each saw cut is at around 6mm intervals (**photo 31**).

The linings are held in place with small cramps while the Titebond cures. The cramps illustrated came from Poundland (**photo 32**). Next, the linings are trimmed with a small plane and then skimmed over with the curved sanding stick, and the housings cut for the ends of the back braces. When completed, the back should sit very comfortably with the ends of the bracing bars sitting neatly in the small housings. Once everything looks tight the back is glued in place and held down firmly with long elastic bands, held at the ends by cup hooks screwed into the workboard. In the absence of long elastic bands, linen tape or coarse string may be used for this job (**photo 33**). Finally, after the adhesive has cured, the edges of the back can be flushed off with a hand-held router.



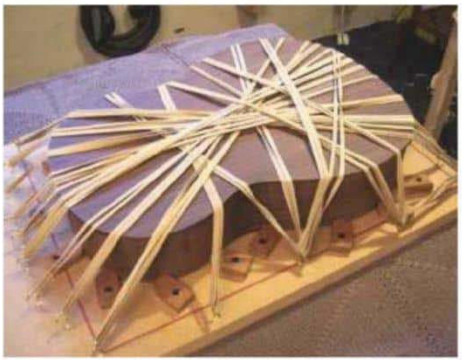
31 Kerfed linings

Attaching the bindings & purflings to the back

The bindings around a guitar are there to protect the edges of the instrument and are often made of a hardwood such as mahogany, ebony, maple, or in this case, rosewood. The purflings are for decoration, but also act as a barrier to ensure the colour from, say, rosewood, does not bleed into the pale spruce of the soundboard. Most bindings are around 6mm wide and just 2mm thick and to fit them a channel must be cut around the entire edge of the instrument front and back. This can best be done with a hand-held router with a bearing-guided rebate cutter, although some makers will cut these channels by hand using a tool known as a 'purfling cutter' (despite its name it also cuts binding channels) and finish the job with a chisel. A secondary cut is then made for the purflings. In this case, the purflings are 2mm deep and 1.5mm thick (**photo 34**).

Bending the bindings on the hot iron can be quite tricky as they often break easily. I once

32 Kerfed linings held in place by mini clamps



33 The back held firmly down by elastic bands

34 Binding/purfling channels cut into the back

35 Bending bindings can be tricky

remember hosting a student from the International Lutherie School in Antwerp, Belgium for an internship. I was demonstrating how to bend a binding and he sneaked up behind me and deliberately snapped a brittle piece of maple with a loud crack – for just a moment murder was on my mind! However, if the bend is done very gradually and with as little pressure as necessary, three out of four will normally cooperate (**photo 35**).

Once bent to shape the bindings and purflings can both be installed at the same time using strong masking tape to hold them in place. During this operation it really is vital to press the bindings and purflings very hard into place while pulling the tape over the join to avoid gaps after it has been removed (**photo 36**). With a rosewood back it is not too much of a problem as rosewood dust and CA adhesive can be used to fill any discrepancies. Often the tops of the bindings and purflings will stand proud and need to be trimmed flush. I normally start the job with a small thumb plane (**photo 37**) and finish off with a flat sanding stick or file.

36 Bindings held in place with masking tape

The head & neck

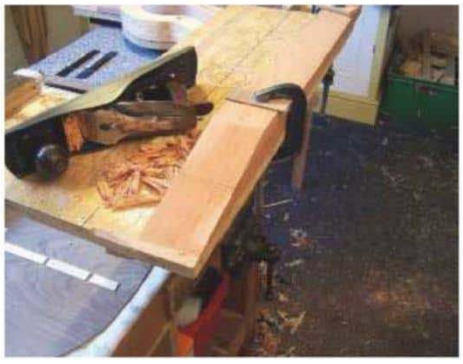
This part of any classical guitar requires more woodworking than perhaps any other, yet it begins life as a simple billet of cedar or mahogany around 1m long × 75mm wide × 25mm thick. As I knew the heel of the instrument would have to be very strong to sustain the pull from the Halsschraube from one direction, and the six strings from the other, I chose mahogany. The material I felt would be best is a light-coloured Brazilian mahogany supplied by Keystone (see suppliers under 'guitartonewoods4luthiers'). It is straight-grained and quartersawn.

37 A thumb plane can be used to trim back bindings

38 The initial cut for the headstock scarf joint

At first a scarf joint must be made at one end of the billet to give the headstock an angle allowing the strings to be lifted clear of the fingerboard. The angle is normally 14˚, though there are variations. The first cut down through the neck blank is 97mm from the end (**photo 38**). The sawn-off piece is placed onto the remainder with the angled cut sitting over the one left in the billet. In this way, with the two pieces firmly clamped, the 14˚ can be planed with accuracy (**photo 39**). When the two pieces are reversed and glued together, the headstock slope becomes instantly recognisable (**photo 40**).

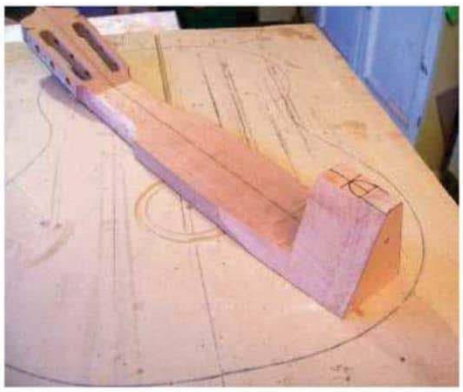
To create the heel, sections are cut from the other end of the billet, three in all, and glued together to form a large block (**photo 41**). Most of this block will eventually be turned into waste, but at this stage it is essential to keep it square so that the heel can be marked onto the sides ready for carving. A range of tools can be used to carve the heel, and I normally use a 25mm bevel-edged chisel, a left- and right-hand Flexcut carving knife, and a razor-sharp Japanese marking knife. It is important to carve the heel carefully as if it is left bulky it can look very ugly and will get in the way of the player's hand while attempting to play notes above around fret 14. Guitars made



39 Planing the scarf joint for a perfect fit

40 View of headstock with scarf

41 Block sections cut for heel



42 Ice cream cone heel in preparation

43 Heel block showing vertical grain end

44 Headstock template

at the time of Staufer would often have an 'ice cream cone' shaped heel, so with a nod to the master, that was the shape I chose (**photo 42**).

Given that the heel block has been made up of pieces with the same grain direction as the rest of the billet, I chose to glue an extra piece on the end with epoxy to give opposite grain strength to the end of the heel and to make sure the Halsschraube would not burst through when tightened. This extra block is 19mm thick. The distance of 19mm is important to remember as when the heel is fitted into the soundbox tail block it is fitted into a mortise following the profile of the heel, which is 20mm deep. In this way the join in the vertical-grained part of the heel is not visible (**photo 43**).

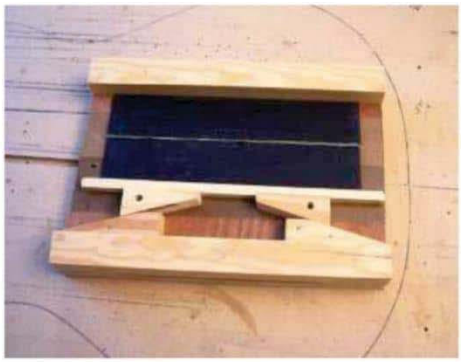
Next it was time to give some further attention to the headstock end of the neck. It is recognised by guitar makers that the top of the headstock is normally where the luthier's 'signature' is seen. The shape of my own headstock is the result of much research and over 300 attempts to produce something that is unique, and at the same time pleasing. No doubt someone somewhere has the same design, but I have yet to see it (**photo 44**).

The face of the headstock is usually veneered, and I chose a thin piece of ebony (2mm thick) with a backing of 0.5mm sycamore. I also put into place a centre strip of white/black/white purfling. The strip is first set into the ebony veneer by placing the two halves of ebony into a jig with the purfling running along the centre. The jig is the one described earlier to make the tail block inlay (**photo 45**). When the Titebond has cured the veneer can be removed and cleaned up before attaching it to the face of the headstock with the sycamore in between, then the string slots and tuner holes must be cut. The holes for the tuner rollers are cut first with a 10.5mm lip and spur drill (**photo 46**). To create the string slots four 16mm holes should be drilled down through the face of the headstock after the roller holes have been plugged to avoid splits on the inside (**photo 47**). With two holes at opposite ends of each of the string slots, the waste wood can be removed with a jigsaw. I find that strips of masking tape help to show the line that is to be followed on the edge of each slot (**photo 48**).

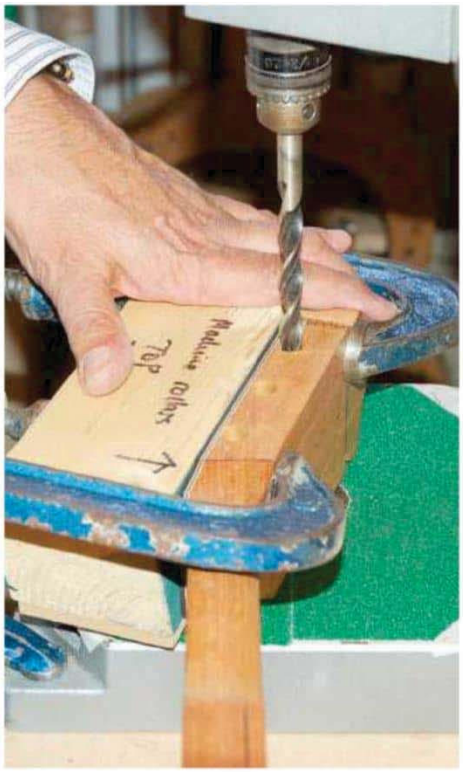
At the end of the string slots nearer the nut, a cup-shaped recess is cut to allow the strings to pass from the barrels and over the nut without fouling on the edges. During this operation the decorative stripe of the white sycamore veneer appears, adding to the aesthetics of the headstock (**photo 49**).

The heel mortise & Halsschraube socket

Once all is well with the headstock the Halsschraube bolt hole must be drilled through the heel block of the neck. This hole must start with a 5mm drill that passes right through but also have the outermost part of the hole cut to 15mm in diameter. I had thought I would probably just start with a hand-held electric drill, cutting first the 5mm one and then move on to the part furthest from the headstock, which would be the 15mm one. All along I was worried that the precision required might elude me, and while talking it through with my very good friend John Willman we came to a different approach. John is an expert engineer and has many years of experience in making baroque and other recorders. This requires very accurate drilling over long lengths of wood. He came up with another bit of 'inside out' thinking, suggesting that the holes should be drilled from the inside edge of the tenon, rather than the outside, which had



45 Headstock veneer in jig



46 Drilling tuner roller holes

47 String slot holes being drilled

48 Jigsawing string slots

49 Shaping string slot recess

50 The Myford 'Super 7'

51 John Willman's home-made drill

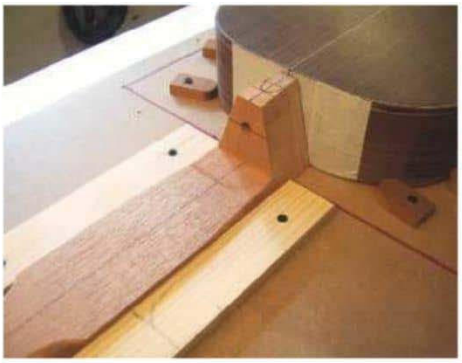
been my original thinking. Furthermore, he suggested mounting the job on the bed of his Myford 'Super 7' (**photo 50**) lathe and sliding the neck towards the drill that had been fixed into place, rather than driving the drill towards the job. To drill the 5mm hole was straightforward and took just a minute or two. To drill the 15mm hole, 20mm deep into the outside edge of the heel required a specialist tool which John made. He constructed a propeller-like drill by attaching a small square of an old saw blade, ground to 15mm across with the edges, bevelled and then sharpened. This sliver of steel was slotted into the end of a 5mm bar, braised and trued (**photo 51**). Once the neck of the guitar was held firmly in place on a slide attached to the lathe bed, the 5mm bar could be passed through the hole that had been prepared, tightened down in the chuck and the neck then slid away from the chuck as the propeller blade did its job – genius (**photo 52**)!

Marking the position of the heel mortise is easily achieved, provided the neck sits on the workboard exactly in accordance with the centreline (**photo 53**). The heel block is pushed up flush against the upper bout of the soundbox and the outline marked with a sharp pencil. I usually find that masking tape over the area where an accurate saw cut must be made helps the pencil line to show up very clearly (**photo 54**). While the mortise is being cut out to a depth of 20mm, the very slightest hint of a taper should be made. This ensures that, when the two parts are pushed together, a snug fit is achieved.

Next came the threaded socket in the heel block of the soundbox. The neck was once more placed onto the workboard and lined up. It was then easy to mark where the socket should be mounted by passing a 5mm drill through the hole in the heel and marking the correct position. The drilling of the correct sized hole was then easily carried out with a hand-held electric drill. To prevent the socket from rotating as the Halsschraube is tightened, the end nearer the tail of the guitar is housed into a shallow, square mortise in the block. That part of the socket nearer the neck is housed into a shallow, circular mortise.

Once everything was in place the Halsschraube could be tested and after holding my breath, it slowly drew the heel into the mortise and it tightened beautifully (**photo 55**).

52 Drilling the Halsschraube holes



53 Lining up the heel mortise

54 Masking tape helps mortise lines to show up

55 The Staufer Halsschraube in operation

SUPPLIERS OF MATERIALS, TOOLS & ACCESSORIES

- **www.stewmac.com** – for all materials, tools, plans, drawings and accessories
- **www.touchstonetowoods.co.uk** – for timber and tools, rosettes and bindings/purflings
- **www.tonetechluthierssupplies.co.uk** – for timber and a wide range of tools
- **www.luthierssupplies.co.uk** – for timber, tools rosettes and tuners
- **www.madinter.com** – for exotic timber, tuners, rosettes and tools
- **www.tonewoods4luthiers.co.uk** – for beautiful, exotic timber
- **www.dictum.com** – for fine quality tools
- **www.londonguitarstudio.com** – for strings, sheet music and many accessories
- **www.magic-guitar-parts.com** – for good quality tuners
- **www.smallwonder-music.co.uk** – for inlay materials, purflings, etc.

READING LIST

- *The Guitar Maker's Workshop* – Rik Middleton – ISBN 1-86126-040-7
- *The Classical Guitar, Design and Construction* – Donald McLeod and Robert Welford – ISBN 0852190778
- *Guitar Making Tradition and Technology* – William Cumpiano and Jonathan Natelson – ISBN 0811806405
- *Making a Spanish Guitar* – Jose Luis Romanillos – ISBN 13008619001
- *Classical Guitar Making* – John Bogdanovich – ISBN 9781402720604
- *Making Master Guitars* – Roy Courtnall – ISBN 0709048092
- *Make Your Own Classical Guitar* – Stanley Doubtfire – ISBN 0805238336
- *Classical Guitar Construction* – Irving Sloane – ISBN 0860012328

NEXT MONTH

In part 3 of this project, Shaun describes how the soundboard should be made, braced and fitted as well as describing how to inlay the rosette

MORTISE & TENON JOINTS THE EASY WAY

Michael Forster prepares to cut the mortise & tenon joints ready to build next month's work table

Even for a hand tool die-hard like me, learning to cut good joints by machine is well worthwhile in itself. Apart from anything else, it demands that we take the trouble to set up the machines properly – and that will make using them generally a satisfying and enjoyable experience.

Here, I'll be preparing to cut the mortise & tenon joints ready to build a work table (**photo 1)** next month. There are options as to how this might be done. My choice was a bandsaw for the tenons and a hand-held router for the mortises, because that's what I've got in my 'shop. However, if, unlike me, you cut mortises fairly often then it might be worth setting yourself up with more specialised kit than I have available – such as a hollow-chisel mortiser (**photo 2**), or perhaps Trend's DBB mortise & tenon jig (**photo 3**), which uses a router for both the mortises and the tenons. Another recent addition to the market is the PantoRouter (**photo 4**), which operates on the pantograph principle to cut dovetails, finger joints, mortises, tenons and do just about everything except tidy the workshop or make tea (but the boffins are probably working on that). Look out for a forthcoming test on this piece of kit from John Lloyd.

Then of course there are inserts like Dominoes, dowels, and – well, you name it. However, for occasional rather than regular use, why not just use the router you've probably already got? That's what I did. But first things first...

1 The craft table requires 16 mortise & tenon joints – this calls for machinery

2 A hollow-chisel mortiser – such as this Jet machine – might be a good investment if you have enough use for it

3 Trend's mortise & tenon jig lets you use a router to cut matching mortises and tenons

You can always buy new kit but...

You only get one set of lungs, eyes and ears! So as well as setting guards and keeping fingers on the right side of cutters, don't undervalue PPE (Personal Protective Equipment), which generally for us is about eyes, lungs and ears. The damage creeps up on us over time and by the time we notice it's often too late. So, connect the shop-vac (preferably using the auto-socket), and 'wrap up well' as Mother used to say.

The router

I'll say a little more about routing mortises next month when I actually cover making the table, but I'm also touching on it now as we need a trial mortise to test the tenons for thickness when we set up the bandsaw.

My hand-held router is a modest machine with a ¼in collet, but I found this quite adequate for cutting 30mm deep mortises in ash.

4 Then there's the versatile PantoRouter, which looks expensive until you see what it can do

5 Cut a test mortise to help with setting up for the tenons

6 No need to square the ends for this one (ignore the other large holes – this is scrap timber, remember!)

However, I should say this is getting close to what I'd consider the safe limit for a small hand-held router – anything much deeper would be better done by other means. So, take several light cuts (the turret depth stop is helpful with this), and don't be tempted to get extra depth from a shorter cutter by only partially inserting it into the collet. At 20,000rpm plus, a long cutter is quite stressed enough already, thank you very much, and breakages are studiously to be avoided. So use a cutter that's designed for that depth, and push it into the collet up to the 'K' mark on the shank, which indicates the safe depth. As a rule of thumb, I tend to take the view that if the manufacturer won't supply a long enough cutter then I'm probably safer rethinking the project.

There's more to say on safety: woodworking machines are wonderful things but become malevolent, dangerous demons if abused, but that would be an article in itself and best written by a routing expert. If you have any doubts at all about safety, then take a look, for example, at the Woodworking Guild of America website: **www.wwgoa.com/article/12-tips-for-using-a-router-safely**.

Come to think of it, doubts or not, why not take a look at it anyway? Different types of router bits are available, and if you do a lot of this kind of work it's worth researching the market. I opted for a 30mm-long, two-flute, 9mm parallel cutter already in my kit. This would suggest 29mm rails giving classic proportions with 10mm shoulders.

So now it's just a matter of setting the fence to the width of shoulder required, and we can cut that trial mortise in scrap (**photo 5**). The purpose of this is to test the thickness of the tenon when we come to set up the bandsaw. So cut the trial mortise rather longer than needed (**photo 6**); this will avoid the chore, for this purpose, of squaring up the ends of the mortise. Take several progressive light cuts, rotating the depth stop turret in between, until the required depth is reached. With the test mortise ready, we can start to set up the bandsaw for the tenons.

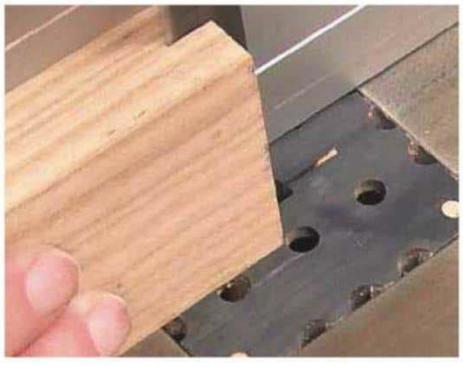
It's all in the preparation

Generally with machine work it's the setting up that takes the time. Often, for a single joint, it's quicker to mark and cut by hand, but when there are a dozen or so then the time spent setting up the machine is quickly repaid. There are two aspects to this: ensuring that the machine's general set-up is good – that blades, beds and fences are correctly aligned, for example – and secondly, doing the specific settings for the work in hand.

In the case of the router, the factory settings on a good machine should be correct when it comes out of the box – and the task-specific settings are generally straightforward. The bandsaw, however, might be another matter, so I'll take a bit of time on that now.

It's mostly about the blade

Before a bandsaw is turned on, the blade type, tracking, tension and guides need to be right, and information on this, specific to your machine,



7 To test the bandsaw blade for squareness to the table, make a short cut in the end of some scrap

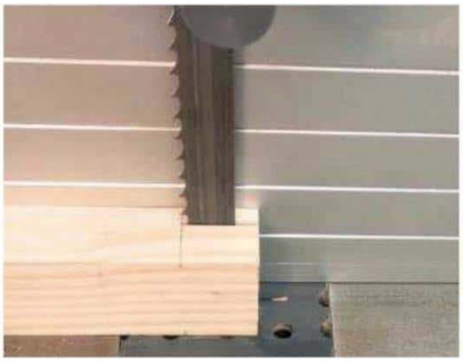
8 Flipped end-over-end, the cut should now align perfectly with the back of the blade

9 How the machine should be in general use – with the guard low down over the timber. This protects against fingers getting under the guard, and will also help to safely contain the blade should it break

10 Cut a trial tenon: set the fence to cut on the waste side of the line and make a test cut

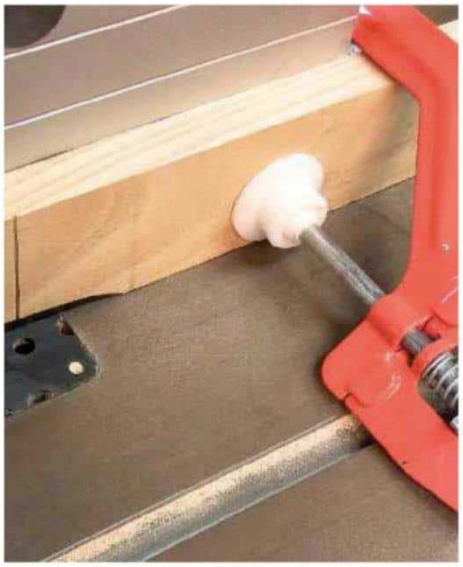
11 Turn the piece over left/right and cut the opposite cheek

12 Cut off the waste by hand and try the tenon for width in the trial mortise. Repeat this experiment, adjusting the bandsaw fence, until the tenon produced is a nice sliding fit



13 Mark a shoulder line on another piece and pass it through the bandsaw up to that line

14 Position a stop piece against the end – note the notch to allow sawdust to clear

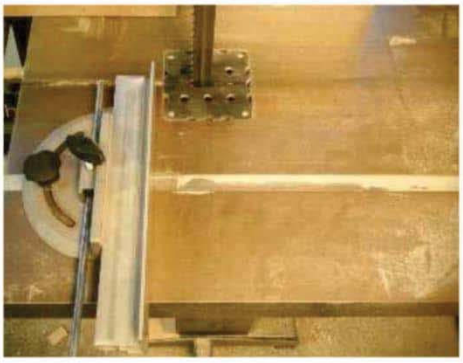


15 Flip the timber left to right and cut the second cheek. Cut all the tenon cheeks before disturbing this setting

will be in the manual. With all those sorted, some of the finer points need to be checked.

The blade must be cutting straight and true – parallel to the fence and perpendicular to the table. It's very important that both these settings are precise or the tenons – and therefore the whole project – will end up twisted. The easiest way to test this is to cut some timber.

Set the fence just a few millimetres from the blade and run a straight piece of timber through. The cut should be absolutely parallel to the edge from start to finish – but it's a pretty safe bet that it won't be. However, don't assume that it's the fence that's to blame.



16 Now for the shoulders. If you're lucky enough to have a decent mitre fence with your machine, then of course you can use that

17 Mine's too sloppy a fit in the slot for accuracy, so I use this MDF triangle against the rip fence

18 For safety, clamp a short sub-fence onto the rip fence, stopping just short of the blade

19 Set the sub-fence to the length of the tenon and cut the shoulders – again, test on scrap to ensure accuracy

20 The space created by the sub-fence allows the waste to fall away safely and not jam the blade

FURTHER INFORMATION
Trend DBB mortise & tenon jig – **www.trend-uk.com**
PantoRouter – **www.woodworkersworkshop.co.uk**
Woodworking Guild of America – **www.wwgoa.com/article/12-tips-for-using-a-router-safely**
Tuffsaws – **www.tuffsaws.co.uk**

For some reason, manufacturers are notorious for supplying beautifully-engineered bandsaws with bargain-basement blades – so if your bandsaw won't cut straight, firstly change the blade. That won't be wasted in any case, and it might well save a whole lot of hassle. Tuffsaws are a specialist supplier of excellent blades and their website is a treasure trove of reliable advice (see 'further information' sidebar at the end of this article). If need be, don't be afraid to call them.

Straights & curves don't mix

A common reason for blades not cutting straight is if they've previously been used to cut curves. That process very quickly imposes uneven wear on the teeth, causing it to pull off-line. So keep a blade that's reserved for straight cuts only and NEVER used for curves. If after all that, the cut still isn't parallel, then it's time to think about adjusting the fence, as per your machine's manual.

Perpendicularity

The next thing to ensure is that the blade is running vertically at right angles to the table. This, especially on a new hobby machine, might need some adjustment. The angle can be tested with a small engineer's square (OK if you know a helpful small engineer…) Alternatively, take a nice, square piece of scrap wood and make a short cut into the end (**photo 7**). Then flip the timber end-over-end, and offer up the cut end to the back of the blade (**photo 8**). If the blade is perpendicular, then the cut end will slide smoothly over the back edge of the blade. If it doesn't, then check the manual and adjust.

So let's cut a tenon

With the blade cutting perpendicular to the table and parallel to the fence, the way is open to cut some nice, precise tenons. Doing this by hand would involve marking every cut on every piece of timber individually – but the bandsaw eliminates almost all of that. Instead, you can just take a little time to set up the machine for each stage before cutting all the pieces on that setting, quickly and accurately. For that, you'll need a little spare timber for trial and error work, and it needs to be the same width and thickness as the timber being used in the job itself. The simplest way to achieve this is to prepare a little more timber than actually needed for the project. It's important to ensure that all four sides and the ends are nice and square because in this work they'll all have to serve as datum surfaces, referencing off either the fence or the cutting table. (Just continue reading and the fog will clear!).

Safety first!

The bandsaw is a safer – or, rather, less dangerous – machine than many others, but it's still capable of doing soft human flesh a mischief. Don't skimp on reading the safety instructions that come with the machine. A couple of points I should particularly highlight here: firstly, only have the machine running when you have to – and never with the doors open (assuming the machine will do that, which it really should not). Secondly, in the photos, I've got the guard raised higher than is advisable in normal practice. I tried to set it low over the timber, (**photo 9**) but it just made photography impossible so I raised it for the purpose of this article. However, in general usage, the less blade is exposed the better – so, as a matter of good practice, get the top guard well down over the timber.

The cutting process in a nutshell is to set the machine up for the tenon cheeks and cut those on all the pieces (**photos 10-15**); then set up for the shoulder cuts and cut all of those (**photos 16-20**), and finally set up and cut any haunches that are necessary (**photos 21-23**).

It's important that each stage is completed on all pieces before resetting the machine for the next – e.g. ensure that all the tenon cheeks have been cut before resetting for the shoulders (the voice of Bitter Experience…)

It's worth emphasising the importance of the short sub-fence for cross-cutting (**photo 18**). The temptation is to use the rip fence as an end-stop and butt the end of the timber against it, but don't. Kick-back isn't an issue on the bandsaw as it is on a table saw, but it is possible for an offcut to twist in the gap between fence and blade, and jam the machine. The short sub-fence makes space alongside the blade for the offcut to fall safely away without jamming (**photo 20**).

The final task is to cut any haunches that are required, using the same basic approach as for the cheeks and shoulders (**photos 21-22**) and all the joints are cut – safely, precisely and much, much more quickly than would have been possible, marking and cutting each joint by hand.

Before ending, I just want to reiterate the warning about the guard – mine is raised in the photos for ease of photography but would not normally be so. It only takes a momentary distraction or a touch of complacency for an accident to happen. So please – in this instance at least – 'do as I say and not as you've seen me do'! And then, join me next month, as I cut some tenons for real and make a handy little crafting table.

21 Cutting a haunch follows essentially the same principles. Start by marking out one tenon and cutting to the mark

22 Cut the haunch to length in the same way as the shoulders

23 The completed haunched tenon

SUCCEED BY DELIGHT

Anselm Fraser, Principal of **The Chippendale International School of Furniture**, talks about keeping the customer happy

In previous months, I've written about such things as finding inspiration, and in approaching woodworking with an open mind to lifelong learning. But there's one aspect of woodworking that does often trouble me, and that's how I sometimes see woodworkers thinking that the world owes them a living. Nobody is owed a living. A living has to be earned, and the best way to do that is to recognise the importance of your customers. After all, it can take blood, sweat and tears to win that all-important customer, and keeping them delighted with your service has to be an absolute priority. Because it costs five times as much to attract a new customer than it does to keep the one you already have, but a disgruntled customer can actually do you damage. Nearly 50% of unhappy customers tell 10 or more other people. Worse, according to one study, which says it takes 12 positive experiences to make up for one unresolved negative experience.

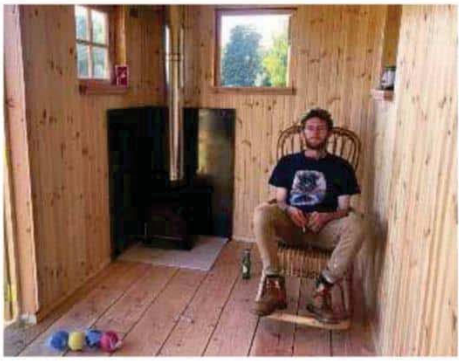
Interestingly, according to the US consultancy McKinsey, 70% of buying experiences are based on how a customer feels they are being treated. In other words, it's not necessarily an objective conclusion but, simply, the impression you're giving. So, being attentive is key to marketing success. Remember, if they're happy, they'll tell friends and family – and one of them could be your next customer.

So, if a potential client contacts you with a question, respond quickly and with all the information they're requesting. Half of customers give brands only one week to respond and, if you're on Twitter, an answer is expected within hours. It used to be that people didn't expect such immediacy, but in an age of social media and instant communication, we now expect better and faster.

The fact is that what would once have been deemed good customer service is sadly no longer good enough. Your customers want to know that they're valued, appreciated and, above all, they want to know they are important to you.

Retaining business

Another statistic: a 5% increase in customer retention can lead to a 25-100% increase in profitability. At the school, we run a parallel furniture restoration business, which allows us to retain a specialist and full-time restoration expert, Clare Charleston. Clare is therefore both a professional restorer and a tutor to our students, able to demonstrate her skills on a range of live projects. What is striking is how many of her (and our) customers come back. It's a simple but important lesson: keep your client happy and he or she will likely keep returning.



Eion Gibbs, one of our newly graduated students, with his first commission – a shepherd's hut…

… which he had to design and make within a month in order to win the commission

Clare Charleston, the school's restoration expert

Our class of 2018/19 has just graduated and departed to all corners of the world. I wish them every success, but I hope they have taken on board one of our key mantras.

Listen & deliver

Listen to your customer; don't impose your ideas on them. Understand what they want by using your ears rather than your mouth. All too often in woodworking, I hear of makers who think they know better than their customer or, worse, are determined to impose their own design ideas. Of course, it's perfectly understandable to want to flourish as a designer and to have lots of great ideas that you want others to buy into, but, ultimately, it's their house they're buying furniture for. Their property. Their style. Their rules.

It's why the first thing our students learn is how to visualise their designs in 3D. Every year we bring in a world-renowned expert from France. It's the first skill our students have to master because, after graduation, they'll have to visualise a customer's commission… and agree it with them. Of course, that can now also be achieved by computer aided design (CAD) or, the latest gizmo, 3D printing, where you can make a miniature replica of what's being commissioned.

However you visualise your designs to your customer, make sure you do! That way, misunderstandings can be more easily avoided.

Providing added value

Lastly, fine furniture is expensive, but find ways to provide added value. That might mean, for example, using slightly more expensive handles than the ones agreed.

Or, if the piece of furniture had to be picked up, take the trouble to deliver it yourself.

Always remember that you have competitors, and customer satisfaction is no longer enough. Exceed expectations and delight your customer. By doing so, they'll likely become a loyal advocate for your business.

FURTHER INFORMATION

To find out more about courses offered by The Chippendale International School of Furniture, see **www.chippendaleschool.com**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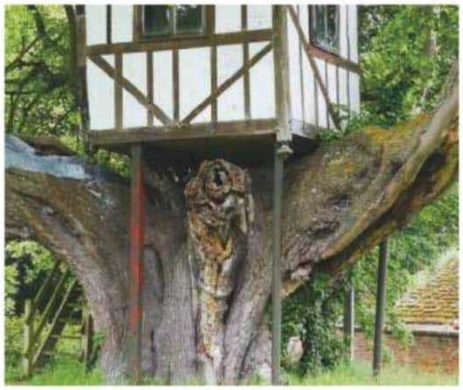
REDISCOVERING YOUR INNER CHILD

John Greeves talks to **Simon Payne** about Blue Forest and Chewton Glen's spectacular treehouse creation for the 2019 RHS Chelsea Flower Show

As children, many of us built a treehouse, our secret haven, where we could establish a top-secret clubhouse far away from the prying eyes of our parents. Treehouses became associated with nature and adventure, marking out a child's space in the home and representing the kind of 'free play' that was encouraged after World War II. The history of these structures dates back much further. The Romans built seats high up in trees and during the Middle ages, garden arbours, along with other garden structures, became increasing popular. In many cultures they were part of everyday life. The Korowai people of New Guinea built raised homes to help protect their food and belongings from animals and floods.

In the UK, the oldest surviving treehouse in the world is still to be found at Pitchford Estate and dates back to the 17th century. When she was 13-years-old, the future Queen Victoria visited the Pitchford treehouse in 1832 and wrote in her diary: "At a little past one, we came home and walked about the grounds and I went up a staircase to a little house in a tree."



Britain's oldest existing treehouse
Photograph courtesy of **Pitchford Estate**

Photographs courtesy of **Blue Forest (UK) Ltd,** unless otherwise stated

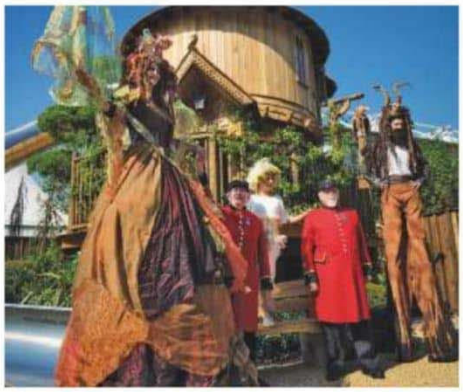
FURTHER INFORMATION
Blue Forest (UK) Ltd – **www.blueforest.com**
Chewton Glen – **www.chewtonglen.com**

Blue Forest Treehouse at RHS Chelsea 2016

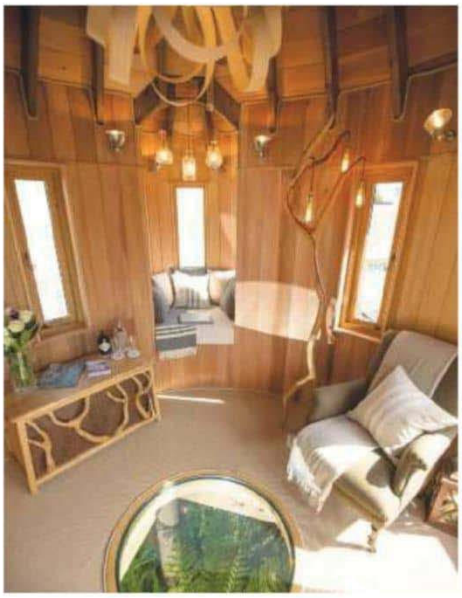
Epitomised by the Simpson's treehouse, their popularity has endured through time with literary references such as *Swiss Family Robinson*, Enid Blyton's *Hallow Tree* and J.R.R. Tolkein's *The Lord of the Rings*. In films, they have featured in *To Kill a Mocking Bird, Star Wars – Return of the Jedi* as well as *Avatar*, a film directed by James Cameron in 2009. They remain part of our collective consciousness and childhood memories, which Blue Forest (UK) Ltd intended to reawaken at this year's RHS Chelsea Flower Show with their spectacular treehouse.

Blue Forest has established a reputation as the world's leading treehouse consultancy and are renowned for designing buildings that reflect the environment in which they are built. The company has built hundreds of luxury treehouses around the world – anything from a luxury ecolodge in Malawi, to treehouse hotels and innovative garden hideaways. The range is staggering.

This latest treehouse, created in collaboration with Chewton Glen Hotel and Spa in Hampshire,



2018 woodland fairies with Chelsea Pensioner
Photograph courtesy of **Prospect Arts**



2017 interior of Blue Forest Treehouse
Photograph courtesy of **Alexander Whittle**

is a luxurious structure and offered the public a rare opportunity to experience first-hand the quality and charm of a bespoke treehouse. 'Rediscover Your Inner Child' (this year's theme) was bound in the essence of the design and presented an ideal location for children to play in, while invoking cherished memories for older family members and friends. A striking planting scheme was provided by 'Architectural Plants', a well known nursery for quirky and unusual plants. Planting reflected this year's theme and aimed to encourage children and families to spend more time outdoors reconnecting with nature. Sensory plants abounded, with different textures, shapes, smells and colours and even tastes for all to explore. Simon Payne, Marketing Director of Blue Forest, tells me that this is the fourth treehouse the company has designed and built for the Chelsea Flower Show. "What we did at Chelsea this year was to really provide an exciting opportunity for people to walk in, touch and fully experience one of our treehouses, which are generally on a person's private land and not always accessible to the public."

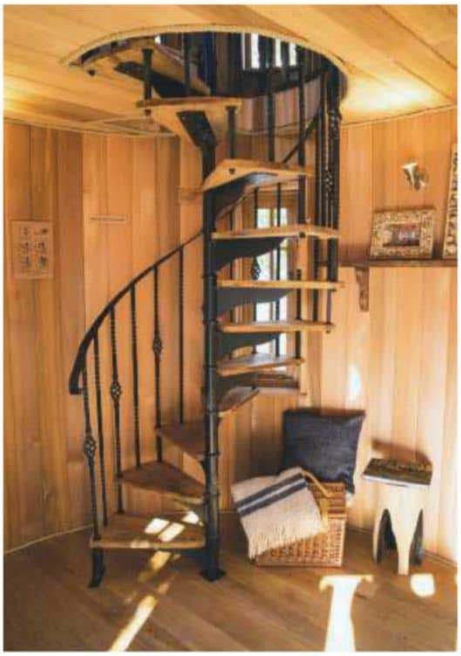
Unlike conventional buildings, treehouses sit up in the canopy surrounded by greenery and people are quick to tell Simon about the natural textures, smells as well as the completely different experience they encounter. One main factor that is common to all treehouses, Simon insists, is that

Exterior of Blue Forest Treehouse
Photograph courtesy of **Alexander Whittle**

of family space. "It's definitely a space where people come together socially, to enjoy time with one another, far away from the house, office and the stresses of everyday life." This year, Blue Forest ensured that children and parents alike had access to their treehouse and garden when they visited stand 329 at the main avenue.

Decreasing the carbon footprint

Simon makes it very clear that the company is committed to sustainable principles and design in all their treehouses, which is reflected not



2018 reclaimed spiral staircase
Photograph courtesy of **Prospect Arts**

Posts up

Substructure

Setting out the bottom plate

Floor joists and bottom plate

only in their design and choice of materials but also in the way they are built. They don't use the tree for major support but employ stilts that can be erected to underpin the structure and place minimal strain on the tree. Not only does this mean that the tree isn't drilled but this approach also allows the tree to grow and change. At Blue Forest they use FSC and PEFC certified sustainable wood and products. As well as trying to use ultra-local suppliers, they also employ local craftspeople in the community. In this latest venture, low energy LED lighting

Rafters

Treehouse wall framework

was utilised, which uses 80% less electrical energy than incandescent bulbs. Structural insulation was also fabricated into the walls and lining of the treehouse. In many designs, solar panels or PV systems (standing for photovoltaics) are incorporated to convert sunlight into electricity, while insulation and double glazing remains a central feature of all builds.

Grey water drainage is applied in most of the Blue Forest builds. This is water from a sink or shower, which can then be filtered and reused for your internal toilet system. Like all other structures, the Chelsea treehouse was built almost entirely of timber, the world's most sustainable resource. It is carbon neutral and highly weather-resistant. Following the RHS Chelsea Flower Show, the treehouse (unlike many structures at the event) was transported to its new home in the grounds of Chewton Glen, where it is currently providing a fabulous home for the hotel's popular children's club.

Overview of the RHS Chelsea Flower Treehouse

The treehouse is approximately 8m in length, open-planned and supported on a raised platform. Its central conical roof raises to a height of nearly 7.5m from ground level. The main sustainable timber used in its construction is tanalised pine and spruce, although cedar cladding is used extensively throughout the building (inside and out), with oak framing for the double-glazed windows and bi-fold doors. Access to the treehouse is via a spiral wooden staircase at ground level with intricate rope work providing a hand rail. The entrance is through a stable door into a square porch area that connects in turn to a large circular room with an integrated smaller circular reading nook. Bi-fold oak doors open to the raised deck with balustrade, unifying the outside with the inside space and providing access to another spiral staircase, which in turn leads down onto the garden.

Internal features include low level benches with a boot store and hooks in the porch area. Curved upholstered benches, kitchenette and sink, storage cupboards, boiler, fridge, spectacular LED lighting, TV and oak-framed windows are among many other visible internal features that can also be found.

Construction timetable

When I spoke to Simon about the building of this amazing treehouse, they were in the middle of the project and governed by a very tight time schedule. Construction of the Blue Forest treehouse started on 11 February 2019 with all sections expected to be ready for transportation to the show by Friday 3 May 2019. Unlike ordinary builds the treehouse was prefabricated in five main sections, which were carefully designed to ensure ease of transport for the 50 mile journey from the workshop in Surrey.

Each section weighs approximately 1.5 tons. The entire treehouse and garden was to then be built in only 15 days on-site at the Chelsea

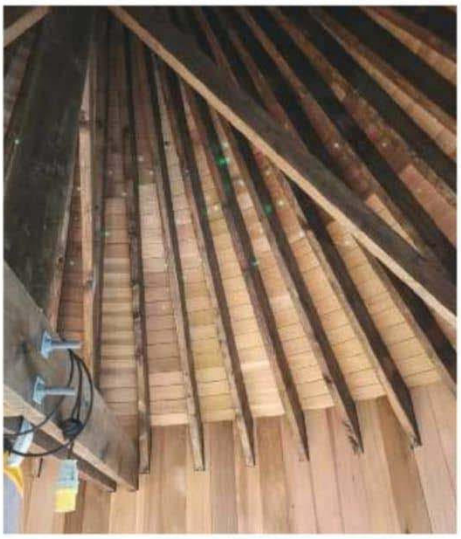
Treehouse stud walls erected

Wall batten and membrane

Cedar roof lining

Underfloor heating trays being fitted

Wall cladding and fitting windows



Interior cladding and second-fix electrics added

AWARDS RECEIVED

Winner – Build Awards – Tree House Consultancy of the Year 2018
Winner – Best of Houzz Design – 2017
Winner – Construction & Engineering Awards – Best in Luxury Tree House Design 2016

Interior walls insulated, ready for lining

Flower Show, then dismantled in three days. Blue Forest aimed to assemble the main elements of the treehouse in just seven days, and by doing so allow enough time for the planting design to take place. Interior designers were then given two days to complete the work.

The build

The best treehouse designs incorporate the process of 'escaping' or 'journeying away' from the demands of a busy life. Working very closely with a client and their ideas, the design team at Blue Forest follow a set procedure and generate a computer model to realise this vision. If required, they will also produce a physical model. Simon explains: "Once we've got through that stage we use a fantastic system for our foundations, which requires no digging or concrete." He's referring to ground screws (manufactured by The Great British Grand Screw Company Ltd), which are about 1m long and go into the ground like a normal screw. They have a weight bearing ability typically around 7 tons per screw. Simon continues: "They are effectively mini piles and push the root aside as they go into the ground and create no impact on the surrounding environment or water courses during their use or after removal."

These ground screws are capped with metal tenon caps, which are then fixed into the vertical timber house posts. Each ground screw takes about a minute to fit and they are also easily removable. They have the added advantage of keeping the timber posts out of the ground and so prevent decay. These posts can be constructed to give you a platform height of between 2-4m. On the top of the posts is the subframe; this is essentially constructed with 12×2 large timber beams, which supports the deck and floor joists. Most commonly used are softwood varieties such as pine and spruce. The timber is structurally graded C16 and C24 timbers, which have been tanalised to ensure longevity. Diagonal braces are fixed into these large timbers from the vertical house posts below. The floor joists and deck joists run on top of the beams in the opposite direction at right angles and perpendicular to the beams, conforming to the technical timber framing standards.

When the platform has been completed to form a solid base, the treehouse is erected. Simon describes the process: "We frame up the walls using our wall studs and noggins; it's fairly typical of traditional timber-framing techniques." Depending on what the client has requested, the structure is highly insulated, either with a solid board insulation, or a sustainable non-combustible stone wool insulation, such as Rockwool, to fill the cavity in the walls. Some clients may, for instance, insist on sheep wool, or another renewable alternative for the insulation.

The latest Chelsea treehouse was lined from the outside with cedar. From carrying out previous projects, Simon has found this to be a particularly good timber because it contains its own natural oils, which means it will last for a long time. As well as having a beautiful colour, it is also easy to work. Approximately 500 linear meters of western red cedar cladding were used to create the Chelsea treehouse, which is the same length as 50 London buses or five football pitches.

Inside the treehouse, all the rafters in this open-plan structure are visible to enhance the aesthetic look. The featured vaulted ceiling has the rafters converging to a kingpin in the centre of the room. This particular treehouse roof is fitted with 400 tiny fibre optic lights, which are inset into the ceiling to appear like a night sky. Each hole is less than 1mm wide and had to be hand-drilled. The inside of this is also lined with cedar. Each board had to be hand-cut, due to the circular roof, and becomes narrower towards the top – a time-consuming process, but one that produces a mesmerising effect.

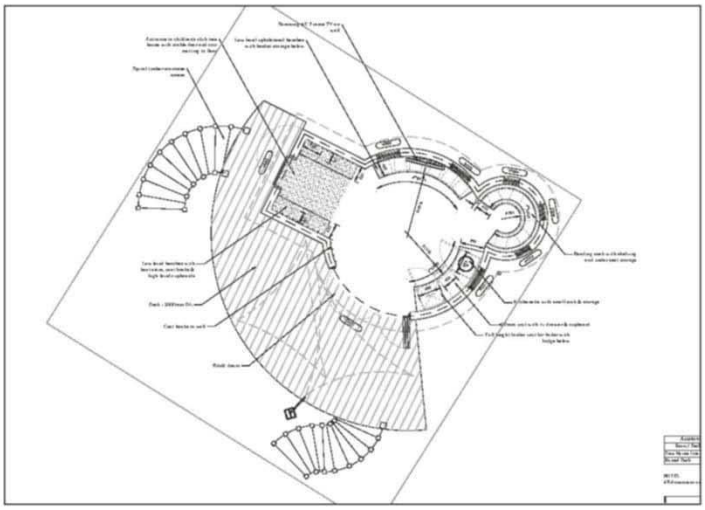


Fig.1 Treehouse ground floor interior plan

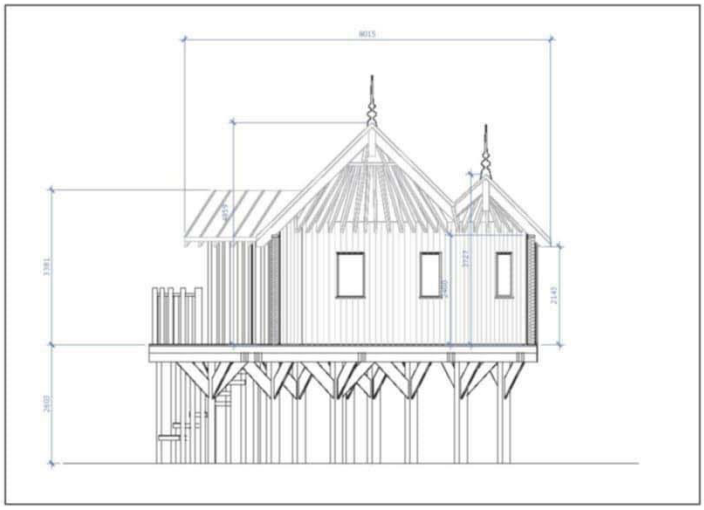


Fig.2 Treehouse proposed section

Drawing of the treehouse exterior

Walls being battened ready for cladding

The roof is insulated and lined on the outside. Many treehouses are lined with cedar shingles but this one has a very contemporary roof made from IKO, a single ply waterproof membrane made from recycled materials. The IKO Polymeric is resistant to weathering, chemical oxidation and UV radiation, which ensures long-term durability. When applied, the rubberised roofing surface is finished with a standing seam giving it a similar look to a zinc roof. As Simon explains: "This construction has a slightly more contemporary choice of materials and finishes and has enabled us to try out new methods, including a new sustainable element in roofing choices."

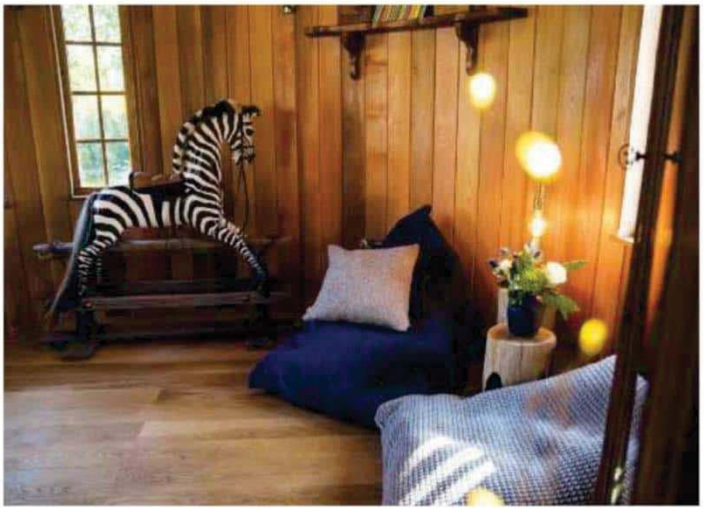
All the joinery on the inside of the treehouse is bespoke including the oak-framed double-glazed windows, the oak stable door, bi-fold doors, the reading nook, work surfaces and movable oak bench seating, which are placed around the circumference of the main room. Engineered flooring is used rather than solid oak flooring, and this particular treehouse also has an underfloor heating system. However, the engineered oak flooring, made up of laminated 180mm × 14mm boards, can cope effectively with the variations in temperature. Careful consideration is always given to every single feature of the treehouse, as well as the overall integrity of the design. Even the spiral staircases, made from treated softwood, are stained in colour to blend with the surrounding woodland and then finished off with intricate rope detail.

Ingenuity and forward thinking design is never far away from any of the Blue Forest treehouses. All the designs seem to be very fitting for the needs of the 21st century. Previously, the award winning 'Quiet Treehouse', designed for the RHS Hampton Court Flower Show 2014, had acoustic insulation equivalent to a 30cm concrete wall and provided the ultimate silent retreat in the eyes of the judges. Then again, 'The Escape to Narnia Treehouse' developed for the 2018 RHS Chelsea Flower Show, pioneered an avant-garde copper shingle roof, which has since been adopted in other builds.

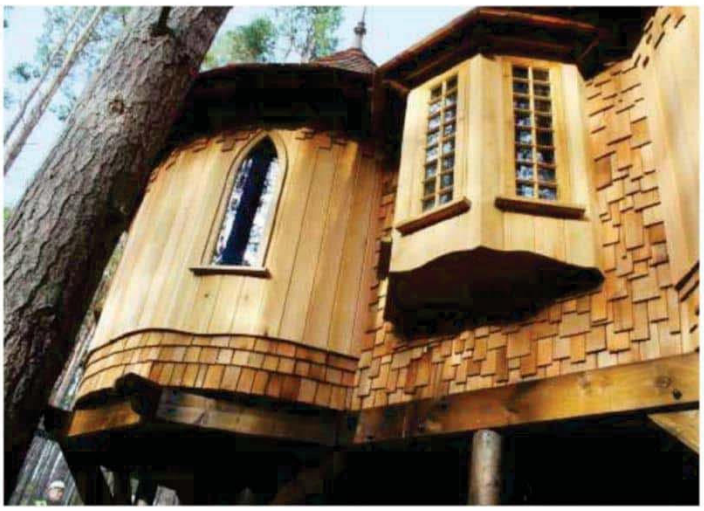
It's also clear that the Blue Forest team are passionate about the safe-guarding of the environment and keen to promote sustainable principles and ethics throughout the design and construction process, bringing a touch of magic into people's lives. The company continues to build high quality timber buildings, but in Simon's words: "They are a labour of love and in many ways take a long time to build. They're all different, but one of the greatest things about them is that they are great fun" – a sentiment echoed at the 2019 RHS Chelsea Flower Show with this latest exhibit, which is fittingly entitled 'Rediscovering Your Inner Child.'

Exterior cladding being fitted...

... and once in place



Completed treehouse interior...



... and exterior

1 The completed drill vice/clamp

WORKSHOP STAPLE

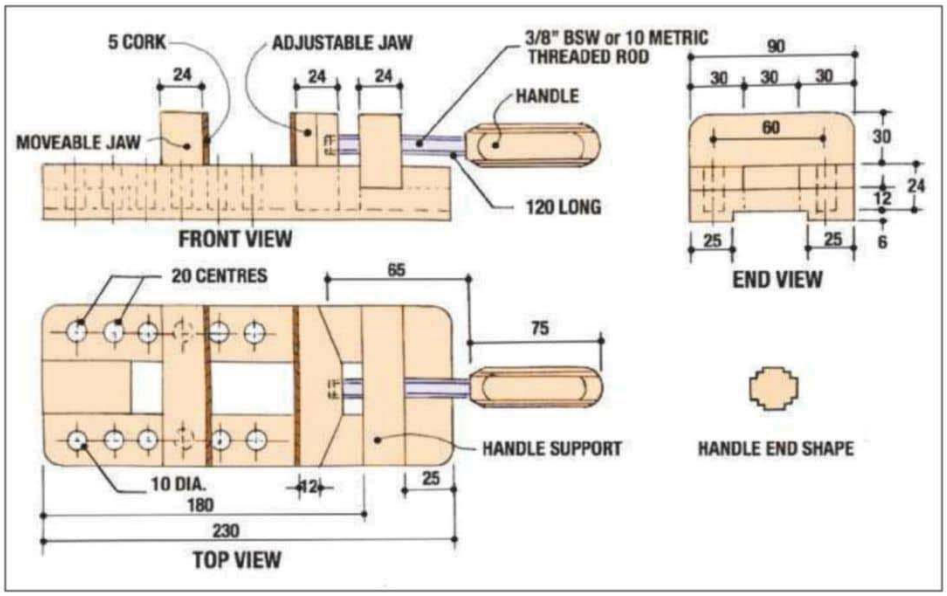


Fig.1 Working drawings and dimensions for the drill vice/clamp

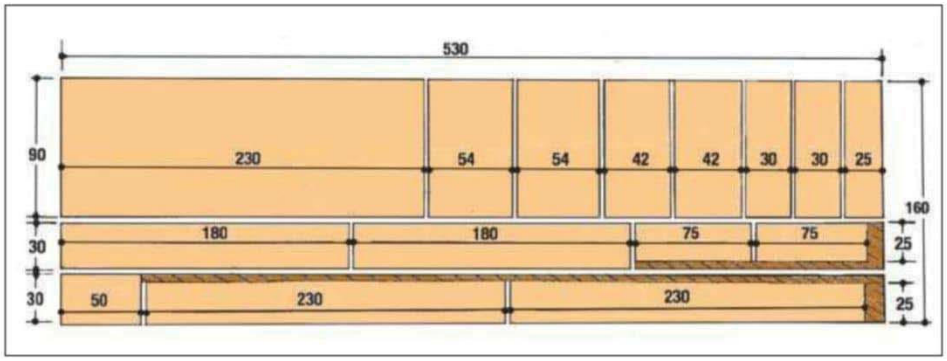


Fig.2 Cutting layout for the components of the drill vice/clamp

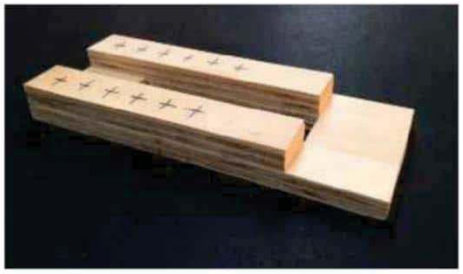
Lance Winter shows you how to make your very own drill vice/clamp, which can accommodate a wide variety of different gluing and holding situations

Every workshop needs a series of different types of clamps to accommodate all the different gluing and holding situations that occur when making that special project in wood. Here I'll explain how to make a clamp that can be used to hold both small glued pieces together, and as a vice for use with a pedestal drill. This vice/clamp is made using a piece of exterior plywood measuring 530mm long × 160mm wide × 12mm thick. To make the vice/clamp you'll need a circular saw and/or bandsaw, pedestal or bench drill as well as a few basic hand tools.

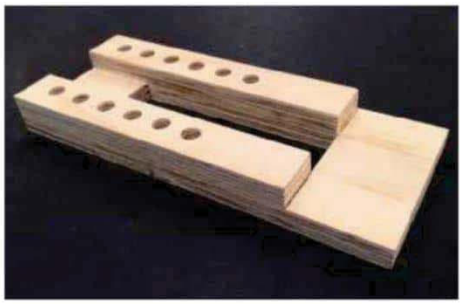
Cutting sequence

Cut the 530 × 160 × 12mm exterior plywood into 1 × 90mm and 2 × 30mm strips. Cut the 90mm strip into the sizes given in **Fig.2**, starting with the smallest one. Cut the 180mm pieces from one of the 30mm strips, rip the rest down to 25mm and cut off the two 75mm pieces. Next, cut the 50mm piece off the other length, then rip the rest to 25mm wide ×7mm thick. You need to cut 2 × 230mm long lengths off this piece.

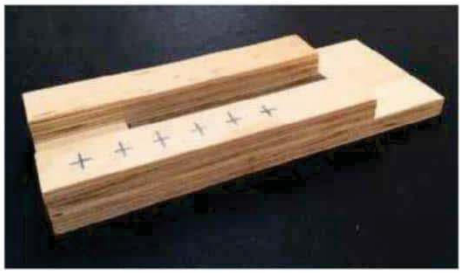
When you've completed the cutting, you should have the following pieces:



2 Body marked out for the 10mm hole



3 10mm holes drilled in the body



4 Hole positions marked for jig to be used (photo 6)

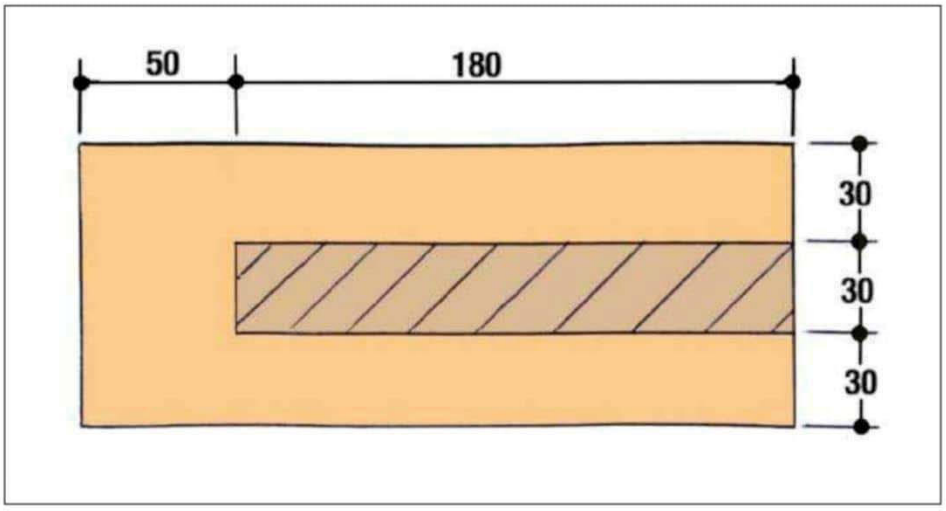


Fig.3 The hatched section of the body has to be removed

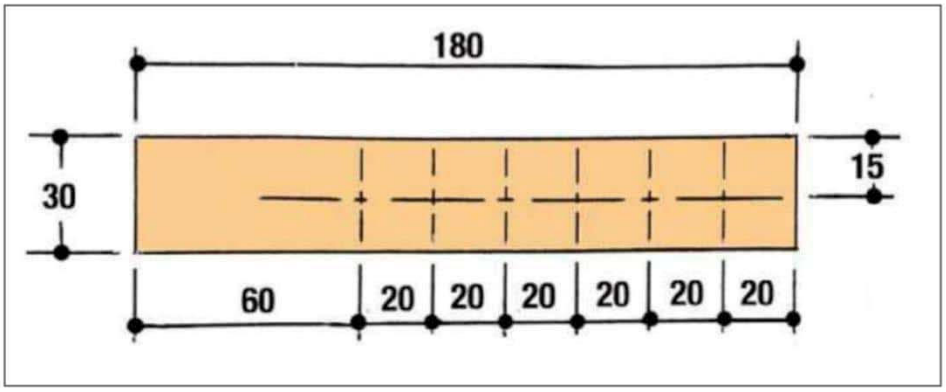


Fig.4 Positions marked out for 10mm holes

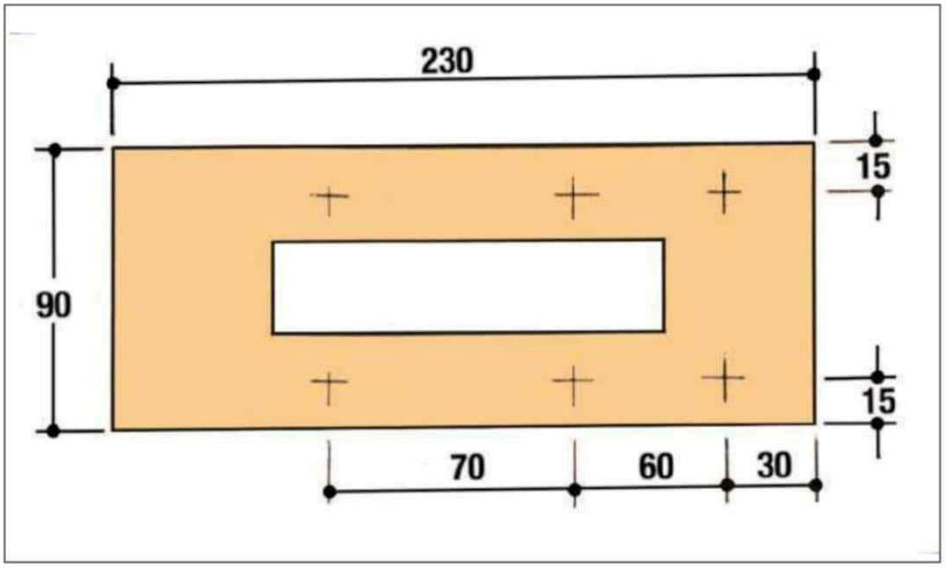


Fig.5 Holes marked out for nail positions when attaching 180 × 30mm pieces

- 230 × 90mm – 1 off – body
- 54 × 90mm – 2 off – adjustable jaw
- 42 × 90mm – 2 off – handle support
- 30 × 90mm – 2 off – moveable jaw
- 25 × 90mm – 1 off – body part 'A'
- 180 × 30mm – 2 off – body part 'B'
- 75 × 25mm – 2 off – handle
- 50 × 30mm – 1 off – body insert
- 230 × 25 × 7mm – 2 off – base pieces

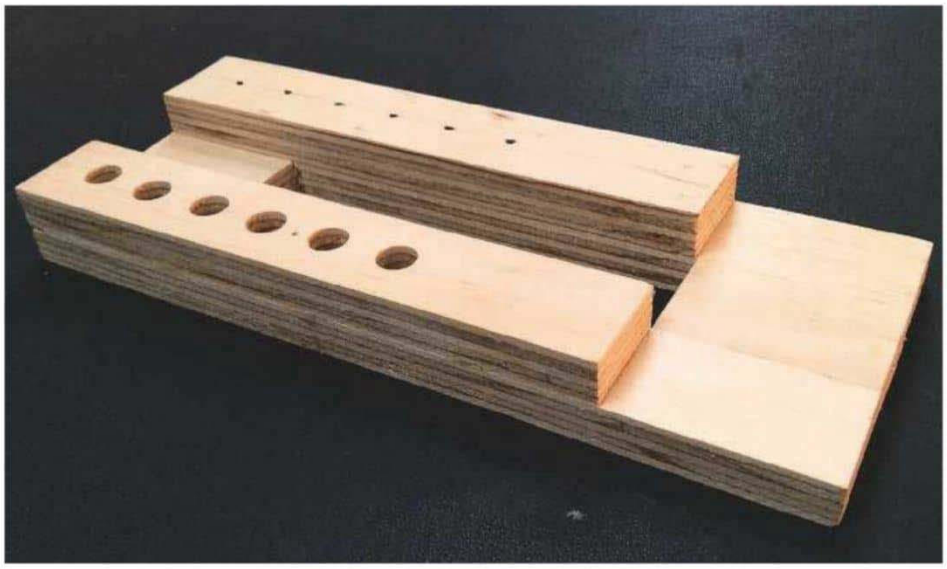
Marking out & assembling the body

The first task is to glue and clamp the adjustable jaws, handle support and moveable jaw pieces together. Mark out the body piece as shown in **Fig.3**. Cut out the hatched section using a circular saw/bandsaw and use a coping saw to cut the small 30mm section. You can now glue the 50 × 30mm body insert in place (**Fig.5**). While this is drying, mark out the positions for the 10mm holes in one of the 180 × 30mm body part 'B's' as per **Fig.4**. When the body insert is dry, turn to the underside of the body, and mark out and drill the nail holes as in **Fig.5**.

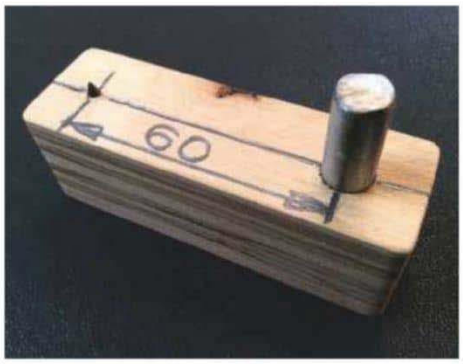
You can now nail and glue the 180 × 30mm body part 'B's' to the body. You will note that the nails have been positioned so as not to foul up the holes, which will be drilled later.

You are now ready to drill the 10mm holes. Centre punch the positions you marked out previously. If you have a drill bit specifically sharpened for use on wood, you can go ahead and drill the holes as it will have a sharp centre point to locate in the punched holes. If you don't have this type of drill bit, you'll have to drill a couple of pilot holes. I suggest a 3mm and a 7mm, then the 10mm.

I made myself a jig to mark out the holes on the other side of the body. **Photo 5** shows the completed jig. Its dimensions are 90 × x 30 × 27mm. The 10mm metal rod is approximately 40mm long and is placed 15mm (centre) from one end. The position of the nail is 60mm from the centre of the rod. Drill a hole for the nail to ensure accuracy. This jig is used to mark out the position of the second hole on the moveable jaw so that it will fit into the body. The aim of this is to ensure that all holes are exactly the same distance apart, otherwise the vice/clamp won't work as desired and will require some of the holes to be drilled larger. Next, place the jig into the pre-drilled hole, use a tri-square to position the jig and then give it a light tap with a small hammer or your hand. This will leave an indent from the nail in the other side. Drill the 10mm holes now. **Photo 7** shows the jig being used. **Photos 4** and **6** show the results of the marking out using this method. If you don't wish to use the jig you can mark both sides out as in **photo 2** and drill all holes at the same time. This requires precision in your marking out as all the holes must be exactly 60mm apart.



5 Jig for marking out the hole position



6 10mm holes drilled and other holes marked for drilling

7 Using the jig with a tri-square to mark positions for the holes

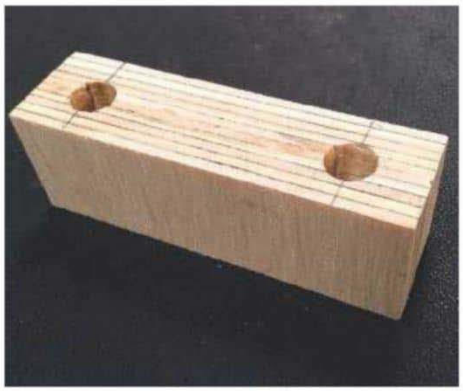
The final result should look like that shown in **photo 3**.

Making the movable jaw

Measure 15mm in from one end and square a line across. Centre punch the centre of the piece. This is easily found as the location where the two pieces were glued clearly stands out. Drill a 10mm hole 25mm deep and use your jig to mark your other hole, or measure 60mm and centre punch the position of the other hole. Now drill the other hole. Once the two holes are drilled in the movable jaw, cut 2 × 10mm diameter × 45mm long steel pieces. Before inserting the pins, put them in a drill and sand the surfaces smooth, removing any roughness that would make it harder for the pins to fit into the holes in the body. Next, put the steel pins into the holes and test the fit in the body holes with the movable jaw. No matter how accurate you have been, some will probably be tight. Re-drill the holes from both sides with a 10.5mm bit and they should now slide in and out easily. If not, drill the holes that are tighter with a larger drill, increasing by 0.5mm at a time. If you have been accurate in your marking out this should not be necessary. Indicate on one of the surfaces that it will eventually have cork glued onto it (**photo 9**).

Making the handle

To make the handle you'll need either 120mm of ⅜in BSW, or 10mm metric threaded rod.



8 Marking out and 10mm holes drilled for metal rods

9 Movable jaw completed with marking shown for cork, and the steel rods inserted

The handles need to have a groove cut into them: 9 × 4.5mm if you are using the ⅜in rod and 10 × 5mm for the 10mm. This can be sawn or routed out. To cut the groove on the saw it will be safer for you to hot glue a small piece of timber onto the back of each piece, which will make it easier to hold, and therefore, safer to manipulate (**photo 10**). Another method is to masking tape the back of the pieces and glue the piece of timber to it.

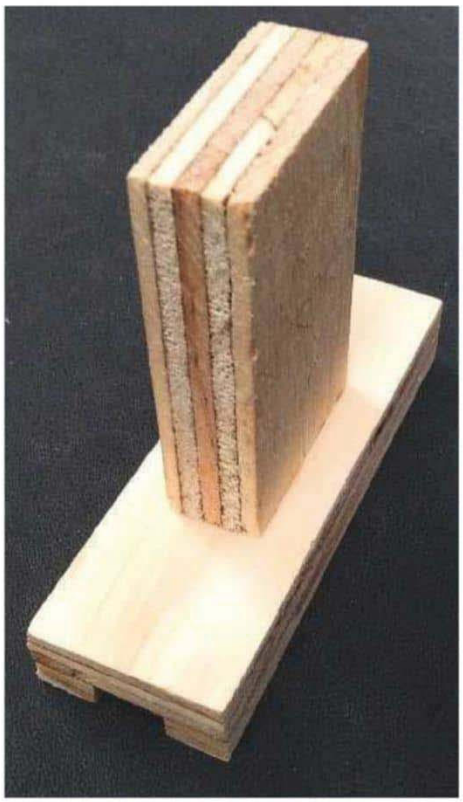
Before you start gluing, mark and masking tape the threaded piece to indicate where 65mm is. Place this piece in the groove as shown in **photo 11** and mark the end. Cut a timber piece that will fit into the end and glue it in place as shown. You're now ready to glue the two pieces together with five-minute epoxy resin. Place the glue in the grooves as well as the edges and cramp up in a vice. The masking tape prevents squeezed out glue clogging up the threads.

To prepare the grip on the handle, set your saw height to 6mm and your fence to make a cut just inside the outer edge. Make cuts on all edges and then turn the handle over and make cuts from the other end. Keep moving the fence in and make the cuts again until your handle looks like the one shown in **photo 13**.

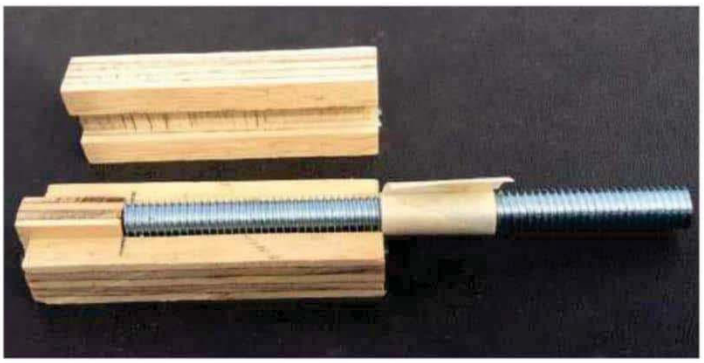
To round over the end, hold the handle in a drill and rotate it against a rotating sanding machine. The finished handle should look like that shown in **photo 14**.

Making & fitting the handle support

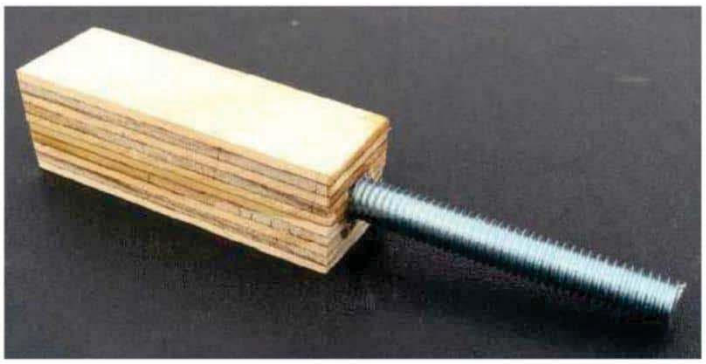
Mark out the handle support on both sides as shown in **Fig.6**. On one side you need to drill a 18mm hole, 10mm deep. From the other side, drill a hole to suit the thread tapping size of the handle: 8mm for the ⅜in BSW, and 9mm for the 10mm metric (**photo 15**).



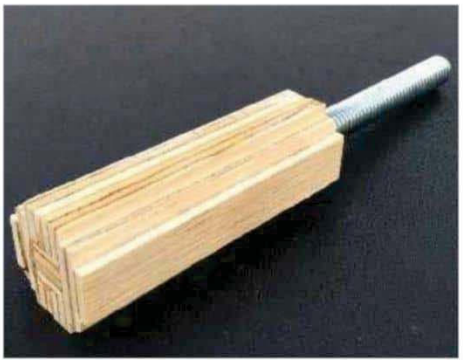
10 Piece of timber glued onto handle piece for safety when cutting the groove



11 Pieces all prepared for the five-minute epoxy resin



12 Handle before sanding the end round



13 Handle after cutting grip, showing sawn grips

14 Finished handle after rounding ends on a sanding machine

Tap a thread to suit your handle thread through the hole. Place some masking tape onto the end of the thread and file the surplus off. The reason for this is that we are going to epoxy resin the nut into the hole, and the tape stops the glue adhering to the handle end. Screw the handle through the hole and place a nut on the end. Carefully unscrew the handle until it sits on the bottom of the 18mm hole (**photo 16**). Mix up some five-minute epoxy resin and fill up the hole, forcing the glue around the nut with a thin stick (**photo 17**). You can then leave it to set for about 30 minutes, when you're ready to unscrew the handle. It will come out leaving the masking tape stuck to the resin. After three or four hours, use the drill size you used before you tapped the hole to drill from the non-resin side, then re-tap the hole. Lastly, sand the surplus resin off the side of the handle support.

Mark an arc on the top corners and sand them round. I use a small washer for this job (**Fig.6**). If you intend on rounding over all corners rather than keeping them square, the handle support needs to be glued and screwed into position now. The rounding of corners makes for a more pleasing appearance.

Drill screw holes, glue, clamp and screw the handle support in place as shown in **photo 18**.

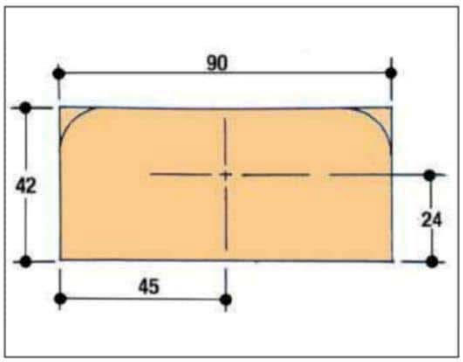
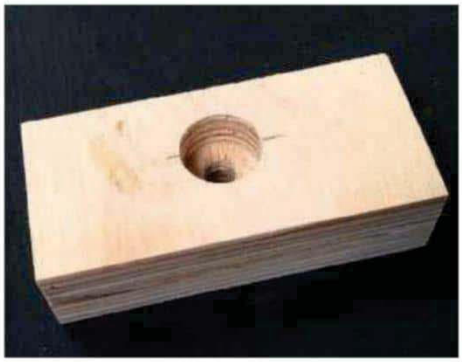


Fig.6 Marking out for handle support

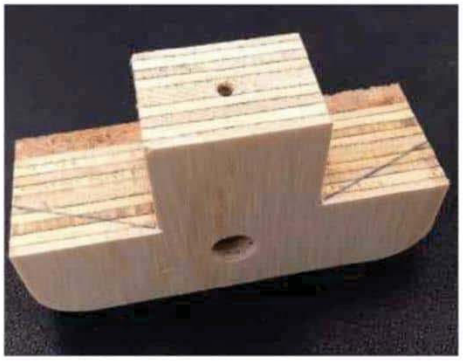


15 Handle support showing 18 × 10mm deep hole to take the nut

16 Nut held in place ready for epoxy resin to hold it permanently in place – note the masking tape to facilitate removal of the handle

17 Here the nut has been glued in place

18 Showing the use of the sash cramp – screw in the adjustable jaw



19 Marking out the bevels on the adjustable jaw

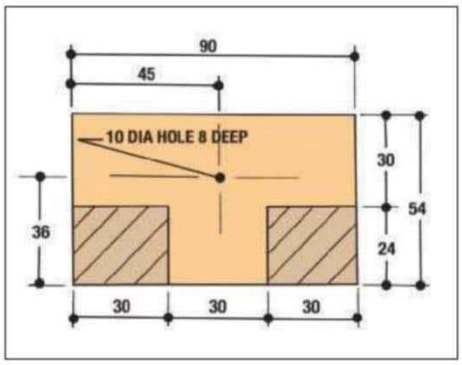
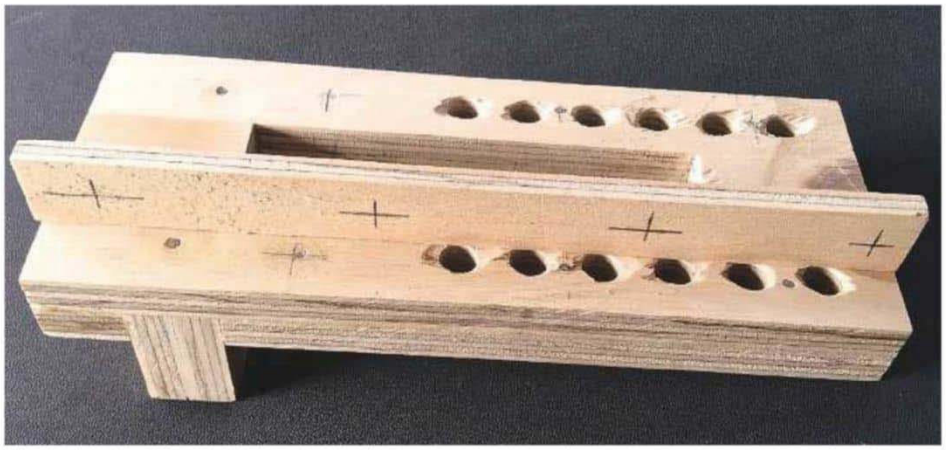


Fig.7 Marking out for handle support

20 The completed adjustable jaw



21 Marking out nail holes in the base to prevent interference with holes when assembling

The 90 × 25mm piece (body part 'A') can now be glued and clamped into position.

Making the adjustable jaw

Mark out the adjustable jaw as shown in **Fig.7**. Cut out the hatched areas and mark out which side you want the cork to be placed. On the other side, drill a 10mm hole about 8mm deep. Into this hole insert either a 10 × 3mm rare earth magnet or a piece of mild steel the same size. The magnet will move the adjustable jaw in and out as you turn the handle. The mild steel option will stop the fibres of wood in the hole from being damaged and give a hard surface for the handle to bear against when tightening.

You can now mark and cut the bevels as shown in **photos 19** and **20**. This feature is completely optional as it is only for aesthetic purposes. The corners could simply be rounded over instead.

Finishing the body

Take the 230 × 25mm pieces and rip them to 7mm thickness. Place these on the base as shown in **photo 21** and mark out the nail hole positions so that they miss all holes. Glue and nail them so they are level with the outside of the body (**photo 22**). Punch the nails in, putty, and sand smooth. You should now have a gap of 40mm between these pieces. Cut a piece of 3mm plywood, 40mm wide × 60mm long. This needs to be attached centrally to the adjustable jaw and slides in the 40mm wide groove. You may have to adjust the width to make it slide. Mark the centre of this piece and drill a hole to suit the screw you are using to attach it to the adjustable jaw.

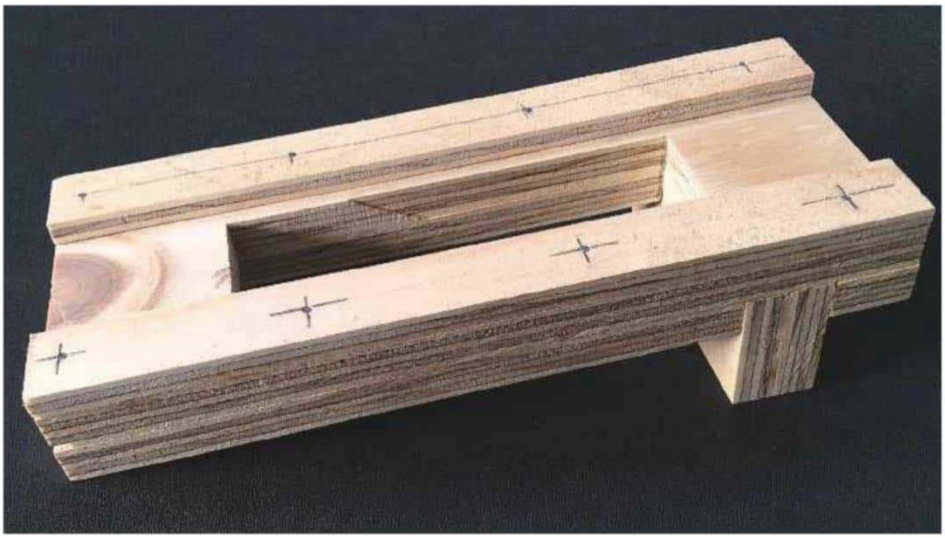
Next, cut pieces of 6mm cork floor tiles to fit the marked surfaces on the adjustable and movable jaws. They need to be glued and clamped, and when dry, sanded to the shape of the jaws. If you are rounding over corners, mark and round the four corners of the base and top corners of the adjustable jaw and movable jaw. Everything should now be made. **Photo 23** shows all the completed pieces.

There is one last thing to do before assembling and that is to drill a 3mm hole about 12mm deep into the centre of the movable jaw from the cork side, before drilling a 2mm hole through the rest of the way. Drill the same holes centrally about 12mm from the end of the cramp. The 3mm hole should be drilled from underneath. These holes will require some builder's twine, or equivalent, in order to stop the movable jaw from falling and getting damaged.

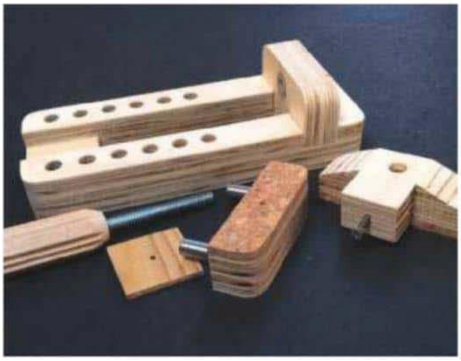
Assembling the vice/clamp

You can now screw the handle into the handle support. Place the adjustable jaw into the slot and screw a piece of plywood into it centrally. The adjustable jaw should slide along the slot; if not, some adjustments can be made (**photo 24**). Cut off about 200mm of builder's twine and smear one end with glue about 25mm long. Tie a knot in the other end, and when dry, thread the stiff end through the hole in the movable jaw and put that jaw into the holes nearest the adjustable jaw. First put the stiff end through the end hole on top, pull it taut underneath, then tie a knot as close to the hole as possible. Trim off the surplus twine.

All that remains now is to put a protective finish on the clamp. This is up to you, but I personally prefer to put two coats of shellac on mine.



22 Showing the base pieces nailed in place



23 Parts complete and ready for assembly

24 Underneath view showing position of the plywood piece

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HENRY THE HIPPO PART 1

Grace Silverwood returns with another clever rocking creation

TOOLS & MATERIALS REQUIRED

- Heavy-duty bandsaw with a cutting depth of at least 203mm for shaping the head (but you could also use a jigsaw and shape the head by hand using a mallet and chisel)
- Angle grinder – fitted with 80 and 120 grit sanding discs
- Lathe (for turning the teeth, but you could also use a small hand plane)
- Mallet and carving chisels
- Bench drill fitted with a 20mm Forstner bit
- Dremel or Foredom rotary tool fitted with a suitable wood burr (I used a 25mm Saburrtooth wood burr on my Foredom)
- Pencil
- F clamps (heavy-duty ones with quite wide openings) – you'll need lots of these
- Profile gauge
- Sash cramps
- Spring clamps
- Spokeshave
- Belt sander
- Countersink
- WorkMate or outside workbench
- Dust mask and face protection
- Hot glue gun
- Hand brace with auger bits
- Big bottle Of PVA glue
- 100g ball of black wool
- Tub of wood filler
- 2 × M6 bolts, washers and nuts
- 8 × 40mm dowel pegs

Paint

- Grey for the body, white for the teeth and pink for the tongue

Flossie the bird & toothbrush

- Plasticine for modelling
- 4×4 block of lime for carving
- 254mm length of 6mm dowel for the legs
- 3 × lolly sticks
- Cocktail sticks

After Gilly the giraffe went down well with the customer who had commissioned me to make it, I was then asked to make another one for her soon-to-be-born granddaughter. I was told that it had to be a hippo with a bird in its mouth, using a toothbrush to clean Henry's teeth. To this day I still don't fully understand where this association comes from! Henry the hippo is more complicated than my previous rocking animal and has a bigger cutting list to match, so therefore we'll approach the build in two parts.

MAKING THE BODY

The body is basically built like a hollow box, with the underside left open. I viewed trying to fill this in as a waste of wood, as it wouldn't be seen and would provide even more weight.

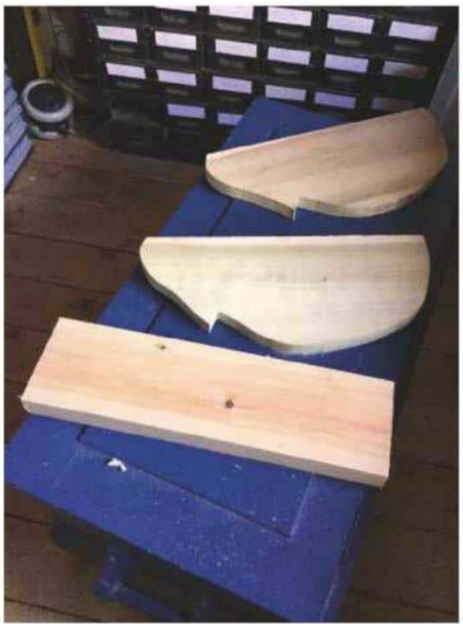
Cutting out the pieces

The first step is to cut out the relevant body components: we need two side pieces for the body (**photo 1**). I used some 9×1 tulipwood for this, which was planed flat, but you can use pretty much any timber as long as it's 9×1 and flat. The top of the body needs to be kept flat as this will come into contact with the back.

The back is made from a length of 6×2 redwood, but you can use any good quality hardwood or softwood for this part, as long as it measures 6×2 in size and is square. The next step is to cut this to the length of the body, adding a little bit of overhang on each end, which will allow for the carving process at a later stage.

Attaching the sides to the back

The back needs to have four pilot holes drilled



1 The body components

2 The side pieces attached to form the back

3 The body clamped up

FURTHER INFORMATION
To see more of Grace's pieces, see **www.facebook.com/gracesilverwoodcreations** – you can also see the completed article and accompanying videos by visiting the Instructables website: **www.instructables.com/id/Henry-the-Rocking-Hippo-With-Moving-Jaw-Rocking-Ho/**

into the top on each side; this will allow the screws to go through the back and into the side pieces – it's a good idea to apply a bit of glue before doing this. I would also recommend having the screws about 5mm below the surface of the back, which will ensure they will not stick out during the carving process.

Attaching the front & back of the body

You can now measure the internal gap between the two side pieces and using your offcut from the back, rip this piece down to that measurement. We want the grain running from the top to the bottom of the body as this will be carved away later on. Glue these pieces in place and then apply clamps to hold everything securely (**photo 3**). Leave this to dry overnight.

As you can see in **photo 3**, I found the void in the body a handy place to keep all the offcuts I had left over from cutting out the body; this will come in handy for use during later stages of the build.

Carving the body

Once the glue has dried, it's time to remove the excess wood. For this I first used my bandsaw to remove the bulk of the wood although you could use a hand saw for this part instead. You can then level the blocks at the front and back flush with the sides, using an angle grinder fitted with an 80 grit sanding wheel, before shaping the edges of the side of the body (**photo 4**). At this stage, it's important to not touch the back (which will be the seat) as it will need to be shaped later once the legs are in place.

THE HEAD – PART 1

As with the body, the head is built like a hollow box with the underside left open. At this point, I'd decided that I wanted Henry's head to open and close on a pivot and this is why the head is made in two parts. I also saw this as the most economical way of using the wood and offcuts I had available.

Cutting out the side pieces

The first step is to cut out the pieces: we need two side pieces for the top of the head (**photo 5**). I used some of the remaining 9×1 tulipwood for this, which was left over from cutting out the main body section.

The top of the head

The top of the head is made from a large piece of 8×3 oak block that had been lying around the workshop. This piece was water damaged but still stable enough to use. You could use any wood for this part as long as it's the correct size and the grain runs perpendicular between the two sides of the head. It does sound like a massive piece to have for just the top of the head, but it will also form the part that will feature the most carving, so it makes sense to use a sizeable piece. This can then be glued between the two sides and held in place with two large F clamps (**photo 6**). At this stage, it's important to have the block of oak sitting just above the profile of the side of the head (see **Fig.2**) – again, this is for carving purposes later on. Leave this to dry overnight.

The front & back of the head

The next day, using offcuts of 6×2 from the back of the body, cut this to the internal width of the gap between the two sides of the head. Glue these pieces in place and again hold in place with F clamps before leaving to dry overnight.

Carving the head – stage 1

Cut away the excess wood at the front and back of the head, either using a bandsaw, hand saw or chisels. Afterwards the head can be carved for its first stage. Rather than doing it in one go, I found it easier to do this in several stages as

4 Using an angle grinder fitted with an 80 grit sanding disc, shape the edges of the side of the body

5 Two side pieces form the top of the head

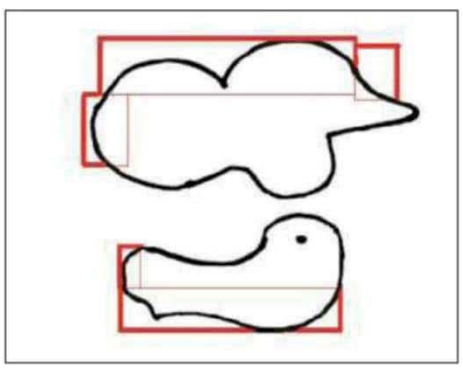
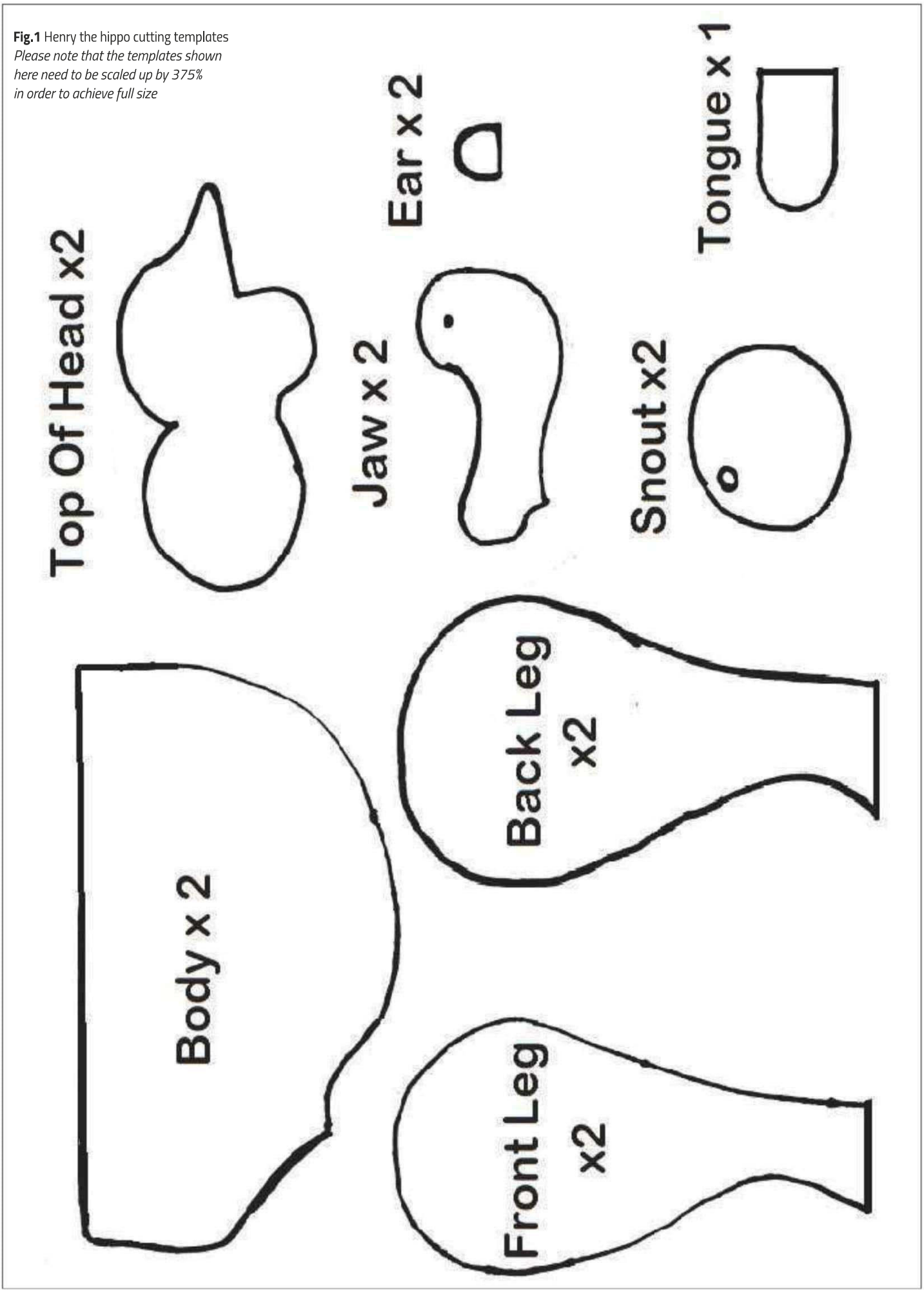


Fig.2 Gluing diagram

Fig.1 Henry the hippo cutting templates
Please note that the templates shown here need to be scaled up by 375% in order to achieve full size



6 Two F clamps are used to hold the two side pieces

7 The head with its blocks of wood, which is held together using three F clamps while the glue dries

8 How the head should look once the clamps are removed and before carving proceeds

9 The head once carved using the angle grinder – here you can see the dip in the head has been created between the nose and the eyes

10 The two side pieces, which will form the side of the jaw

11 You now need to repeat the same process, but this time for the lower jaw

12 You can now dry fit the two pieces together. The head should now fit over the top of the lower jaw. If this is a slightly tighter fit than you'd like, you may need to do a bit of sanding first

certain bits are difficult to get to once the snout is added. Again, using an angle grinder fitted with an 80 grit sanding disc, you want to carve away the dip in the head, between the nose and the eyes (**photo 9**).

THE LOWER JAW – PART 1

Cutting out the side pieces

The first step is to cut out the two side pieces, which will form the side of the jaw (**photo 10**). Again, I used some leftover 9×1 tulipwood for this.

The bottom of the jaw

The bottom of the jaw (underside of the head) is made from a large piece of 3×2 sapele block that I had in the workshop. Again, you could use any wood for this part as long as it is the correct size and the grain runs parallel with the two sides of the jaw that have just been cut out. The block then needs to be ripped down to a particular width in order for the jaw to be able to fit underneath the head. I measured the internal width of the inside of the top of the head and then subtracted the thickness of the two sides of the jaw. This will be different for every person making the project, so therefore needs to be worked out carefully. Hopefully my diagram opposite (**Fig.1**) will help to explain things a bit better.

CUTTING LIST

As with Gilly the giraffe, for Henry I wanted to use as many scraps of wood as possible that were lying around the workshop. As a result, the woods I used are very mixed in terms of both size and species. I felt that the species wouldn't matter so much this time as the whole animal would be painted grey

Body

- 9×1 tulipwood for the sides
- 6×2 redwood for the back, plus extra, which needs to be ripped down for filler pieces for the rest of the body

Head

- 9×1 tulipwood for the sides of the head (I used as many offcuts from cutting out the body as possible)
- 8×3 hardwood for the top of the head – this has to be a sizeable lump as it's the part that will be most heavily carved in order to achieve the head's contours
- 6×2 redwood for the front and back of the head (I used the leftover wood from the back for this)

Legs

- 6×2 pine for the front legs
- 6×2 limewood for the back legs

Snout

- 9×1 tulipwood – again using offcuts from the body. Note: DO NOT DRILL THE NOSTRIL UNTIL FITTED AS IT'S ONLY ON THE CUTTING LIST FOR DEMONSTRATION PURPOSES

Lower jaw

- 9×1 tulipwood for the sides – again, using offcuts from the body
- 4×2 sapele for the width of the jaw – this is what I had to hand but you could use redwood or oak instead
- 3×2 redwood for the tongue

Teeth

- 2 x rolling pins – ideally made from beech

Ears

- Offcut of 9×1 tulipwood used throughout the rest of the project

Rockers

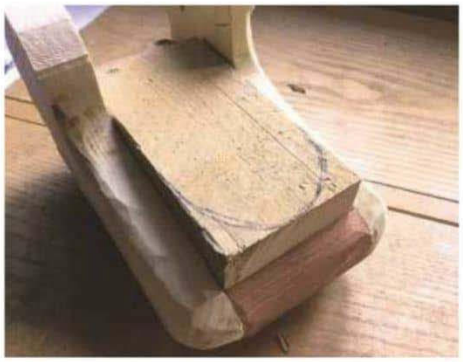
- 1m of 3×2 redwood/pine for the rocker's struts
- 1.2m length of 254 × 50mm thick ash for the rockers – any hardwood will do but softwood will probably not take the strain as well

The front of the jaw

Using the same measurement of the width of the block, cut a second piece for the front. This piece needs to have its grain running with the width of the jaw, rather than the length. The height is the gap between the block of wood being used as the bottom of the jaw and the top profile of the front of the side pieces.

Gluing up the jaw

The blocks can then be glued between the two sides and held in place with two large F clamps. Here, it's important to have the block sitting flush with the bottom of the jaw profile. You can then leave this to dry overnight.



13 The tongue is made from a piece of scrap 3×2 redwood

14 Using a marking gauge, mark a centreline down the middle of the tongue; this will be your guide for carving the tongue

15 Using a sanding disc mounted on an angle grinder, first make the groove in the tongue down the middle and then round off the edges

Trimming the excess

The next day, remove the clamps and begin to shape the lower part of the jaw. It's important to trim the blocks down to the profile of the side pieces as these are your guides as to the jaw's overall shape. I used my bandsaw to trim off the excess here.

Carving the front of the jaw

Using an angle grinder fitted with a sanding disc, shape the front of the jaw to a gentle curve. You don't need to worry about carving the inside of the jaw as this will need to be square in order to hold the tongue in place. Round off the outside edges of the rest of the jaw lightly using the grinder.

FITTING THE HEAD TO THE LOWER JAW

Deciding where to put the pivot

Once you are happy that the two pieces are a good fit, now's the time to fit the bolts that will act as a pivot for Henry's jaw. I wanted his jaw open most of the time and so when deciding where to put the pivot, I had his jaw open on the bench and then marked a hole as to roughly where I thought this should be. Next, mark on the opposite side and drill a pilot hole through both. I used a cordless drill fitted with a 4mm bit, which will allow for a 4mm screw.

I then took the jaw and screwed the wood screw into various positions until I was happy with the movement. Next, drill a pilot hole through the sides of the jaw where the screw has made its mark; this will allow for the bolt to run all the way through both head and jaw.

Dry fitting the bolts & counterboring

You can now assemble the pieces and slot the bolt in, without the nut, before trying the movement. Once you are happy with the movement of the jaws, remove the bolts and create a counterbore for the head of the bolt, which will be filled at a later date.

Next, assemble the head to the jaw fully although you may need to remove the jaw from the head again when it comes to fitting the teeth in place.

THE LOWER JAW – PART 2 – TONGUE

The tongue is made from a piece of scrap 3×2 redwood (**photo 13**). The width needs to be ripped down to the internal width of the jaw where the tongue will sit. For handling purposes, this should be cut so it is slightly longer than the jaw.

Cutting out

I wanted to have a bend in my tongue as I imagined Henry's mouth would be open much of the time, but this is up to the maker to decide as it is purely optional. Draw a curve along the length of the wood on one side and then cut on the bandsaw. This is where having that extra length at the end comes in handy as you can hold the wood while keeping your hands free of the blade.

Next, draw the curve for the tip of the tongue and cut out on the bandsaw. In the photos you can see that I've drawn the outline of the tip before cutting the bend of the tongue, but this was used as a guide for drawing out the bend. Cut this out on the bandsaw, with the flat of the tongue against the table.

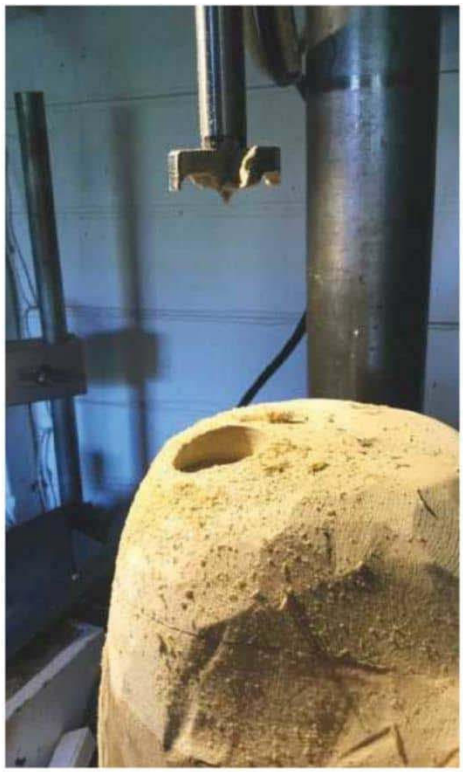
Carving

Using a marking gauge, mark a centreline down the middle of the tongue; this will be your guide for carving the tongue (**photo 14**). Using a sanding disc mounted on an angle grinder, first make the groove in the tongue down the middle and then round off the edges (**photo 15**). You can then move on to the sanding stage before painting it a nice pink colour. You won't glue the tongue into the jaw until near the end, so just put this to one side for now.

16 The head and jaw are starting to take shape

17 The snout built up and clamped

18 How the built-up snout should look from the front



19 Drilling the nostrils using a Forstner bit mounted in a bench drill

20 The nostrils once carved

21 The four teeth (two upper and two lower)

THE HEAD – PART 2 – SNOUT & NOSTRILS

Hippos are well known for their big noses and so Henry's features need to be built up a bit more. To do this, take more offcuts from the 9×1 tulipwood and then cut out two snouts from the template. These look like circles, but should roughly match the end of Henry's nose (**photo 17**).

Next, apply PVA to one side of the snout piece and also the end of Henry's nose. Then using a couple of large F clamps, glue these into place. If you have shallower clamps you may be able to get away with using G clamps and mounting them to the inside of the top jaw, clamping one side at a time. Leave these to dry overnight.

You can then move on to shaping the snout. Again, using the angle grinder and sanding discs, round over the edges of the pieces just added to the nose. While you are doing this part of the head, you can also put a slight arc into the top gum line, before adding the nostrils. This is done using a bench drill fitted with a 20mm Forstner bit, although you could also use an electric power drill if you don't have a bench drill (**photo 19**).

There isn't really a precise place to put the nostrils, just as long as they match up either side in position. You can then open out each nostril using a Foredom or equivalent fitted with a 25mm Saburrtooth burr (**photo 20**), but you may want to skip this stage. Henry will still look pretty effective with round nostrils.

THE HEAD – PART 3 – TEETH

Now we come on to the really fun part: the teeth. Hippos don't have many teeth and so I felt four was an appropriate number. All four are made from two beech rolling pins (you want solid rolling pins not the ones with a hole drilled through the middle). If you don't have access to these, you can also use tulipwood or any timber that turns well. I filmed the process of how the teeth are made, which can be seen on the online version of this article (see sidebar on page 57).

Turning the teeth

Start by placing the rolling pin between centres and then divide the pin into two equal halves (if you are using a chuck to hold your pin, you'll need to take a small amount off that end when you work out where the centreline is, as this will be parted off). Once you have marked a line, take a narrow parting tool and make an indentation. Now take a spindle gouge and start rounding the ends over to make a point. Both points of the two teeth will face each other, so it's easier to make them both identical in shape. Next, give them a sand before parting off in the middle (and at the chuck end if using one) – you should now have two teeth. Repeat the process again for the two lower teeth but this time make sure they are approximately half the length of those you've just made, but the same diameter (**photo 21**).

Painting

Now paint the teeth white (as it will be very difficult to do once they are installed in the mouth). This is also a good opportunity to spray paint the inside of the mouth black if you haven't already done so (**photo 22**). I sprayed mine before chiselling out the housings for the teeth.

Installing the teeth

Now comes the really interesting (and painful) part – we're about to perform a bit of amateur dentistry! As you have your four teeth, you'll now need to fit them into the gum. As the teeth on hippos are set into their very thick gums, you're going to have to do quite a bit of work getting them into their final place.

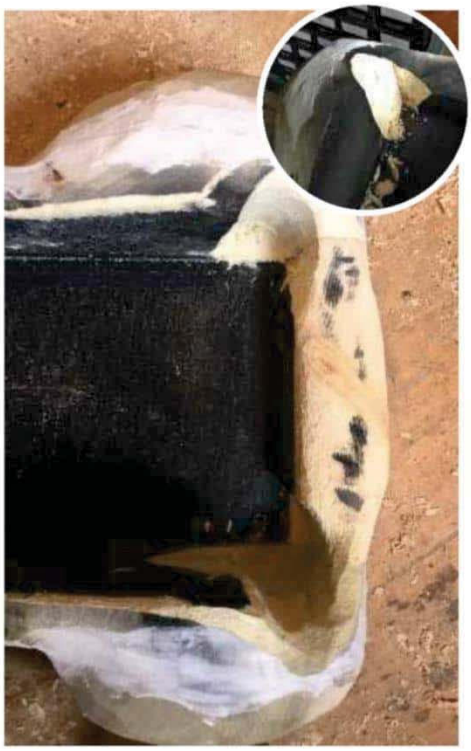
The top teeth (the longest ones) will require a lot of chiselling in order to make them fit. I found this easiest to do while locked into a wide jawed vice. Take a shallow gouge and start removing the corners of the inside of the mouth. You're trying to achieve a semicircle in the gum. For the bottom two teeth (the shorter ones), I found my Foredom fitted with a 2.5cm round Saburrtooth burr much better. As I was removing less wood, this didn't take as long.

Gluing the teeth in place

Now, using a lot of PVA glue, glue the teeth in place. The lower two are very simple to do as they have gravity working with them, but the other two will be a little more tricky.

I found that the larger teeth are best glued in place once the lower two are fixed in position. These will stick out over the lower jaw, so a housing needs to be carved into the outside of the lower jaw to allow the teeth to clear (see **Fig.3**).

22 The inside of the mouth once spray painted



23 Ready to install the lower two teeth

24 Lower teeth, once installed

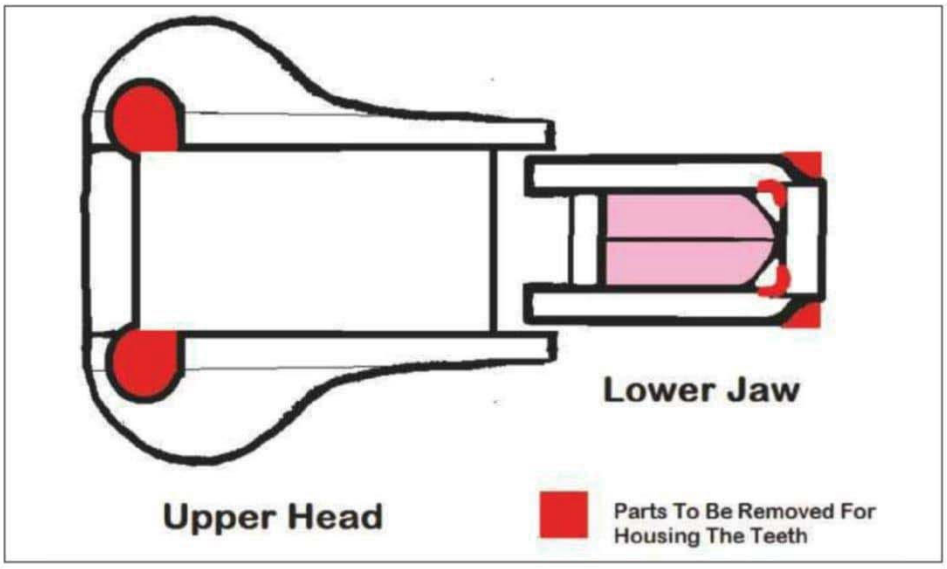


Fig.3 Henry's dentistry chart – not to scale

This requires more power carving using the Foredom fitted with a 2.5cm Saburrtooth burr. This is why it is very important to have a thick wall and bottom on the lower jaw as these will now have to be removed slightly to allow for the upper teeth to clear.

Once this is done, the two top teeth can be installed. The head will need to be turned upside down and the jaw closed so the teeth are held exactly where they should be. Again, lots of PVA is required, but I also recommend using a bit of hot glue to make sure they are held in place while the PVA dries around them.

THE HEAD – PART 4 – EARS/HANDLES

Now for the ears. Original Henry was to have dowel handles behind his ears, but I found that these were both in the ideal position and size for handles.

Again, these are made from offcuts of 9×1 tulipwood, which I've used throughout the project on the larger pieces. Using the ear template, cut these out using a bandsaw (or coping saw). Then, take a profile gauge and use this to find the curve of the head where the ears will be positioned. I strongly recommend using the gauge on both sides rather than just assuming one side of the head will be the same profile as the other. Also, mark a line in the position where you place the gauge on the head – you'll need this later on.

Fitting the dowels

You can now mark the centre of the ear on the side which will contact the head. Using an 8mm bit, drill a hole into the first ear (**photo 25**). This needs to be half the depth of your dowels (I used 8 × 40mm ones). Repeat for the other ear.

Carving the ears

Once this is done you can now carve the ear. Using a Foredom or Dremel, as before, you need to create an incline into the middle of the ear. I went a little too deep and ended up breaking through to the dowel hole, so go carefully around where the hole has been bored for the dowel. The back of the ears need to be curved on a shallow curve and so, using the Foredom or a disc sander, create this shape. I found dry fitting the dowel handy for holding the ears while working on them.

Fitting the ears

Fitting the ears can be quite tricky, so using the marks left on the head made when using the profile gauge, find where the internal curve best fits. Draw around the ear onto the head and use this as your reference. Dry fit the dowel and then add a blob of paint to the end. Line up the ear outline with the ear and push the dowel onto the surface of the head. It should be roughly in the centre of the outline you just drew. Next, using the same 8mm drill bit, drill the corresponding dowel hole into the head. Apply PVA to both the dowel and the contact surface and repeat for the other side. Allow to dry overnight.

Gaps may appear once the glue has dried, in which case, run some filler around the bottom of the ears where they meet the head.

25 Drilling dowel holes into one of the ears

26 Dowels fitted into the ears

27 Ears once carved...

28 ... and attached to the head

YEW CAN LEAVE YOUR HAT ON

Dave Roberts' coat rack is made from ebony and... well, you can probably guess the rest

I haven't turned yew wood for quite a while, partly because I've been so busy with commercial turning, and also because it's not very often that my customers ask for anything turned in yew; generally they want oak, mahogany, pine, etc. While these timbers are fine, of course, they're not as exciting as yew. With yew, you never know quite how it's going to look until you start turning it, and fairly often it's full of surprises. I have in the past had yew with barbed wire inside it! This happens when fencing has been stapled to the tree, which has then grown around it over many years. Though rare, it has the benefit of adding even more interest because the metal turns the timber purple. As you may have gathered by now, I'm quite passionate about this timber. Anyway, I decided to turn something to show off the beauty of this yew, but didn't have a piece big enough to turn a reasonable bowl. What I did have, though, was a lot of branchwood – ideal for making a coat rack, whose length would show the grain to good advantage.

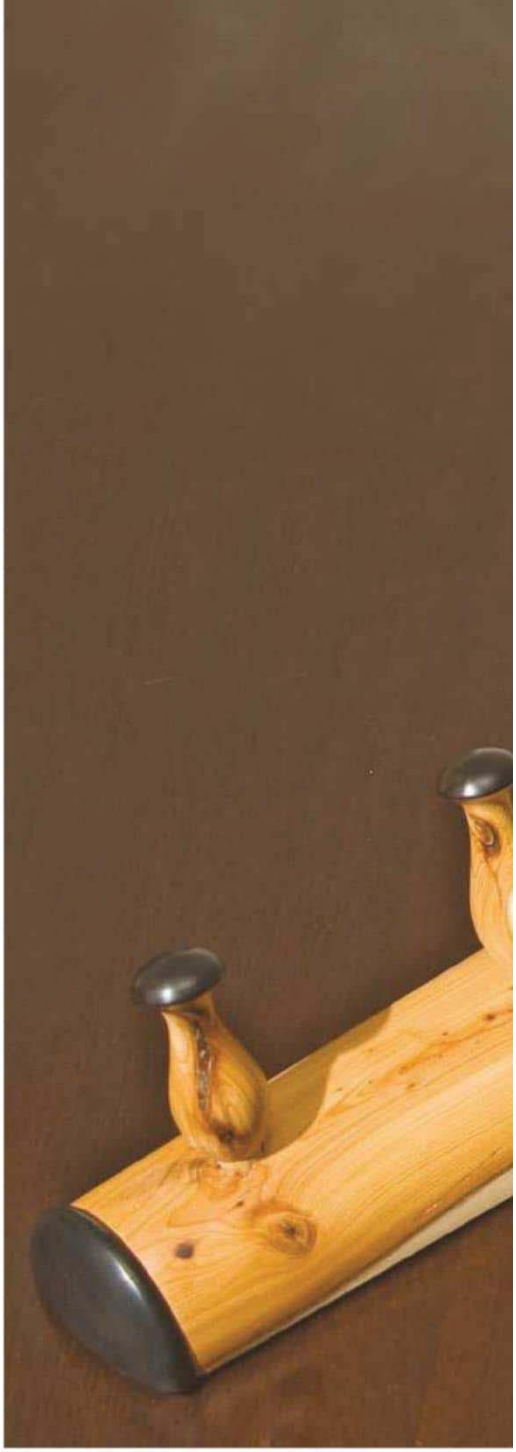
TOOLS YOU'LL NEED

- Spindle roughing gouge
- Parting tool
- 6mm gouge
- 13mm Forstner bit
- 12mm skew chisel
- 6mm drill bit

Split turning for symmetry

With a job like this, it's as easy to make two coat racks by preparing a blank that can be split into two to give symmetrical pieces. Simply turning a branch then sawing it down the middle and planing the two pieces flat won't produce two perfect halves. Also, the job of planing the pieces on a surface planer is quite dangerous as there isn't much to hold on to. The best approach, then, is split turning – gluing together two pieces that are turned and then separated along the glue line.

I chose two branches with some small branches on them, which I knew would alter the grain pattern, and lend it some extra character, and ran them through the bandsaw to roughly square them up. The two surfaces to be glued together have to be flat, of course, and while a surface planer will do this in no time, a hand plane or a hand-held electric planer will do the job just as well. It's worth putting a steel rule across each surface to check they're truly flat before you glue them together by putting a thin layer of PVA on both surfaces and clamping them together with



1 Cut the yew wood roughly on the bandsaw before planing it up

2 Put glue on each face and clamp them together with paper in between and leave to dry

3 With the blank between centres, use the spindle roughing gouge to turn it to a cylinder

4 Turn a 32 × 6mm spigot on both ends. Check them with Vernier callipers

5 Use a 6mm gouge to turn the concave in the centre

a sheet of newspaper in between. Use as many clamps as possible, and leave the piece to set for a day or two. When dry, put the workpiece on the bandsaw and square up both ends.

To mount the yew on the lathe, I used a Steb centre with a revolving cup centre in the tailstock, both of which help to hold the piece together whereas a standard revolving centre would force the turning apart along the glue line, which would obviously be dangerous. Having checked that the piece was secure, I set the lathe to a speed of around 1,500rpm, which was fast enough for a lump of this size.

Roughing down...

Start by roughing the piece down to a cylinder. It may well vibrate to start with, but this will be short-lived; the quicker you balance it up, the quicker you'll get rid of the vibration. Next, turn a spigot on both ends with the parting tool; these are for the end caps, and only need to be 6mm long and 32mm in diameter. The small concave in the centre is the only decoration as I find that yew doesn't need a lot of embellishment because the grain itself provides plenty of interest. Now you can start to turn the taper, which should be the same on either side of the centre point.

6 Split the workpiece along the glue line and clean off the paper with abrasives

7 Make yourself a jig. Tape the coat rack to it and drill the holes

8 Turn one end of each peg flat, using either a parting tool or a small skew chisel

YEW: TALISMAN, WEAPON & MEDICINE

The yew tree (*Taxus baccata*) is one of three British native conifers. Unlike Juniper and Scots pine, however, the leaves, bark, and seeds of yew are all poisonous; only the seed's red covering, which attracts the birds that help to distribute the seeds, is innocuous. The wood of the yew is close-grained; the heartwood ranging in colour from deep gold to a red brown, while the sapwood is white – a contrast exploited in the lute, whose curved back is traditionally made using alternative strips of dark heartwood and pale sapwood.

As a native of these islands, the yew has inevitably been involved in our history – as far back, perhaps, as the second ice age 400,000 years ago, if the tip of a yew spear found in Clacton, Essex is any indication. Most of us expect to see yew trees growing in churchyards, of course, but it's likely that the yews themselves predate the church buildings, and mark the sites of earlier religious practises. The yew was a sacred tree to the tribes of Britain, who held it to be a potent tree for the protection against evil. The Celtic iw, in fact, is one of the oldest tree names, and – transmuted into ew or ewe – is ingrained in ancient place names such as Ewhurst or Ewshot, meaning yew-tree wooded hill.

The sense of antiquity surrounding the yew is further enhanced by the difficulty in aging them accurately: older yews as they tend to go hollow in the centre, which has led to the tree entering popular legend for other reasons. In 1769 in Fortingall, Perthshire, for example, a funeral procession passed through the trunk of a yew that was 52ft in girth. At Shining Cliff wood near Ambergate, Derbyshire, meanwhile, a family lived within a yew tree known as the Betty Kenny tree, and had even hewn out a cradle in one of the boughs.

Another famous association is the defeat of the French at Agincourt (hurrah!) thanks to the English archers and their longbows made of yew. The French, who were odds-on to win, threatened to cut off the middle fingers of the archers, which would've made it impossible to 'pluck the yew', as drawing the bow was known. After the battle, however, the victorious archers waved their fingers at the French saying, "See, we can still pluck yew!"

It is in the use of plants and trees for medicinal purposes, however, that the old magic thought to surround the yew enters our modern world, for the yew has been found to produce an alkaloid called taxol, that can be extracted from yew clippings and the bark, and which has benefits for people with certain types of cancer. So from a poisonous tree, we may be able to derive life-saving medicine

9 Hold the blank between centres while you drill a 6mm hole

10 Turn one end of the ebony flat and form a 6mm spigot

The spindle roughing gouge will make short work of this, but remember to take your time over the final passes and take light cuts. By doing this you'll get a better finish, which means less work with abrasives. Place a steel rule on each taper to check it is flat, and also check both ends with Vernier callipers.

... & sanding up

Start sanding with 120 grit, which should be used lightly; if you press too hard it will leave deep scratch marks. Then move on to 180 and work up to 600 grit. Yew is one of those timbers that deserves a good finish, so the final sanding should be done with the lathe stopped. Keep rubbing the abrasive up and down the grain and in no time it will eliminate any sanding marks. After wiping away loose dust, you can apply the sanding sealer; one good coat will do. When dry, rub it back with '0000' grade wire wool, initially with the lathe rotating, and then with the lathe stopped so you can work the wire wool up and down the grain. Finally, apply a light coat of polish.

To separate the halves, all you have to do is to tap a chisel into the glue line at one end. Remove the newspaper using coarse abrasive wrapped around a cork block, then finish off with a coat of sanding sealer.

Drilling the peg holes

There are holes for eight pegs in all, four on either side, and all drilled at a slight angle, so you'll have to make yourself a jig to hold the coat rack. I managed by taping the rack around a long square piece of timber with a long thin piece attached to its front edge. This set-up tilted the rack enough to get the right angle. Mark out eight positions evenly spaced then you can drill the holes. I used a 13mm Forstner bit, and drilled to a depth of 20mm; just be careful you don't drill all the way through.

Making the pegs

The eight pegs were also turned in yew, and their caps from ebony. The pegs themselves can be made straight from branchwood and I turned them in four different sizes, the largest being 80mm and the smallest 56mm, with a difference of 8mm between each peg. When you cut the blanks to size, don't forget to add enough for the spigot and a bit to hold it in a chuck.

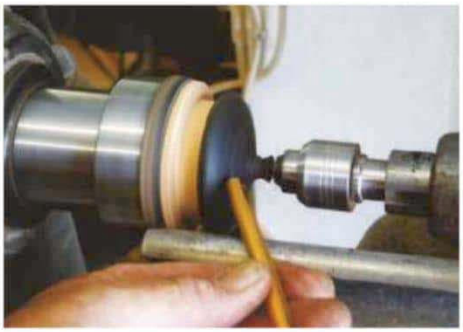
Mount the blanks between centres and with

11 Put a little PVA glue on each cap, clamp them in place and leave to dry

12 Mount the pegs between centres and turn them with a 6mm gouge

13 Turn one end of the ebony flat before securing it...

14 ... in a machine vice so that you can drill a 32mm hole



15 Fix the end cap onto a jam chuck and support it with the tailstock while you turn it

16 Put a little PVA glue onto each spigot and push the pegs into the holes

the lathe set for about 2,000rpm, turn them to a cylinder using either a small parting tool or a skew chisel. One end of each has to be turned off flat to receive the ebony cap (I normally turn off the tailstock end as it's easy to access) then drilled with a 6mm hole. Do this by putting a 6mm drill bit into a Jacobs chuck, holding the timber against the drill and then bringing the tailstock up to support the other end. With the lathe on a low speed, wind the tailstock in and drill to a depth of 10mm.

The small pieces of ebony for the caps, meanwhile, can be held between centres while you prepare then. Turn the caps to the same diameter as the yew peg, and then form a 6 × 10mm spigot on each. The pegs and caps are then glued together using PVA.

The peg assemblies are then put back onto the lathe for finishing. I mounted them in a combination chuck, which meant that I could remove the tailstock and finish off the end with ease. Again, a speed of around 2,000rpm and a 6mm gouge should give you a good finish. The next step is to then use the parting tool to form the spigots, before you can move on to sanding and sealing the pegs.

The end caps

The end caps are also turned in ebony, and are again split-turned, in order to produce matching halves. Start by mounting the ebony between centres and turning it to a cylinder. Next, face off one end, which is drilled with a 32mm bit. Hold the ebony in a machine vice while you do this; it's much safer than holding it by hand. Now mount the ebony on a jam chuck – a push fit is all that's required – with a revolving cup centre at the tailstock end, and use the 6mm gouge to turn it to shape. For the final cut, remove the tailstock so that you can turn the end off, taking care that the workpiece doesn't come apart. You can then sand, seal, and separate the halves.

Assembly

Glue up each of the pegs and the end caps and push them into place. You won't be able to clamp them on, but masking tape will hold them until the glue has set. To hang the coat rack on the wall without drilling through it, you could use either mirror brackets or hanging plates.

NEXT MONTH
Dave turns a turns a decorative wall sconce

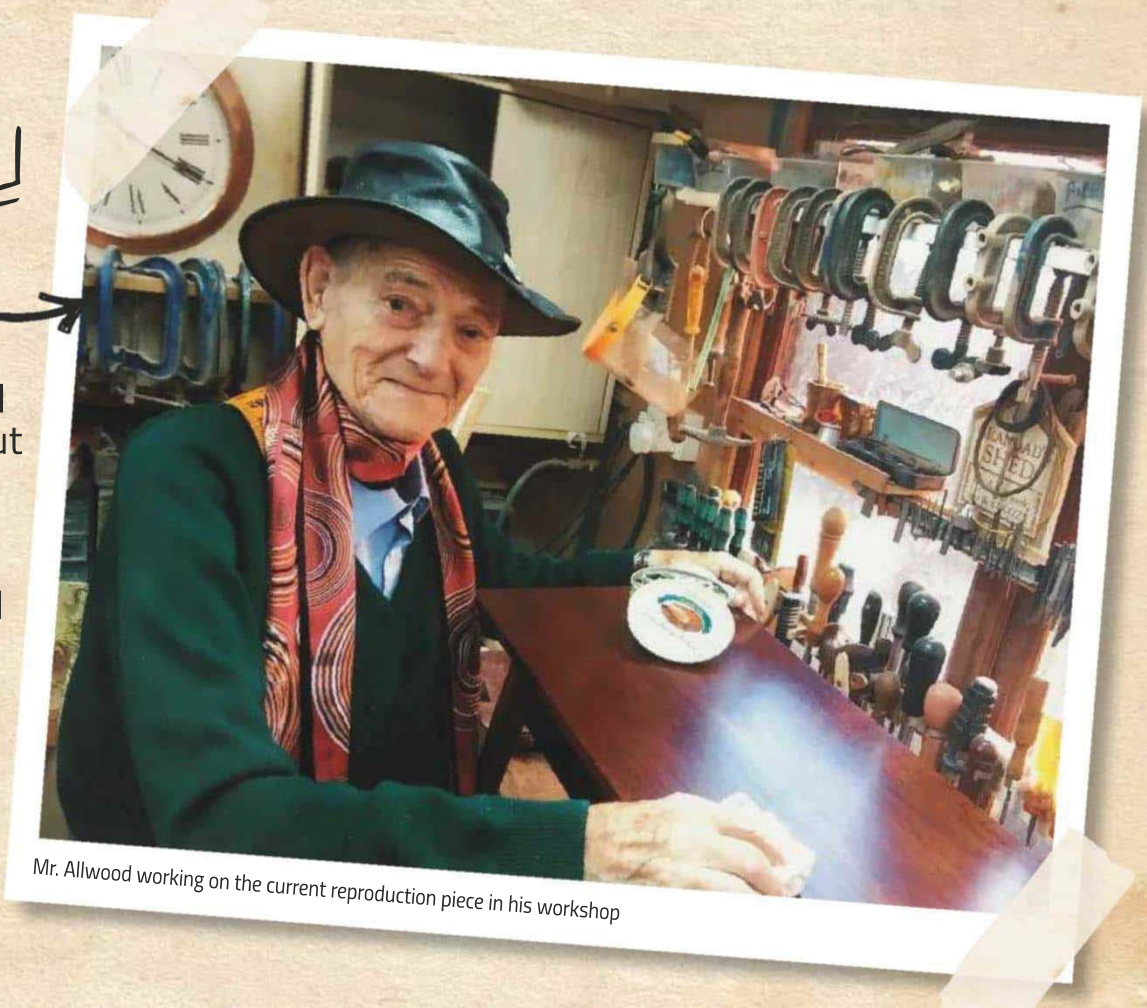
17 Glue both end caps on and use masking tape to hold them in place while they dry

18 To avoid drilling the rack, use mirror brackets or wall-plates to hang it

ME AND MY WORKSHOP

A.B. Allwood

This month we head to Wales and find out more about the life and workshop of woodworker and reader, **A.B. Allwood**



Mr. Allwood working on the current reproduction piece in his workshop

1. What is it – and where is it?
Newtown, Powys, Mid Wales, with the River Severn as a background.

2. What's the best thing about it?
It's only 3m to the kitchen door, so tea and biscuits are to hand.

3. And what's the worst?
Being in rural Wales means materials are not so readily available.

4. How important is it to you?
Very important, having retired some 20 years ago. It's my space and however long I wish to work on whatever project I may have on the go.

5. What do you make in it?
Now I try my hand at making antique reproduction using all kinds of solid hardwoods. I've worked in the trade for 67 years – anything from multi-storey blocks, churches (one in England, one in New Zealand), luxury yachts and furniture for Saudi princes.

6. What is your favourite workshop tip?
Keep the floors clean, and clean up after every procedure. Ensure to be safe at all times around machines, and I have LED lighting over each machine in 600 × 600 panels.

7. What's your best piece of kit?
My spindle moulder due to its versatility.

8. If your workshop caught fire, what one thing would you rescue?
Me. All others can be replaced by money.

9. What's your biggest workshop mistake?
Lack of hindsight after replacing the wood flooring three times, remaking under-sized wall panels and winders – I've said enough! My new shed has a polished concrete floor, tiled with glazed floor tiles, and measures 4 × 3.5m, with 3×2 insulated studding and a long run iron roof. It was built in 2017 by me and my sons.

10. What's the nicest thing you've ever made?
In 2010 I made a three-drawer solid oak dresser with matching stepped bookshelves.

11. And what's the worst?
Being young and eager when I built my first workshop.

12. What's the best lesson you've learned?
First make a clean and clear story rod complete with ALL FACETS of the item, then carefully check again before you proceed.

13. If you won the lottery, what would you buy for your workshop?
A rise and fall chair so that I can sit comfortably at bench height and carry out the intricate procedures required.

NEXT MONTH
In the next issue, we look around the workshop of Devon-based furniture conservator, Tony Vernon. We'd love to hear about your workshops too, so do feel free to send in a photo of your beloved workspace, and please answer the same questions as shown here – just email **tegan.foley@mytimemedia.com**

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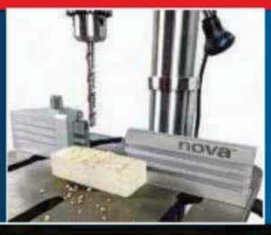

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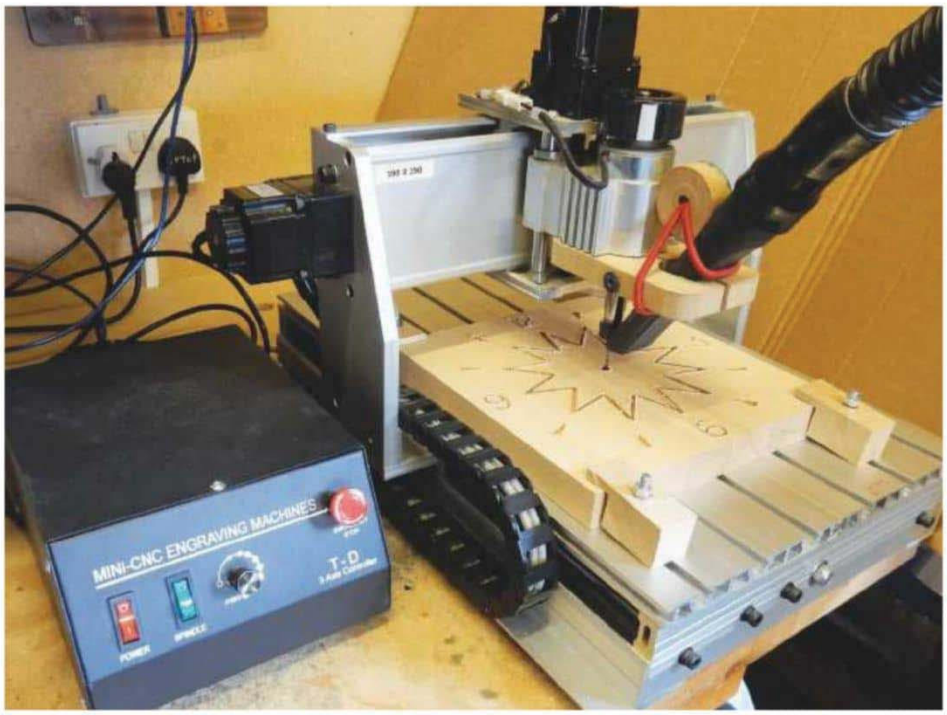


1 Overview of the CNC machine

AN INTRODUCTION TO SMALL-SCALE CNC

Geoff Ryan shares some useful tips for working with various types of small-scale CNC machine as well as providing examples of the pieces he's made over the years

As a hobby woodworker for much of my life I have had three main problems: first is time (or lack of it); second is the cost of decent tools and machinery; and third is the ever tempting array of ideas for new projects generated by magazines such as this one. I have largely solved the first problem by retiring, the second problem by spending wisely, and, where possible, careful second-hand purchases. The third problem I hope will never be resolved as I enjoy new challenges.

The right 'gear'

It was a magazine that first exposed me to the idea of building clocks with wooden gears, and further research online provided free printable plans for cutting gears using a scrollsaw. Now I am sure there are plenty of people out there who can make a very respectable job of using a scrollsaw, but unfortunately this does not include me and after many failed attempts at making something that looked like a gearwheel and would actually work, I came close to giving up the idea altogether. Then, by chance, I came across a YouTube video of gear cutting using a small CNC machine.

After much research and reading reviews, I decided to order a small screw-driven (as opposed to timing belt driven) Chinese CNC machine from eBay (**photo 1**). These are a lot cheaper (currently around £430) than UK produced machines, but there is a price to be paid in that there is no effective support from the seller and not a single word of instructions. However, there are plenty of user support groups and spare parts are readily available if needed. After some initial frustrations in setting up the software, the machine has proven to be quite robust and after two years' use has not let me down.

Repeatable accuracy

Accuracy and repeatability are two benefits of CNC. I have just built a large (3ft diameter) spring-driven kinetic sculpture called 'Aurora' (**photo 2**), which required 20 identical arms with mounting holes to be cut from birch plywood (**photo 3**). While this could be done using a scrollsaw, bandsaw, or even fretsaw, it would require a huge effort (and skill) to keep them exactly the same (**photo 4**). In **photo 3** you can also see a sacrificial board is positioned under the component being cut out. To stop the component moving and being ruined, small 'tabs' are left to hold it steady and these need to be cut and sanded off later. Another benefit of a sacrificial board is that material can be screwed down to it.

Photo 5 shows the components involved in the 'Aurora' mechanism: on the ruler are the tiny magnets that actuate the pawls controlling the release of the spring energy. The holes for the magnets in the pawls require very accurate alignment and CNC excels at this. 'Aurora' is just one of many designs available online from Christopher Blasius, who is based in Germany, and you can see his designs in action at **www.Holzmechanik.de** or on YouTube by searching for 'Holzmechanik'. I have also built several versions of his 'Magica' clock (**photo 6**).

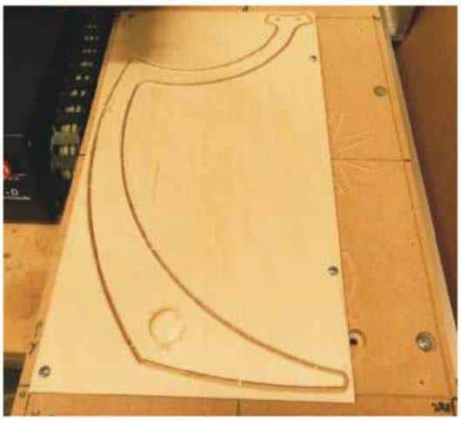
Software

CNC stands for Computer Numeric Control and refers to any software-controlled machine. There are three stages to CNC: first a computer generated drawing of the object is needed and this is done using a CAD (Computer Aided Design) package. There are many free and paid for CAD programmes – you can even use things like Windows 'Paint' to produce simple drawings.

Secondly this drawing needs to be converted into a format that a machine can understand and this requires a CAM (Computer Aided Machining) package. There are both free and paid-for packages available and I chose to use a paid-for combined CAD/CAM software package called Cut2D, produced by British company Vectric. The user support is beyond excellent with lots of video tutorials, free projects to download, and regular updates. I had a minor problem with an item I was designing and contacted the help desk. Within the hour I had a full solution in the form of a short screen video taking me through what was in fact my own error – the voiceover used my name so it was a very personal response.

Cut2D, like the name suggests, is aimed at producing two-dimensional objects, but as it controls the depth of cut as well as the horizontal dimensions, it is often referred to as '2 and a half

2 'Aurora' kinetic sculpture



3 Cutting one arm for 'Aurora'

4 10 done and 10 more to go

5 'Aurora' mechanism components

D'. True three-dimensionally curved objects are a different ballgame but there are packages which allow you to do this, such as Cut3D and V Carve, made by the same company. All Vectric software allows you to preview what the final object will look like from all angles and warns against cutting right through the material being machined and potentially damaging the bed of the machine. If this is the case, you can fix a sacrificial board underneath.

The third stage in CNC is to take the output from a CAM package and use it to drive the machine. Again, there are both free and paid for packages available. One of the most well known professional packages is Mach3, which many hobbyists also use. You pay for what you get and this software can be used to control industrial-sized machines cutting a wide range of materials and the huge range of features include things like automatic tool change and allowing for backlash when the machine changes direction, and even tool wear.

My machine came with software, which is designed to work specifically with the machine's control unit but it still has more features than I will ever need. The software has to be calibrated to the machine during setup – e.g. you tell the machine to move 200mm then measure carefully how far it has actually moved and input this figure. Further checks refine this and the final figures are saved in a 'setup' file, which is automatically loaded on start-up. Occasionally this file gets corrupted, so I have learned to save a backup copy if I ever make any changes to the settings. **Photo 7** shows the screen view while cutting out an arm for 'Aurora'. On the top left is the current position of the tip of the cutting bit. 'X' is the left/right position, 'Y' is the backwards/forwards position, and 'Z' is the vertical up/down position. On the bottom left of the screen are some controls that allow you to move the bit into position before running the cutting programme. The starting point (X=0, Y=0, Z=0) can be chosen when creating the programme and is most commonly in the dead centre or bottom left of the workpiece and on its surface.

So what can this machine do?

The usable size is approximately 290mm wide and 390mm long but as the machine is open at each end, longer lengths can be accommodated and cut in two sessions. Vectric software allows large items to be created by 'tiling'. Maximum depth of cut, which is dictated largely by the bit size and shape, is about 25mm. Three 'stepper' motors control the horizontal and vertical movement of the cutting head and each motor drives a screw thread with a 3mm pitch. These motors move in steps – in this case 1.8°, giving 200 steps for a full 360° rotation. So one step advances by 0.015mm – a level of accuracy probably swamped by the day-to-day movement of the wood being cut!

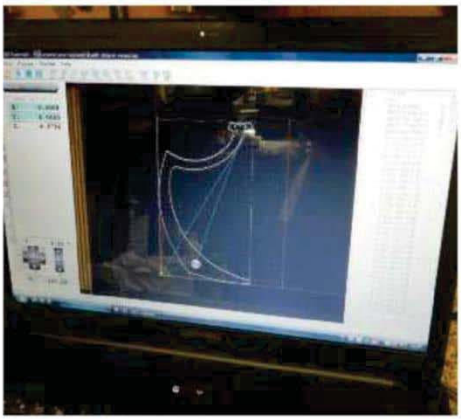
The spindle motor is only 200W with a collet chuck of 3.175mm. A range of cutting bits is available such as 'V' bits, spiral two-flute upcut or downcut, and straight-sided two-flute, in diameters from 3.175mm down to fractions of a millimetre. Even with the largest of these bits the depth and speed of cut has to be chosen carefully to avoid overloading (and breakage) of the bit. Typically with hardwood, a maximum cutting depth of 1-1.5mm works well with about 2mm for softwood and plywood. Bits cost between £8-12 for a pack of 10 so are not a big factor in running costs.

As well as wood, I cut plastics. Perspex cuts very well and I have cut templates for a friend who is a professional box maker and uses a router-follower for cutting recesses for inlay. I was also able to produce very accurate angle templates for cutting segments in veneers. High Density Polyethylene (HDPE) cuts very cleanly and I have made 25mm thick spacer blocks and 6mm thick zero clearance inserts. Acetal was used to make a slender sprung ratchet for a clock as wood turned out to be too fragile. Cutting thin aluminium is also within the capability of the machine, but so far I have not had the need or the inclination to do this. MDF can also be cut but isn't very suitable for small components and is useless for gears. It also wears the bit out faster than other wood.

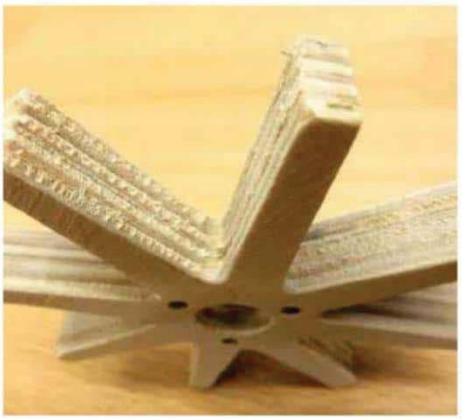
Cutting gears

Ideal materials are good quality birch plywood, plastics such as clear or coloured Perspex, or well-seasoned hardwood. While plywood works well it lacks the visual appeal of solid wood. The

6 'Magica' clock

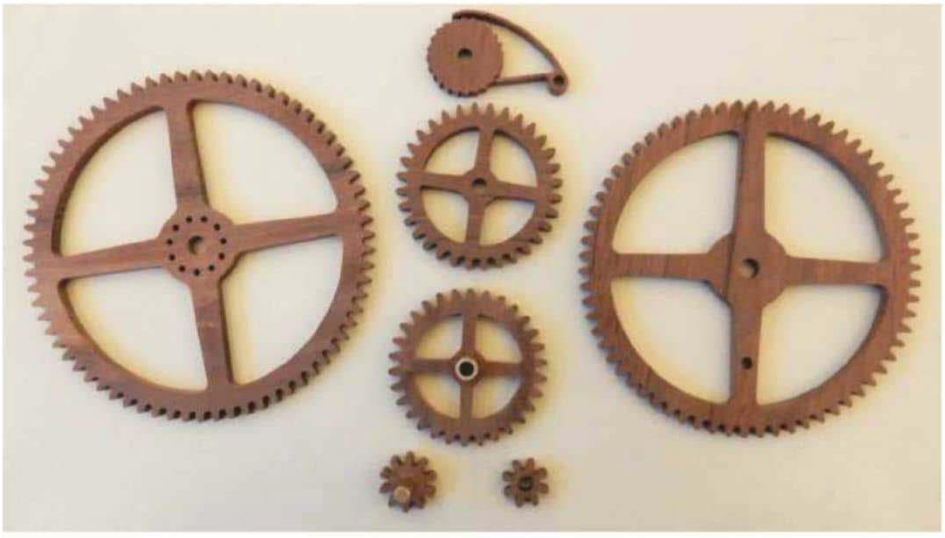


7 Screen view while cutting components



8 End-grain problem with plywood

9 Oak is not suitable for very slim gears



10 Mahogany components for a clock

end-grain on plywood is left quite ragged (**photo 8**) and requires some cleanup, particularly if applying a finish that might raise the grain further, such as water-based dye. I haven't yet cut gears in Perspex but am considering building a clock entirely from different colours and thicknesses.

The problem with solid wood is stability and even small gears have a habit of turning from round to oval. I have made up blanks for large gears from 30° segments, which I then ran through a thickness sander to ensure flatness but after cutting the gear some twist still developed. Fine-grained woods such as beech work well but oak and ash are fine for 'chunkier' components – trying to cut a delicate gear in oak can lead to fractures along the grain (**photo 9**).

Photo 10 shows some of the components for a weight/pendulum driven clock and **photo 11** shows the clock during assembly. The numbered 'face' is in recycled oak (from the benches in the local magistrates court when it was being converted into offices and flats) and the gears are made from some recycled mahogany (from old park benches). The frame was from a recycled shelf of unknown wood variety.

11 Clock assembly

Cutting letters & shapes

This is another area that CNC excels in and it opens up a new world of possibilities from making signs to putting personalised messages onto your work: clocks, boxes, and other items, which have personal messages, make great gifts and many of my relatives have at least one item I have made.

Photos 12 & **13** show an example clock using a battery powered insert. The lettering has been filled with a mix of acrylic resin and powdered brass and, once hardened, sanded flush. As the fingers are exposed and easily damaged, this type of construction lends itself to wall mounting and I provide a wooden case to transport them safely.

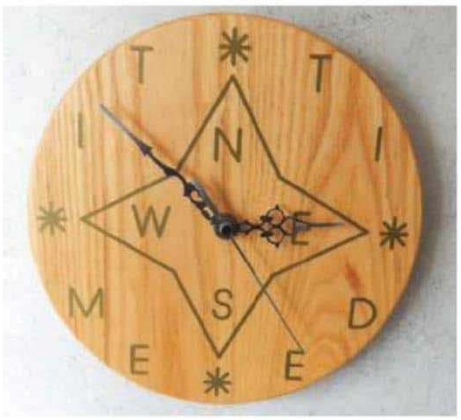
The clock in **photos 14** & **15** had the lettering filled with polyester resin, which can be coloured with dyes. Resin kits, including a set of coloured dyes, can be bought online. One thing to note about polyester resin is that until it sets it stinks like nothing else on earth, so working outside is therefore highly recommended. This particular clock was for a friend's retirement – as teenagers we used to terrorise the neighbourhood on our Lambretta scooters. He bought one again and is a member of a scooter club, hence the relevance of the clock.

My version of Gilly the Giraffe appeared in April's edition of *The Woodworker* and **photo 16** shows one of the details I added to personalise it.

The clock and plaque in **photo 17** I made for my granddaughter's bedroom when she was born. In this case the mechanism is an enclosed radio controlled clock. A closer look (**photo 18**) reveals a couple of small holes in the brass resin infill; this is caused by bubbles of air, which rise to the surface before the resin sets. Applying gentle heat from a gas torch or hot air gun can help eliminate these – more heat required next time!

Another project for my granddaughter was an art easel (**photo 19**) – on one side is a blackboard surrounded by the alphabet. Rather than use blackboard paint I used self-adhesive vinyl blackboard material, which comes on a roll, similar to Fablon. Instead of inlaying the letters with resin, I painted inside them with coloured enamel paints. Unfortunately the paint soaked into the wood grain, which led to the colours bleeding beyond the letters; this was in spite of painting the recesses with sanding sealer first. I was going to use clear varnish on the frame but instead carefully roller painted it grey. The other side of the easel (not shown) is a magnetic whiteboard with numbers 0-9 and shapes around the frame.

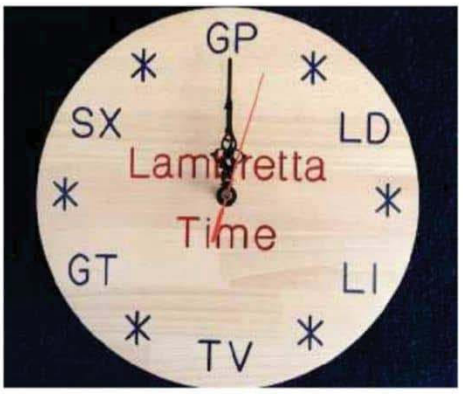
Also for my granddaughter was a toy box on wheels (**photo 20**). Inside and out is personalised with the alphabet, her name, a big gold star, and



12 Epoxy and brass powder inlay

13 Rear cut-outs for clock

14 Coloured polyester resin inlay



15 The finished 'Lambretta' clock

16 Gilly the Giraffe rocker detailing

17 Nursery clock

of course 'made by granddad'. The wheels were cut on the CNC so they are all exactly the same. One point to note is that I decided to remove the rope handle from the box as it could have been a danger to a small child.

One of my hobbies is windsurf racing and I organise events in the North West. One of the regular competitors, who normally wins the annual series, was unable to compete due to ill health so I made the trophy shown in **photo 21** to honour his contribution to the sport.

What's next?

I have several more clocks under construction and am considering some smaller clocks that I can make in larger numbers to sell – I would like to do a craft fair, not because I think I can make any money but just for the experience of it. I also have a cheap 0.5W laser engraver and use it to make small signs and these could also be an option to sell.

Automata is an area I would like to explore and I can see my daughter having to find homes for even more wooden toys – she has already asked if my next project could be a larger house to contain all the items I've made for my granddaughter.

There is an option to upgrade the 200W spindle motor with a more powerful unit. There are 400 and 700W units available that will fit in the existing mount, but the downside of this is it might be pushing the rest of the machine too far.

My box making friend has asked for some more Perspex templates for making production runs of chopping boards. This is an interesting task as there has to be male and female templates which fit very closely to one another – a clearance of less than 0.25mm is required.

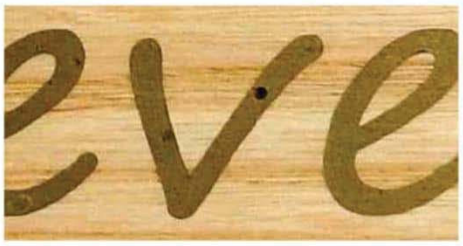
While CNC has added greatly to the range of things I can make, I don't see it as an end in itself. It has been an interesting adventure to master the process but I also make furniture, boxes, and turn (I'm a member of Merseyside Woodturning Club) and see CNC as just another tool in the box.

Safety

Small-scale CNC machines don't pose any unusual risks but, like any machine with moving parts, there is the potential for injuries. Fingers and loose clothing must be kept away from the cutting bit and there is also the risk of a crush injury if you put a finger in the way when the cutting head is moving around the table. Workpieces must be securely attached to the table as they could be ejected. Eye protection is sensible as there is a risk of small offcuts being ejected or, if a tool should break, metal fragments. Depending on what you are cutting, noise can sometimes be an issue so ear defenders might be required. Dust is produced in varying amounts and my solution (see **photo 1**) was to make an adaptor to hold a hose connected to my vacuum cleaner.

Working with resins also requires a reminder to follow the advice provided with the kits as well as working in well-ventilated areas.

Finally, I would like to say a few words about electrical safety. As an electrical engineer with 46 years' experience, I spent the last eight as a self-employed electrical safety consultant. I also help to run a charity shop and one of my tasks is to carry out Portable Appliance Testing on all the electrical items we sell. I am constantly amazed by the dangerous condition of the appliances I inspect and one of the main issues is the condition of the plug. I find many examples


18 Bubbles in resin

where the cable sheath is not captive in the cord grip and this causes the wires to pull loose. Some years ago a member of my family was killed by a twin tub washing machine when the frame became live – the cause was attributed to a badly fitted plug. Other problems include wrong fuse size or even the fuse replaced with a paperclip or other metallic object, which is very dangerous. Only replace a blown fuse with one of the correct size – 3, 5, or 13amp as appropriate. Most modern appliances now have a moulded plug fitted, which has helped reduce the number of fatalities both at work and in the home. The introduction of Residual Current Devices (RCDs) has also helped make installations safer – if you don't have one on your system, then get a quote for one. However, an RCD is like an ambulance at the bottom of the cliff and not the fence at the top, so please take a few moments to check your equipment before you plug it in – if you find a problem and are not competent to deal with it yourself, then ensure to ask a suitable professional.

19 Blackboard self-portrait

20 Toy box on wheels

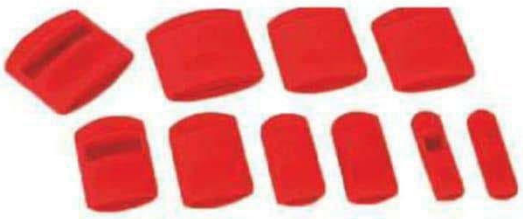
21 Windsurfing award

COMPETITION

WoodRiver Silicone Chisel Guards

WIN! 1 OF 5 PACKS OF 10-PIECE WOODRIVER SILICONE CHISEL GUARDS – WORTH £12.95 EACH!

In conjunction with **Wood Workers Workshop**, we're giving five lucky readers the chance to win 1 of 5 packs of 10-piece Silicone Chisel Guards from WoodRiver



Edge guards or tip protectors are made from a somewhat hard plastic that either fits well because it is made for the chisel or it doesn't fit and slips off. These WoodRiver Silicone Chisel Guards are made from soft silicone, however, and they're designed to fit over practically any chisel, stay on and actually protect the chisel's edge from hard knocks. Each package contains 10 guards: two each of 3-7mm, 9-13mm, 15-20mm, 22-27mm, and 27-33mm.

Soft silicone chisel edge guards go on and stay on and protect edges against 'hard knocks'. Designed to fit chisels from 3-33mm.

For more information on these and other products from Wood Workers Workshop, see **www.woodworkersworkshop.co.uk**.

FEATURES

- Soft silicone chisel edge guards go on and stay on
- Protect edges against 'hard knocks'
- Fit chisels from 3-33mm

HOW TO ENTER

To be in with a chance of winning 1 of 5 packs of 10-piece WoodRiver Silicone Chisel Guards, just visit **www.getwoodworking.com/competitions** and answer this simple question:

QUESTION: How many guards are supplied in each pack?

The winners will be randomly drawn from all correct entries. The closing date for the competition is **4 October 2019**

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

Only £14 Plus £4 P&P UK

A step by step guide

HOW TO MAKE A CHILD'S WINDSOR CHAIR

The chairs in the book are completely new designs of Windsor chairs for children 4 to 12 years.
(Windsor side chair and Windsor chair with arms)

by Peter E Judge

The book's 378 pages are packed full of useful diagrams and colour photos on how to make these Windsor chairs from start to finish. Every part is explained in easy language, and in a step by step format. In the woodturning chapters, the beautifully shaped legs, stretchers and upper chair spindles can be created easily using the step by step guide for beginners. See selected pages on the website.

The methods for making the chairs were made as simple as possible, such as cutting the curved crest from solid timber and not using steam bending. When the designs were worked out it was also important to ensure that this simple approach did not affect the classic style of the chairs. This ensured that they would not only be stylish, but would also be a sophisticated item of Windsor chair furniture.

Add delivery to the book price:
America and Canada £18 P&P
Europe £12 P&P | Australia £19 P&P

Also on the website, see Book 2. Alternative Assembly Procedures
These special procedures are an alternative way to assembling the chairs shown in 'How To Make A Child's Windsor Chair' - using precision techniques.

View a selection of pages from the books at website

www.makewindsorchairs.co.uk

Order through PayPal on the website, or please contact Peter by calling **0121 705 2196,** email: **peterejudge@gmail.com** or write to Peter E Judge, 21 Somerby Drive, Solihull, West Midlands B91 3YY, UK

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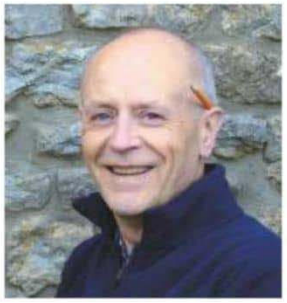
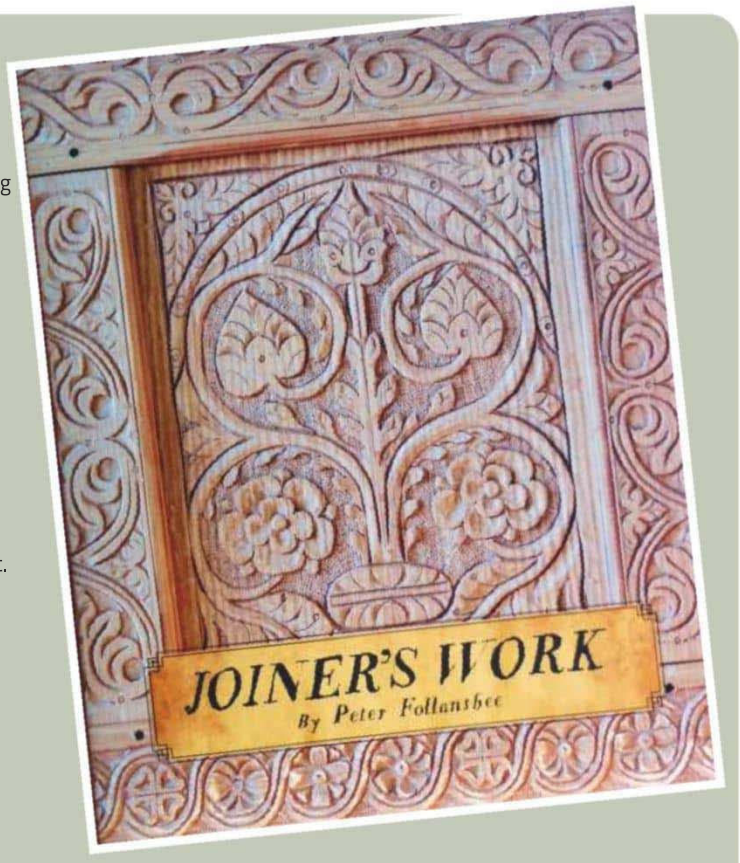
AROUND THE HOUSE WITH PHIL DAVY



I used to consider sanding to be the most tedious task imaginable, but now I've discovered something that's even worse: hanging wallpaper. I still can't understand why this particular incident was so frustrating, though. Matching the pattern wasn't too tricky, though getting the paper to adhere to the wall turned out to be a nightmare. Even with good quality paste suitable for heavy paper I still came unstuck, or rather the paper did. And a couple of times the paper almost slid off the wall completely. Fortunately there was only one reasonably straight wall to cover, with no alcoves or fiddly stuff, apart from a couple of 13A sockets to cut out. Now I realise why over the past few decades I've always painted walls when it comes to redecorating, though that has involved far too much filling and sanding recently. Much better sticking to woodwork, I reckon!

BOOK REVIEW
JOINER'S WORK



Even if you're not particularly interested in woodcarving, this is a fascinating read. The sort of book that you'll want to read from cover to cover, even if you've no intention of making any of the projects it describes. Unlike the traditional Shaker style that's so familiar, New England furniture from the 17th century was often highly decorated, with almost every available flat surface left adorned by chisel or knife. Expert joiner and tool historian Peter Follansbee is something of a devotee, studying for decades virtually all there is to know about this unique style of American furniture. Experience working at a living history museum and with private collections enabled him to examine in minute detail just how it was all put together. But what makes this special is the intricacy of the carving…

Riven oak

The first chapter concentrates on materials, including how to use a hatchet. Follansbee uses riven wood rather than sawn; that way he ensures boards are dimensionally stable. Unless we're green woodworkers, I'm not sure many of us would choose to go down that timber conversion route, but it gives you some idea of the level of authenticity here. Everything is built with air-dried timber, rather than kiln-dried, after initial working while material is green. After all, three or four centuries ago the concept of kiln drying would have been something of a mystery.

Projects consist of carved boxes, a couple of chests, drawers and a bookstand. But if you're expecting precise drawings and dimensions you may be disappointed. Instead, there are delightful pencil drawings of each piece with approximate sizes (imperial), but that's all. It's left up to you to fine-tune as stock or aesthetics dictate.

A second chapter discusses the workshop with the all-important bench at its core, though the author's version features a screw for holding the workpiece, rather than a vice. Winding sticks and wooden planes follow, with steel tools few and far between due to their likely contamination from green oak's tannic acid.

Classic carving

Almost 50 pages concentrate on carving techniques, which are covered at length. Photography is first class throughout, with sufficient close-up detail to guide even the novice carver. I found the short sections on making your own decorative punches, scratch stocks and wooden pins particularly interesting.

Then it's on to the projects themselves, which feature either mortise and tenon or rebated and nailed joints. No glue to worry about and definitely no screws. This is certainly a book for lovers of hand tools – Follansbee apparently gave away his power tools some 35 years ago! I was reminded of the late John Brown, chairmaker extraordinaire, who worked almost exclusively with hand tools (he occasionally used a bandsaw). In fact, there seem to be many similarities between the two craftsmen.

A brief glossary would not have gone amiss. For example, I've never come across a pintle before, and I'm probably not alone. And there's no index either, so referring to a specific item or technique can be frustrating. But it's an absorbing book, one to digest in front of the fire on a winter's evening. It's far from cheap, but with Christmas on the horizon *Joiner's Work* should perhaps be on your wish list…

THE VERDICT

Written by Peter Follansbee, published by Lost Art Press

Price: £43.50

Web: www.classichandtools.com

Rating: 5 out of 5

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SAFETY WARNING

It's essential to use three-core flex if fitting a metal bulb holder, and the earth wire must be attached correctly. Always get a qualified electrician to check your work if a project involves wiring of any sort. Do this before plugging in the lamp for the first time because even a straightforward project like this could be dangerous if you get it wrong

AUTUMN PROJECT
TABLE LAMP

Takes: One weekend
Tools you'll need: Circular or table saw, bench and block planes, biscuit jointer, router

SEEING THE LIGHT

Using leftover oak-veneered MDF from a previous project, **Phil Davy**'s table lamp base makes an ideal small project

Sometimes a project can evolve after rummaging around in the offcuts pile. In the case of this table lamp, I had a rather nice piece of oak-veneered MDF left over from building a recent vanity unit. Not really big enough for anything on a grand scale, the gorgeous quartersawn figure on one face was striking and it seemed a shame not to display this in some way. Consisting of several bookmatched leaves of narrow veneer, the pattern repeated itself across the panel. This got me thinking about how I could use the 19mm MDF for a small project if it was cut into four separate pieces...

Preferring subdued lighting for the living room, I'd never actually made a table lamp before. This is probably because I'd tended to view them as woodturning territory and had never thought of a base as anything but cylindrical. Noticing some simple but elegant square lampshades in a local store, however, the cogs started turning...

Of course, you can make a lamp base from virtually anything. If using solid timber you won't need to hide the board edges. Either use lap joints, barefaced housings or mitre them if you're feeling like a challenge. Build the box from MDF or plywood and you could veneer it with something highly figured or exotic, though it would be wise to add a balancing veneer to the inner surfaces before gluing the sides together. By choice, I would make the panels somewhere between 12 and 16mm thick, as 19mm material makes the base pretty heavy. At least mine won't tip over.

Ensuring symmetry

In this case, cutting the MDF into four equal pieces meant finding the centre of each pattern to ensure symmetry. To hide the exposed edges I found a couple of lengths of brown oak; these provided slight contrast in colour and grain without being too garish. I used biscuits simply for locating these corner pieces when gluing up. Here they don't really add strength, so you could dispense with them if you don't have a jointer. The base measures 290mm high × 170mm wide overall. Each veneered panel is 100mm wide before adding the corner pieces.

The corners are 25mm square and glued flush with the back of each MDF panel. I used veneered MDF again for the top and bottom, though this meant lipping the edges. It's easier to drill holes for the flex before gluing the base together as you can use scrap wood to prevent the bit breaking out underneath.

The top and bottom can be fixed to the box itself with biscuits, screws or brackets. Don't rely solely on glue if using MDF, though, as the finished base is quite heavy and could separate when the lamp is moved.

This project would provide a good opportunity to experiment with inlay if you've never tried the technique before. A relatively plain veneered panel can be made to look dramatic with careful use of the router table and the appropriate cutter. Experiment on offcuts first, and make sure that any mitred corners are sharp and clean.

1 With veneered boards, find the centre of each bookmatched pattern in order to maintain symmetry

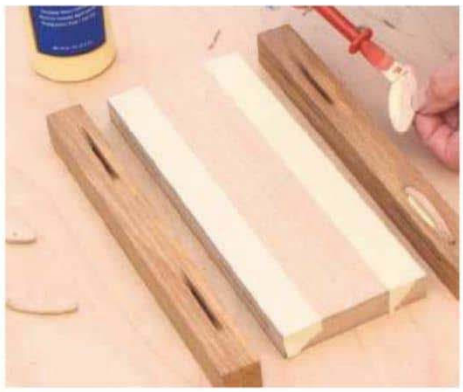
2 Saw the panels slightly oversize. Use masking tape along the line of cut to prevent the veneer splintering on the face

3 True up each panel edge using a bench plane on a shooting board. Check the ends are square

4 Plane contrasting timber square for the corners. Make these about 12mm longer than panel height

5 Mark out biscuit positions if using MDF or ply for the panels. Use No.10 biscuits to avoid these touching at the corners

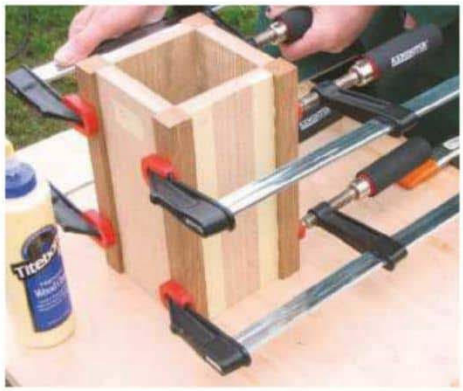
6 Cut slots for biscuits, making sure that the panels are flush with the corner pieces on the rear faces



7 Stick masking tape along the edges of the veneered panels to make glue clean-up easier during assembly

8 Glue the corner pieces and panels together and cramp for at least 30 minutes when using PVA

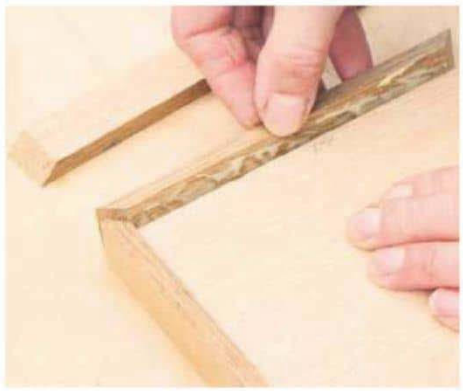
9 Saw off the excess at the top and bottom of the corners. Trim end-grain flush with a plane and shooting board



10 Assemble the remaining panels to make up the base. Check for square as you tighten the cramps

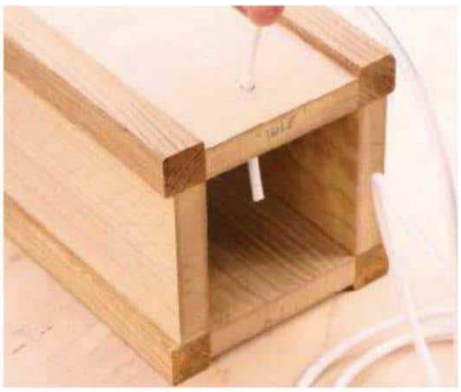
11 Create a small chamfer along the edges of the corners with a router and 'V' cutter or block plane

12 Cut the top and bottom panels to size. Prepare 10mm-thick lipping and mitre the ends of each strip



13 Trim lipping to length with a block plane and glue the top and bottom. Plane flush when dry

14 Mark the centre of the top panel and drill for the flex. Screw the threaded bulb holder base over the hole



15 Drill a 6mm hole at the lower end of one side to enable the three-core flex to be pushed through easily

16 After sanding the box with fine abrasive, brush on two coats of finishing oil before attaching the top and base

17 Strip the ends of the flex and screw to the bulb holder, making sure that the earth wire is attached

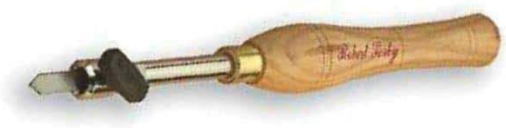
18 The finished lamp base is quite hefty, so the bigger the lampshade the better

WOODWORKER'S ENCYCLOPAEDIA A-Z PART 8

Chattering, chivs, chonkers and clapboarding are a few of the interesting things **Peter Bishop** covers and describes in this latest instalment

Chattering

The result of 'chattering' can sometimes be seen on the machine planed surfaces of wood. It's a defect, really, and most often caused by mis-fitting planer blades, which cause the wood to bounce up and down. The result is an uneven, rippled surface, which is difficult to finish off. It might also be caused by blunt cutters being used on hardwoods so that rather than make a clean cut, the wood, once again, bounces. On a fixed planing machine, chattering can occur when the pressure guides are incorrectly set, thus allowing the wood to move as it passes through. If you want a good finish, then chattering should be avoided; however, on lathe work, you can use a chatter tool to create an attractive, alternative surface finish.



Robert Sorby #RS215KT Chatter Tool

Check &/or checking

A surface check or, if more than one, checks, are small, shortish splits or longitudinal cracks that don't go right through the piece of wood they are found on. There are several reasons why they occur, but the most frequent is too rapid drying. This can be caused by a surface being exposed to extreme heat while the rest is not. The affected surface will shrink against a more solid core, thus creating tensions that then result in the checks.

Turned box made by Ron Brown, with chatter tool detailing on the lid

Surface checks on a woodturning blank

Chfd

A short abbreviation for 'chamfered'.

Chipboard

This is one of the original particle boards that make use of waste wood or timber specifically grown to manufacture it. As the name suggests, it's a composite board made up from small chips of wood that can be either hard or softwood. The chips are mixed with resin and compressed under pressure to produce a sheet of material, of various thicknesses, that is cut to specific sizes. For general purposes, a standard sheet of this material is easily worked and suitable for a variety of jobs. These can include flooring, carcass work and base panelling. If there is a possibility of water ingress, then moisture-resistant boards

Chipboard flooring

Using an Axminster Rider chisel

are available and should be used. If chipboard is exposed to high levels of moisture and humidity, it can break down and lose its integral strength.

Chip marks

These are small, surface indentations that sometimes occur while planing wood to thickness. In general, they are caused by poor extraction not clearing away some of the chips as they are cut. Rather than being sucked off the planed surface, some will drop onto it and then go under the pressure/exit feed rollers where they get pressed into the surface and thus cause a 'chip mark'. Often they are quite apparent but sometimes you need to tilt the wood surface to catch the light and see if you can spot them. Chips arriving on the surface of the wood as it exits the planing machine are a good indicator that there may be marks. These little indentations are often hard to remove and will spoil a surface. If they occur, check out the extraction system to make sure there are no part or full blockages or, think about upgrading to a higher powered bit of kit.

Chisels

Well, I'm sure we'll all have some of these! They come in a range of sizes and styles for specific or varied use. One key factor is that they will work best when sharp. I regularly sharpen all my chisels because I get so annoyed with myself if, when I go to use a specific one, I find I've put it back blunt! A good set of chisels will last a lifetime, so it's advisable to buy the best you can afford.

Chiv

This is a specialist hand plane that is curved to run round the inside of a coopered barrel, top and bottom, to smooth out the staved surfaces ready for grooving. Following this another tool, called the 'croze', will make a groove all-round the inside. The groove will take the circular lid or bottom. To finish off the barrel, a curved 'topping' or 'sun' plane trims the ends of the staves flat and level.

Chonkers

A word used by lumbermen and lumberjacks, to describe small logs.

A well-used cooper's chiv with 2in iron

17½in cooper's croze

Chops or saw chops

A set of saw chops is a simple vice made to hold a hand saw blade while it is sharpened. They are made from wood with two long jaws that support the saw teeth edge while working on them with a file. There are free-standing versions but the most common ones fit into a bench vice.

WoodRiver wood chisels

Saw mounted in a saw sharpening vice

Cill

Depending on where you were born, who taught you or how old you are, a 'cill' is a 'sill', cill of a window or the bottom of an external door frame, etc. You'll notice I spell it with a 'c' in my writing but, frankly, it doesn't matter which you use.

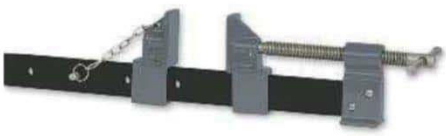
Bosch GKS190 190mm circular saw

Makita DSS501Z 18V LXT Li-ion circular saw

Axcaliber Contract 260mm TCT saw blade

Circular saw

A circular saw uses a round saw blade to cut wood and other materials. Today they come in a host of different sizes, from the tiny through to the huge. Each circular saw will use a specific size or range of blades. Each will have a central spindle, with or without a key way, onto which the blade is fitted. You MUST use the right blade with its correct, central, bored hole to fit the spindle. Failure to do this might result in the blade moving during use, thus creating uneven centrifugal forces, which could be catastrophic!



Axminster Trade Clamps sash clamp

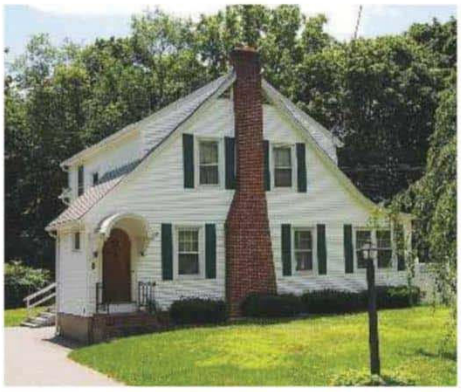
Clamps

We could have a bit of a debate here about the word 'clamp' versus 'cramp', but I'll just tell you what I think! A clamp is used to describe the longer clamping mechanisms, such as a sash clamp, while a cramp is a smaller, say, G cramp. We'll cover cramps, (or clamps), in more detail later on.

Italpresse universal hydraulic frame clamp machine

Clamping machine

Clamping, of course, is a way of squeezing together one or more pieces of wood to make something wider – a frame or fix veneers, etc. Clamping machines are mainly used in commercial environments to make this function easier and quicker to achieve. Most will have adjustable stops, dogs or edges, which enable the user to clamp up different sizes and shapes. In general, most will be pneumatically controlled, or driven by compressed air. They may be horizontal or vertical, be it simple or multi-layered. They're great bits of kit if you've got loads of repetitive work to carry out, such as windows or doors, to make.



Clapboard house in the Quaker Hill Historic District, Connecticut

Clapboard

What we'd in the UK probably call weather boarding, clapboarding is a phrase used to describe a timber-faced, outer wall of a house or building. Other names include sidings, shiplap or feather-edged boards. All can be used to create a weatherproof surface, which should be constructed, building from the bottom up, by fixing the overlapping boards horizontally.

Clasp nails

An alternative name for round, wire nails and cut nails. They both have large heads that help hold the wood they're fixing in place.

Cleaning up

You don't need a broom but abrasive will help for this. This is the general term applied to the finishing, cleaning up process of the show wood faces. Getting rid of any old pencil marks or blemishes with a plane, scraper or abrasives. There's nothing worse than checking a project only to find a load of pencil marks all over it!

Clean stuff

This is a general phrase applied to some good quality stuff without knots, splits or defects. You might refer to a stack or a piece of wood as 'a nice bit of clean stuff'.

Clear lumber

Any timber that is free of defects. Most often used when referring to top quality softwoods such as Douglas fir from North America. In fact, there is a specific grade, which is called 'clears'. Any use of these words should indicate knot-free, quality timber.

Cleft chestnut fence stakes

Weathered western red cedar shingles

Cleavability & cleft

Cleavability refers to woods that are easily split along the grain, such as chestnut for fencing and cedar for shingles. To cleft is the action and the result of this splitting process. For example, a shingle is cleft from the original block.

Closeboarded fence panel

Closeboarded

Two references for this phrase, one current and one a little more dated. The older one refers to the practice of laying closeboarding, probably tongued & grooved planks, onto roof rafters before putting the tiles or slates on. This practice was mostly applied to better quality homes and was used before felt and other waterproof membranes became popular. We apply the term closeboarding to boarded fences that have their mainly vertical or horizontal boards fitted close together or overlapping so there are no gaps.

NEXT MONTH

In part 9 of this series, Peter will look at more terms including clout nail, cock bead, compass plane and conky

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LETTERS

LETTER OF THE MONTH

REALISING A CHILDHOOD DREAM

Hello Tegan,
I hope you like these photos of my coffee table. The oak slice came from a stack of oak logs, which were left over from some site clearance on a construction job I was working on back in 1996. I treated myself to a chainsaw and spent some time after work cutting the logs up into useful pieces. I eventually got around to working on this slice last year. The first job was to trim the big crack and fill it with the offcuts of cherry and beech. Next, I set up timber rails for the router and trimmed both sides to give an even thickness slice, then I inlaid the star and the dovetail ties, a yew plug to a defect, a little bit of filler here and there and planed and sanded it all flat. I glued and screwed a piece of 20mm ply to the underside to stabilise the top. The legs were turned from some old mahogany from a pre-owned piece of furniture. I pre-cut mortises into the legs for the stretchers, then drilled and wedged the legs into the top. The stretchers were retro-fitted, hence the wood brackets and the centre joint. I used sanding sealer and Danish oil for the finish. As a young child, I remember being fascinated by the growth rings of a tree so this project has been the realisation of a childhood dream! I've spent more than 100 hours and just over a year of my retirement making a table from a slice of oak, which is 130-years-old.

I enjoyed the July edition and was inspired by the Windsor chair article. Are you able to advise as to where I might be able to obtain plans for a sack back chair?
Kind regards, **Paul Deketelaere**

Paul's coffee table build was certainly a labour of love, but most definitely worth it

Hi Paul, what a beautiful piece! I absolutely love it, and the story behind it is also very touching. I think your best port of call for chair plans is the Windsor Workshop – **https://thewindsorworkshop.co.uk/windsor-chair-plans/** – *I hope they're able to help. Best wishes,* **Tegan**

Close-up of the stunning oak slice, complete with inlaid details, star and dovetail tie

TOOTHPASTE POLISHES

Hi Tegan,
I've attached a list of American toothpastes (many of which are sold in the UK). Against each toothpaste is a number, which is an FDA abrasive factor (called the Relative Dentin Abrasivity – RDA) with higher abrasives having a higher number. In the UK, if a toothpaste has the label 'extreme whitening', this tends to indicate a higher abrasive number and subsequent 'coarse' polishing action. Toothpastes are generally in the 4-12um (micron) range. A comparison with readily available grit comparison charts places toothpastes in the 1,200-5,000 grit category.

Rupes commercial polishes (coarse, medium, fine) are 1,500, 2,500, 3,000 grit respectively (ultra-fine is higher still), so I regularly use a set of toothpastes that have RDA values between 100 and 40 to provide a high gloss sheen to acrylic and other finishes (e.g. melamine, French polish, etc). It is much cheaper than the dedicated coarse, medium and fine polishes available. The toothpaste can be mixed with mineral oil or a mineral oil/beeswax solution, depending on the surface being polished.
With best regards, **Dr Colin R. Lloyd**

Hi Colin, thanks for sharing this. I've had a look online, and as you say, this hack is widely acknowledged by woodworkers, although the use of it does seem to divide opinion! Incidentally, white toothpaste can also be used to remove water stains from wood, so it seems it has many uses. I'm glad this works for you and I'm sure other readers will have their opinions too. Best wishes, **Tegan**

04	Toothbrush with plain water	91	Aquafresh Sensitive
07	Plain baking soda	93	Tom's of Maine
15	Weleda Salt Toothpaste	94	Rembrandt Plus
30	Emex Sensitive Plus	95	Oxyfresh with Fluoride
30	Weleda Plant Tooth Gel	95	Crest Regular
35	Arm & Hammer Dental Care	97	Oxyfresh Powder
40	Weleda Children's Tooth Gel	101	Natural White
42	Arm & Hammer Mentadent Advance Whitening	103	Mentadent
44	Squiggle Enamel Saver	103	Arm & Hammer Sensation
45	Weleda Calendula Toothpaste	104	Sensodyne Extra Whitening
45	Weleda Pink Toothpaste with Ratanhia	105	Colgate Platinum
45	Oxyfresh	106	Arm & Hammer Advance White Extreme Whitening
48	Arm & Hammer Dental Care Sensitive	107	Crest Sensitivity Protection
49	Tom's of Maine Sensitive	110	Colgate Herbal
52	Arm & Hammer Peroxicare Regular	~80	Amway Glister
53	Rembrandt Original	113	Aquafresh Whitening
53	Closys	117	Arm & Hammer Advance White Gel
54	Arm & Hammer Dental Care PM Bold Mint	117	Arm & Hammer Sensation Tartar Control
57	Tom's of Maine Childrens	120	Close Up with Baking Soda
62	Supersmile	124	Colgate Whitening
63	Rembrandt Mint	130	Crest Extra Whitening
68	Colgate Regular	133	Ultra Brite
70	Colgate Total	144	Crest Multicare Whitening
70	Arm & Hammer Advance White Sensitive	145	Ultra Brite Advanced Whitening Formula
70	Colgate 2-in-1 Fresh Mint	150	Pepsodent
78	Biotene	165	Colgate Tartar Control
79	Sensodyne	168	Arm & Hammer Dental Care PM Fresh Mint
80	AIM	176	Nature's Gate Paste
80	Close Up	200	Colgate 2-in-1 TartarControl/Whitening
82	Under the Gum		
83	Colgate Sensitive Max Strength	200	FDA recommended upper limit
87	Nature's Gate	250	ADA recommended upper limit

Read more Toothpaste Abrasiveness & Low Abrasive Toothpastes
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A list of American toothpastes accompanied by their individual FDA abrasive factors

WORKSHOP NOISE LEVELS

Dear Tegan, I wonder if you can assist?
I would describe myself as a hobby woodworker and my skills include woodturning, routing, carving and generally making small projects. This is not a business, but a relaxing occasional weekend hobby in a garden shed. Maybe a couple of hours each weekend if I am lucky and not every weekend. However, we are, and have been, for the last two years, experiencing difficulties with a neighbour (next door but one).

They have complained about the noise I make because of my woodworking hobby, including saying that this is a residential area not an industrial area. They have reported us to the council, and following investigation, this complaint was dismissed. My wife and I have reported them to the police, on several occasions, for harassment and taking images of me in the garden and shed on their mobile devices.

I am aware, as a regular reader of your magazine, that there are many people who have a hobby of woodworking, which they do in their garden shed. There are many manufacturers that make products for the likes of me and many others for their hobby, so what are we to do?

Do other readers experience similar difficulties? And if so how are they resolved? Do you have legal representatives who would be able to offer free legal advice?

Any suggestions, legal advice, or names who we may contact would be much appreciated.
Thank you, **Barry Fearnley**

Hi Barry, as a woodworker myself, fortunately I've not had any experience like that, so far! These neighbours sound unpleasant, but I guess it's down to what the overall sound levels are and whether your shed is well insulated, etc. Some power tools are obviously noisier than others, though it's usually the higher frequencies (rather than the lower ones) that can be annoying. So a screaming router is likely to sound louder than a sander, for example, though their sound pressure levels may be very similar. I suggest we open this up to other readers so we can share and hear their comments/stories. So if anyone has experienced anything of a similar nature, or indeed has any advice they can offer Barry, please do email the Editor here: **tegan.foley@mytimemedia.com** *and hopefully someone can offer some assistance.*
Regards, **Phil Davy**

READERS' HINTS & TIPS

For the next six issues, in conjunction with Veritas and BriMarc Tools & Machinery, we're giving one lucky reader per month the chance to get their hands on a fantastic low-angle jack plane, worth over £250! Ideal for shooting mitres, working end-grain and initial smoothing, this must-have hand tool also features a combined feed and lateral adjustment knob for fast, accurate changes to depth of cut. To be in with a chance of winning this fantastic piece of kit, just email your top workshop hint or tip to **tegan.foley@mytimemedia.com**, and if you can, please also attach a photo illustrating your tip in action. Good luck! To find out more about Veritas tools, see **www.brimarc.com**

CUTTING DOVETAILS

Dear Tegan,
As a follow on from Michael Forster's article on 'the joy of dovetails – part 3', which was featured in the March edition, this is a tip that has benefitted me and perhaps would be of help to others.

Firstly, while I appreciate that, like other woodworking techniques, practice makes perfect, unfortunately as an amateur woodworker there are so many different skills to master but not enough time to practise them all. Consequently, when the time comes to carry out a particular task, it could well be that it's been some time since that task was last done and any 'muscle memory' has been forgotten.

I have found the following simple procedure to be very helpful in cutting dovetails. To cut tight fitting joints, it is especially important to make the tail board saw cuts perpendicular to the face of the board. The procedure is based on quickly and accurately creating a kerf indent on the end-grain for the saw to follow, as is sometimes done when cutting accurate cross-grain saw cuts when this is referred to as a kerf wall. It is difficult to form a similar kerf wall in the end-grain using a chisel and knife, as the grain doesn't hold up well enough.

With the joint marked out in the usual way, use a square-edge steel rule that is approximately the same thickness as the saw blade, which will be used to cut the joint. It is important that whatever you use, it must not be a sharp edge! The aim is to slightly compress the end-grain fibres, and not to split the timber.

With the board in the vice, place the edge of the chosen rule exactly where you want the end-grain saw kerf to be, and when in place, tap the top of the rule just hard enough to leave a very shallow indent – 0.5-1.0mm will be plenty deep enough.

You will then have produced a straight kerf line exactly where you want the saw to cut. It works particularly well when cutting the tails and the board is set at an angle in the vice, so that the cut line is vertical. The shallow indent helps prevent the saw slipping off the line. The principle can be used on both the tail and pin boards.

A very simple, and quick, step that will help ensure that the start of the saw cut is made easier and more accurate.
Regards, **Steven Lewis**


Positive saw locations provided with indents in the end-grain


Making indents with a 150mm rule


Indents made showing positive saw location


'Tails' cut showing accurate 90° from the face of the board


Rule in the indent showing how shallow they are

HOBBIT-ESQUE NESTING BOX

Hi Tegan,
I'm a retired master carpet fitter so I'm not much of an authority on woodworking, but it has been a passion since my school days (I'm now 72-years-old and nothing grabs me like a trip round a tool shop or a woodworking show).

Being on a pension I have to use a lot of recycled wood; the results, however, can be surprising and I thought you might like to see my bird nesting box. I wanted it to look a little different from the run-of-the-mill versions so, inspired by *The Hobbit*, I decided to make it round.

The body of the box is made from the styles of a discarded ladder, which means that it must be Baltic pine. The bracket that holds it to the wall is from the frame of some built-in cupboards that we took out at home, while the roof timbers, the top and bottom finials and the spindles that they fit on and also support the roof, are from an old pine bed that was being thrown away. Two pieces of 20mm ply were used to make the top and bottom of the nesting section; these were recovered from waste left over from having our flat roof redone, and finally scraps of felt from when we felted the shed meant that the total cost was just 75p! I don't count glues, biscuits or varnish as these had all been bought for other jobs. I hope you like it.
Best wishes, **Mike Walker**


Mike's *Hobbit*-inspired nest box was made entirely from recycled materials

Hi Mike, I especially love this design, and as you say, it is certainly unique. Even better that it's made using entirely re-purposed materials. I wouldn't be surprised if you got a fair few commissions off the back of this. I'm sure our feathered friends will appreciate it too!
Best wishes, **Tegan**

WRITE & WIN!

We always love hearing about your projects, ideas, hints and tips, and/or like to receive feedback about the magazine's features, so do drop us a line – you never know, you might win our great 'Letter of the Month' prize, currently the new Trend ¼in 30-piece Router Cutter Set, worth over £100. Simply email **tegan.foley@mytimemedia.com** for a chance to get your hands on this fantastic prize – good luck!

A NEW WORKSHOP LAMP

Suffering a workshop mishap due to an errant piece of flying timber, **Les Thorne** is forced to turn himself a new base for one of his trusty workshop lamps

This project came about after a bit of an accident at the workshop a couple of weeks ago. Those of you who follow me on social media will know that I get a lot of commissions for large-scale projects, including columns, mirror frames and pedestal legs. It was turning one of the latter projects that caused a problem when a large 1,000mm long × 300mm square block of laminated tulipwood fell off the back of the lathe while I was trying to mount it up, smashing my already patched up pedestal lamp into an irreparable pile of firewood.

These lamps have been a valuable asset to my workshop for a number of years as well as a necessity when I'm away demonstrating at conference centres, village halls and woodturning events all over the country. A lot of lathes have lights attached to them, but getting these in the right place can be a problem when going from working on the outside of a piece to the inside, or from the headstock to the tailstock end. The benefit of a freestanding lamp means it just requires sliding into place. The project could be very simply changed into a standard lamp for inside the home – remember that just because they don't seem to be fashionable any more doesn't mean that this item wouldn't be useful.

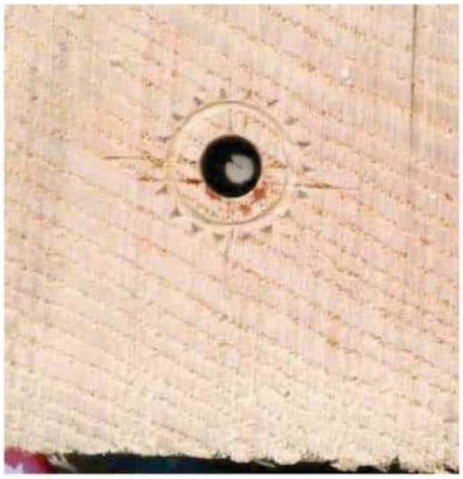
1 May my spalted ash work lamp rest in pieces! I made it from some dry and half rotten timber, so I'm amazed it lasted for so many years. Luckily the IKEA lamp survived the crash with just a few more dents to the shade

2 A year ago, I took delivery of four ash butts and they are now air dry to about 18% moisture content, so therefore stable enough to use for the making of this project. The base is just about the right size at around 300mm in diameter

3 I start by drilling the hole up through the centre with a gun drill; this has a hole through the middle in which compressed air can be used to clear the shavings as drilling proceeds. This is the quickest and most efficient way of creating the hole, but Axminster Tools & Machinery sell a complete lamp boring system, which works fantastically

4 The hollow live centre allows me to drill through the tailstock of the lathe, thus effectively clearing the shavings and preventing clogging. You still need to frequently withdraw the drill in order to clear anything that has not been blown out with the compressed air

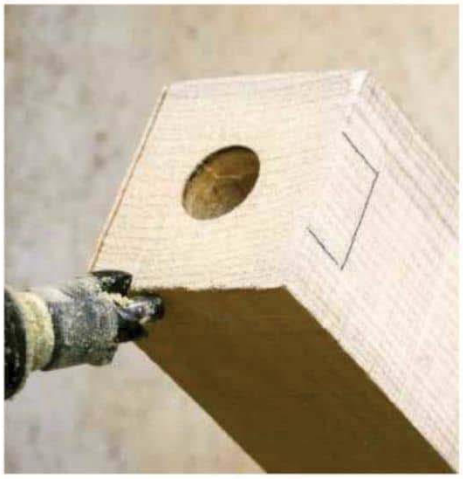
5 Drill halfway through from one side and then turn the spindle around so you can drill the second half from the other end. Because of the hole, you cannot use a normal pronged drive so a counterbore one is required. The peg fits perfectly into the hole



6 Once you have gone in from both ends you should have a perfect hole. Even with careful drilling sometimes the drill just wants to follow the grain so the two holes won't meet up. The only option then is to cut the blank in half and use it for smaller lamps

7 The next stage is planning where the joints are going to be, so it's a matter of laying it out and working out where the spigots will appear. As I am only making one of these, I didn't bother with a rod or plan

8 The holes in the end are cut with the counterbore drive. Start by putting the square blank against the toolrest. When the lathe is turned on the wood cannot revolve, so switch the lathe on and advance the wood using the tailstock

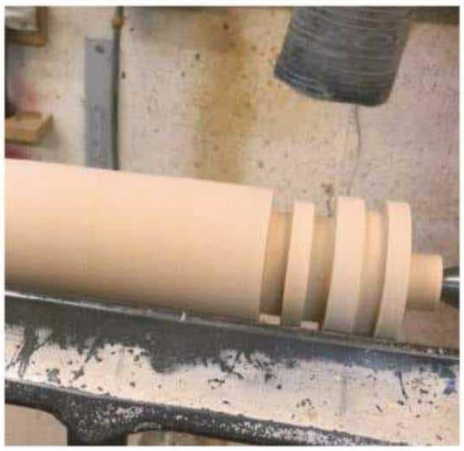


9 You can see that this will drill a perfectly centred hole of about 25mm in depth. It does require a lathe with at least 1hp and will generate some heat if the counterbore is blunt

10 Not always necessary, but I like to take off the corners on the bandsaw rather than just turning it all into shavings. One of the things to think about when deciding what bandsaw to purchase is to see how easily the table will go to 45°

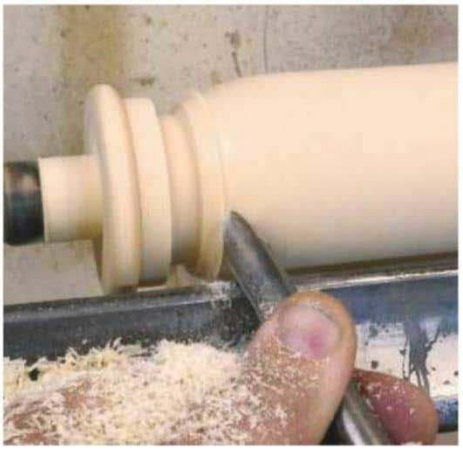
11 After the three lengths are drilled you can start to turn them round using the spindle roughing gouge. A common mistake when using this tool is to have too short a bevel, which makes the angle too obtuse to give you an effective slicing cut

12 Once round, mark up where the details will be. Use a parting tool and Vernier callipers to accurately size the spigots; this will need to be a tight fit in order to achieve the strongest joint possible



13 Ideally, all the sizing cuts should be carried out before the shaping is started. The only time I would not do this is when I feel that I could be weakening certain parts, thus making the shaping difficult

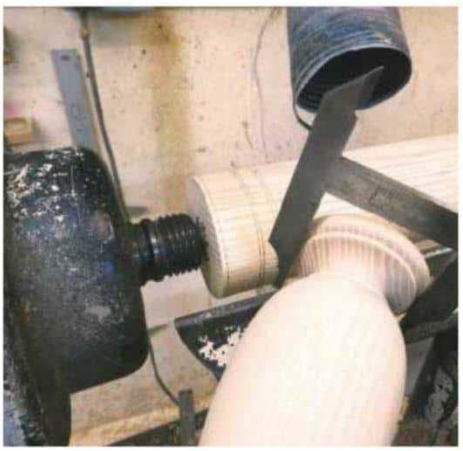
14 The versatility of the 10mm round skew is demonstrated here. After carrying out the sizing cuts, it's used straight away for cutting the bead on the top section. I only use the point of the tool, which keeps the skew from digging in



15 I use the 13mm signature gouge for the majority of the larger convex shapes. The bevel is in contact during the whole cut; this will give a good finish with little chance of the tool catching

16 The only time I use a larger spindle roughing gouge is when I have a large sweep-in curve such as on this bottle shape. Shaping with this tool is safe as long as you treat it like a normal spindle gouge and don't use it to scrape

17 The end needs to be square to ensure it marries perfectly with the other stems. Here I'm using the 2mm parting tool to clean up the ends, making sure I don't hit the drive centre

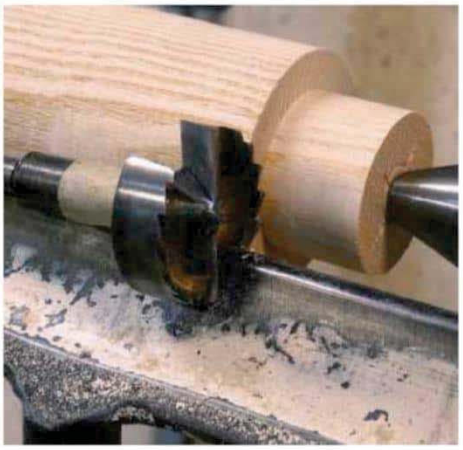


18 Whenever you're making stems or columns like this, it's important to try and get all the parts to fit together as one turning, so hiding the joints therefore becomes a major challenge. Here, I need to turn the top of one piece so it is the right size to match the fillet of another

19 This close-up shows how the spindle roughing gouge removes timber even when working on some curly grain near this knot. This is achieved by keeping the handle low, which allows the wood to be sliced as opposed to scraped

20 Ensuring cylinders are parallel is often a challenge to woodturners. A toolrest that you can slide your fingers along is a huge help here; this will set the depth of cut of the tool and give you every chance of getting it right

21 Any small discrepancies can be removed during sanding. I use an old sanding belt at least half the width of the object I'm trying to sand; the width allows the high spots to be removed and leaves a parallel surface



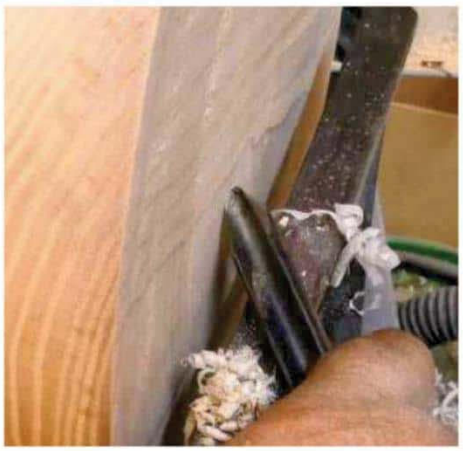
22 The spigot that goes into the base needs to be of a larger diameter to ensure it provides added strength. I have a drill bit of around 45mm and turn the bottom section to suit it

23 It's perhaps a little bit of an indulgence to use a piece of English walnut for the top, but it was sitting around in the workshop, so why not? I drill a 25mm hole in one end and an 8mm cable hole all the way through the middle

24 Mount the blank up between centres and clean up the top end with a spindle gouge. I had a couple of attempts at getting the shape right on this section. I made the whole thing much lighter looking by refining the shape so it was more elegant

25 Next, drill a 12mm hole to accept the stem from the lamp followed by an angled hole through to the centre hole, which the cable will pass through

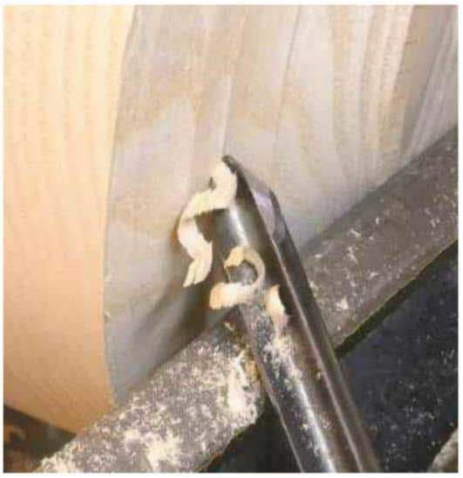
26 Mount the base section on the lathe using a woodworm screw mounted in the lathe chuck. True up the blank with a bowl gouge rather than a spindle roughing gouge as it's a much stronger tool and needs to withstand the rigours of turning larger sections



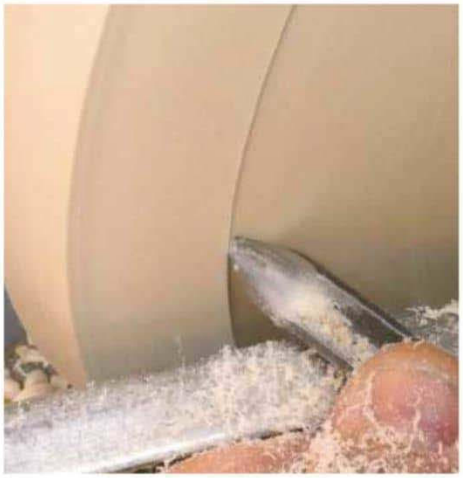
27 True up the base with a pull cut. The fingernail grind on the gouge allows me to carry out this cut. The flute of the tool is pointing to 10 o'clock and the handle is low, which allows me to achieve a slicing action through the wood

28 Drill a 60mm hole about 10mm deep followed by a 45mm hole just over halfway through. The 60mm hole will serve as a chuck recess when it comes to turning the piece around to shape the top

29 Just like when fitting the stem together, it's important to get the joints matching so I like the bottom bead to overhang the top section of the base. This measurement can then be transferred to the top of the blank

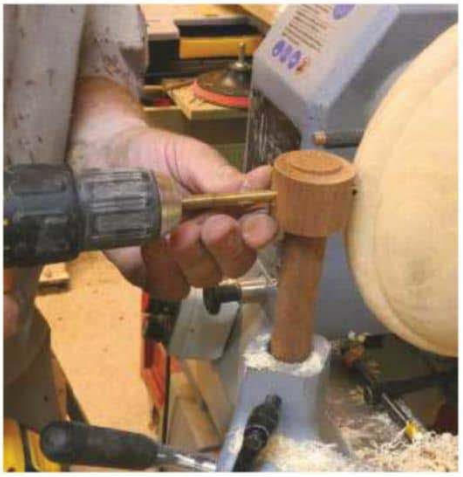


30 It's that pull cut again! The shavings just peel off when the tool is presented perfectly like this. I find that even with a 10mm bowl gouge, I can remove timber quickly and efficiently, only switching to the 13mm tool if vibration becomes a problem



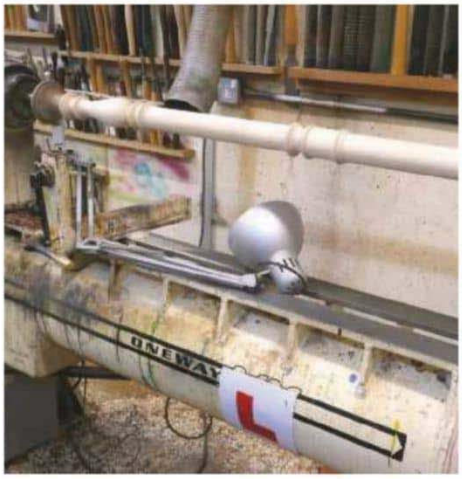
31 Anyone who follows my articles will know that I like to finish the surface with a bevel rubbing push cut. It's always worth sharpening the tool before carrying out this light procedure. The small shavings tell me that the tool is cutting really cleanly

32 The bead on the edge is called a tyre in the business and is turned with an opposite action to when working on spindle work; this is due to the grain direction being different. It's a difficult technique to master but worth it if you want to achieve the best finish straight from the tool



33 A cross hole is needed to allow the cable to come out of the side. A shop made drilling jig that's mounted in the toolpost is the best way to keep the drill horizontal when making the hole

34 Thread the cable through all the sections – this is the time you wish you had four hands! Each of the joints needs to have some glue applied to them, ready to be clamped



35 The Oneway lathe with its 3m bed is perfect for clamping the four sections together while the glue dries. I fed the cable through before I glued it, as I found that easier than trying to do it afterwards

36 Here it is in use behind the lathe and ready for my next show

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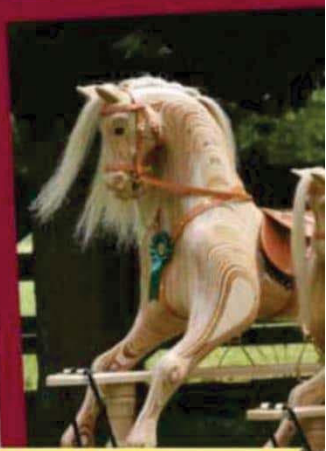

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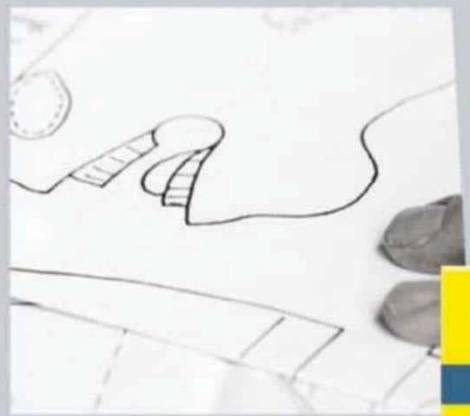

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WORKTABLE FOR A CRAFTY LADY
Following on from last month, having made mortise & tenon joints, Michael Forster sets about assembling the final components for his craft table

FINDERS MAKERS
Robin Gates makes simple things from windfallen and discarded wood found close to home, and shares his impressions of the Flexcut Carvin' Jack

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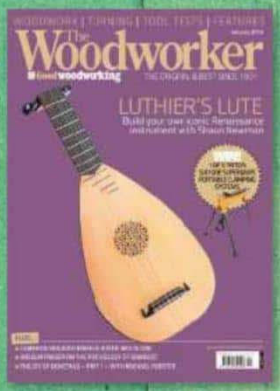

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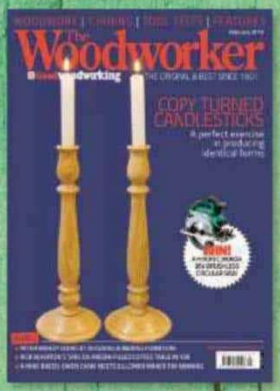
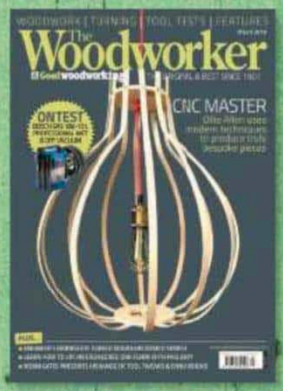


February 2018



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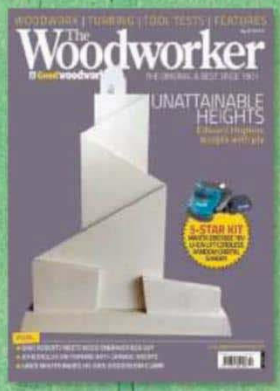

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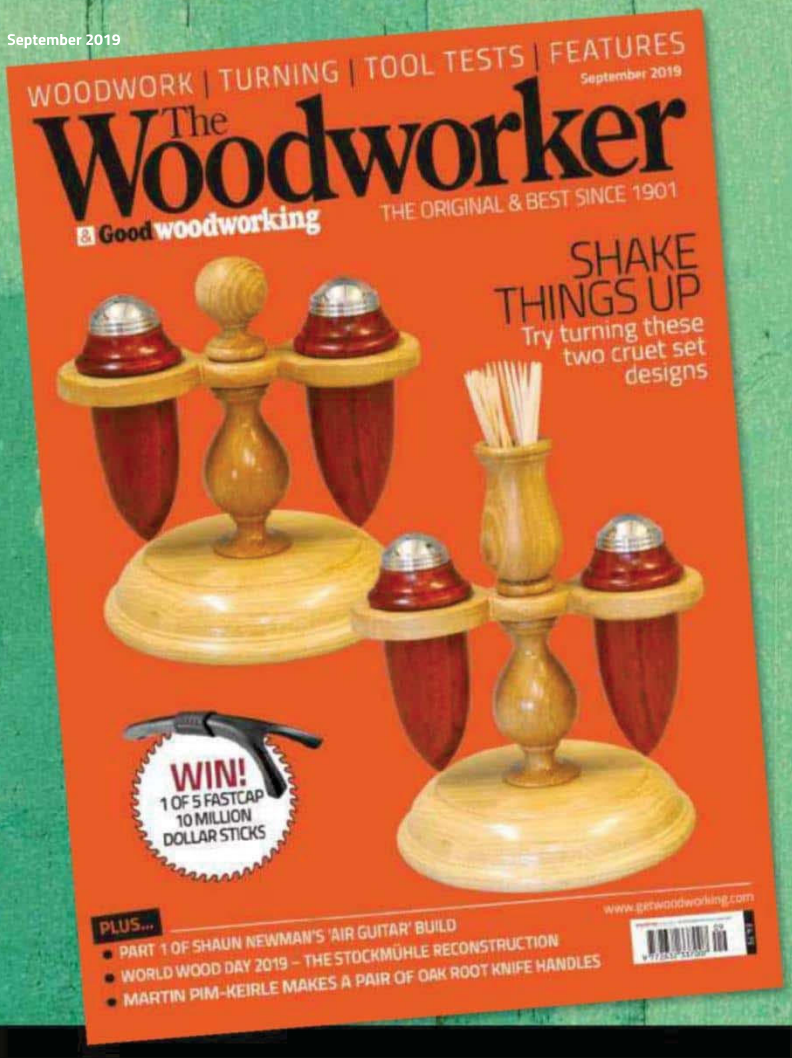

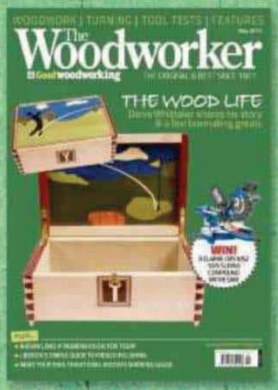

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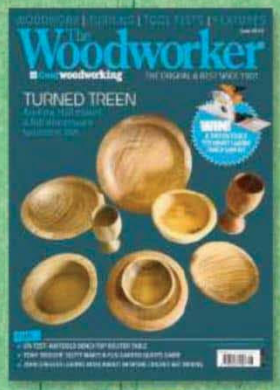

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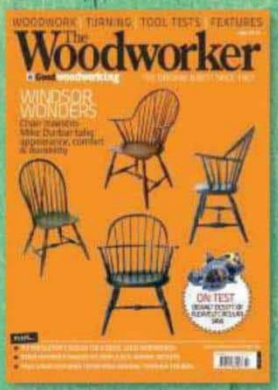

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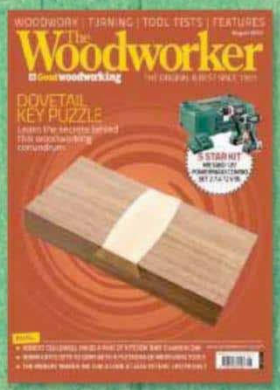

August 2019

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WEB GUIDE

MUSICAL INSTRUMENT MAKERS

Classifieds

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FOR SALE

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01386 430 043 (Stratford upon Avon)

Jet 60A jointer planer 16A with mobile base; £425 ONO
jon.topp@ntlworld.com (West Yorkshire)

Ashley Iles carving set – 17 chisels, top quality; £170. Also, Freud 1,000W router & shop cabinet, with steel top; £150 – buyer collects
01942 716 985 (Cheshire)

***Fine Woodworking* magazines** – 218 copies – issues 17-267 (incomplete), from 1979–2018. Sensible offers; collection only
0121 705 4437 (Birmingham)

Trend T5 router and MK2 table; £90
07707 002210 (Andover)

Nova 3000 lathe – 17 × 12in cut, 8 speed, swivel head; £250 ONO
01747 871 402 (Salisbury)

Tormek T4 – nearly new, only used three or four times – genuine reason for sale; £200
01428 682 802 (surrey)

Woodcut Bowlsaver Max3 – 1in toolpost stem. New, unused, in box; £300 – collect or P&P extra
01494 763 152 (Bucks)

Large range of Triton equipment including router table (new), router, jigsaw kit, saw bench extension table & biscuit joiner; £400
07815 103 021 (West Sussex)

Veritas bevel-up 22in plane jointer; £150; Veritas 15in low-angle jack plane; £150; 15 box handle chisels; £150
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Retired boatbuilder selling air-dried Burma teak – call for sizes; buyer to collect
01692 405 389 (Norfolk)

Sedgwick planer/thicknesser 12in single-phase – in full working order – collection only; £400
07931 296 863 (Cornwall)

Axminster dust extractor – 240V, single-phase – in good working order; £100
07931 296 863 (Cornwall)

Startrite tilt arbor table saw – single-phase – in great condition; £400
07931 296 863 (Cornwall)

Wright mortiser – single-phase, in good working order – spares included; collection only; £350
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Jet spindle sander; £225; Plano glue press; £120; Bessey angle clamp WS6 (new); £35; Triton saw bench; £50
01386 430 043 (N. Cotswolds)

Tormek 1204 Super-Grind with extras – in very good condition. Extras include leather honing wheels, SP650 stone grader & cover; £120
01698 262 531 (Motherwell)

Case-bound volumes of *Woodworker* annuals: 1965–1969, 1970–1975, 1980–1986 & 1989–1991; £5 each plus postage
07754 444 002 (Worcs)

WANTED

Copies of *British Woodworking* magazine – issues 1 to 40
01635 34238 (Newbury)

Fence plus guide rails for a Wadkin 10in AG5 table saw
07724 386 061 (Wrexham)

Stanley No.1 plane & Stanley No.2 plane – one of each wanted by novice collector
01572 723 976 (Rutland)

Dust extraction spout for DeWalt 1150 planer/thicknesser
023 8089 8123 (Southampton)

Spiers/Norris/Henley planes wanted by private collector; any quote beaten. Ring Ron Lowe on
01530 834 581 (Leics)

Woodworking hand tools, especially old wood and metal planes, wanted by collector. Write to Mr B Jackson, 10 Ayr Close, Stamford PE9 2TS or call
01780 751 768 (Lincs)

Woodworking tools: planes by Norris, Spiers, Mathieson, Preston, Slater, etc. brass braces, interesting rules and spirit levels; top prices paid, auction prices beaten **01647 432 841** (Devon)

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- The maximum value of any item for sale must not exceed £500. A small fee is payable for items offered at over £500; please ring 01689 869 852 for details.
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THUMBS UP

The secret of success

Gnomes have acquired a poor image. Real gnomes are not garden ornaments loosely related to dwarves; they are 'knowing' spirits (from the Greek 'gnosis' meaning knowledge). The tall hat illustrates an expanded brain: the beard, the wisdom of age. This one looks as though he's hitching a lift, which is unfortunate. Gnomes don't need to hitch lifts. They don't actually move much at all (in this they are similar to ornaments) but fade in and out of view according to the viewer. Most people can't see gnomes because they think they don't exist.

A principal reason why you are so successful and talented is that you have opposable thumbs. You can grasp things. Your foot with unopposable big toes cannot. You can handle a paintbrush (maybe) but not a branch – you're no good at swinging through trees (but you can hit the ground running). Another reason is that you have a big head: you can grasp ideas. Together, your thumbs and your thinking make you a maker. One of the earliest versions of you was Homo Habilis. S/he used/created tools; specifically a leather-scraper. We make things: that's what we do: it defines us. So what happens when we don't? And how many of us don't? We throw things away and buy more. We don't sew our own shirts. We don't cook curry from scratch. When did you last make a lampshade or a greetings card, for example?

Homo Habilis evolved via Homo Sapiens (who knows things, and could have been called Homo Gnomo) to Homo Habitat (who buys things). Along the way we lost the knack. In the lifetime of superstores, they've gone from all-the-ingredients-you-need to ready-made. And from there to one-size-fits-all. Standardisation. Conformity and uniformity with just enough peripheral choice to make you think you have something to do with it. Global manufacturers decide for you. They choose. Who are they? You are. We are. We buy into this, literally. We succumb.

Succumbing

Succumbing is not what thumbs are for. Thumbs are for opposing. Thumbs-down means 'no!' Don't buy these things. As much as I like a lot of IKEA, I won't become an IKEA showroom. Another reason we stuck our heads above the evolutionary parapet and lived to steal the day is individualism. Egocentricity. Determination. Bloody-mindedness. When you see footage of an old crofter living in the Highlands knitting his own socks and twiddling a fiddle on a Friday night, doesn't a part of you want to be that person just for an hour, a weekend, or possibly a lifetime? You don't know what it means to spin your own yarn and make your own soap. How much time it takes. How calloused your opposable thumbs become. But you recognise it as wholesome. It's a romantic scene, I know, but it is embedded within us. We mustn't let it dwindle. If we do, we become less human.

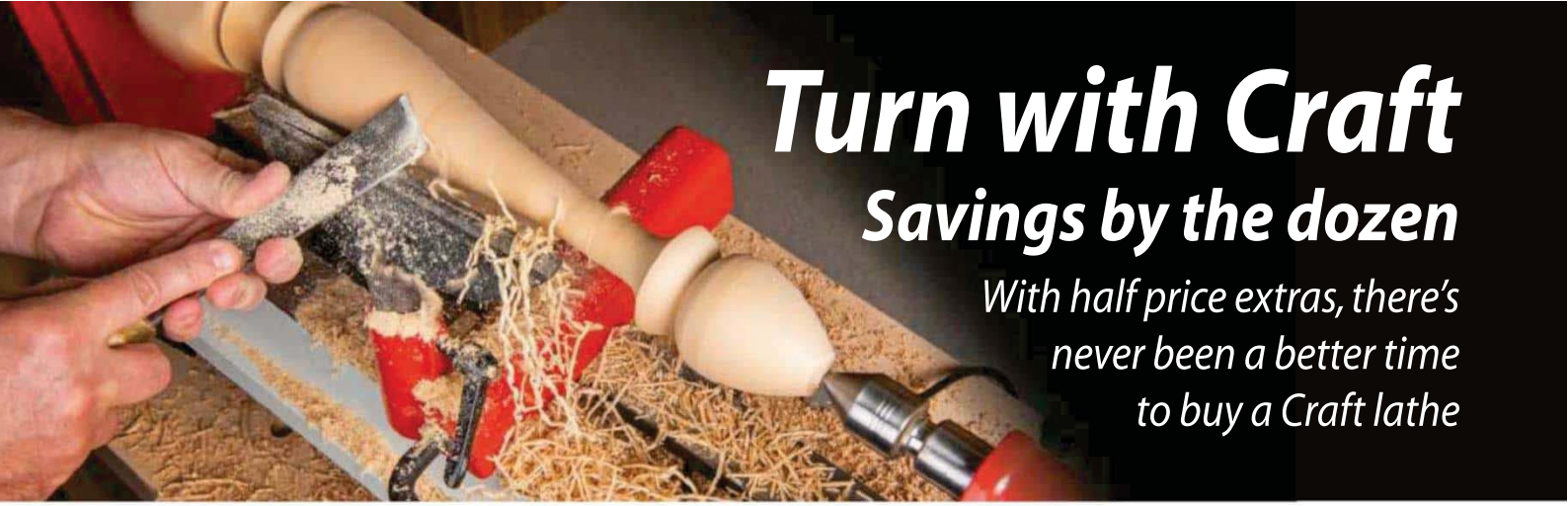
Which is where (fairly obviously) woodwork comes in. What a pastime! What a profession! From the tiniest boxwood carving to the tallest pagoda, how much more creative can a person be? I don't want to blow our collective trumpet; I want to remind myself as much as you what a privilege it is that we've found ourselves with the ability to make things. It doesn't matter what they are. Nor how good they are. Creativity is our engine, our drive.

We all have it, but to keep it working we must use it. Not just in wood. Not just in wood and glass or wood and metal. In food. Gardening. Music: it's never been easier to make music. Poetry: you don't have to be an angst-ridden teenager to capture feelings in words (and you don't have to recite them in public); the act of creation is enough. It exercises you. It authenticates you. It validates you.

The digital digit

What do most people do with their thumbs? I don't need to tell you. In a hundred years' time (unless mind recognition has taken over by then, and what a minefield that will be!) our thumbs will have mutated. They'll become longer, faster and more agile. Perhaps the pads will become pointed. I hope mine do: I'm tired of hitting the wrong key. And when I hit the right key, I'm tired of predictive text guessing at what I'm trying to say. I don't want a slab of electronic chocolate thinking it knows my mind. I'm even more tired of it being right.

Creativity is by definition original. Don't copy: innovate. Progress. Develop. Look at the need/the problem/the world with fresh eyes. Look sideways, and upside down if you can. When you do this, the creative motor, which will never entirely seize up, will whir within you. You don't even have to do it to know that. Right now, perform a thumbs down gesture about nothing in particular and see how that makes you feel. Dismissive. Depressed. Now give a thumbs-up, and see what that does to your spirits. It lifts them! Do it mentally all the time and they will soar. That's what thumbs are really for.



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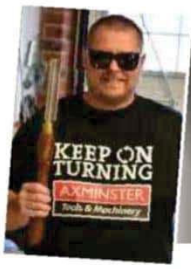

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Online Review

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Maximum swing over bed:	355 mm
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Motor input P1:	1000 W
Motor output P2:	750 W
Thread:	M33 x 3.5
Taper:	2 Morse taper
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Size:	W870 x D290 x H252 mm

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