

Issue 328 • February 2018
Good

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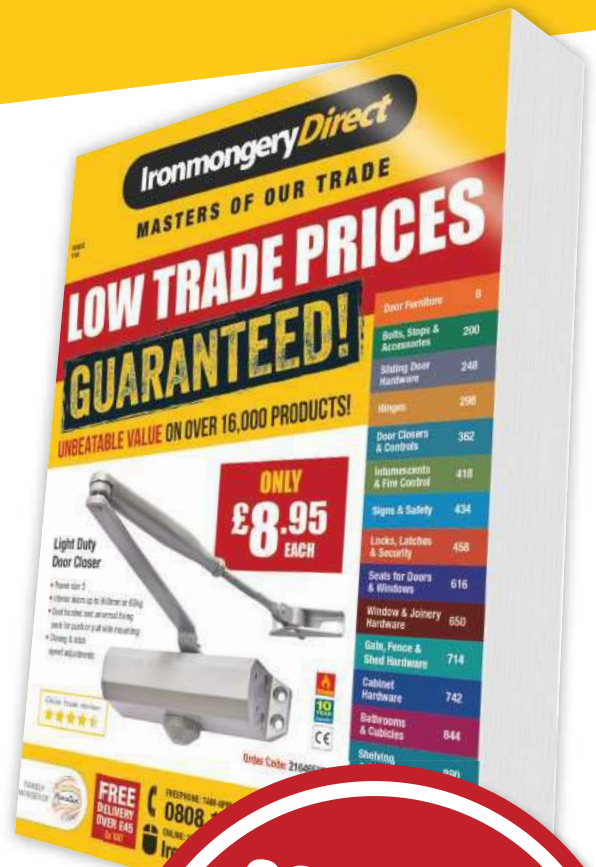
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Welcome

'Some of my favourite things from this issue'

It has to be said that February isn't a particularly inspiring month for many: winter still has us in its clutches, it gets dark early and the evenings seem to go on forever, and as a result, workshop time is often compromised. While some woodworkers use this as a chance to take a break from the bigger projects that can only be made in the shed, others choose to scale down their builds and instead switch to ones that can be completed inside – perhaps at the kitchen or dining room table, for example. The lucky ones, however, whose workshops are equipped with cosy woodburning stoves, carry on as normal and continue to enjoy their leisure pursuits while the rest of us have to modify our behaviours until the warmer months arrive. I talk from experience when I say that I loathe winter, namely because I'm one of the many who feels the cold no matter how many layers I put on. As I write this from my home desk, I have a hot water bottle in my lap, a scarf wrapped around my neck and two pairs of thermal socks on my feet, yet I'm still freezing! I cast my mind back to last year's 'Harrogate' show and remember recoiling in horror upon seeing quite a few people wearing short sleeves, not to mention Andy King who took it one step further by wearing shorts for the entire weekend! It's pretty obvious that he doesn't suffer as I do, and needless to say that I'm counting down the days until spring finally arrives!

The show must go on

Despite a debilitating Christmas flu that lasted until the first week of January, the show must unfortunately go on, and I suppose that putting on a brave face is often a good way of trying to forget your ailments and progress as normal. I've actually had a very busy start to the year, with quite a few

client visits lined up and also an exciting trip to the Chippendale International School of Furniture to look forward to. Typically, I don't get out very often due to continual magazine work needing to be dealt with, but when I do, I try to make the most of it. As I've said before, it's always great to meet people – both new and those you have existing relationships with – and I'm not ashamed to admit that I have been known to take my trusty hot water bottle along for the ride!

February fun

It was also great to meet up with Kathy McConnell this month, to find out how her career has really taken off nearly two years after winning the David Savage competition back in 2016. As she told me, had she not been given the opportunity, she wouldn't be where she is now. She offers sage advice to young woodworkers in her position and continues to fly the flag for young furniture making talent. Also in this issue, we bring you a fantastic project that you can start making now in readiness for spring: your very own bee hotel, as well as a very clever design for a coffee table that relies on mathematical principles. We also have the penultimate article in Dave Roberts' 'What the Dickens...' series, as well as another exciting competition from IRWIN Tools. So despite the often chilly and uninspiring weather, we hope our February issue can perk you up a little, and above all, bring some joy to your woodworking world!

Enjoy!

Tegan

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Consultant Editor



Dave Roberts
Consultant Editor

We endeavour to ensure all techniques shown in Good Woodworking are safe, but take no responsibility for readers' actions. Take care when woodworking and always use guards, goggles, masks, hold-down devices and ear protection, and above all, plenty of common sense. Do remember to enjoy yourself, though

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LOOKING AT TABLE SAWS

As John Bullar shows, a good table saw is a great help to the busy furniture maker and safe when used correctly. Here he discusses the types available as well as basic layouts



WIN!

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To find out how you can be
in with a chance of winning,
see **page 33**. Good luck!

Good Woodworking

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David Manger does his bit for the bees and shows you how to make your very own colourful insect hotel complete with nesting areas for this endangered species

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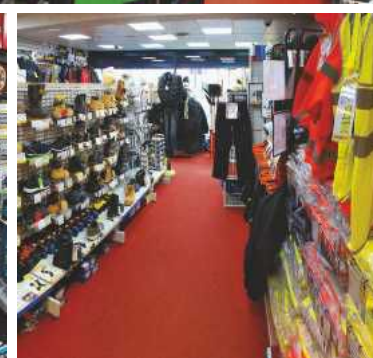
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MAKERS CENTRAL: UNITING CREATIVITY



From 5–6 May 2018 Makers Central will be launching its first ever event at the National Exhibition Centre in Birmingham. The NEC is the largest exhibition venue in Europe and host Nick Zammeti believes this will be the biggest and greatest maker event in the UK.

Makers Central is the brainchild of Nick Zammeti of NZ Woodturning. He entered the world of makers when he became introduced to woodturning in 2015, leading him to create his own YouTube channel. Nick has visited various makers events across the world, which led him to the realisation that there was a gap in the market for such an event in the UK.

Nick's intention is to revitalise the maker community and open the eyes of the younger generation and get more of them off their games consoles, iPads and iPhones and into the workshop. "The reward in making something is far more satisfying than just a 'high score', plus you actually get to take something away that you can be proud of. The maker community is huge but is in need of a new lease of life and will be a dying breed if we don't watch out," he comments.

Nick is determined to spring life back into the maker community and Makers Central is just the beginning. You can expect to see live demonstrations from various makers across the two days as well as a range of collaborations and live YouTube videos. There will also be a prize draw taking place on the Sunday, details of which will be announced at the show. The event opens from 10am–6pm on both days and advance tickets can be purchased via the website:

www.makerscentral.co.uk

MAKERS YOU CAN EXPECT TO SEE

- | | |
|--|--|
| April Wilkerson – various woodworking | ManCraftingTM – various woodworking |
| Andre Bandarra – various handcrafted items | Meighan workshop – filmmaking & woodworking |
| Asgard Woodturning – woodturning | Mitch Peacock – various DIY |
| Atelier Cabinet Makers – cabinetmaking | Martin Saban-Smith – woodturning |
| Average Joe's Joinery – various woodworking | Matt Cremona – fine furniture |
| Badger Workshop – various DIY & woodworking | Matt Estlea – furniture making |
| Beeley Wood – woodworking | Mike Waldt – woodturning |
| BillSin Workshop – works with reclaimed materials | Moonshine Metal Works – blacksmithing |
| Bryn Phipps – various handcrafted items | Nick Zammeti – NZ Woodturning |
| BrainFizz (Richard Morley) – various DIY | Ox In The Shop – woodworking |
| Carl Jacobson – woodturning | Paige Peacock – various handcrafted items |
| Charlie the Maker – woodturning | Peter Brown – Shop Time – woodworking |
| Chris Cute – various woodworking | Peter Woodbine – woodturning, woodworking, pewter casting & cabinetmaking |
| D.C Woodworking – various woodworking | Peter Millard – carpentry & cabinetmaking |
| Diesineveryfilmcustomers – knife & blade making | Richard Martin WoodSeats – upcycling |
| EvanAndKatelyn – various DIY | Sam Fowler – metalworking, woodworking & restoration |
| Gary Lowe – woodturning | Sawblade Projects – woodworking |
| Get Hands Dirty – various DIY | SE Woodwork – general woodworking |
| Giaco Whatever – film & things maker | Stuffmade – experimenting with new methods & materials |
| Gosforth Handyman – joinery | Susan Gardener – music, guitars, tools, etc. |
| Ijessup – various soft and hard goods | Templeboy Turnings – woodturning |
| I like to make stuff – music, websites, software, furniture, vintage scooters & motorcycles | The Blind WoodTurner – woodturning |
| Izzy Swan – woodworking & furniture making | Theshadesworkshop – upcycling |
| Heath Knuckles – woodturning & resin artistry | The Poultry People – woodworking, metal working & resin casting |
| Highland Boxes – bandsaw boxes | The Woodking – woodturning |
| Homemade Modern – various DIY projects | Tinkerneering – various making |
| Jimmy Diresta – woodworking | Turning Works – woodturning |
| Jimson's Stuff – various wooden things | TQ Blanks (Mark Lewin) – pen turning |
| JMakes – various handcrafted items | Wayne Clasper – woodturning |
| John Clothier – woodworking & woodturning | WH Creations – woodworking |
| JP Woodwork – scrollsaw master | Woodyoubelieveit – bespoke furniture |
| KKMakeUK – various DIY | Yuval Lahav – woodturning |
| Laura Kampf – artist/designer/maker & content creator | |
| Make it with Dad – electronics, wood, metal, etc. | |
| Make Something – beginners & advanced woodworking | |
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RISING STARS CELEBRATED AT RECENT INDUSTRY AWARDS

An 18-year-old apprentice who helped land a six-figure business deal and a trainee cabinetmaker with a mayoral bench to his name, have all been recognised at the recent British Woodworking Federation awards ceremony, which celebrated the passion and expertise that lies at the heart of the UK's £3.8bn woodworking sector.

The event took place at London's Drapers' Hall, where attendees from all over the UK came together to celebrate the woodworking sector's success and look forward to a jam-packed 2018.

"In a landscape of economic and business uncertainty, there was a real sense of energy and positivity during the evening," said Iain McIlwee, Chief Executive of the British Woodworking Federation. "People are genuinely proud to be in the woodworking sector and love what they do. From the many entries we had for the apprentice and trainee awards in particular, there is a sense that we are attracting some great new talent into the industry and offering rewarding career opportunities – something that needs to continue."

THE AWARD WINNERS WERE AS FOLLOWS:

Apprentice of the Year

Oliver Walker, 18-years-old, of Gowercroft Joinery in Derbyshire, who was praised for his workmanship and eye for detail. Oliver's work on a bespoke window sample for a property in Mayfair led to an order for windows and doors totalling over six figures.

Trainee of the Year

Matt Brown from Warwickshire College was nominated by his tutor for his initiative and ambition. During his City and Guilds training course, Matt gained a commission to make a Mayoral bench for the grounds of Kenilworth Castle, which was highly praised.

Product Design in Wood

The team at Morland, based in Powys, Wales, were recognised for the design, innovation and technical excellence on their ABS Edge Banded Melamine Faced FD30 Fire Doors. The fire door was praised by judges for combining high-end quality with mass market budgets.

Process Efficiency

AJB Group were recognised for their clear thinking and commitment to finding a solution to help drive their business performance and outputs forward. The company has invested heavily in its infrastructure over the past two years – over £2 million has gone into new plant machinery, a new factory and various processes, to ensure the business kept ahead in the marketplace.

Health & Safety Hero

Kevin Claughton, of Cotswold Manufacturing Ltd in Stockton-on-Tees, was recognised for his focus and commitment. By reviewing the COSHH arrangements and changes to the way hazardous waste was contained and stored at his business, he was able to make a cost saving of £18,000 per year. Kevin was

instrumental in the company's move to a new 89,000sq.ft factory, and has now trained 96 colleagues on health and safety matters.

Woodworking Project of the Year

Gelder Joinery's restoration of an Edwardian house in Oxfordshire was praised by judges for the project's beautiful restoration, unparalleled detail and design excellence. In total, Gelder Joinery Limited supplied 32 windows, 12 door sets, three large garage door sets, a summer house with decorative roof structure, a stable block and numerous other items, all from its business of just 10 employees.

Iain McIlwee continued: "We proudly represent the woodworking and joinery industry; our craft puts us at the heart of UK manufacturing. We had a record number of entries for this year's awards and it has reminded us again how outstanding and innovative the talent in the UK is; across both businesses and individuals. It's fantastic to celebrate the fact that this great industry is continuing to thrive." To find out more, see www.bwf.org.uk.



Shortlist for the Apprentice and Trainee Awards with guest speaker Graham Poll (left) and BWF CEO Iain McIlwee (right)

NEW MORTISE & TENON COURSE WITH DAVID CHARLESWORTH

One tends to think of mortise & tenon joints as being simple, perhaps because they are one of the first joints which we come across at school or at home.

David's experience shows that they are a demanding joint to get right, as he explains: "I think very few of us have the skill to saw tenon cheeks accurately. We will therefore explore more precise methods of ensuring a good fit. If the surfaces do not line up, a large amount of tedious remedial planing will be necessary. A specially planed up test stick is an invaluable aid to alignment."

David has methods for haunch fitting, which are a good deal more accurate than the techniques shown in text books. During the course, he will look briefly at the hollow chisel mortiser, but hopes to demonstrate that hand-cut mortises can be every bit as

good. Although he doesn't chop mortises very often, David says that he's amazed at the quality that can be achieved with a good mortise chisel.

"Drawbore tenoning is another aspect which we can try," he says. "I have the Lie-Nielsen dowel plates, which produce very nice pegs if some preparatory rounding is completed with a plane." Wedged tenons will also be covered and David will explain a clever (and safe) jig for producing wedges on the bandsaw. Joints with mitred shoulders are just another topic.

At the end of the course, attendees will be much more confident with these fundamental joints. The first course starts on 29 January and the next will take place on 26 March. To find out more, email David directly: davidcharl@aol.com.



Through wedged tenon with mitred shoulder



A pair of through wedged tenons



MAKITA EXTENDS TWIN 18V POWER TO BRUSHLESS LXT PLUNGE SAW

A plunge saw is designed to achieve a finer cut edge than a traditional circular saw when cutting sheet material using a guide rail. As the name implies, entry into the material does not need to be at an edge, thus enabling large openings to be cut accurately in worktops for hob or sink installations. The accurate depth control can be used to open flooring timber without risk to concealed pipes below the flooring. A plunge saw and guide rail requires far less room on site to operate than a table saw and fence for cutting sheet material or long runs of boarding.

This new Makita DSP600ZJ LXT plunge saw utilises the same saw housing, baseplate assembly and blade drive as the mains machine and delivers almost identical performance. This saw is powered by two 18V Li-ion batteries in series, which supplies energy to the powerful 36V DC motor drive system. With one battery forward of the drive line and one at the rear, exceptional balance and stability in operation is achieved.

Equipped with dial variable-speed control, soft start and electric brake, the new DSP600ZJ features ADT – the innovative Automatic Torque Drive Technology – which automatically changes the cutting speed for optimum operation, effectively by sensing the load conditions on the blade and adjusting the power supply, which maintains drive shaft speed.

The 165mm blade will give a maximum cutting depth of 56mm at 0°, 40mm at 45° and 38mm at the maximum bevel angle of 48°. The narrow blade housing allows the plunge blade to operate just 18mm away from a vertical wall. The rigid baseplate is designed to fit the Makita guide rail and has the capacity to fit a slide-out edge rail for panel trimming.

The bevel range is -1° to +48° and the position of the cutting line is always the same regardless of the bevel angle. Splinter-free cutting is achieved by engaging the depth stop, which enables a 2mm preliminary groove to be cut before the full depth of cut is made.

The new Makita DSP600ZJ 36V cordless plunge saw is supplied as a body only machine in a type 4 Makpac connector case for total protection. For further info, see www.makita.co.uk.

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NEW GENERATION OF PROFESSIONAL BOSCH LINE LASERS: THREE 360° LINES WITH HIGH VISIBILITY

Bosch presents a new generation of line lasers with three tools for greater efficiency on construction sites: the entry-level GLL 3-80 Professional model, as well as the connected GLL 3-80 C Professional and GLL 3-80 CG Professional models. They are the first line lasers worldwide, which can be controlled using an app and Bluetooth interface. Tradespeople can, for example, switch the laser line on and off individually using the Bosch Levelling Remote App without touching the tool and altering settings accidentally when handling the device. Additionally, operating via app makes set up and work in hard to reach places easier. The brightness of the laser lines can also be conveniently adjusted by the user for better visibility or to save battery power, for example. The Bosch Levelling Remote App is available free of charge in the Google Play Store and in the Apple App Store, and is part of the Bosch Toolbox App.

Bosch sensors monitor calibration

For the first time, the connected models also give a calibration warning – the Cal Guard Function a world's first developed by Bosch – which informs the user of possible calibration influences. There are various external influences which can interfere with the calibration of the line laser and are not always apparent at first glance. For example, if the tool has been heavily shaken in a fall or stored at a temperature outside the permissible range of between -20 °C and +70 °C. The tool displays these events via a red LED light that warns the user of calibration errors, thus ensuring precise results.

The app provides users with detailed information about the warning, meaning you can always have an eye on the tool's calibration and can carry out their work with precision. The Cal Guard Function also informs the user when the recommended 12-month calibration interval has expired. The Bosch sensors monitor the condition of the measuring tool constantly, even when it is switched off. If the measuring tool is not connected to a battery power supply, an internal energy storage device will support monitoring for 72 hours.

Line lasers with particularly high visibility

All three tools project three 360° laser lines: one horizontal and two vertical. The two vertical laser lines intersect and each also provides a plumb point – one on the floor and one on the ceiling. On the GLL 3-80 Professional and the GLL 3-80 C Professional, high-performance diodes ensure visibility of the red laser lines even in bright environments. The GLL 3-80 CG Professional operates with green laser lines that are up to four times more visible to the human eye than the red laser lines on similar tools.

Universal helper for different trades

The functions of the new line laser generation cover a wide range of applications – for example, for carpenters in furniture assembly and the installation of dividing walls. Since the lines can be switched on and off individually, the laser tools combine the functions of a cross-line laser and a point laser all in one. It can also carry out the interior applications of a rotary laser.

The BM 1 Professional universal mount ensures flexible mounting options. Furthermore, the two Bluetooth models have a dual power supply: they can be powered by both a replaceable 12V rechargeable battery and by non-rechargeable alkaline batteries. They are also 'TrackMyTools' enabled: thanks to the integrated Bluetooth module, registered users can see where their line laser is at any time using the cloud-based inventory management system via the app.

The new generation of line lasers is now available and start from £393.54 for the GLL 3-80 Professional. To find out more, see www.bosch-professional.com.

AXMINSTER RIDER NO.9½ BLOCK PLANE

The Axminster Rider planes represent a good standard in traditional, quality plane manufacture and great value.

The 9½ standard angle block plane has a bevel-up blade seated at an angle of 20°. The blade comes honed with a secondary bevel ready to take shavings. The 9½ is easy and comfortable to use, with a well-rounded cap which fits nicely in your hand.

The main casting is ductile iron chosen for its high strength and impact resistance. It has an adjustable mouth for fine or coarser work. The plane also features micro depth

adjustment and lateral blade control to achieve consistent thin shavings, and the sole is 155mm long with a 41mm wide blade. The sole of the plane is also flat and accurate to +/- 0.04mm. Weighing only 950g, it is one of the most useful planes in the woodworker's tool cabinet and every plane undergoes careful inspection at Axminster's Devon premises to ensure consistent quality.

The No.9½ comes complete with a plane sock for protection during storage. For more info and current pricing, visit www.axminster.co.uk.



NEWS IN BRIEF

Taking place on Sunday 25 February at the London Sculpture Workshop in London, the 'Get Handy – Woodwork' workshop is led by Andrew Revell of Farnham Art College. The course aims to get you confident in marking out, cutting up and constructing your own handy tool tote in wood. Get to know which tools you need and how to use them for working in wood, as well as the tools and processes to make your own personal tool box to store and carry your gear, in addition to the confidence to tackle those making projects at home, work, or in the studio. By the end of the workshop you will be familiar with how to assemble a basic, useful toolkit for woodwork projects; how to use and care for them – 'the right tool for the right job'; fundamental techniques in wood craft – measuring, marking out and cutting materials, drilling, screws, glues and constructing – as well as using these in a safe and efficient way to create your own handy toolbox to take away. Places are limited to just six and the cost of the course is £120 per person (10am–4pm). To find out more, see www.eventbrite.co.uk

The Professional Builder Tool Fair will be coming to Alexandra Palace, London, from Wednesday 31 January to Thursday 1 February, and will take place from 10am–4pm on both days. Supported by the Federation of Master Builders, you can try top brand products before you buy as well as enjoying exclusive show offers. Expect to see power tools, hand tools, building equipment and much more. For more info, see www.toolfair.info

Coming to Yandles on 9–10 February is the Record Power Roadshow and Sale, which gives visitors the opportunity to take advantage of exclusive show deals, enjoy free advice on all Record Power and Startrite machines, save 15% on all self-select timber, as well as seeing a variety of demonstrations. Entry is free; to find out more, see www.yandles.co.uk/events

WORK DUST-FREE: MORE INTELLIGENT THAN EVER BEFORE

Festool is launching intelligent new products to make dust-free working easier: two new Bluetooth batteries and a Bluetooth remote control, as well as a new smooth hose and mobile dust extractor.

With the new Bluetooth module, that can be retrofitted, dust can be extracted with cordless Festool tools without the need for a power cable. The manufacturer is extending its range of compatible batteries with the addition of two new 5.2 and 6.2Ah Bluetooth-capable packs. "The new Bluetooth module represents real progress in cordless and dust-free work," says Jon Burcham, Marketing Manager at Festool. "It takes a lot of time to keep going back and forth to the extractor to switch it on manually. Now the extractor can be conveniently activated or switched off using the Bluetooth remote control and with the new Bluetooth battery packs it is even easier because there is no need for a power cable between the extractor and tool. Switching the cordless tool on or off causes the extractor to be automatically activated," he continues.

The range of extractors has expanded with a newly developed, smooth suction hose, which ensures seamless dust extraction without the inconvenience of the hose catching. In addition, the redesigned CT 26, 36 and 48 mobile dust extractors feature practical functions, such as the optimised SYS-Dock with T-LOC function for conveniently connecting SYSTAINERs on the mobile dust extractor and a new cord holder. "Efficient and dust-free work has never been simpler," concludes Jon.

For more info about the products, visit www.festool.co.uk.



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on Powermate work station, plus user guides; £65
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original box with extra cutters, hollow and round bases, plus

instruction booklet and screwdriver – excellent condition; £150 OVNO – postage extra or collect
020 8524 9173 (London)

Stanley toolbox – 670 × 330

× 100mm – to include Stanley No.3 plane, ratchet brace, tri-square, auger bits, Surform & marking gauge – as new; £65 OVNO – postage extra or collect
020 8524 9173 (London)

Ward and Payne drawknife

with 9in blade & beech handles – a beautiful old tool; £30 – postage extra or collect
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WANTED

Robert Sorby RS60 eccentric woodturning chuck – insert type or to fit 1½in × 8tpi thread.
07770 948 667 (Solihull)

PREMIUM QUALITY PLUNGING



FURTHER INFO

To find out more about Atelier Cabinet Makers, see their website: www.ateliercabinetmakers.com

Jamie Smith of Atelier Cabinet Makers thinks that this cordless plunge saw from Mafell is one of the best on the market – so much so that he would highly recommend it to professionals due to its unique features and versatility

The Mafell MT55 18M BL plunge saw has so many brilliant features including some that are yet to be seen on other competitor models. It makes this saw not only one of the best on the market, but shows the thought and process that has gone into designing this product, which really is a step above the rest.

Scribe setting

For me, the best feature on this saw is the scribe setting. This is common to others on the market but Mafell have taken this to another level. When switching the saw into scribe cut mode, the MT55 moves the position of the blade by 1/10th of a millimetre to the left. This means that when using the guide rail, it brings your scribe cut closer to the splinter guard, then on switching back to make your full depth cut, the saw moves back to its original position. This process allows the cleanest cut possible on the top surface as well as underneath, where other plunge saws will rely solely on the track's splinter guard, thus wearing it down and

decreasing its ability to protect the top surface being cut. The scribe feature means you won't have to spend out on track splinter guard replacements over the years.

Splinter guard

Speaking of splinter guards, the one on the Mafell saw not only sticks on but pops into the guide rail to ensure it's held in place. Guide rails with stuck on splinter guards can be affected by heat and the strip can peel itself off. The guide rail is very low profile and the saw kit comes with two 1,600mm long tracks or an option of one 1,600mm guide rail, a 800mm guide rail and an adjustable mitre fence. This gives great versatility from the get-go, giving the user the ability to tailor to their needs. The guide rails are simply fixed in place by one connector, which stays on the guide rail when not in use.

High quality cut

Personally, I do a lot of cutting of veneered boards including some that are melamine-faced, which is well known for chipping.

I found the Mafell saw achieved a very high quality cut on both faces of the melamine board when using the scribe setting. I switched to the supplied 48-teeth kit blade and was highly satisfied with the cut quality. There is a range of additional blades to suit various cutting needs from rip cuts and fine cuts in timber and man-made sheet material, to cement-bonded materials, plexiglas and even aluminium.

Cordless vs cordless

If this is your first plunge saw purchase, should you buy corded or cordless? On this cordless saw, there is a no-load speed of 4,850rpm, compared to Mafell's corded version with a no-load speed of 3,600–6,250 rpm, but you may want to take into consideration your working environment and the types of cuts you would expect to be making. If your work is mostly outside or away from a power supply, this is where the cordless comes into its own. I found that this version has plenty of power when cutting your standard thickness boards such as ply,



Adjustable square fence



Scribe cut setting



Bevel angle: -1 to 48°



Clean cut on melamine



Using the guide rail



Fast blade change

MDF and veneered boards. I made a few cuts into solid beech block 40mm-thick kitchen worktop and the Mafell MT55 managed this comfortably, but just remember to go slower and allow the saw to do the work for you. This sort of work is more costly on the battery, but the 5.5Ah versions supplied in the optional kits have Li-HD technology to ensure maximum power at all times by processor controlled monitoring of charge and temperature, which is another excellent and notable feature.

Angled/bevel cuts

If you are looking to undertake angled/bevel cuts, this saw has blade settings from -1° up to +48° with a pre-set at 0° for ease and accuracy. When setting the saw for a bevel cut while using the guide rail, the blade always cuts to the edge of the splinter strip. When using without the guide rail, the rubber guide at the front of the saw auto-corrects and adjusts itself accordingly to always show

you the alignment of the cut to your marked cut lines. To lock the angle of the saw, there is a knob on the front of the angle dial, but this also locks at the back to ensure a solid setting with greater efficiency when making regular angled cuts.

Fast blade change

Another unique feature is Mafell's fast blade change. This requires pulling the fast change lever, which releases the fully cast blade cover and reveals the blade with its hex key screw fixing. The quick-change lever also engages the saw's auto spindle lock, making the blade change fast and hassle-free. While the cover is open you can see Mafell's unique dust channelling in the solid casting that ensures excellent dust extraction by guiding the particles in the direction of the dust collection bag. Of course, you can use an extractor but being fully cordless is just so satisfying when using long guide rails and cutting down 8ft long sheets of timber – no snagging

hoses or cables! Mafell's supplied dust collection bag is as efficient as any others I have seen, but always be sure to use the additional appropriate breathing apparatus.

The saw can be used both on and off the guide rail. When switching between them, you simply change the plunge depth switch to the marked position for rail or no-rail use; this keeps the plunge depth working exactly to the depth gauge, and for those no guide rail cuts, Mafell has a parallel guide fence.

Conclusion

This premium quality plunge saw may be a bit of a luxury item for occasional users or hobbyists as it's in the higher price bracket; however, it is a joy to use and I could definitely see it having a place in our workshop, especially when working on job sites. The Mafell plunge saw is one of the best you can buy and I would highly recommend it to professionals especially, due to its unique features and versatility. **GW**



Guide rail connector



Switch for scribe cut

SPECIFICATION:

- ▶ No load speed: 4,850rpm
- ▶ Cutting depth: 0-57mm
- ▶ Cutting depth at 45°: 0-40.5mm
- ▶ Tilting range: -1° - +48°
- ▶ Voltage: 18V
- ▶ Weight: 4.5kg
- ▶ Battery capacity: 5.5Ah
- ▶ Battery type: Li-HD
- ▶ Blade diameter: 162mm

▶ Typical price: £639.95-£1,069.95 (depending on kit specifics)

▶ Web: www.nmatools.co.uk



Cutting depth: 0 to 57mm



Cutting beech block worktop

THE GW VERDICT

- ▶ **PROS:**
Fast blade change; use with or without guide rail; exceptional cut quality even on melamine; works on other brand's guide rails
- ▶ **CONS:**
Expensive; no riving knife
- ▶ **RATING:** 4.5 out of 5

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HANDY DRILL PRESS AID

This neat gadget from Wixey saves you time and frustration when drilling – perfect for the frequent drill press user

If you have an old drill press without a fancy laser system you'll know that lining up timber or metalwork for precise drilling can sometimes be frustrating. Unless you make a jig when repeat drilling is required, getting the drill bit dead centre can be a rather hit or miss affair. This American gadget is designed to fit easily to any pillar drill without interfering with its plunge action. Once set up correctly, the laser crosshairs projected will pinpoint the exact centre of the quill, ensuring that drilling will be spot-on.

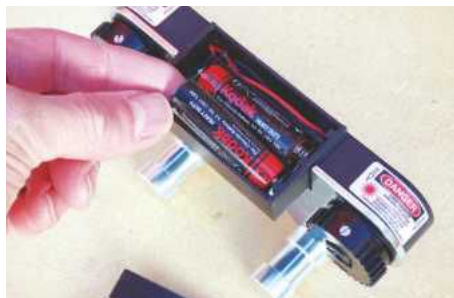
Setting up

The Wixey consists of a pair of posts beneath a sturdy steel plate, which is attached to the drill press column with a Jubilee clip. This is plenty long enough for the biggest of machines and simple enough to tighten in place with a screwdriver. Twin plastic thumbwheels are used to adjust the laser lines vertically, with inset screws for setting the XY position where they cross.

Once that's done you insert two AA batteries (not included) by removing a cover



Twin plastic thumbwheels are used to adjust the laser lines vertically



Once that's done you insert two AA batteries by removing a cover on the compartment between the thumbwheels



Lower the bit so that it makes an indent, which is dead centre

on the compartment between the thumbwheels. An on/off rocker switch activates the laser and the device is ready to adjust. This is done by drawing a pencil line across a piece of accurately-planed timber, square to the edge. With the block stood on edge on the machine table, you then adjust each line via their respective thumbwheels until they're parallel to the pencil line. Initially I struggled with this as the instructions aren't clear that you need to set up from the rear of the timber, not the front. You may want to ask someone to lend a hand here, as this can be tricky where the drill press is in a confined space. Getting the lines parallel is important to ensure drilling accuracy when you move the machine table up and down the column.

Crosshair calibration

Next, insert a small drill bit in the chuck and lay the wood flat on the machine table. Lower the bit so that it makes an indent, which is dead centre. Finally, set the XY position by adjusting the set screws with a screwdriver so lines intersect over the indent. Once that's



The Jubilee clip column is plenty long enough for the biggest of machines and simple enough to tighten in place with a screwdriver

done the device should not need further adjustment, though it may be a good idea to check accuracy every now and again.

The crosshairs remain precise no matter how low or high you adjust the table or head of the drill. I set the Wixey up on my old Startrite machine with a maximum distance of about 500mm from the device to the lower table. At this distance the crosshairs each measured a tad over 1mm in width, so don't expect the same accuracy you get with the machine table set closer. Moving the upper table to within about 200mm meant the lines reduced to less than 0.5mm, which is a pretty good result.

Conclusion

Like any laser device, reading the crosshairs really depends on your eyesight. If your drill press is sited near a window you may want to shield this when working as any laser lines are more difficult to see clearly in broad daylight. That said, the Wixey is a handy workshop aid that will save both time and frustration if you're a frequent drill press user. **GW**



With the block stood on edge on the machine table, you then adjust each line via their respective thumbwheels until they're parallel to the pencil line

SPECIFICATION:

- ▶ Thin and precise, easy to adjust crosshairs
- ▶ Mounts quickly to any drill press
- ▶ Crosshairs stay on centre at any table or workpiece height
- ▶ Rugged steel construction
- ▶ Uses 2 AA batteries (not included)

▶ **Typical price:** £32.54

▶ **Web:** www.machine-dro.co.uk

THE GW VERDICT

- ▶ **PROS:**
Saves time and frustration when drilling
- ▶ **CONS:**
A bit awkward to set up
- ▶ **RATING:** 4 out of 5



The Fire Writer with my assortment of shaped nibs

PLAYING WITH FIRE

This easy-to-use professional pyrography unit from Antex is solid, powerful, convincing and efficient

I'm new to pyrography, and here's what I've learnt over the past two or three days: there are two types of tool. One looks like a small electric soldering iron

and has interchangeable brass tips. I have two versions of this – one from Antex and one from Lidl. The 'Ant' has variable heat control from 1-10 shown on a digital display; a device

to help you change nibs without burning your fingers, and a very smart magnetic catch box: the Lidl one doesn't. Both have similar power ratings and an assortment of nibs that take a minute or so to heat up. Neither has an indicator to tell you when they have. After extended use, the pens become hot to use. Because your fingers are so far from the nib, control is a little indirect.



1 The stunning pyrography of Julie Bender (www.juliebender.com). This piece, 'Into the light', 11 x 14in, is on maple veneer

'Soldering iron' type tools

The 'soldering iron' type tools have a range of craft uses (fabric, foil, gems, wax...) and both can be hot enough to burn wood, but if wood is your speciality, you won't want to use either once you've tried the Ant's very big brother, the Fire Writer. This comes with a hefty transformer (made in Devon) with a variable-speed dial. It still doesn't have an indicator light, but in this case it doesn't need one because in a matter of seconds after turning it on, the bent wire tip glows red hot.

This is the other big difference: the tip consists of a piece of nickel chrome wire that you bend to the shape you want. Several lengths of different gauge wire are supplied. Cut an inch or so off and shape it with fine-nosed pliers. Undo the chock-block type screws, slip the wire in and tighten up. Off you go. It is comfortable to use and as powerful as you could wish. The pen doesn't get hot, and your fingers are closer to the nib for better control.



2 The larger the letters, the less noticeable their irregularities. Poplar and beech (top) worked well

A steep burning curve

I am not a freehand artist; I don't trust myself. I like geometry. A pyrography tool is best thought of as either a stamp (brand) or a paintbrush, and neither of these is suited to straight lines. My first thought was to use the Fire Writer for lettering. That way I could use a stencil. Plastic stencils would be chocolate teapots so I searched for metal ones and came up with next to nothing, just a couple of small brass sheets. I could have spent a lot of money on bigger individual templates and might have done so if I were setting up a sign-making business, but then I'd be stuck with one font. Instead I used plastic templates to pencil out the lettering and set about burning them by hand.

There is an amount to learn. The nib sears into the wood, and picks up the varying density of the grain: a smooth line is difficult to achieve. The nib gains maximum heat as it is waiting to be used so the first touch is very hot: smoke, flames and a deep scar are easily incurred (I took to dabbing the nib on a piece of waste wood, just as you might dab a watercolour brush to get rid of excess paint, to lose some of this initial surge.) Then your stroke must be deft and sure: if you hesitate, not only will the burn mark deepen considerably, but oils in the wood will be driven out, blotting along the grain. As the Fire Writer allows you to form your own nibs, I played with various shapes and settled on a small flat. I could do this in on the stencilled lettering in a controlled way.

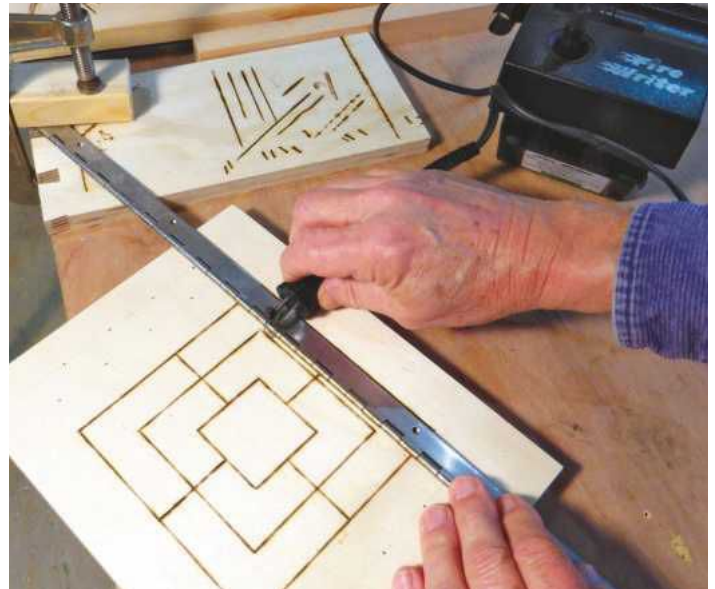
On the Nine Men's Morris board, I made the flat a bit longer like a tiny ice skate so that I would ride over any ripples in the grain. Here, freehand dobbing would not work. I wanted guide lines. My first brilliant idea was to score the lines in with a craft knife so as to sit the skate in a groove. It sort of worked, but not always. My second was to use my hand the way you do when you're imitating a marking gauge. Not good enough. I tried to run the pen along a metal ruler but it acted as a heat sink. I might have tried a ceramic ruler

but I don't have one. You can see my solution in **Pic.3**. A piano hinge was of the right dimensions. Even so, burning a completely regular line eluded me.

My results were good but not spectacular. I don't think they ever will be. I looked at videos and images of pyrography and saw that very little of it was faultless. Then I came across images such as this one (**Pic.1**) of work by Julie Bender. In the past I admit I have thought pyrography to be the province of hobbyists doing bunny rabbits and cheeky squirrels, but this is work of quite a different order. Look her up. Be awestruck.

Conclusion

The Fire Writer by Antex is solid, powerful, convincing and efficient, heating the wire nib to red hot in seconds. If you ever want encouragement to take up a craft, this is it.



3 It took me several attempts to get acceptable lines. Birch-faced ply is the best material to use for its evenness, density and colour

The only niggle I can come up with is that I'd have liked more spare wires. I used half my allotment just getting to grips with it. This professional wood burning kit is temperature adjustable to 650°C, and includes a writing tip, slim pyrography pen, and five nickel chrome wires to make your own tips. A splitter is also available separately, which enables switching between two pens. Pre-fabricated tips are also available. **GW**

SPECIFICATION:

- ▶ Variable voltage output (40W) up to 650°C
- ▶ Allows a greater variety of materials to be worked
- ▶ Supplied with a slim pyrography pen
- ▶ Additional accessories available

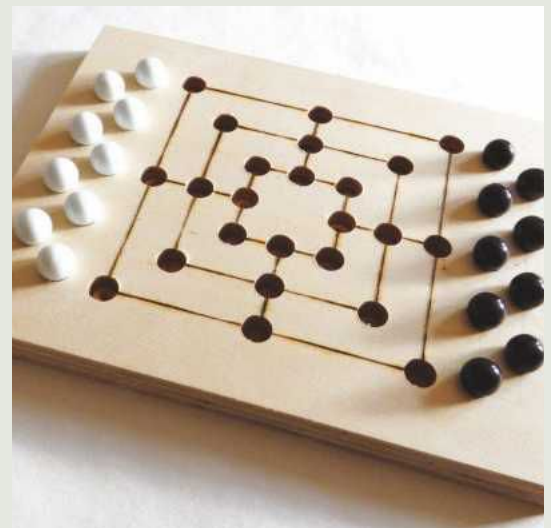
- ▶ **Typical price:** £187.55
- ▶ **Web:** www.antex.co.uk

THE RULES OF NINE MEN'S MORRIS

(courtesy of Wikipedia, where there is more)

The board consists of a grid with 24 intersections or points. Each player has nine pieces, or 'men', usually coloured black and white. Players try to form 'mills' – three of their own men lined horizontally or vertically – allowing a player to remove an opponent's man from the game. A player wins by reducing the opponent to two pieces (where he could no longer form mills and thus be unable to win), or by leaving him without a legal move.

The game proceeds in three phases: 1. Placing men on vacant points; 2. Moving men to adjacent points; 3. (Optional phase) moving men to any vacant point when the player has been reduced to three men



The completed Nine Men's Morris board

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Einhell TE-PL850	850W	3mm	£52.99	£63.59
B&D KW750K - GB	750W	2mm	£57.99	£69.59

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DEVIL 6015 400V 5-10-15kW £179.00 £214.80
DEVIL 7025 400V 22kW £299.00 £358.80
DEVIL 7030 400V 30kW £349.00 £418.80

Clarke

CROS3 450W RANDOM ORBITAL SANDER

• Adjustable front handle improves control
• 7000-14000rpm



MODEL MOTOR EXC.VAT INC.VAT
CPF13 400W/230V 13x45 £49.98 £59.98
KABQDE 400W/230V 13x45 £59.98 £71.98

Clarke

CORDLESS DRILL/DRIVERS



MODEL	MOTOR	BELT SIZE (mm)	EXC.VAT	INC.VAT
CPF13	400W/230V	13x45	£49.98	£59.98
KABQDE	400W/230V	13x45	£59.98	£71.98

Clarke

WHETSTONE SHARPENER (200MM)

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

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EXC.VAT
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Clarke

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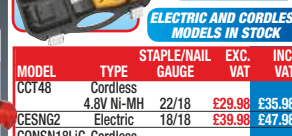
Record
• 150/152/161mm

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
Clarke CHT152	Bolted	150/152/161	£14.99	£17.99
Stanley Multi Angle	Clamped	72/60/40	£17.99	£21.99
Record TV75B	Clamped	75/50/32	£20.99	£25.19
Clarke WV7	Bolted	180/205/78	£29.98	£35.98

Clarke

STAPLE/NAIL GUNS

• All models include nail/staple pack and tough moulded case

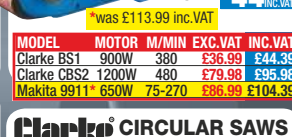


MODEL	TYPE	STAPLE/NAIL GAUGE	EXC. VAT	INC. VAT
CT48	Cordless	4.8V Ni-MH 22/18	£29.98	£35.98
CESNG2	Electric	18/18	£39.98	£47.98
CONSN18LIC	Cordless	18V Lithium-Ion 18/18	£109.98	£131.98

Clarke

BELT SANDERS

• Ideal for surface removal, sanding and finishing



MODEL	MOTOR	M/MIN	EXC.VAT	INC.VAT
Clarke BS1	900W	380	£36.99	£44.39
Clarke CBS2	1200W	480	£79.98	£95.98
Makita 9911	650W	75-270	£86.99	£104.39

Clarke

CIRCULAR SAWS

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



MODEL	MOTOR	MAX CUT 90/45 (mm)	EXC.VAT	INC.VAT
CCS185B	1200W	65/44	£41.99	£50.39
CCS2	1300W	60/45	£59.98	£71.98
CON185*	1600W	60/40	£62.99	£75.59

Clarke

QUALITY CAST IRON STOVES

OVER 22 QUALITY STYLES ON DISPLAY
• 8kW
• FLUES, COWLS & ACCESSORIES IN STOCK



Clarke

MULTI FUNCTION TOOL WITH ACCESSORY KIT

• Great for sawing, cutting, sanding, polishing, chiselling & much more • 250W motor
• Variable speed



Clarke

TURBO AIR COMPRESSORS

• Superb range ideal for DIY, hobby & semi-professional use
• *V Twin Pump

MODEL	MOTOR	CFM	TANK	EXC.VAT	INC.VAT
8/250	2HP	7.5	24ltr	£89.98	£107.98
7/250	2 HP	7	24ltr	£94.99	£113.99
11/250	2.5HP	9.5	24ltr	£109.98	£131.98
8/510	2HP	7.5	50ltr	£119.98	£143.98
11/510	2.5HP	9.5	50ltr	£139.98	£167.98
16/510*	3 HP	14.5	50ltr	£209.00	£250.80
16/1010*	3 HP	14.5	100ltr	£259.98	£311.98

Clarke

HARDWOOD WORKBENCH

• Includes bench dogs and guide holes for variable work positioning • 2 Heavy Duty Vices
• Large storage drawer • Sunken top trough
• LxWxH 1520x620x855mm



Clarke

VAC KING WET & DRY VACUUM CLEANERS

• Compact, high performance wet & dry vacuum cleaners for use around the home, workshop, garage etc.
• SS = Stainless Steel

MODEL	MOTOR	CAPACITY DRY/WET	EXC. VAT	INC. VAT
CVAC20P	1250W	16/12ltr	£49.98	£59.98
CVAC20SS*	1400W	16/12ltr	£59.98	£71.98
CVAC20PR2	1400W	16/12ltr	£64.99	£77.99
CVAC25SS*	1400W	19/17ltr	£67.99	£81.59
CVAC30SSR	1400W	24/21ltr	£99.98	£119.98

MODEL	PLANING WIDTH	MAX THICK. CAPACITY	EXC. VAT	INC. VAT
CPT800	6"	120mm	£184.99	£221.99
CPT600	8"	120mm	£209.98	£251.98
CPT1000	10"	120mm	£289.00	£346.80

Clarke

6" BELT/ 9" DISC SANDER

• Includes stand
• 1 HP/ 230V/ 1ph motor



Clarke

1" BELT/ 5" DISC SANDER

• Includes 2 tables that tilt & lock
• Quality induction 300W motor



Clarke

4" BELT/ 8" DISC SANDER

• Includes two tables
• 550W 230V motor



Clarke

DISC SANDER (305MM)

• Powerful, bench mounted 900W
• Dust extraction port



Clarke

SHEET SANDERS

• Ergonomic design for optimum comfort



Clarke

OSCILLATING BOBBIN SANDER

• Provides exceptional finishes for deep & wide work pieces, front edges & narrow inner curves • Dust collection port • Inc. 6 sanding sleeves/bobbins



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Clarke SLIDING COMPOUND MITRE SAW

• For fast, accurate cross, bevel & mitre cutting in most hard & soft woods

• 1800W motor

• Laser guide

BEST SELLER

MODEL: CMS10S2

BLADE DIA/BORE DEPTH (mm) CROSS EXC. VAT INC. VAT

210/30	60/120	£59.98	£71.98
254/30	78/340	£139.98	£167.98

Clarke CONTRACTOR JIGSAWS

• DIY #Professional

MODEL: Clarke CJS380+ 420W 55/6mm EXC. VAT INC. VAT

£15.99	£19.19
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Clarke CJS750+ 750W 80/10mm £27.99 £33.59

Bosch PST700E* 500W 70/4mm £44.99 £53.99

* was £34.79 inc. VAT

Clarke MITRE SAWS

TC-SM2131

• Laser Guide

• Sliding Compound

• Quality Range of Mitre saws and blades in stock

FROM ONLY £59.98 EXC. VAT £71.98 INC. VAT

BISCUIT JOINER

• 11000rpm Operating Speed

• 860W motor • 14mm Cutting Depth • Inc. dust bag, storage case and face spanner for cutter change

MODEL: TC-BJ900

£49.98 EXC. VAT £59.98 INC. VAT

Clarke FOLDING MITRESAW STAND

CFMS1

• Suitable for most sizes/makes of saw

• Inc. outriggers & rollers

ONLY £66.98 EXC. VAT £80.39 INC. VAT

Clarke SCROLL SAWS

CSS400C

• 50mm max cut thickness

• Air-blower removes dust from cutting area

• Table tilts 0-45°

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

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• Ideal for enthusiasts/hobbyists with small workshops

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Clarke DRILL PRESSES

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B = Bench mounted
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CDP152B	450/12	£139.98	£167.98
CDP152B	450/16	£185.00	£222.00
CDP10B	370/12	£199.98	£238.79
CDP352F	550/16	£228.00	£274.80
CDP502F	1100/12	£499.00	£598.80

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CBM1B

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CRT-1

Router not included

• Converts your router into a stationary router table

• Suitable for most routers (up to 155mm dia. Base plate)

£69.98 EXC. VAT £83.98 INC. VAT

Clarke PROFESSIONAL BANDSAWS

Top Quality Bandsaws - ideal for professional workshop use. Strong steel body with solid cast iron table

• Table tilts 45° • Adjustable blade guide

• Supplied with stand, 4TPI wood cutting blade, rip fence, mitre guide, mitre gauge and push stick • Induction motors

• Includes stand

MODELS ALSO FEATURE:

- MULTI-STEP DUST EXTRACTION OUTLET
- FLEXIBLE LED WORKLIGHT
- REMOVABLE DUST TRAY
- BLADE TENSIONING CONTROL

Clarke ROUTERS

BOSCH

• Powerful heavy duty machines ideal for trade and DIY use

CR2 INCLUDES 15 PIECE KIT WORTH OVER £20

FROM ONLY £46.98 EXC. VAT £56.39 INC. VAT

Clarke GRINDERS & STANDS

• Stands come complete with bolt mountings and feet anchor holes

6" & 8" AVAILABLE WITH LIGHT

STANDS FROM ONLY £47.98 INC. VAT

FROM ONLY £32.99 EXC. VAT £39.98 INC. VAT

Clarke ROUTERS

CR1C

• DIY

MODEL MOTOR PLUNGE (mm) EXC. VAT INC. VAT

CR1C*	1200	0-50	£46.98	£56.39
Bosch	1400	0-55	£86.98	£104.39
POF1400ACE				
CR2*	2100	0-60	£119.98	£143.98

* was £149.98 inc. VAT

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ROUTING FIRE DOORS FOR AN INTUMESCENT STRIP

If you need to fit an intumescent strip to a fire door, then Trend's extensive range of cutters across three ranges will ensure you get the job done properly



Fire doors are normally associated with offices, hospitals and other public buildings, but living quarters including blocks of flats and also extension work on homes, such as loft conversions, will often require fire doors as a safety barrier.

Specific regulations for fire work have to be adhered to, including fitting the fire doors with intumescent strips that swell under heat to seal the door and prevent smoke ingress.

The strips are a standard thickness but can be different widths,

so the easiest and most accurate way to rout the correct sized groove for an intumescent strip is to use a router cutter designed specifically for the purpose.

Trend has a full range of cutters in the CraftPro, Trade and Professional brackets, which cover all the standard strip widths currently in use: 10mm, 15mm, 20mm and 25mm.

Each cutter has a bearing guide on the shank that sets the correct 4mm depth for a perfect flush fit, so all that is needed is to set the correct depth on the door edge. **GW**

OPTION 1: BEARING-GUIDED INTUMESCENT CUTTERS



1 The cutter is fitted to the router, paying attention to the 'K' mark on the shank, which will ensure it's fitted correctly and tightened off



2 Place the router on a flat surface and plunge until the cutter bottoms out on the surface, then lock the position



3 On the T10 and T11 routers, the depth post can easily be set to suit a specific plunge depth. Start by setting the plunge post to the turret



4 The cursor is then moved until it hits the zero position on the scale



5 Back off the plunge post until the scale indicates the plunge depth required, then plunge the router and tighten off. Single strips are normally central to the door edge



6 You can also set the router to a pre-cut hinge mortise to allow the strip to sit in line with the leaf edge



7 The door is laid flat for the routing operation, making it a very simple task. Ensure the door is secure and stable before starting the routing. Place the router onto the door, check the cutter is projecting correctly, then rout the edge



8 When routing a door with hinge recesses already cut, ensure these are facing downwards so that the bearing has full contact with the door edge. If the door is routed with the hinge recesses uppermost, the bearing guide will drop into them, leaving a deeper groove in these areas. The resulting groove will now be at the correct depth and perfectly parallel to the door face, thus allowing the strip to fit flush

OPTION 2: STRAIGHT CUTTER & FENCE

The alternative method is to use a straight cutter that matches the intumescent strip and a side-fence. While this is a valid method, it isn't as practical and easy as using a dedicated cutter; the door must be routed on edge and you need to ensure the fence stays perfectly flat to the door face.

Any slight deviation is reflected in the groove and with a costly door to be worked on it could prove expensive if the groove isn't straight and clean. As the edge of a door doesn't offer much stability, a bigger router such as the T10 can be used but it is harder to control. A smaller router such as the T5 is easier to keep stable.



1 The router is set up by fitting the cutter to the 'K' mark on the shank and plunged until it bottoms out on a flat surface



2 Using the intumescent strip as a gauge, place it between the depth post and the turret, then tighten off



3 Ensure the door is well secured to prevent movement or tipping. The Trend Door Holder Stand (ref: D/STAND/A) is ideal for this. Mark the position of the strip onto the edge of the door and set the router to this using the side-fence



4 Plunge the router and rout the groove, ensuring the fence stays tight to the face of the door as you work. Be aware that the start and end of the cut can deviate as only one fence face will be in contact at these points, so special care is needed here. To prevent any movement when using a fence and straight cutter, the best option is to use two fences connected to the fence rods – one on either side of the door to prevent any deviation as you make the cut

FURTHER INFO

The following intumescent cutters are available from Trend:

Professional: 345X1/2TC, 346X1/2TC, 348X1/2TC, 34/60X1/2TC, 34/61X1/2TC & 356X1/2TC

Trade: TR41X1/2TC, TR42X1/2TC & TR46X1/2TC

CraftPro: C208X1/2TC, C209X1/4TC, C220X1/4TC, C221X1/2TC & C223X1/2TC

Prices start from £35.89 inc VAT; to find out more about other cutters and jigs in the range, see www.trend-uk.com

WHY YOUR BANDSAW BLADES FAIL

The tech team at **Baileigh Industrial** offer their expert advice on bandsaw blade failure

A quality bandsaw has the potential to be one of the most versatile tools in your workshop, thanks to its ability to cut smoothly and precisely with relative ease. However, if it spends most of its time being broken and inactive, then it won't be of much use to you at all. There are several reasons why your bandsaw may fail, including some that you might never have thought of, so we've decided to put together this list of potential problems in the hope that it can help you to get your machine back in full working order.

Scoring and/or general wear on the side of your blade

Damage to the side of your blade can occur for a number of reasons. If you see the side of your blade starting to wear or score, check the alignment of the blade guide. If it is out of alignment, then this is likely to be the cause of the damage. In addition to this, check the guide to see if it is worn or broken as a worn guide will not ride on the blade properly.



The WBS-14 vertical bandsaw benefits from a patented blade guide system that helps keep the blade perfectly aligned for precise cuts

Worn, chipped, or broken teeth

Wear can occur in a couple of different places on the teeth of your blade. If you notice wear on the tips and the corners, it could be because of your blade speed. If the blade speed is too fast, it will generate a lot of heat at the tips of the teeth, which causes them to wear a lot quicker than usual. If you notice wear on the sides of the teeth, they might be hitting the guides or a part of the machine.

If you find that your bandsaw teeth are chipped or broken, then it could be because you didn't properly break in the blade. This isn't something that you can fix, but it is something that you can bear in mind when buying new blades in the future. However, if you know that you did correctly break in your blades and that isn't the problem, it's possible that your feed rate is too high. While increasing your feed rate does increase your productivity in the short term, it has the downside of significantly reducing the life of your blades, so do bear this in mind.



The BSV-20VS vertical bandsaw features variable-speed, 3-19mm blade width, 314mm maximum thickness and a 521mm throat depth



Cracks in the gullets

There are countless ways that you could end up with cracks in your gullets, but most of them stem from pushing the blade past its limits. If you are experiencing this problem, make sure you are not using excessive:

- Blade speed
- Blade tension
- Feed rate
- Feed pressure

Stripped teeth

Tooth stripping might be the most frequent problem that people tend to have with their bandsaw blades. This is due to the fact that there are so many ways that it could happen. Much like broken teeth, stripped teeth can also be caused by an improper break in or an excessive feed rate, but they could also be caused by:

- Teeth hitting the machine
- Poor positioning of materials
- Wrong coolant (or lack thereof)
- Chip brush not cleaning properly
- Having the wrong tooth pitch

Debris in your blade

Debris from the material that you are cutting could be getting itself stuck in your gullets, causing your blade to lose performance. To avoid this, you need to ensure that your brush is properly positioned and is cleaning as it should. If the brush is set too far from the teeth, then it will not be able to reach all the chips, but if it is too close, then it may wear the blade. Ideally, you want your brush to touch the deepest part of your gullet.

Note: debris in your gullets can do more than just damage your blades. If a piece dislodges, it could also have the effect of falling and damaging the internal mechanisms of the machine. **GW**

FURTHER INFO

To find out more about Baileigh Industrial and their wide range of bandsaws and woodworking machinery, visit their website: www.baileighindustrial.co.uk

Jennie Starbuck



Andrew Hall



Mick Hanbury



Wayne Mack



Michael Painter



Rick Dobney



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PIECE OF THE PUZZLE

Inspired by his love of Sudoku puzzles, **Jonathan Hicks** sets about making a coffee table that relies on the same mathematical principles

In this article I'm going to show you how to make a coffee table inspired by Sudoku puzzles. Using four wood types that correspond to numbers on four layered 4 × 4 Sudoku patterns, I made a table top that is utterly covered in squares.

Plan & prep

You need to start this project by drawing four Sudoku puzzles and using them to work out the layers of each of the 16 squares (Pic.1). Working back from the desired finished size, you can then calculate the dimensions of each piece. For a good sized table (about 800 × 800mm) the centre square should be around 40mm, with each ring 20mm wide.

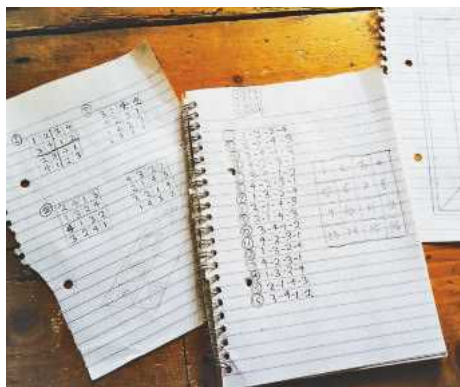
I had a rummage through my wood rack and emerged with some oak, white beech, mahogany and teak – four nicely contrasting woods – but you can use whatever timbers you have available. The next step is to make the wood a uniform thickness (20mm) using a thicknesser (Pic.2), then rip into

rods on a table saw so they are around 25mm wide (Pic.3). If you don't have access to these pieces of equipment, you can work around the stock sizes of planed wood available from a local timber merchant. You'll need 4-5m worth of 20 × 25mm rods for each wood type.

Squares in squares in squares in squares

First, you'll need to work on the 40 × 40mm centre squares. Start by cutting two 250mm lengths from each wood and glue them together to make pieces that measure 40mm wide. Then, using a mitre saw, cut these into four 40mm squares (Pic.4). For the first ring, cut 16 × 65mm lengths from each wood type (Pic.5).

Referring back to your plan, the lengths need to be glued around the centre squares in a spiral pattern using a good wood glue and clamps. If you have the patience, frequent re-squaring on a bench sander will help reduce possible error later (Pic.6). >



1 Plan the pattern by superimposing various Sudoku puzzles



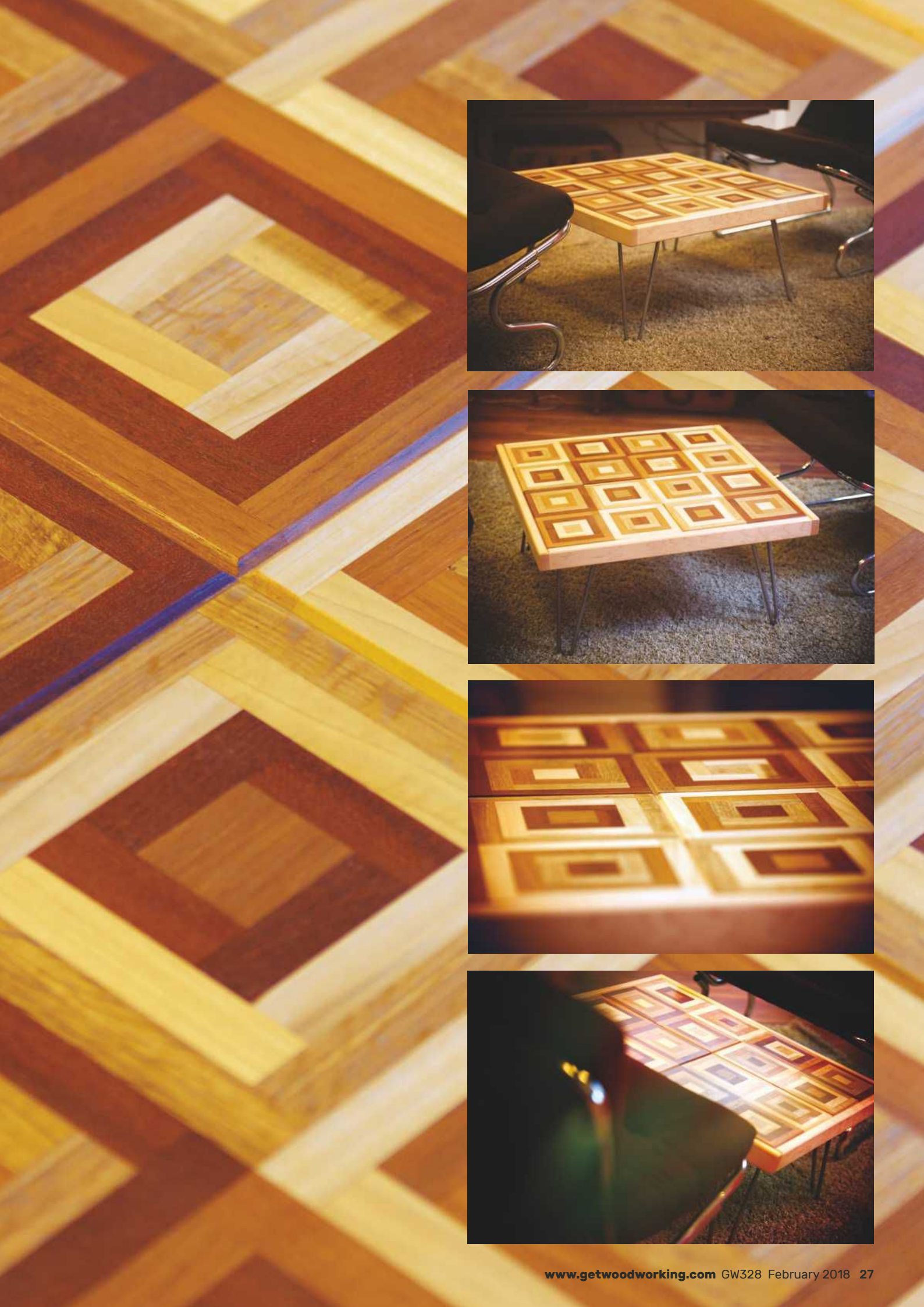
2 Plane four wood types to a uniform 20mm



3 Cut them into rods around 25mm wide – 4.5m is needed



4 Make 16 × 40mm squares



Project Sudoku coffee table

For the second ring, take another 16 pieces measuring 105mm long (Pic.7), and the final ring will take another 16 × 145mm lengths (Pic.8). You can then simply repeat the glue-clamp-re-square process until you have 16 squares around 150mm² (Pic.9).

One big square

Now it's time to put it together into one big square. Begin by gluing neighbouring pairs together, then into blocks of four (Pic.10). At this point, the edge starts to lose its straightness so a gentle skim on a table saw will help keep the edges true (Pic.11).

For the joins between the four large squares, splines will help strengthen the



5 Cut 16 × 65mm lengths from each wood type



6 Regularly re-square on a bench sander



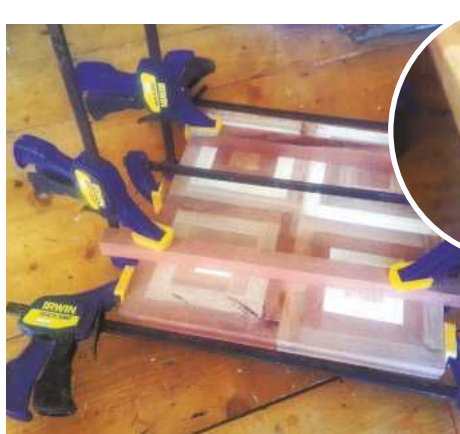
7 Repeat with 105mm lengths...



8 ... and again with 145mm lengths



9 Lay out squares so they match your plan



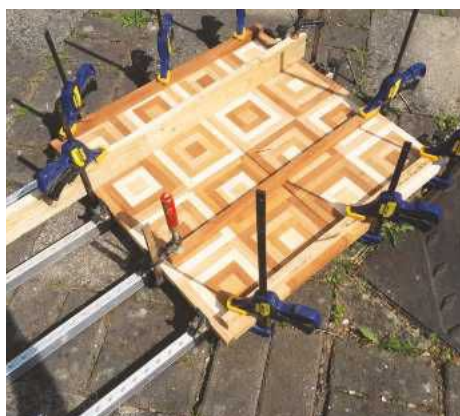
10 Glue in pairs, then sets of four



11 Skim the edges on a table saw to straighten



12 Cut spline joints and add a bevel using a router



13 Glue the whole construction together using plenty of clamps



14 Add rails using splines



15 Sand using a random orbit sander



16 Wet the surface of the table to raise the grain between sandings



17 A clear wax finish gives a natural result



18 Two coats of sanding sealer are applied before waxing



19 Apply wax according to the instructions



20 Hairpin legs screw into the underside



21 The completed Sudoku coffee table should look something like this

joint. These can be cut using a router (**Pic.12**). I added a slight bevel detail between the big squares to correspond to the grid on a Sudoku puzzle. Glue the whole construction together using plenty of clamps (**Pic.13**).

I also used pieces of maple to make the rail around the outside. Once machined to size, they can be glued into place using splines and bevells (**Pic.14**).

Finish & legs

After letting the wood settle for a few days, go at it with a random orbit sander (**Pic.15**). Start at 80 grit and follow up with 120 to remove the scratches. Finish off by hand with 180 grit, wetting the surface to raise the grain (**Pic.16**).

After applying two coats of sanding sealer (**Pic.18**), give the table a final light sanding with a super fine 1,600 grit paper. You can then finish your table with a clear wax, applied with a cloth (**Pic.19**).

A set of simple hairpin legs bought online screw into the bottom, which finishes the design (**Pic.20**), although you can choose to make these yourself if you prefer.

I'm really happy with how this table turned out so would love to see what other people do with the idea. Please email jonny@1upliving.co.uk if you take some inspiration from the project, or follow me on instagram - [@1upliving_GW](https://www.instagram.com/1upliving_GW)



1 A medium-sized table saw with sliding cross-cut carriage on the left and ripping fence on the right. The yellow crown guard on top is fixed onto the riving knife behind the blade

LOOKING AT TABLE SAWS



2 Seen from overhead, here I'm cross-cutting a board on the sliding carriage using a push-stick in my right hand

As John Bullar shows, a good table saw is a great help to the busy furniture maker and safe when used correctly. Here he looks at the types available and basic layouts

The biggest machine in many furniture making workshops is a table saw or saw-bench comprising a flat, sturdy horizontal surface with a circular saw blade protruding vertically up through a slot. Wood is slid across the surface aided by various attachments to support it and guide its movement in a straight line.

There are many different types of table saw – some for specialist purposes, others for general use – as we will see here. First, though, we will look at the basic layout, then the operations of cross-cutting and ripping on a table saw.

Table saw layout

Looking at a medium-sized general-purpose table saw (Pic.1), we have a smooth, heavy cast table mounted on a steel box, which also functions as a dust collector connected to an extractor. The motor assembly, including a belt drive to the saw, height and angle adjuster, is hung from the underside of the table.

A sliding table to the left of the blade supports moderate-sized timber for cross-cutting while an adjustable fence on the right allows boards to be ripped along their length to a defined width. The motor starter and switchgear, including emergency stops, are mounted on the base.

Riving knife & guard

Immediately behind the saw blade is the riving knife or splitter. The main purpose of this steel fin, which rises and falls as you adjust the blade height, is to prevent kickbacks caused by tension trapped in the wood closing up on the back edge of the blade. The riving knife is designed to support the crown guard, which also acts



3 The blade height is adjusted slightly higher than the thickness of the wood, so the maximum number of teeth are in contact



4 Here I am rip-sawing down the centreline of a board



5 To change the blade, the rotating arbor is locked in place and the securing nut removed



6 Most blades nowadays are tungsten carbide tipped and have expansion gaps, curiously shaped to reduce noise



7 The whole rotating mechanism is mounted on a swivel bracket, allowing it to be tilted up to 45° for mitred cuts

as an upper dust collector, although some machines have a separate mounting for this.

Cross-cutting

When we cross-cut wood the teeth on the blade's edge sever through the wood fibres for the purpose of squaring up the ends of a board or cutting it to length (**Pic.2**). If the wood is long, it will need rigid support beyond the table alongside the blade.

To make the cut as clean as possible, the blade height is adjusted to just clear the top of the wood and this will also reduce to amount of breakout or 'spelching' on the underside of the board (**Pic.3**). To get a really clean underside to the cut, you need to place a thin sacrificial board underneath.

Rip sawing

Rip sawing or ripping is when the blade follows the grain of the wood because we want to create a straight edge or reduce the width of a board (**Pic.4**). Sometimes there is no straight edge to guide the saw, such as when ripping along a waney edged board, so we need to draw a straight line and manually guide this through the saw. When the board has a single straight edge,

a fence can be set parallel to the blade on the right-hand side of it to guide further rip cuts. It is important that the fence is kept short so it only reaches the centreline of the blade so that wood cannot be trapped between the fence and the rising back edge of the circular saw blade.

While the leading edge of the saw blade presses wood down against the table, the teeth at the back edge try to lift and push it towards the front of the table. The blade's teeth travel at around 50 metres per second (100 miles per hour) and they can launch jammed timber at the same speed! With kickbacks in mind, experienced users stand to one side of the blade, out of the path of potential missiles!

Circular blades

The blade is quite easily removed by lifting the throat plate around it, locking the spindle then undoing the nut that secures it (**Pic.5**). Check with the manual if this is left- or right-handed. Good blades are pricey but if well looked after they are worth paying for and will reward you with a long life of clean, straight, un-scorched cuts.

Ideally we would use blades with different

shaped and angled teeth for ripping and cross-cutting timber and different ones again for manufactured boards (**Pic.6**). However, most furniture makers use general-purpose blades unless a very long run of one type of cut is planned.

Angled cuts

The short spindle or arbor on which the blade is mounted can usually be tilted by up to 45° for making bevelled ends and edges (**Pic.7**). When combined with an angled cross-cut fence, the machine can be used as a compound mitre saw.

Table saw types

Small table saws are designed for standing on a bench or sometimes, when legs are fitted, they are sold as contractor's saws or site saws (**Pic.8**). While handy for construction work these generally do not have enough weight and rigidity for furniture making.

Fortunately, in between there is a whole range of sturdy floor-standing machines, often called cabinet saws, including some extendable and folding models (**Pics.9 & 10**). These may be fixed >



8 Small saws may come with table extensions either fitted or as optional extras to allow larger boards to be handled

in a small workshop or moved around for site work.

Large panel saws or dimension saws have a sliding table or carriage to the side of the blade and cross-cut into accurate lengths ready for planing, shaping and jointing (**Pic.11**).

Alternative machines

As well as the cost, table saws occupy a fair bit of floor space so not all furniture makers use one or even want one. For example, the bandsaw we looked at previously is so versatile it can do many of the same jobs as a small table saw although it has more limited cross-cutting length, is slower, and the blades need more changing.

The sliding mitre saw is excellent for cross-cutting smaller wood and, although arguably less precise than a good table saw, there are some versatile high performance models available (**Pic.12**).

Conclusions

A good table saw is a great help to the busy furniture maker and safe when used correctly. The hands-on aspects of safe machine work are best learned at a college while the specific safety requirements for machines should be stated in the user manual. The most important points are to fit the guards correctly, use push-sticks within 300mm of the blade, keep your head out of line with the blade and prevent situations where the wood can jam. Also watch out for trailing clothes or hair and isolate the electrical supply before making any adjustments. **GW**

NEXT MONTH

In *GW329*, John will look at what is involved when building different types of table



9 A folding stand allows this small cabinet saw to be carried in pieces by one person and taken in the boot of a car



10 When the folding saw is assembled it is to all intents and purposes the same as a rigid machine for light duty work



11 This seriously heavy-duty dimension saw is the size and weight of a small car while its swinging arm support helps me cross-cut a large piece of timber



12 An alternative to a saw bench is a high performance cross-cut sliding arm cross-cut saw

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Bleak House

The antidote to winter blues, says **Dave Roberts**, is a splash of natural colour and a pinch of frittery and indulgence

"I am always conscious," says John Jarndyce, the master of Bleak House, "of an uncomfortable sensation now and then when the wind is blowing in the east."

In these parts, an easterly is an uncommon wind, and probably a dry one; the winter's snows are carried on westerlies and sou' westerlies that come roiling over the mountains. The effect, however, is much the same: this is the time of year when bouts of bad weather bookended by long nights create a thirst for both natural colour and the colour of novelty. The first of these has been met by dipping into my old notes on home-made paints.

A draught of colour...

In *The Natural Paint Book*, Lynn Edwards and Julia Lawless claim that, in rediscovering natural paints and finishes, we begin to revive the associations – sometimes lost in our modern world, they suggest – between products and their source or properties. And surely no-one would argue with that who has encountered either the spicy exoticism of natural turpentine, or what I like to think of as 'time and tradition in a bottle' – the perfume of the pressed flax in linseed oil?

In *Dombey & Son* (GW322), Farrow & Ball's Gareth Hayfield explained the essential ingredients of paint – a pigment, a binder, and a solvent. When it comes to natural paints, the choice of pigments divides between the organic – the blue of the woad plant, say, or the carmine red of the cochineal insect – and the inorganic, which are usually mineral in origin, and offer a wide palette that ranges from the muted earths derived from iron oxide – umber, sienna, and ochre – to the vivid reds and blues of aluminium silicates, brilliant whites of titanium dioxide and zinc oxide, the green of chromium oxide, and manganese's violet.

As for binders – the medium in which the pigment is suspended – the natural choices vary from plant oils and resins to animal glues; milk's another binder, of course, and was the basis of the paint used by the Shakers on their furniture and interiors. Until the mid-20th century, however, linseed oil was the binder of choice in many paints, and it's making a comeback



today, too, of course. While drying times are slower than modern, synthetic paints, the arguments made for linseed paint are that this extra time allows the paint to penetrate the wood more deeply, and so form a strong bond; that it is flexible and therefore able to move with the wood; and that it remains slightly permeable, allowing the finished surface to breathe. The obvious natural solvent to pair with linseed is turpentine, the distillation of pine resin, which thins the oil to make it spreadable, and then evaporates, allowing it to dry.

Working with these ingredients, a paint's recipe can be varied to alter the finish or its performance: increasing the proportion of binder, for example, will give the dried surface a smoother and therefore glossier surface; adding an extender, such as whiting (calcium carbonate), meanwhile, will add opacity, and also lend it grain-filling properties. While achieving a satisfactory and consistent finish with a DIY paint calls for a methodical approach in its preparation, one of the appeals of natural paint is the scope for experimentation, and the very thing that manufactured products work hard to avoid – a degree of unpredictability. In the right situation, however, this quality might be the perfect complement to the natural properties of wood itself.

1 Picked to the bone by the wicked wind of the west, the queue of windows awaiting repair extends to the horizon



2 Neatly locked: the butterfly key is a strong but elegant jointing solution, used here to close and stabilise a split in a tabletop



3 Writ large: the decorative potential of the butterfly key has been used quite dramatically in this kitchen table...





... and a pinch of detail

When the wind is in the west, the sometimes laborious and repetitious tasks (**Pic.1**) around an old house can, as Jarndyce said of the Courts of Chancery, feel like, "being ground to bits in a slow mill; roasted at a slow fire... going mad by grains." Just as the wintry spells give way to sunshine, however, so these chores are balanced by the scope that that old house affords for novelty, for creative indulgences – though, admittedly, when these involve time-consuming detail, opinion seems divided over their value. In his book, *Walden*, Thoreau maintains that our lives are 'frittered away in detail', and exhorts us to "Simplify!" Well, I'm with him as far as believing in keeping sight of the big picture, but we must also leave time for the details that make a difference; the ones that, in my case, presently amuse and later remind me that I passed that way, and in the case of furniture makers, are the hallmark of their skill.

An example of this might be the butterfly key, which I think of as an elegant jointing solution: **Pic.2** shows one of a series of small oak keys that I let into the underside of a small tabletop to stabilise a split. Once made, fitting the keys was as simple as marking their positions, knifing the lines, and routing out the bulk of the waste before cleaning up with chisels. The keys were then glued into

place and, once dry, planed flush with the surface. In this case, the underside of the top wasn't finished in any way, so I didn't go overboard; a clean workmanlike job was what I was after. A maker, on the other hand, can build on the mechanical function of the butterfly key and transform it into something altogether more decorative: here, for instance (**Pics.3 & 4**), it has been used on a much grander tabletop, almost to emphasise the bookmatching of its strikingly figured oak halves. The pleasure of detail – and the calling-card of quality that it presents to the eye – also extends to the form and construction of the stretcher (**Pic.5**), and the contrasting wood of the wedges in the through-tenons (**Pic.6**).

Yes, indulging in a pinch of detail is necessary seasoning that makes plainer tasks more palatable, and therefore a necessary thing. After all, as Peter Quin, principal of the Furniture Craft School said of working wood: "You won't achieve anything by being half-hearted. If you get it right, however, it's a good [life]: in your own space, being creative, and working with a lovely medium." So when next there is a thin wind in the west, I'll be taking myself to the Growlery – as John Jarndyce would have called his workshop, if he'd had one rather than a study – and treat myself to a little frittering. Thoreau be blown!

6 The tenoned joint isn't any stronger for having contrasting wedges, but who can resist a little attention-to-me flourish when it's so neat?



4 ... in which the bookmatched halves of its oak top have been 'joined' with giant keys

5 Delight in detail: curved forms, through-tenons, contrasting dowels, and blended, chamfered edges – all because the maker could

NATURAL COLOUR

Here are four recipes that I tried in the past (all with useful results, though capable of being finessed), and which might add an extra measure of independence in the finishes that you apply to your work by complementing traditional oils, waxes and lacquers.

Casein & borax paint (covers 12sq.m)

- 150g casein
- 1l water cold water
- 250ml hot water
- 50g borax
- 500g whiting
- 150g pigment

A centuries-old recipe in which water is the solvent; the casein and borax create a thick binder, while the whiting and the pigment produce a relatively quick-drying paint with plenty of covering power.

To prepare, slake the whiting by adding water, leaving to 'fatten' overnight, and then draining any excess water. The pigment, meanwhile, should be mixed with water to the consistency of single cream and left overnight; if you find that it resists mixing with water, try adding a splash of gin or vodka.

Ideally, the borax and hot water are mixed in a bowl immersed in hot water. Once the borax has dissolved, allow the solution to cool while you mix the casein and cold water, then add the borax to the casein to produce something like wallpaper paste to which the whiting is added. Leave this binder to stand for 30 minutes, stir, and add the pigment; the paint can be thinned with water back to the consistency of single cream.

To test, allow a sample patch to dry and rub it with your finger. If it's powdery, add more casein and borax to bind the pigment together; if it's brittle and flaky, add more whiting or pigment to give the binder more body.

The high water content means that, before painting wooden surfaces, you should raise and then flatten the grain. Unlike a drying oil the casein-borax binder remains soluble, so though it gives a durable finish it isn't washable; however, you could protect the finish by sealing it with wax or oil



Transparent oil glaze (covers 2.5sq.m)

- 100ml boiled linseed oil
- 80ml turpentine
- 12 teaspoon pigment
- 1 tablespoon unfattened whiting

Not so much a paint as a pigmented oil, which will have its greatest effect on a timber's end-grain and in any flaws. The effect it creates

can be controlled by varying either the amount of pigment to alter the strength of colouring, or the quantity of whiting, which mutes the wood's natural colour. Useful if you want to enliven a plain-grained timber, or as an alternative to liming wax



NEXT MONTH

The door closes on work at The Old Vic' with
The Mystery of Edwin Drood, Dickens' unfinished last novel



Oil paint (covers 1.5-2sq.m)

When used as a primer:

- 100ml boiled linseed oil
- 100ml turpentine

When used as a top coat:

- 100ml boiled linseed oil
- 20g pigment
- 50ml turpentine



Add a little oil to the pigment to create a smooth paste, then add the rest of the oil followed by the turpentine. Brush on the primer and allow it to soak in for 10 minutes; wipe away any excess, and leave to dry overnight.

While hardwoods answer well to oil finishes, the resins in softwoods may interfere with the drying and therefore lead to tackiness; if in doubt, replace the oil primer with a foundation of sanding sealer. In all cases, applying too much oil will make the surface sticky, so apply this paint in thin coats, and allow each one to dry for a day or two before proceeding.

Can be used indoors and out on bare wood; exterior finishes need to be protected 'til thoroughly dry before being exposed to rain

Egg & oil paint (covers 1.5-2sq.m)

- 1 egg
- 80ml boiled linseed oil
- 80ml water
- 1 tablespoon pigment

In this paint, the solvent is water, with the egg acting as an emulsifier (to make the oil and water miscible) and a binder. You can use either the egg yolk (which makes for a richer, darker, glossier and more flexible finish); the whole egg (which produces a little less depth of colour); or the white alone to create a glair, though this can tend towards brittleness. Once mixed, a glair should be left overnight, and apparently improves with age. Mix the egg into the oil before adding the water; use a little of this mixture to make a paste of the pigment, and finally add in the rest of the egg, oil and water.

As with the oil paint above, this paint can be used on internal and external woodwork to give a washable finish **GW**





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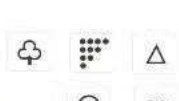
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SOLVING A STORAGE PROBLEM

Faced with an untidy downstairs area plagued by shoes, coats and all manner of cleaning equipment, Dave Long decides to take matters into his own hands as he designs and builds a bespoke storage solution to hide and house the offending items

A few years ago I revamped our kitchen, which included moving a wall and losing a hall cupboard. Ever since then I'd had on my 'list of jobs' (you know the one, the list that never ends) the intention of building some downstairs storage, both to hide the shoes and coats, but to also store the homeless items from the ex cupboard.

I noticed (probably due to me searching for solutions), that Facebook had started pushing sponsored adverts for modular storage, so I looked into that, but it didn't meet my requirements – by definition they

are modular but they required the 'small corner' under the stairs to be lower than mine. I was told to knock out the infill that the house came with, and each drawer is a fixed width, so in my case, with a need for a cupboard at least 550mm wide, that meant the remaining width was too short for three verticals of drawers and too wide for two and a door, which then meant two cupboard doors not one. That and a 'sale' quote of £999 led to the 'make not buy' decision being explored. The total cost of materials, including the specialist Conformat screws, drill bit and Salice high quality full extension push-to-open runners and hinges, came to almost exactly £300. The whole project took about three weekends' worth of work.

gap between everything on the front, as well as internal space in each drawer being 490mm wide × 295mm tall × 760mm deep – some of the drawers are angled to the left-hand side so the height is therefore much less. The other main design criteria was that the drawer runners needed to be high quality, full extension, push-to-open, under drawer mounted, as well as easy to fit, refit and adjust.

The depth under the stairs was 850mm, so after allowing for the skirting board the carcass depth was then set to 780mm. This also allowed the front of the drawers to be recessed slightly (20mm) under the stairs and adjusted so that the plinth line visually followed the line of the laminate flooring, which didn't quite follow the line of the stairs! The back of the carcass ended up being about 30mm clear of the back skirting board.

TIME TAKEN & COST

The project, from initial design to completion, took about three weeks, with most actual woodworking being completed over two weekends. The total cost came to exactly £300, which included:

- Timber – 3 sheets of 18mm MDF and 1 sheet of 6mm ply and ContiBoard – approximately £115
- Salice runners, hinges, mounting plates, catches, etc., which came to just under £150
- Conformat screws and drill bit – £24 (but I have plenty left as I bought 500 screws)
- Plinth legs and Euro screws – £10

Design/dimension constraints

The key dimensional criteria was simple: it had to have a cupboard wide enough (560mm) to store the coats, vacuum cleaners, carpet shampooer, etc. and drawers tall enough to hold the normal cleaning materials, as well as being as deep as possible. Visually the width of the drawer fronts needed to match the door, including gaps, and it also required a plinth (settled on 120mm high) to stop the lower drawers from trapping feet. To fit the space in my hall I needed the drawer fronts to be 547mm wide with a vertical height of 357mm for the lowest drawers and 351mm for the others; this gave a 3mm

Design & materials

As is my usual approach, I created a 3D design in SketchUp (Figs.1, 2 & 3), using separate layers for the main topics (frame, drawers, drawer fronts, runners and dimensions). I've uploaded the final design file to the SketchUp warehouse, details of which can be found at the end of the article. The SketchUp design shows the carcass and drawers 30mm deeper than I actually built (I'd forgotten to allow for the skirting board but only realised this when I laid components >



1 The storage problem



2 MDF and cutting plan



3 Cutting the angles

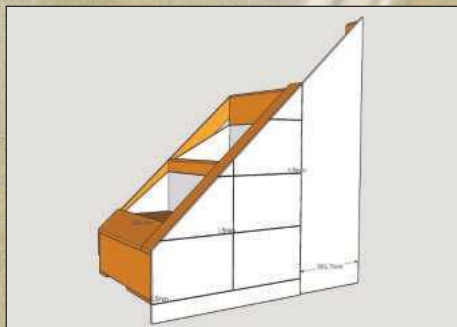


FIG 1. SketchUp diagram showing the drawer fronts and door

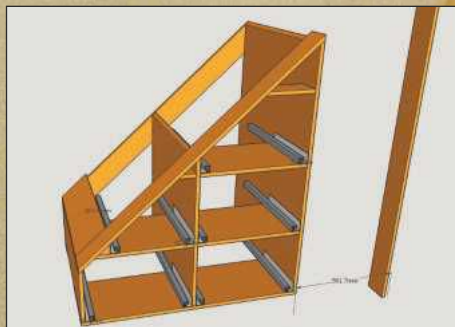


FIG 2. The SketchUp frame and runner

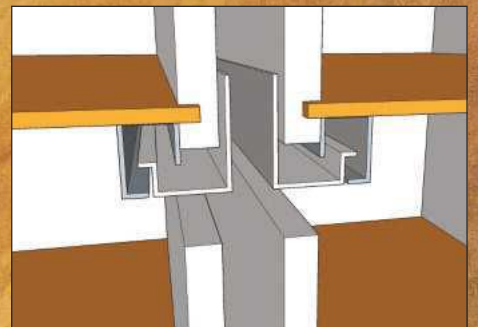


FIG 3. SketchUp drawer runner detail

in situ at the start of the build), but other than that, it is accurate.

With the design constraints sorted and the angle of the stair pitch confirmed at 42° (using a smartphone angle app), the SketchUp design only took me a couple of hours. Key to this stage was the selection and purchase of the drawer runners, as the 'space envelope' they needed had to be designed in. I didn't really need to, but I spent 10 minutes getting a reasonable representation (but accurate dimensions) of these in SketchUp. In order to save the cost of a third MDF board and to reduce the weight, the horizontal components of the carcass are only 340mm deep, as the fixed part of the drawer runners I selected are this length.

Each drawer front needed to overlap the carcass, but in order to keep the visual lines correct this meant that the measurement from base to drawer front edge was different for the bottom drawers, as they needed to cover 15mm of the 18mm frame, whereas the higher ones needed to cover just 6mm (the top of the lower drawer also covered 6mm, leaving a 3mm gap).

I chose Salice Futura A6557/60 600mm drawer runners with an integrated push-to-open mechanism. They fit to the underside of the drawer using A750 3D three-way front fixing clips. 600mm was the longest I could find, yet the drawers were going to be almost 800mm deep, so the base of the drawers needed to be adapted to accept the drawer fitting. The Salice runners with the 3D clip fitting and adjuster are hidden and give adjustments of approximately +/-2mm up/down, in/out and left/right. They make it very easy to fit and remove drawers, but are more expensive than side runners, at £23.81 per pair for the 600mm fully extending ones.

The hinges for the door are also from the Salice push-to-open range, with the door held shut by corresponding Salice magnet catches – a 2mm push releases the door.

The frame is made using 18mm MDF (Pic.2), which was cut by my local timber yard. I used the 'Optimik' sheet material program to get the best component layout on a sheet and the timber yard accepted this and cut the components (27 pieces for this project from four sheets) at no extra cost. The drawer frames were made using DIY store sourced white ContiBoard and a 6mm ply base.

Construction

Given that the timber yard had cut all the components to rectangular size, the construction mainly involved dowelling the MDF carcass (using a Joint Genie jig) and fixing it together with Conformat screws (the type used in IKEA flat pack furniture). I needed to build this in the garage then dismantle and rebuild it in the hall, as assembled, it wouldn't fit through the front door! Conformat screws are excellent for this type of project as they go back in tight after disassembling.

My first job was to cut the angles on the door and some of the drawer fronts (Pic.3), then apply the first coat of paint. I edged each piece with iron-on paper edging as I've found this quicker than trying to seal the edges of MDF, and it also takes paint well. The drawer fronts and door were painted with three coats during the rest of the construction.

Carcass

Carcass assembly is relatively straightforward. I didn't have a Domino jointer when I made this, but did have the excellent Joint Genie, so opted to use dowels (Pic.4). The Joint Genie is really accurate but it does require clear marking of components to ensure that the jig is referenced off the correct face – definitely a case of think twice, drill once – if only I'd followed that rule! The Joint Genie is centred on the MDF by use of shims, so when drilling into the face of a piece of MDF, it's important to make sure the same shims are used (Pics.5-7) when referencing against a straight edge.

Once all the carcass dowelling was completed it was then time for assembly. This is a big item so having a helper is a

good idea, especially for the first few pieces. I decided to use the Conformat drill to make the holes in the vertical components first, then assembled the horizontal components to it with the dowels. Once complete, I'd then drill through the hole and fixing with a Conformat screw (Pic.8). This was the first time I'd used them (other than when assembling flat pack furniture) and they are really solid and can be removed and refitted so they are tight.

If you don't have a Conformat drill bit (I bought mine on eBay), then the holes can be drilled using three different drill bits. Be aware that there are different widths of Conformat screws (e.g. 6.4mm and 7mm) so make sure that you have the correct drill bit. I used 6.4 x 50mm Conformat screws for this project.

With the carcass assembled (Pic.9), the fixed part of the drawer runners could then be fitted. The instructions require these to be recessed from the front edge by 2mm, so a simple jig with a plastic spacer was used. The runners (Pic.10) sit directly on the horizontal carcass components, so it was a case of using the 2mm spacer (from the front) and a hinge pilot drill followed by a 5mm



4 Joint Genie and Conformat drill



5 Edge dowelling



9 Carcass assembled



10 Runner detail



14 Drawer base with runner holes



15 Salice 3D adjuster

drill to take the Euro screws. The runners can be fitted with either Euro screws or 3.5mm countersunk screws, but for me, in MDF, the Euro screws are so much stronger. Where runners are either side of a vertical, one 5mm drill hole can be used for both runners with the Euro screws. One of the drawers (top left) has a left-hand side that goes to a point on the drawer face, so internally, this drawer is narrower due to the need to build up the vertical to take the runner (this is where SketchUp is useful as it flags this type of issue at the start).

Drawers

The drawer sides are made using 16mm white ContiBoard, which is grooved to take a 6mm ply base. The back and fronts are 18mm MDF, with the front also grooved for the base. We needed to maximise the storage space, so that meant the drawers had to be as deep as possible, with the drawer sides being 770mm long. The longest Salice full extension runners are designed for 600mm deep drawers and have a hook fitting into the back of the drawer (Pic.11). This meant that the drawer base needed to have a hole

each side for this hook (Pic.24). The spec stated 590mm and I knew that the base was recessed into the front by 8mm, so cut the holes at 598mm from the end of the ply base.

The Salice drawer runner instructions stated to leave at least 5mm from the top of the drawer and anything above it, which I had initially planned for in the SketchUp design. However, when I tried the first assembled drawer I couldn't lift the drawer up high enough to allow the runner's hook to slide underneath. I had to resize the sides and back so that there was 15mm clearance to the horizontal frame component; this then provided the space required for the hook to slide along the base until it found the hole.

As mentioned in the design section, the lower drawer fronts are 9mm longer below the base than those above, due to the need to overlap the frame by 15mm. This therefore meant that the fence for the grooves (for the base) needed to change – the lower drawer front is shown on the left in Pic.12.

The sides are dowelled to the front (Pic.13), so an offcut of ply was used to mark where the bottom of the side was on the drawer front, as this became the reference for the

Joint Genie. I must admit that this was quite an awkward process!

Once all the dowels were drilled, it was then a case of gluing, screwing, then fitting the Salice runner connectors to the underside. Salice do sell a jig (I now have one) but at the time I needed it they weren't immediately available, so I just did it by measurement. The runners just click into place and can be released using the orange lever without tools, or even looking underneath the drawer.

Final assembly in situ

With the carcass and drawers built and tested in the garage, it was time to remove the Conformat screws, take the components into the hall, and reassemble. This is when the plinth legs are fitted. When ordering these, you must ensure you buy a set that covers the height range you require (in my case I bought six that adjusted from 100-135mm, so plenty of range to get the plinth height of 120mm). Don't buy ones that are designed for a height of 150mm, and ensure to position the legs so that the plinth clips will work.

The frame was then stood up, put into position and the legs tightened so that



6 Shims to keep the same spacing



7 Face dowelling



8 Conformat screw in place



11 Fixing the hook at the back of the runner



12 Groove detail for the drawer base



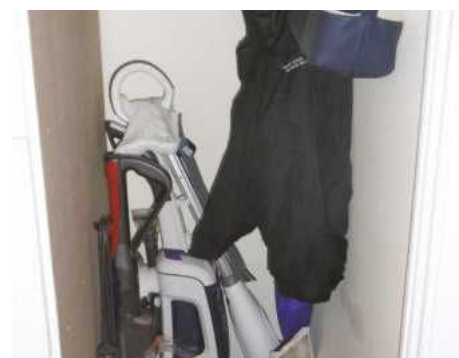
13 Marking the drawer front for the Joint Genie



16 The frame in situ with the plinth leg



17 Drawers fitted



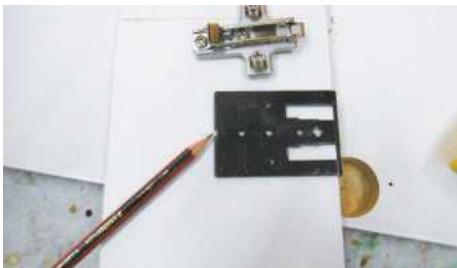
18 Cupboard storage



19 Marking the hinge positions



20 Not forgetting the floor clearance



21 The Blum hinge mounting plate template



22 The push-to-release catch



23 The door, once fitted

the frame was snug to the stairs and also perfectly level. Next, the diagonal MDF was fixed through into the underside of the stairs, before the drawers were fixed, and then fine adjusted (Pics.16 & 17). I then needed to measure and cut the various triangular filler pieces that were required, taking into account that the drawers at rest stick out 2-3mm from the frame (as that is the push space needed to open them). This means that the infills either need to be thicker than 18mm to align flush, or a packing wedge can be used when fitting them to the frame. The plinth was then clipped into place.

Cupboard door

The final job was to fix the cupboard door, in order to hide the coats and cleaners (Pic.18). I used 4 x Salice 110° full overlay push-to-open hinges, not because the door was heavy, but four hinges prevent MDF's tendency to bow when it is over 1,900mm tall. The blind holes for the hinges were drilled with centres recessed in 22.5mm, in order to give a door frame an overlay inset of 5mm – the various measurements for the different overlays are given in the detailed Salice technical documentation (see links at end of article). With the holes drilled, the centre positions were then transferred to the vertical post (Pic.18). The MDF was made double thickness with offcuts as the door needed

FURTHER INFO

To see the SketchUp model for the project, go to <https://3dwarehouse.sketchup.com> and search for 'Understairs Storage by David L'

Blum Hinge template:
<http://thewoodhaven2.co.uk/viewtopic.php?f=20&t=2214>

Salice runners technical specs:
www.salice.com/salice/file/public_admin/Futura_Ed06-04_2013_ENG.pdf

Salice hinges technical specs:
www.salice.com/salice/file/public_admin/catgen_cerniere_ed06_2012_eng-190.pdf



24 Detail trimmed to allow door to open

to clear the architrave of the living room door. The door also required floor clearance, so the vertical MDF is 6mm lower than the bottom of the door (Pic.19) when the positions are marked.

A simple Blum hinge mounting plate template (65.5300) (Pic.21) was used to drill the mount plate fittings – I've provided a link at the end of the article to a forum thread where I explain how to use it. The vertical was then fitted to the internal wall and the door hung.

The hinges I used were sprung open type, which are designed to work with the Salice push-to-open magnetic catches with pin. All that was required was one master catch (which has the push release) in a Salice holder (Pic.22) and a slave catch positioned lower down. The final task was to trim the very top point of the door so that it could swing open (Pic.23) – this was trimmed so that, when closed, the point was still there. All that was then left to do was to fill every available drawer!

Conclusion

This article, the SketchUp design and the photos show how I made the project, but if I were to do it again, I'd make the drawer boxes first then fit drawer fronts to them once installed. I chose to make the drawers complete with fronts, which made it more complex with the Joint Genie as the drawer front bottom is lower than the sides in order to hide the runners and overlap the carcass frame. Using a box design would have also allowed the drawer adjusters to be fitted with all settings at mid-point. **GW**



25 The completed cupboard looks neat and is very functional



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A master craftsman putting a fine finish on a Djembe drum

RHYTHMS OF LIFE

Barrie Scott visits the Brikama Craft Village in West Africa to find out more about how Djembe drums are traditionally made

“**P**lay Djembe in Africa and people will join you. It calls to people,” so said Saloum Jahadeh, drum maker of the Brikama Craft Village – its full address being: “Opposite the Goat Farm, Brikama, Gambia, West Africa.” More on the goat farm later! He went on to tell me you could play in a remote, deserted place and still drummers will appear as if by magic.

Most of us will have seen this distinctive African instrument here in Britain at music festivals or venues. It’s a stout, goblet-shaped, one-piece hollow log topped with leather, usually goat, often with the fur left on and the tuning controlled by an elaborate system of string or hide woven around the body.

Making Djembes

My first question, and what intrigued me, was how do they make the hole? We know how hard tropical timbers can be and that’s a big hole for any woodworker to mess with. Saloum told me he can produce 10-12 Djembes in a week; that’s a lot of timber to knock

out of the way! I have heard yarns of the use of controlled fire as with the dugout canoe or a trained squad of ants or termites as is, reputedly, used in the hollowing out of a didgeridoo. One intriguing tool that I was hoping to find example of was a piece of scaffold pole, around a metre long, with two intersecting cuts diametrically across the end for a couple or three inches to produce, in section, four quarter circles, each of which is sharpened to produce stout interior ground gouges. This beast is lifted and plunged into the end-grain, its weight providing force. A great idea but I’d rather see it than use it – sounds like it’s in the category of weighty tools once known as a ‘man killer.’ One local guy I chatted to confirmed that this technique is indeed used coupled with refinements made with chisels of bamboo; perfectly feasible, I thought, for splitting along the grain.

At Brikama, however, it is the adze. They come in all shapes and sizes. For hollowing out the Djembe there is a long-handled version with a long, narrow beak-like blade that is designed to get deep into the body of the log. The lad hollowing out the drum – the youngest of the crew he sat among – was probably some manner of apprentice, traditionally given the arduous repetitive jobs to harden muscle and develop skills before moving to the shaping, decorating and, most importantly, the development of tuning and tonal qualities of the instrument. His teenage demeanour suggested he would rather be playing football or the like but his concentration was deep, not least



The making of the hole, West Africa style



Blanks for the ‘Wolof’ drum



Vegans please look away! A handy nearby source of drum skins



A feature of the Djembe – the strings can be adjusted to obtain a suitable tuning

because of the African way of holding the workpiece with the feet as he swung a serious cutting tool towards them. There are around 40 very skilled craftsmen working at this village, maybe a third of them making drums – some alone, some in teams – with each man in a specific role. In every case, when I said I too work with wood it broke down many barriers, and I was touchingly bid welcome. To put it into perspective, however, even a non-affluent European carpenter can earn at least 30 times what a skilled artisan can earn in Africa. They were, nevertheless, more than happy to answer my questions and tell me about their work.

The timber used mostly for Djembes is called bush, or jungle mango – a non fruiting variety. One of the many forms of mahogany is also used. This style of drum I was told, without hesitation in Brikama, originated in Guinea Conakry, further south on the Atlantic coast. Many sources also claim it originated in Mali.

The Djembe is carved into two chambers: a rounded upper chamber called the ‘stomach’ and a horn-shaped base chamber to emit the sound. The interior of where the two sections meet should be just large enough to pass a closed fist through. A ‘rule of fist’ you might say. This is to allow sufficient bass response. The skilled maker will vary the proportions using acquired judgement to create the tone. It is done without measurement, with only hand, eye and experience dictating the quality of sound that will call fellow drummers to join in.

Around the work area were drum-skins in preparation, pegged out to dry in the sun. The goat farm across the road is situated conveniently – vegans look away at this point! I couldn’t help but darkly wonder if the bleat of the goat gives any clue to the tonal property of its skin! This speculation I wholly blame on a song written by a friend: bodhran player and songwriter Mark Stevenson. (The bodhran is the flat hand-drum often associated with Irish folk music.)

*The goat must have been a wonderful fellow
For the sounds of his skin they were marvellously mellow
I’m sure that if you left him alone
Well, the silly old bugger would have danced on his own*



A comprehensive set of adzes made from vehicle springs with handles of neem wood



The hefty hollowing-out adze



The adze plays a surprising amount of roles in carving

The ubiquitous adze

I borrow this title shamelessly from one-time colleague and Editor of the *Australian Woodworker*, Art Burrows, who has shared my fascination with vernacular carpentry. It can be found in cultures across the world in pre-industrial woodworking practice. It preceded the plane, the engineered chisel, gauge or the mortiser in our own craft history, even the saw – note the chap photographed in the blue shirt sitting among drum blanks, cross-cutting a log in preparation. The skilled adze hand can do the lot.

Nowadays the popular source for suitable steel for the blade is from the leaf springs recycled from vehicles. The handles are from the neem tree, cut to utilise the strong grain from the junction of narrow branches. Some will use a system of exchangeable blades for one handle, using a taper on the blade shaft so that the cutting action keeps the blade wedged in place; some will lash the blade in place with leather or cord.

It’s tough work: the bigger adzes are heavy and the constant impact is testing on both bone and sinew, but the slight dapple of the finish by a skilled craftsman adds a most attractive texture to the grain.

Also on display in the village was a fabulous selection of woodcarvings for sale. Many of even the finest cuts are still, impressively, made with the adze. The subjects are usually traditional: the hunter, the hard-working woman, the tribal elder, and the masks. The masks’ design is deeply involved in tribal ritual and religious practice. They are varied and highly expressive, some of the older examples on display approaching the awe inspiring, crafted to add atmosphere to the proceedings. The woodwork is coloured using powdered ink and coated with shoe polish – making use of what is available and affordable.

Woodcarvings are on display around the Gambian coastal tourist areas, adding local atmosphere to the hotels and bars, but after my trip to Brikama, I developed critical eye enough to note that the craft market offered a far higher standard of workmanship. So to anyone headed that way on a Gambian holiday, remember the goat farm – a local landmark before you arrive in Brikama town. **GW**



Real, traditional masks. Dramatic styles for

FACETED BURR ELM CABINET

This stunning Scottish burr elm cabinet, made by Simon Morris of Lufu Furniture, holds a secret...

Combining innovative design with fine craftsmanship, Simon Morris of Lufu Furniture creates unique hand-crafted furniture in a range of unusual and decorative sustainable hardwoods, working with clients to develop and refine their initial ideas in order to produce a special piece of furniture that will give them pleasure for years to come.

Simon also loves to experiment with occasional speculative and sometimes challenging pieces that offer immediate visual and tactile impact. A fascination with the beauty within the wood grain and the repetition of natural patterns has inspired his latest work: this exquisite Scottish burr elm cabinet, which holds a secret...

Practical as well as beautiful

A stunningly beautiful piece of furniture with 3D facets that reflect the light, it also has a practical purpose. "Created to hold important and private documents, the doors can only be opened by a special magnet embedded in a piece of matching wood and discreetly placed out of view," Simon tells us.

The entire cabinet is made from just two lengths of solid Scottish burr elm. The exterior frame is made from one length of wood, skilfully cut and mitred so that the sides and top seem to follow one fluid movement and the natural grain of the wood is enhanced.

The second length of timber was used to create the striking three-dimensional doors, reminiscent of ancient armour or studded chests. Using a tilted blade on a table saw, each individual face of the 3D shapes was cut before being assembled. The pattern of the doors was then balanced for texture, grain and colour. Finally, the cabinet was spray finished with a light-catching acrylic lacquer. **GW**



Timber used for the 3D facets



Scottish burr elm used in the construction of the 'Facets' cabinet



Skilful construction of the exterior frame enhances the flowing grain of the wood



The three-dimensional facets are matched to the frame, carefully balancing texture, grain and colour



The light-catching, acrylic spray finish adds an extra glow to the warm tones of the Scottish burr elm



LUFU FURNITURE

Lufu Furniture was created by Simon Morris, who graduated from Buckingham Chilterns University College in 2002, with a BA honours degree in Furniture Design and Craftsmanship. One of Somerset's most talented furniture makers, his workshop is based in the ancient city of Wells where innovative design is combined with fine craftsmanship to create unique hand-crafted furniture.

Simon and his team use traditional methods of construction together with modern manufacturing techniques to produce furniture that is both individual and distinctive. "We take pride in selecting and working with unusual and decorative sustainable hardwoods and our attention to detail is second to none," says Simon.

Their work includes the design, manufacture and installation of high quality custom-made furniture, as well as cabinetmaking and interior woodworking for private and commercial customers, whether it is a one-off individual piece or bespoke furniture for an entire room, including dressers and bookcases. To find out more, see www.lufufurniture.com



Simon Morris in his Somerset workshop

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Carsten has been working as a professional woodcarver for over 20 years

CARSTEN NILSSON

A true woodcarving artist

Carsten Nilsson is one of the few professional woodcarvers left in Sweden who is able to provide carpenters, designers, conservators and individuals with quality woodcarving. Every piece he makes is carved by hand in his workshop in Hammenhög, Sweden.

Since 1996, Carsten has worked full-time as a professional woodcarver. His work ranges from the restoration of precious 17th century pieces to modern furniture prototypes for well-known designers, but he is mostly famous for his unique design of mirrors, chandeliers and pepper mills.

To be able to create these unique handicrafts, sharp tools are essential. Carsten says: "When I carve a mirror frame, I use about 30 different carving gouges. To meet my own demands on quality woodcarving, I need tools with perfect edges. You can get sharp tools in many ways, but of all the whetstones and machines I have tried, nothing beats the Tormek for speed and result."

Carsten uses different grinding stones for different purposes so he can get his tools to exactly the right condition, enabling him to focus fully on his creative work.

"I use two Tormek machines: one with the original grindstone and the other with the Japanese waterstone, to get the extra finish on the tools. When I'm in my workshop, I want to concentrate on the woodcarving and my creation, not the tools. And when it's time, I can quickly sharpen a new edge, to achieve a perfect result."

Online following

In addition to having his work displayed in exhibitions around Sweden, Carsten is also very popular on Instagram, where he shares photos and videos of his creations. For example, you can see a fast motion video of how he makes a beautiful pepper mill from scratch, or photos from when he carves all the playing pieces of a Monopoly set from just a piece of wood.

If you want to learn more about Carsten, watch the video from Tormek's visit to his workshop, available at www.tormek.com. You can also see more of his work at www.carstennilsson.se, or on his Instagram page: [@woodcarver.carsten.nilsson](https://www.instagram.com/woodcarver.carsten.nilsson).



Carsten's workshop in Sweden



A hand-carved mirror frame



Carsten's popular pepper mills



"When I carve a mirror frame, I use about 30 different carving gouges"

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The properties of wood

This is another dusty old subject! The first thing to do is to try and identify what we are going to describe under the heading of 'properties'. Simplistically it could be how dense, hard, soft or light a particular timber is. It can cover the mineral contents found in some timbers and how that might be exploited and used or affect how that wood performs. The decorative properties of the material come into play as well. Does it have an attractive figure that, if cut in one or another way, will enhance the timber's value? When you start to try and isolate these properties, it is amazing how many actually occur or, shall we say, come out of the woodwork!

Weight

The first task is to decide on a base from which we can make a comparison. That, sensibly, has to be based on moisture content. The wetter the wood, the heavier it is. So for the purpose of this little exercise, we'll base our thoughts on wood that has a moisture content of around 12-15%. At that point, wood, generally, will have an average weight of about 40lb per cubic foot. That's about 18kg per cubic foot, 635kg per cubic

All species of wood are different, and we have to take this into consideration when working it. Here, Peter Bishop explores the properties that affect how we work with this wonderful material



> A pair of vintage lawn bowls in lignum vitae

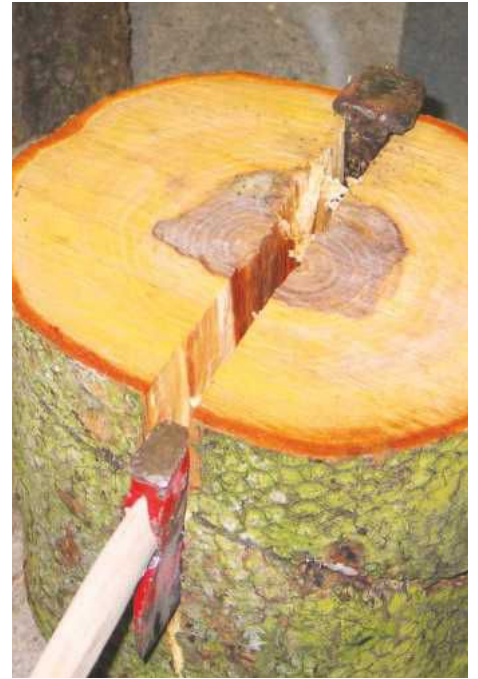
metre, or 1,412lb per cubic metre. Therefore a lightweight wood will be anything from the low to middle 20s, in pounds, per cubic foot, and the really heavy ones will be anything up to and over, say, 70 odd lbs per cubic foot.

Extremes of weight can be found in both hardwoods and softwoods. For example, balsa is defined as a hardwood. As we know, it's extremely soft but has an ability to be worked with sharp knives for modelling. At the other end we have things like ebony, a really dark, dense wood, and lignum vitae, which is one of the few woods that sinks in water! Don't be fooled by the phrasing of softwoods, either. These go from some of the hardest - pitch pine and yew - down through to the softest, which, for example, could be western red cedar. The key influence, apart from moisture affecting weight, is the particular specie, how its cellular structure is formed, growth cycles, climatic conditions, etc. All these will impact on how heavy we might think it is and, possibly, also influence its durability.

Durability

Durability is generally considered to be how long a particular type of wood will resist fungal attack. We might measure this by considering how long a fence post, for example, can perform its duties without breaking off at ground level. In this case, durability refers to how the wood will perform in conditions that might encourage it to be attacked by fungi that will eventually destroy the structure and integrity of the wood itself. Scientifically the durability of wood is measured by putting samples under conditions of duress and recording the time it takes for degradation to set in and the severity of this. This is called the 'graveyard' test. In these tests standard sample posts of wood of various species are placed in the ground and are monitored and measured over time to see how long they resist fungal attack and disintegration takes place.

A few timbers appear to have natural durability. Teak is traditionally used for ship's decking. There are two reasons



An example of clefting



A ship's teak deck



A few examples of woodworking dust masks and respirators



Hand cutting holes in oak with a mallet and mortise chisel



Finishing the edge of a 'rough-cut' chestnut bowl with a spokeshave



Beech blocks stuck together

for this, apart from its attractive features. The first is that it is considered to be a stable wood with little movement once worked. The second is its durability in relation to the use it's put to. Teak also has a natural oil content; if you've ever cut any you'll be aware of the 'musky' smell it gives off. Fencing stakes made from sweet chestnut are considered the best wood to use for this purpose even though they are fairly light. When the wood is 'cleft', cut from the round, that's splitting it to size rather than sawing it, it will last longer than, say, oak. The city of Venice is built on piles made from alder. This is a wood that normally is not considered to be very durable; however, when it's totally immersed in water, it can last for centuries! So be careful: when a particular description states that a timber is, say, heavy, it does not follow that it will be durable.

Workability

Natural inclusions within the cell structure of wood also impact on its workability. Sawing, planing, chiselling and turning qualities are all important to those who use wood regularly. The factors that will affect how each wood works will be variable. They include grain configuration, hardness, moisture content, how the wood has been dried, and any inclusion in the wood such as oils or minerals, knots, and so on. If the wood has, for example, been incorrectly dried, it may set up tensions that will cause distortion as it is sawn. This distortion may result in saws binding in a cut and, as a result, burning the wood and cutting inefficiently. In these cases, some action might be needed to increase the kerf - the width of cut. This enables more wood to be taken out during the cutting process, thus,

hopefully, relieving some of the pinching effect on the saw blade.

Generally speaking, when both hand and machine planing, the most efficient cutting angle is about 30°. At this angle most woods will produce a satisfactory finish providing there are no other elements, such as interlocking grain, involved. Softer, low density woods may benefit from some reduction in cutting angle to help avoid producing a woolly surface. The type of metal from which the saw or plane is made also has some bearing. HSS - high speed steel - cutting tools are more than sufficient for most woods; however, when, for example, there are minerals present in the wood structure blunting may be accelerated, and under these circumstances, regular sharpening is required. The alternative is to use a harder-wearing cutting edge: TCT - tungsten carbide tipped - is the most common solution. More expensive and less forgiving, it is quite brittle and chips easily; TCT will keep its edge for longer, but, in most cases, HSS is preferred over TCT as it produces a better finished surface.

Included in workability is the ability for wood to be stuck together. Apart from moisture content factors such as open grain, resin, chemical and mineral content will all have some impact on the gluing process. In addition, how much pressure is exerted during the process, and for how long until the glue has cured, will possibly determine how good a joint is. To ensure we can achieve the best adhesion the surfaces to be jointed should be clean, dry and as close a fit as possible. Teak is a prime example of how its properties can be both positive and negative. We know it's durable; the natural oils it contains make



Oak



Ash



Walnut

it so; however, these oils can also affect the performance of some adhesives. They can reduce the jointing ability by not allowing the glue to actually make contact with the wood surface itself. It's a good idea to try a couple of test pieces if you have any doubts that the wood to be jointed will fail when using a particular type of adhesive.

Now, one of the other key factors that can affect workability is dust. From some woods, as you work them, fine dust will be produced that can cause irritation of the eyes, nose and throat, plus the possibility of dermatitis and other skin infections, etc. Not everyone is affected by these dusts, but general care of your own health and safety should ensure proper preventative action is taken prior to placing yourself at risk. So, in other words, when you might generate dust always wear appropriate safety gear. Face masks and respirators, fine dust filters and

chip/sawdust extractors, are a must. Just take a look around the surfaces of your workshop after a sawing session and see how much of it has accumulated!

The decorative properties of wood

Wood is so tactile; we all love to touch and feel it. There's something primeval about this. It's probably the only resource that has been available to man since we first became established. We also like to look at it. In most cases, when a log is quarter cut the decorative properties of the timber are exposed. Prime examples of this are oak, with its flowered grain, and, say, sapele with its distinctive stripy grain.

All of us, with a little practise, will be able to identify quite a number of woods. Apart from the two above we might start to recognise the tiny medullary ray flecks

found in beech, or the grain patterns of ash and walnut. Rosewood's distinctive dark streaks, the jet black of ebony with its contrasting creamy sapwood, and so on. We make these wonderful patterns last longer by cutting them into thin veneers and applying these to a plainer base material.

Conclusion

So there you have it. A few of the properties of wood that affect how we can nail it, drill it, bend it, plane it, stick it, etc. But, most importantly, it's still wood; something we all love working with. **GW**

NEXT MONTH

In the next part of this series, Peter takes a look at timber's many strengths and uses



A mixed bag of woods

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A HOME FOR THE BEES



David Manger does his bit for the bees and shows you how to make your very own colourful insect hotel complete with nesting areas for this endangered species

Our native bees are extremely important pollinators and often forgotten about. Habitat loss and insecticide usage (including mosquito spraying) are particularly detrimental to these populations and they're disappearing fast.

Cut out the pesticides first, then boost your garden's productivity by providing a happy nesting site for solitary bees. Slightly smaller than honeybees, mason bees are peaceful and amazing pollinators visiting as many as 1,000 blooms per day. Females lay eggs in the hollow tubes and seal them up

with some mud. Other beneficial insects including wasps and leaf cutter bees may also take up residence.

Choose a sunny and permanent location by early spring and these bee houses can help extend their habitats. Other great ways to help our insect friends is to plant large blocks of flowers and choose native plants that have a succession of blooms through the seasons.

Cut the wood

For the two side walls, taking a piece of 19×140 mm pine, measure and mark 305mm and cut directly from your $19 \times 140 \times 2,438$ mm board with a mitre saw at 5° . The resulting piece should have a side that's 305mm and the other less than that (around 290mm – the 5° cut will determine that height). This angle gives just enough pitch to the roof to shed water (Pic.3).

Since you cut directly from the $19 \times 140 \times 2,438$ mm board, it too will have an edge that's already cut at 5° , so you can now adjust your saw for 90° cuts again. Measure 305mm from the tall edge and cut the second piece. You'll end up with both walls, which saves you from



an extra cut and wasting a bit of wood.

For the top, taking a piece of 19×140 mm pine, measure and cut a 150mm piece on the saw at 90° . Note: you could think about that 5° cut you did for the walls and cut this piece so it's flush with the walls. I used to do it but it's hardly noticeable and you'll save a bit of time with straight cuts.

For the back piece, on the $19 \times 90 \times 2,438$ mm board, measure 298mm and cut with the mitre at 90° . We want this piece to be a bit shorter than the tall end of the side walls to keep assembly easy. Note: if you try to get the back and roof to fit perfectly together, you'll need to consider that 5° cut you made earlier. If it's just a hair taller than the side walls, your roof won't fit flush or the floor won't. Both outcomes are bad and you probably won't realise this until your bee box is half assembled. The lesson here is to just cut it a little short and move on with your life.

For the bottom and shelves (three pieces), on the piece of 19×90 mm pine, measure



1 The various pieces marked up with dimensions – apologies for the imperial measurements!

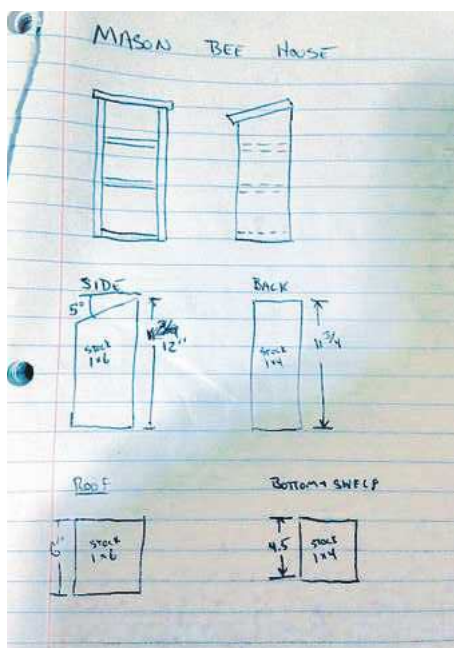
MATERIALS & EQUIPMENT REQUIRED

MATERIALS

- 1 piece of $1 \times 6 \times 8$ untreated pine (actual size: $19 \times 140 \times 2,438$ mm)
- 1 piece of $1 \times 4 \times 8$ untreated pine (actual size: $19 \times 90 \times 2,438$ mm)
- Wood filler
- Paint
- Objects with small holes in them, such as blocks of wood, pieces of bamboo for nesting tubes, pine straw, hay, etc.

TOOLS

- Tape measure
- Mitre saw
- Straightedge
- Finish nailer and 32mm nails – you could get by without the nail gun but it certainly makes things a lot faster
- Sander
- Putty knife



2 Initial sketches with dimensions



3 Showing the 5° slope for the roof



4 Construction is coming along nicely

114mm pieces and cut them at 90°. These three pieces are the same. Note: if you'll be making several bee hotels at once, it helps to make a reference mark directly on your mitre saw guide so you don't need to keep measuring.

Assembly

Now that your wood is cut, it's time to assemble it using a finish nailer, or a drill if you prefer. I use 16-gauge finish nails that are 32mm long. Before assembly, check your shelf pieces and sand smooth any rough edges on the one side that will be facing outwards. It's easiest to do this now since they'll be slightly inset after assembly. You might as well wait to do the rest of the sanding until later.

First, nail the back wall and the sides together, making sure the bottoms are flush (Pic.5). I stick three nails in each wall and they hold together just fine. If done correctly, the top of your back wall should be just a little lower than the side walls.

Next, nail the bottom shelf flush with the other pieces (Pic.6). I stick two nails through each of the side walls and one through the back. Make a pencil mark on the front edge of the box, and draw lines that are 100mm and 203mm from the bottom of the box. The tops of the shelves should line up with these. Push the shelves into place, making sure the lines match up and the box compartments look like they're in square. After the box portion is complete, take some pieces of 38 x 90mm pine and drill a series of holes in them – they should fit in the top section if you've measured correctly.



7 The shelves are then nailed in to place



5 The first step is to nail the back wall and side pieces together

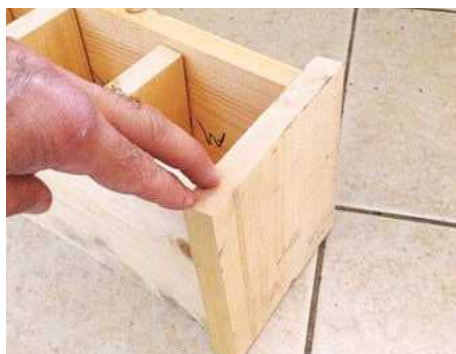
If you plan for a different fill arrangement, go wild with your shelf spacing. You can then nail the shelves into place through the walls (Pic.7), using two nails per side. Tip: if you're making several bee hotels at once, it helps to make pencil markings where the 100mm and 203mm lines are on one of your extra back walls. This way, you can hold it up to the front of the box and quickly see where all four marks go on your project.

With the box flat on its back, place the top in the correct location and by eye, move it so it's equally overhanging the left- and right-hand side of the box (Pic.8). Due to the 5° cut made earlier, this piece won't sit flush with the table you're assembling it on, but that's just fine. Nail into the wall pieces, using four finish nails.

Fill nail holes & sand smooth

Fill the brad holes with sandable wood filler (Pic.9). If it's water-based, I like to thin my filler just a little with some water to make spreading and filling in the holes a lot faster. Leave it to dry and then sand smooth along with any other rough edges that are visible on the box.

Because of the slight differences in the stock wood and also your cutting skills, some of the shelves may not sit exactly flush with the box and some gaps may appear. If they're minor, the paint job and inner components will make it hardly noticeable, but if you're really not a fan of gaps, then go ahead and get a tube of painter's caulk and go wild. Don't forget to smooth it out with a wet rag and some water because once it dries, there's no changing it.



8 With the box flat on its back, place the top in the correct location



6 Nail the bottom shelf flush with the other pieces

Paint the bee hotel

After your box is smooth and sanded, it's time to paint – colour choice is up to you. Because we've untreated wood (as bees don't need to be around chemicals), I like to use the best quality exterior paint (Pic.10). A small tin will paint many, many houses and the two coats it takes for the paint job to look professional are all you need (no primer required).

When painting, you don't need to go any further than 25mm or so inside the box. The bamboo and other box innards will block the paint job, but feel free to do a more thorough job if you so desire.

Drill a hanging hole

Because we were careful and made the bottom all flush, you can stick your mason bee hotel on a table top, but it's also really nice to have the option of hanging it up. Drill a hole (big enough to accommodate a nail) directly through the back about 25mm below the top. The guts of your box will obscure the hole you just drilled in your back wall. In Pic.11 you can also see the purposeful gap I left in the back piece of my box.

Fill the box

Mason bees are small cavity nesting bees. They'll find pre-existing holes to lay eggs in so really anything that's breathable with varying hole diameters of 8mm or less works perfectly. Any bigger and the bees won't use the holes.

As you vary your hole sizes in a decreasing diameter, you start catering to a different species of native bees. This is a great thing to do. Bamboo is a good option because there



9 The carpenter's wood filler used to fill the brad holes



10 Paint the box using a good quality exterior paint, in whichever colour you choose



11 The hanging hole in place and the purposeful gap left in the back piece of the box



12 The box once filled with blocks of drilled wood, pine straw, bamboo and hay

are lots of different diameters already without requiring much drilling on your part.

It's important to have your cavities as deep as possible, too, and your box depth should be around 114mm. The reason for this is because bees lay multiple eggs in each tube. The depth of the tube determines how many eggs will be laid and also what sex they'll be (based on their position in the tube – males are closer to the front). I like to use 38 x 90mm chunks cut at 114mm and then drilled with lots of holes. For drilling the holes, an auger bit is far better than a spade bit, Forstner bit, or standard drill bit, in terms of staying sharp and for ease of drilling.

I put the top shelf at a height to cater

for two pieces of 38 x 90mm stacked on top of each other. If you go down this route, keep in mind that the pieces will probably just barely not fit between the walls. I usually need to plane them down so they fit perfectly.

Finally, I also like to add wood chunks, pine straw, or hay to one of the compartments. This isn't an area for the solitary bees to nest in but can provide a safe space for lots of other beneficial critters to crawl into. There's lots of other options to fill it in, so be creative.

Hang it

When you're ready to hang the box, choose a spot that gets some nice morning sun. When the native bees start to nest, they'll overnight

in their unfinished tubes and the warm sun in the morning gets their day started earlier.

Depending on where you are in the world, native bee species have life cycles that work with the seasons. Sometimes adults are active and other times the species will only exist in egg form. Moving your boxes after you start to see activity will confuse the mother bees, so don't do it.

Finally, since we're catering to native bees and not stocking these houses, sometimes it takes a while for them to find your new house. Sometimes, the populations are so decimated you won't see any... As long as you have one hung up, though, if a bee happens along and finds it, she's in business. **GW**



13 A number of completed bee hotels, all ready to hang up

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Kathy and the wonderful small cabinet she completed on the course

Flying the flag for young furniture-making talent

Since being crowned Britain's 'most deserving young woodworker' by David Savage in 2016, we learn how Katherine McConnell's furniture-making career is going from strength to strength

Cast your minds back to April 2016 and you may well remember us finally crowning the very deserving winner of the long running competition we held in conjunction with David Savage, which offered a young woodworker the opportunity to not only get their hands on an amazing Anarchist's tool chest made by Chris Schwarz, filled with all manner of exquisite hand tools, but also a week-long course at Rowden – with a total value of £3,000, this was certainly not a prize to be sniffed at.

I recall speaking to David and him telling me just how difficult it was to choose a winner from the vast number of entries he received, but he finally settled on the person who really stood out, who would go on to become Britain's 'most deserving young woodworker'. The winner, of course, was Katherine McConnell, who at just 24-years-old had already been working as a carpenter's apprentice for the last two years, honing her skills and techniques, as well as working on her own personal projects in her spare time. In fact, after she had finished the week-long course, David was so sure he had spotted something special in Kathy that he appealed to readers to help him fund sponsorship for her to undertake a further three months at Rowden. His aim was for Kathy to build on the great fundamental skills she already possessed, as well as those she had learned while on the course, which would help her to take her career to the next level. What an honour!

Eager to see just what the course entailed and what she picked up during the process, as well as how this has shaped her career as a result, I caught up with Kathy to learn more. Luckily she happens to live in the same town as me, so this seemed like the perfect opportunity to catch up over a coffee and a slice of cake.

An overwhelming achievement

So, how did it feel to be awarded the prestigious title of Britain's 'most deserving young woodworker?' As I said to Kathy, if I had been in her shoes I think I would have felt a little overwhelmed, and what a torch to carry, but luckily the prize had been presented to a young person with a remarkably strong head on their shoulders, as I came to discover: "I felt extremely humbled and was blown away by the generosity and kindness David and the tutors showed me,"

says Kathy. "I was so lucky to be offered the opportunity to train at Rowden so was determined to make the most of my three months there." Learning of her enthusiasm and commitment, Kathy tells me that she saved up to buy a small van, which she could park on-site and sleep in while she was down in Devon. Of course, she also took the opportunity to pack a few of her favourite tools as well. While I applaud Kathy's ingenuity, I can't claim that I would have been happy to give up my creature comforts for three months (luckily she attended the course during the summer), but I think this really goes to show how passionate she was about jumping into the experience and really giving it her all.

So, did she expect to win and how did she react? Kathy explains that initially she was invited for a week-long course as part of the competition, and was so excited to just be there that she didn't expect anything more than that: "It wasn't announced until the final day that I'd been given the chance to come back for three months as well as winning the tool chest, so I was completely overwhelmed by it all!"



David Savage shakes Kathy's hand...

Receiving recognition

So how has life changed for Kathy since being awarded this wonderful accolade? "It's definitely helped me on a personal level," she confirms, "giving me a confidence boost – it's always nice to receive recognition! I gained invaluable skills and am in such a better position now career-wise." Kathy also tells me that she's recently been lucky enough to start working for an award-winning cabinetmaker in Ditching, East Sussex, which wouldn't have happened had she not been given the opportunity to train at Rowden under David's tutelage. I'm sure David feels extremely pleased to learn this, as he was originally worried that the winner would simply put the tool chest and its contents on eBay, but as Kathy says, there's no chance of that as to win such an amazing prize is worth more than any amount of money.

Interested to hear just what was covered during the three month period, I asked Kathy about the skills she developed as well as the lessons learnt. Commenting that above all, the main thing she achieved was getting her standards to a much higher level, she recognises that this is a key part of learning to be a craftsperson: "A huge amount of attention to detail and accuracy goes into the projects on the course and this is something I definitely took away with me. I'm now far more meticulous with my work, and I'm still always looking for ways in which to improve."

Kathy explains that during the first few weeks, she worked on lots of small projects, which were designed to teach the students various basic skills, such as how to make different joints, sharpen tools and generally become far better and more comfortable using hand tools. "After this, I was set a project by David to design and build a small cabinet, which covered a big chunk of my time there," she tells me. "From having never attempted a dovetail joint to making three dovetailed piston-fit drawers in a matter of weeks was a big leap for me!" As she says, this just goes to show what can be achieved with the support and encouragement of such talented and patient tutors.

Since then, Kathy has finished one of her first commissions,

a console table in English walnut, which gave her the opportunity to put her training at Rowden to good use.

Artistic background

Back when Kathy won the competition, I discovered that her background was in illustration, and she undertook a three year degree in the subject at the University of Brighton back in 2011. Realising she wanted to pursue a career in woodworking, her life went on to take a very different turn, although obviously some of the skills learnt do happen to be transferable – I'm sure her scale drawings are a thing to behold! Kathy explains that in the back of her mind she always wanted to do something practical, but it seemed the norm to go to college and then university to follow the academic path: "I recall my GCSE woodwork tutor joking that I shouldn't plan for a career in woodwork! Once I'd completed the university course I was at a bit of a loss as to what to do, and I got experience volunteering a couple of days a week doing furniture restoration alongside a carpentry and joinery course at college. I then got a job in a workshop, which involved a combination of making fitted furniture and site work, and it was there I realised that I really enjoyed cabinetmaking and the finer aspects of carpentry."

In terms of how her apprenticeship developed her skills, Kathy says that it was crucial: "I learnt so much from different areas of the trade; something I couldn't have gained from a college course. No day would be the same and it certainly wasn't boring!" Kathy tells me that she would be fitting skirting boards one day and restoring a church entablature the next: "I definitely owe my old boss a lot for taking me on; he gave me a great opportunity and if it wasn't for him, I wouldn't be where I am now."

No doubt the Anarchist's tool chest, which was lovingly made by hand tool aficionado Chris Schwarz, will definitely come in useful for her upcoming commissions, so how is Kathy hoping to use these? "It's a fantastic array of tools," she says, "and I'm incredibly grateful to have them. I put them to good use on the course and beyond, and



... and hands over the Anarchist's tool chest, filled with all manner of top quality hand tools – all ready to use



The beginnings of Kathy's first project at Rowden



Checking for square

have always made sure to look after them – something I was really shown the value of at Rowden.” As Kathy recognises, financially it would have taken her a very long time to collect all the tools she won, so it really was a massive stepping stone in helping her to carry on down the path she has chosen.

Design & influences

Wanting to find out a little more about Kathy’s influences and what drives her to do what she does, I ask about any specific periods in furniture history that interest her, and she says that although it’s still early on in her career, the simplicity of Shaker style furniture is something she really admires and she hopes to be able to apply this to her work. “I also love Danish mid-century furniture, which focuses on clean, pure lines and employs classical craftsmanship.” From looking at some of the recent pieces she’s completed, these styles are certainly evident as having influenced her, while displaying an added twist, and in which sense they really captivate this young woodworker’s unique personality.

Choosing to use sycamore as much as she can as it’s a “beautiful, creamy timber and easy to work with, although possibly one of the least forgiving,” Kathy says that she’s currently developing a piece using olive ash, which she really likes, and she tells me she’d love to get her hands on some rippled maple. She also takes the view that as a craftsperson, it’s your responsibility to do justice to the wood you are using, both in terms of design and how the piece is executed. “I love going to small independent specialists when buying timber; it enables you to not only pick your wood and get the details you’re looking for, but also to learn the back story of the material you’re buying,” she says.

Wanting to find out more about how she goes about making a piece, I ask Kathy if the design stages are particularly easy for her given her background in illustration? Kathy says that during the course, David taught her that when designing a piece, never to go straight to paper; instead, let your subconscious mull it over for a couple of weeks before sketching it out. “This is something that’s worked for me and which I have continued to do,” she says. “Once I have a general idea of a piece it’s important to choose the right material for the purpose; a piece of handmade furniture should last generations, so designing and making with the future in mind is key.”

And as for trying out new techniques and production methods, Kathy says that something she recently tried was scorching oak, which gives the wood a stained appearance and makes it far more durable and lasting. “I would love to make a Windsor chair as a future project and try steam-bending for the chair back.”

In the workshop

Asking about Kathy’s workshop and the equipment in it, she says that the bandsaw is an invaluable tool for her, although she can’t deny loving her nail gun, which in her words “sadly doesn’t have much use in the cabinetmaking world!” If she could only invest in one piece of kit, she says that the bandsaw would definitely be top of her list as it’s the most vital and there is so much you can do with it.

So how does David’s workshop compare to the one she’s used to working in? “It was a lot tidier! The workshop that I worked in before going to Rowden was very different. We did a lot of site work as well as smaller projects, so it was always a bit manic between just the two of us.” Kathy says that at Rowden, everything is far more standardised and organised, with the luxury of having a separate machine room: “It was a beautiful work space and I felt privileged to be there.”

Regularly switching between both hand tool and power woodworking, Kathy explains that each is equally important to their specific jobs. However, if time allowed, then her preference would be working with hand tools: “I think you get more pride from a piece knowing you’ve made it without a machine; even little things like chamfering an edge or using a scratchstock to run a detail along a drawer liner. Plus, you have more control – far less can go wrong with a slip of a plane than with a slip of a router!”



Craftsman and tutor Jon Greenwood demonstrates how to correctly and safely use hand tools



> Kathy's console table in English walnut



Sycamore cabinet made on the course at Rowden, featuring three slim drawers with hand turned pulls



Inside the cabinet: shelf dividers and contrasting cedar drawer bottoms

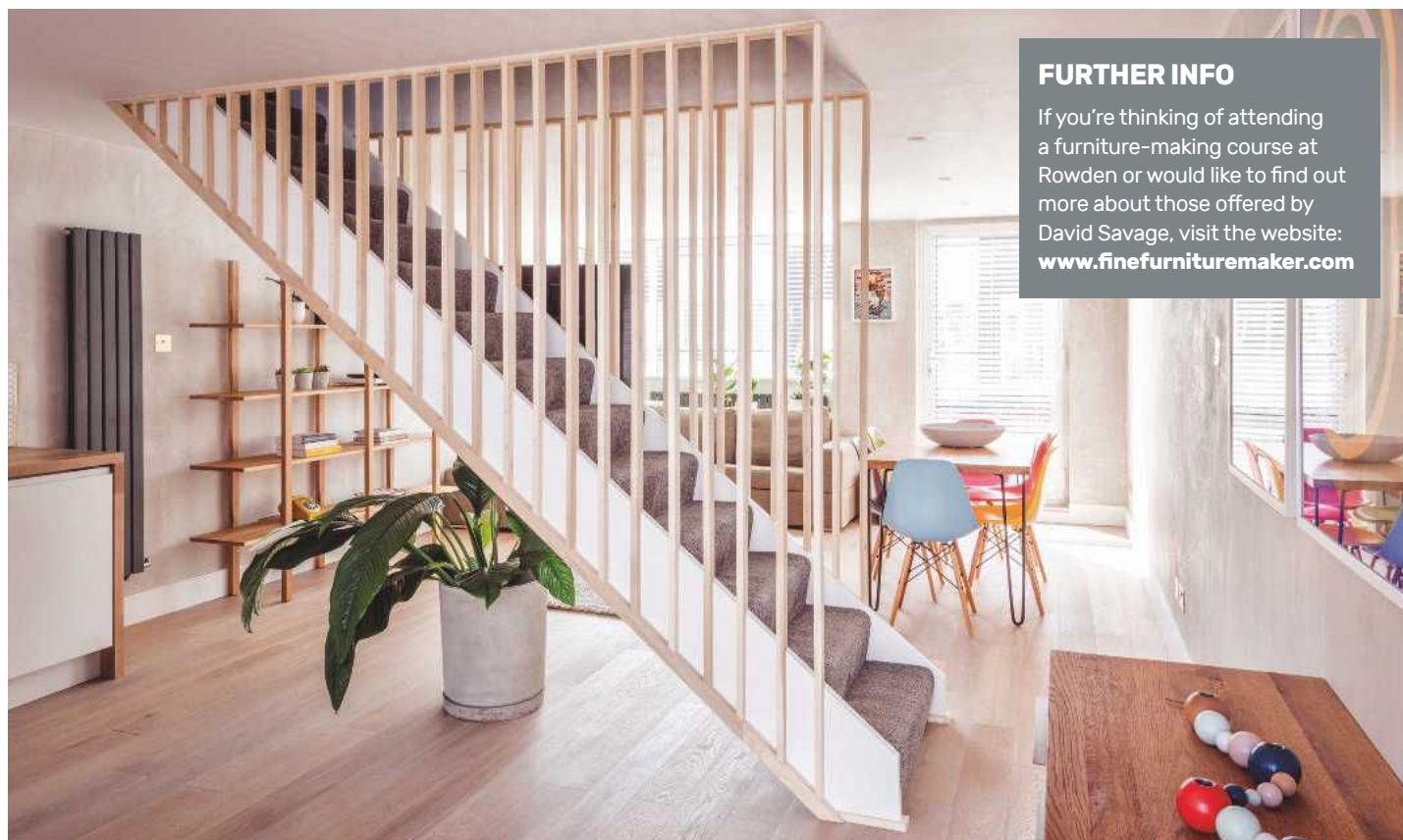
What's next?

Looking towards the future, Kathy reiterates just how important the three months she spent with David were: “Before this I took a few years learning the trade, both in college and being an apprentice, and I feel this was the next stepping stone in leading me into a furniture making career.” As she said before, since the course finished Kathy has been lucky enough to have been taken on by a very prestigious cabinetmaker who lives nearby, who is helping her to further develop her career in fine furniture, and since writing this article, she tells me she’s just about to begin working as a joiner for a local bespoke kitchen company in addition to continuing her apprenticeship. Since she left the local restaurant she was working at in her spare time to make ends meet, she has also completed a few of her own carpentry jobs, including renovating a flat and fitting out a coffee shop in Brighton’s well-known North Laine area.

In terms of the advice she’d give to any women looking to start a career in this trade, Kathy says that although it’s a male-dominated

industry, in her experience, there are so many people who want to see women like herself succeed. “For girls thinking of starting out, my advice would be to not get put off by the potentially intimidating environment of courses/workshops. Often you’ll be the only female in the class, but at the beginning you’re all at the same level. Be realistic about your journey; you’ll start at the bottom just like everyone else and it will be hard work. Find someone whose pieces you admire and ask to work for them, even if it’s only one day a week or for free. Always ask questions, show passion and dedication, but above all, work hard.”

From meeting Kathy and learning more about her, it’s no surprise that she was not only awarded the prize, but also given the chance to stay on and further hone her skills. It’s not often that someone as passionate and dedicated as Kathy discovers furniture making and leaves such a mark, so thanks must be extended to David for giving her the opportunity and allowing her to enrich this great industry we all love as much as she already has. **GW**



FURTHER INFO

If you’re thinking of attending a furniture-making course at Rowden or would like to find out more about those offered by David Savage, visit the website: www.finefurnituremaker.com

Modern vertical timber slats frame the staircase on a recent carpentry job in Brighton

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MAKE SOME NOISE!

George Carlson makes this wonderful Aztec drum for his grandson, which is a simple box construction with a few added elements

This is an interesting project that is easy to build, yet looks complicated. It is basically a sealed wooden box with tongues cut in the top and a sound hole cut in the front. When struck, the tongues vibrate and make a pleasing note. It is believed the origin of this device is the ceremonial drums built by the Aztecs. They cut tongues in the side of hollowed out logs.

Build a box

The drum can be built in about any size, but this is mostly driven by the timber you have on hand. This drum was 165mm wide × about 171mm tall × 356mm long (Pic.1). It was made from river birch that was acquired from a local sawmill. The board I used was rather thick, about 22mm. If I made this project again, I think I would plane it to about 16mm or so. One of the reasons for using the heavy wood was that I was building this for my Grandson.

The project can be built using any joinery

you are comfortable with. I made mine using box joints. The box can be made from any kind of wood, but the top should be hardwood for better sound. Cut the top and bottom a little long. If the box is not exactly square, you need the extra length. You will be able to sand this off later.

The drumsticks are made using small bouncing balls, drilled and glued to hardwood dowels. In Pic.2 you can see the box sides cut and test fitted, waiting for glue.

Make the sound hole

I cut the sound hole a bit smaller than the bouncing balls I used on the drumsticks (32mm) (Pic.3). This was to prevent my Grandson from losing these inside the drum. The next step is to round over the edges of the hole with a router (Pic.4).

Side glue-up & tongue layout

The blue tape is not required, but it does help prevent glue from getting in places you don't want it (Pic.6). Glue stains can

make finishing difficult. When you've finished putting on all the clamps, the assembly should look like a porcupine (Pic.7).

Next, using your best drafting skills and a bit of imagination, lay out the tongues on the top piece (Pic.8). I stepped away from



1 The various lengths of timber needed to make the box



2 The box sides cut and test fitted, waiting for glue to be applied



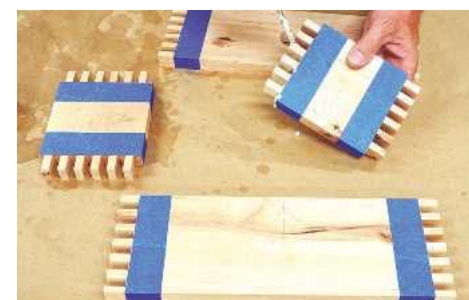
3 Cut the sound hole a bit smaller than the bouncing balls used on the drumsticks (32mm)



4 Rounding over the edges of the hole with a router



5 Ready to glue up the box sides



6 The blue tape helps prevent glue from getting in places you don't want it





FURTHER INFO

This project was made at The MakerBarn, a non-profit makerspace in Magnolia, Texas. To find out more, see www.themakernbarn.org

the edge enough to prevent the tongues from touching the side, then I drew a line across the centre. The next step is to decide on a usable offset, in this case 12mm. I drew a line 12mm to the left of centre for the top pair of tongues, and another line 25mm to the right of centre for the centre tongues; the last line I made was 38mm to the left of centre – this was for the bottom pair of tongues. This is what I chose, but your design might be totally different, and there's nothing wrong with that. I made no attempt whatsoever to tune the tongues; that would be way out of my level of skill, but that's not to say it can't and shouldn't be done! Information on tuning these instruments can be found online.

The tongues can be square on the ends, but I used a template to mark them

out with rounded ends. I've seen drums with various unusual shapes, but I like to keep things simple.

Drill holes for the tongues

You need to drill holes through the top where each tongue starts (**Pic.9**); this makes it easier to begin the cuts and also helps lessen the likelihood of cracks forming. I used a 10mm Forstner bit for this task.

Cut out the tongues & clean up

In this case, cutting out the tongues will allow the drum to speak. Use a sabre saw or a scrollsaw to cut these (**Pic.10**), but take your time, as this part is a bit tricky.

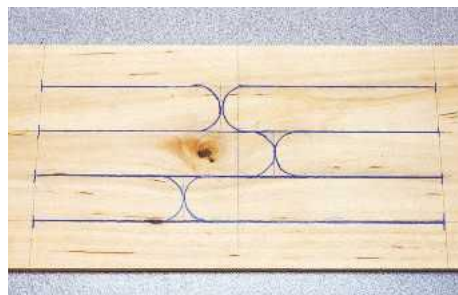
For cleaning up the tongues, using some 25mm wide cloth sanding strips, or a strip of paper-backed abrasive, clean up the saw



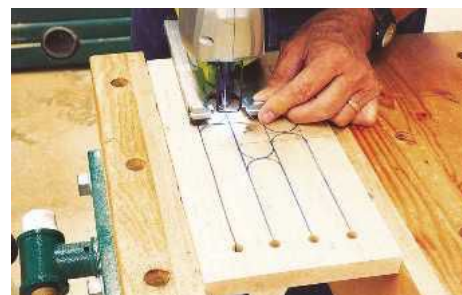
9 Drilling the holes through the top, where each tongue starts



7 When you've finished adding all the clamps, the assembly should look like a porcupine



8 The layout I chose for the tongues



10 Use a sabre saw or a scrollsaw to cut out the tongues, but take your time as this is tricky



11 Using some 25mm wide cloth sanding strips, or a strip of paper-backed abrasive, clean up the saw marks and round over edges



12 Before gluing on the bottom, be sure to sign and date it on the inside



13 Make sure the glued surfaces are free of any gaps...



14 ... then spread glue on the top and bottom of the sides before clamping the top and bottom panels in place



15 Use a router table to radius the edges



16 Finish sand the box using a powered sander

marks and round over the edges a little (**Pic.11**). If you had a tough time cutting the tongues, this is your chance to clean them up.

Glue the top & bottom

Before gluing on the bottom, be sure to sign and date it on the inside (**Pic.12**). There's no telling, but you may become the 'Stradivarius' of Aztec drum makers.

Make sure the glued surfaces are free of any gaps (**Pic.13**), then spread glue on the top and bottom of the sides before clamping the top and bottom panels in place (**Pic.14**). Let the glue dry thoroughly before sanding everything flush.

Round over edges & finish sand

The router table is a good method to use for radiusing the edges (**Pic.15**). It makes

for an effective finish, and rounded edges are safer for children. Finish sand to whatever level you desire (**Pic.16**).

Stain & finish

Finish the drum as you would any project. I didn't stain mine; I just gave it a few coats of brush-on lacquer (**Pic.17**). I wet sanded with 400 grit abrasives between coats. Lacquer is a good choice for items used by children and it has the benefit of drying quickly. Oil finishes have dryers, which can be toxic, so they should be avoided if the project is destined for use by youngsters.

Install some feet

It's a good idea to install some rubber feet to keep the drum from sliding around and/or damaging the surface the project is set on (such as mum's new coffee table).

Time to start your recital

Pic.19 shows the finished drum. It's important to note that the dimensions can be adapted to whatever you want. These drums make great gifts and craft fair items – let's see what you come up with. **GW**



17 Finishing the drum using a brush-on lacquer



18 installing some rubber feet will stop the drum from sliding around and/or damaging the surface it is placed on



19 The completed Aztec drum

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AROUND THE HOUSE WITH PHIL DAVY



Are you ever overwhelmed by the amount of woodworking information out there? Before the days of the internet most woodworkers sourced material largely by reading magazines and books, or perhaps went on a short course. Next, instructional VHS videos were the next best thing to having a teacher alongside you at the bench. Quality improved when DVDs came along, but it was really YouTube that enabled anyone to access specific demos and techniques for using hand tools, machinery, project builds and so on. But it's so easy to get side-tracked. Key in a subject on YouTube and you'll probably get a raft of other topics which are equally fascinating. Before you know it, half an hour has slipped by due to watching other stuff...

USEFUL KIT/PRODUCT: TREND STEALTH HALF MASK

Over recent years there have been a surprising number of face mask designs on the market. Some have stayed the course while others have disappeared. The Stealth is the latest half mask from Trend and should appeal to woodworking fans of *Star Wars*!

The rubber inner mask incorporates a pair of replaceable filters, plus a downward-facing non-return valve. A rigid plastic outer protective grill clips onto the mask and includes a durable, elasticated fabric strap to secure the unit to your head and neck. The fully adjustable strap passes around your head twice, with plastic links at the back. I found them a bit awkward to snap together, though this just means getting used to the technique.

Filters

The Stealth comes with two P3 HEPAC (High Efficiency Particulate Air Composite) pleated paper filters, though carbon filters are also available for working with nuisance fumes and odours. These cost £13.14 per pair, while standard P3 filters are £11.10 per pair. Simple to change, they're held in place by a flexible rubber lip and slot into their compartments. Between them most very fine particles (down to 0.3 microns) will be filtered out, so the Stealth can be used in a variety of work situations across a wide range of materials.



The Stealth half mask in use

Conclusion

Two mask sizes are available, though there's not much guidance here. I found the medium/large fitted my head nicely, though I'm not sure what that says about me! The smaller version is recommended for female wearers.

Trend claim the Stealth has the lowest breathing resistance of any mask available. It's certainly pretty comfortable and can be worn fairly easily with glasses or eye protection. So, an excellent mask that's far more efficient than disposable types and doesn't cost a fortune. And you even get a resealable plastic bag to hide the Stealth away...



SPECIFICATION:

- ▶ **Weight:** 131g
- ▶ **Respiratory protection:** BS EN143 P3R
- ▶ **Assigned protection factor:** APF20
- ▶ **Conforms to half mask standard:** BS EN 140
- ▶ **Supplied with:** 1 × pair of P3 filters & 1 × storage bag
- ▶ **Typical price:** £26.34
- ▶ **Web:** www.trend-uk.com

THE GW VERDICT

- ▶ **PROS:**
Excellent face seal; easy to fit; carbon filters available; comes with storage bag
- ▶ **CONS:**
Not so good for beards; check your head size
- ▶ **RATING:** 4.5 out of 5



The rubber inner mask incorporates a pair of replaceable filters, plus a downward-facing non-return valve



A rigid plastic outer protective grill clips onto the mask

WINTER PROJECT: SIDE GATE

TAKES: A weekend

TOOLS NEEDED: Circular saw, planer/thicknesser, mortiser, sliding mitre saw, jigsaw, drill, router, sander

WALK ON THROUGH

Phil Davy's sturdy side gate is made using softwood and features heavy hardware

Making a side gate is generally a straightforward project, particularly when replacing an existing one. Unless purely ornamental, it needs to be sturdy and high enough to deter unwanted visitors from climbing over the top and gaining access to the rear of the property. If installing a gate from scratch, you'll probably need to fit a post on one side of the opening for attaching hinges. This can be a length of 100 x 100mm PAR softwood, either bolted to a wall or set into concrete, although it may be easier to use a Metpost driven into the ground.

When measuring up an existing gate and opening, check the condition of timbers and replace where necessary. Don't forget to take into account post dimensions across the overall width. Drawing a setting-out rod is always recommended for joinery items. This will ensure you don't cut rails too short and you can determine exact positioning of mortise & tenon joints.

Timber dimensions

If you have access to a planer/thicknesser it's far better to machine timber for a project like this as you'll have much greater control. Although it's feasible to buy PAR softwood for the stiles and top rail this may not be dead square or could be slightly bowed. Check face sides and edges and plane true and square if necessary. If you don't, you'll have problems gluing up once the joints have been cut. You'll need to reduce the braces, mid and bottom rails to thickness anyway.

When marking out timber it's easier to establish the back of the gate as the face side, as rail and stile surfaces are flush (unlike the front). Both mid and bottom rails are thinner to accommodate tongue & groove boards (matchboard) and are fitted to the



stiles with bare-faced tenons.

Mortise positions are determined by matchboard thickness, so buy this material first before marking and cutting any joints. Where there's a choice of thickness opt for heavier matchboard, finishing at about 15mm thick. Mortises are usually one-third of the timber thickness, though in reality either a 13mm or 16mm wide chisel will be fine for this. Tenons should be wedged for strength.

Stiles and top rail are made from 95 x 44mm softwood, while mid and bottom rails finish at 105 x 29mm. Both diagonal braces finish at 95 x 29mm. The top edges of all horizontal rails should be bevelled slightly so that rainwater will not accumulate. Plane these rails to around 5° or alternatively round

the edges. Both stiles extend past the top rail by 65mm.

Heavy hardware

A gate of this size is considerably heavy even in softwood, so it's important to fit sturdy hinges. Hook and band hinges are designed for this job and come in straight or cranked versions, depending on whether the post on the hinged side is flush with the back of the gate – if so, use cranked hinges. Available in several sizes, these should extend across half the gate width at least. Lockable pad bolts should ideally be fitted at the top and bottom, though at the request of the elderly customer, I fitted one to the mid rail for convenience. Finally, a gate latch should be fitted.



1 After ripping, plane timber to its finished width and thickness, making sure you mark all face sides and edges



2 Cramp both stiles together and mark out joint positions for the rails. Repeat for the rails, working from the face side



3 Set the mortise gauge to chisel width and mark out the joints on both stiles. Mark out matching tenons on all rails



4 Adjust your mortiser to suit the joints and cut just over halfway from either side. Alternatively, chop these with a registered mortise chisel



5 Check the blade depth and cut the tenon shoulders with a sliding mitre saw. Alternatively, cut these with a handsaw



6 Clean up the tenon cheeks with a shoulder plane or wide chisel, making sure these are completely flat



7 Check each tenon slides into its mortise snugly. If not, continue trimming them with the shoulder plane



8 Measure up 65mm from the top rail and draw around a suitable container to create a pleasing curve on each stile



9 Carefully cut around the radius using a jigsaw fitted with a narrow blade. Keep on the outside of the pencil line



10 Clean up the shaped end of each stile with a sanding drum mounted in a drill stand. Check both stiles match



11 Plane a bevel along the top edge of each horizontal rail to shed rain water. This angle should be about 5°



12 Both outer T&G boards are rebated to slide in grooves on each stile. Form these grooves with a router and straight bit



13 Assemble the gate dry to check everything fits correctly, then apply glue to joints with a suitable exterior adhesive



14 Check for square as you cramp the gate together, ideally measuring across the diagonals. Hammer wedges into each tenon



15 Use heavy-duty sash cramps when gluing up, making sure that the work surface is flat to avoid the gate twisting



16 Once the glue has dried, saw the excess material from tenons and wedges, leaving the surface slightly proud



17 Trim the tenons flush with a bench plane. Check both stiles with a long straightedge and true up if necessary



18 Saw the T&G matchboarding oversize. They will be cut again once the boards have been nailed to the gate



19 Fit offcuts together loosely and measure their overall width. Both outer boards will probably need to be ripped to size



20 Rout rebates along the outside edges of both outer boards to match the grooves in the stiles. These should not be too tight



21 The underside of the top rail is also grooved to accept the matchboard. Rout rebates along the top edge of each board



22 Before nailing the boards to the gate, paint all tongues and grooves with a couple of coats of your chosen finish



23 Rout a matching chamfer along the inner edges of the stiles and top rail. Both outer boards will also need chamfering



24 Making sure the gate is cramped securely, clean up both faces with a long bench plane, checking for true with a straightedge



25 Slide the boards into place and mark rail positions for nailing. Fix with lost head nails, punching these below the surface



26 Lay each brace across the door and mark where these meet the stiles and rails. Check that braces slope the correct way



27 Mark both braces with a sliding bevel and cut to length. Saw slightly oversize so you can trim them to fit



28 Use a block plane to trim the braces where necessary and check the ends are square. You will need to notch out the bevelled rails



29 Mark out both brace positions across the matchboard. Nail through the boards into the braces and punch below the surface



30 Fill all nail holes and any timber defects. Sand the door on both sides before routing a small chamfer along the rails and braces



31 Position hinges on the top and bottom rails and mark out. Drill and screw to the gate with 5.0mm screws



32 Each hinge has an M10 stainless steel coach bolt through the stile for extra support. Drill fixing holes and tighten in place



33 Wedge the gate in the opening and mark the position of the pins on the post. Drill and fix in place with 5.0mm screws



34 Hold the latch in place and mark the screw centres. Drill and screw this to the gate, then fix the keep to the post



35 Remove all hardware from the gate and brush on two or three coats of a suitable exterior finish, such as Sadolin Classic



36 Refit all hardware and hang the gate in the opening. Add one or two pad bolts to the rails for security



LETTERS & MAKERS

LETTER OF THE MONTH

TABLE SAW RECOMMENDATIONS

Hi GW,

Unfortunately, my Rexon BST10A table saw has recently died on me. The armature has several open circuit sectors, so it generates a lot of sparks, then trips the mains cut out. It doesn't appear that Rexon carries spares for this saw, so I was wondering:

1. Do you know of anyone who rewinds armatures?
2. Would a motor from a Draper/Jet/etc. fit? They all look very similar even to this day, so I suspect that they may use a common motor?
3. As regards a replacement machine, could you recommend one?
4. Apart from Axminster (a bit pricey for my budget), does anyone else supply a machine with a brushless/induction motor? Also, are they considerably quieter and are they as good as the brushed motor domestic 1ph/230V version?

Best regards, **Bernard J Greatrix**

Hi Bernard, Rexon is certainly a blast from the past; I haven't heard or seen anything of them for quite a few years, and as far as I can see from their official website (which hasn't been updated since 2011), they only have Rexon spares as a representative in the UK. It's a bit thin on the ground as far as product info is concerned.

It could be they have gone over to manufacturing generic machines for other companies to re-badge rather than sell as Rexon in the UK – Draper, for example, as you noted – but I can't be sure of this. Jet is a company in its own right, so I would say they wouldn't be using Rexon as a manufacturer, although both are Taiwanese companies.

They could be using a standard motor, however, as manufacturers don't usually make their own; rather they buy them in. That means a direct motor replacement from one of these may well be a direct fit but it is a trip into the unknown, unless there is a rating plate and other information available on the Rexon motor that could be used to check specifications against any potential replacement.

Armature rewinding is not an area I'm familiar with, but I would guess the work involved would probably be costly and outweigh the effort as the saw is old and could fail elsewhere at some stage.

Replacement recommendations

A replacement machine recommendation is equally as tricky! The older brush-types have become long in the tooth as workshop machines due to the induction types becoming a lot cheaper. They are still out there but normally in the site saw type models, or the very cheap entry level table saw style. Against the induction offerings, they are chalk and cheese in terms of accuracy and cleanness of cut, etc.

There are more expensive brushed versions available from the likes of DeWalt, Bosch, etc. and these can be as accurate as the induction types and have refined soft start heavy-duty motors to contend with the trade environment, along with accurate fences and adjustments. These are built for portability and site work as well as in the workshop, and cost around the same as an entry level induction version.

The favourite in the induction type is based on the old Kity 419, and it would be here that I would make my recommendation.

RECORD POWER COMPETITION

Congratulations to Arthur Iveson from Leyburn, North Yorkshire, who was recently announced as the winner of our Record Power PT260 planer/thicknesser competition. Worth £649.99, we hope that this great piece of kit will be a worthwhile addition to Arthur's workshop and we look forward to seeing what projects he makes using it



A Rexon table saw that is similar to Bernard's now defunct machine



On a 1ph 240V supply they are fine, and very much quieter; they purr along in comparison to the crashing noise of a brushed motor.

On the ones I've looked at, the motors put in a great performance. My own Kity has an 8in blade and 1,100W motor and works well if it is treated with respect, but can struggle if the feed speed is too quick on thicker stock. The Axminster and Charnwood versions of the Kity appear to put in good work under heavier loads, and are also superior to my Kity in terms of adjustments with their cast-iron tables (Kity used case hardened aluminium on their tables). Charnwood have an 8in blade W619 model, and a 10in blade W629 option are both sold as full kits with sliding carriage and side table. Axminster have similar with the 8in TS200-2 and 10in TS250-2, but here you're given the option of buying the saw as a standalone unit, and adding the carriage, side table, etc. if your budget or needs are a factor.

Alternatively, Scheppach (who bought Kity a few years ago) have introduced their own version of the 419 under the Scheppach brand – the Precisa TS82. This is the 8in version but, again, the Kity style in a specced up offering. Any of these would be on my list as the place to be for a well made, accurate and quiet saw for cabinetry-type work especially. I would certainly err towards the brushless Kity style saws for accuracy and quiet operation.

I haven't looked at any brushed motor types at the cheaper end of the market for a very long time, so I can't recommend anything there, but the step up to the more expensive DeWalt, Bosch and other similar ones designed for portability while still gaining good accuracy, are well worth a look if these factors are important, but for shop work only, it's the Kity design options all the way for me. The Kity styles also have full cabinet bases – my 419 complete package came with a simple bolt together leg frame and cost about £100 more in 2002 than the price the full package option on the 8in saws are selling for now! Hope this is of some help!

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ONE TO WATCH: CHARLIE THE MAKER



Son of woodturning YouTube star Nick Zammeti, 12-year-old Charlie started making things from wood when he was just 11. Nick tells us that Charlie was inspired to start woodworking and woodturning after

attending the AAW's 30th Annual International Symposium in 2016, which was held in Atlanta, Georgia. He loves to make things whenever he can find the time, but he understands that school work and exams are a priority. Whenever there's a spare five minutes, however, he'll head down to the shed and get making.

Charlie likes to come up with small projects that can be easily accomplished by anyone at home, and his aim is to inspire more youngsters to get into making.

YouTube projects

Like Nick, Charlie also has his own YouTube channel with over 1,500 subscribers – not bad for an amateur woodworker! Popular videos include the making of a turned pen using a multi-coloured blank, as well as his clever dice pendants, which are cast in resin. Some of the other videos available include the making of a small clock, ideas for using up scrap bits of wood, and a draughts board.

A growing community

Charlie really is a very engaging young man who certainly knows his stuff. It's fantastic to see young people such as him enjoying woodworking and most importantly, appealing to similar young makers and inspiring them to have a go themselves. It seems that YouTube really is the place to go if you want to be put in touch with makers who are uploading regular videos. There really is a growing community out there, and it shows no sign of stopping any time soon. Charlie will be demonstrating at the Makers Central event in May; to view his YouTube channel, visit www.youtube.com and search for 'Charlie the Maker', and you can also follow him on Instagram: @charlie_the_maker



Charlie with his decorated wooden photo frame, which uses coloured matchsticks



Draughts board with pieces



A simple clock in walnut



Bottle opener turned from a laminated blank



A small resin table

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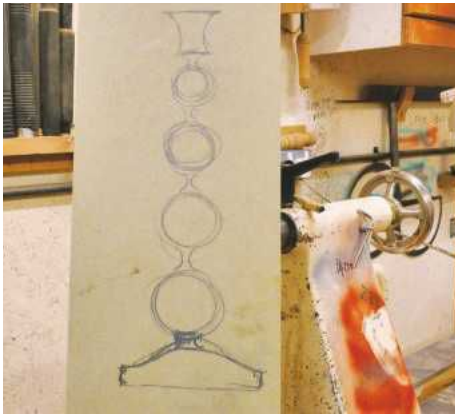


Chase the RAINBOW

Les Thorne's lamp base, which is turned in ash then sprayed using various coloured spirit stains, is sure to brighten up any room

I do a lot of work for lighting companies, making components such as wooden bases and tops for mixed media lamp bases, and this design is one that I have seen in glass with stainless steel inserts, so I thought I'd try it in wood. While making this lamp base I kept coming up with different options for the finished piece, such as plain wood, or texturing the balls, but I finally settled on the bright spirit stained balls with black inserts. Some of the comments about the design have been positive, although someone did say it looked like it had come from an Early Learning Centre shop! Ideally it would need to fit in with a certain kind of décor, and I think that the type of shade used could make or break the design.

When making lamps commercially, I used to drill the centre hole with a gun drill as I found the commercially available augers were not really that quick and effective, that is until I discovered the Evolution series from Axminster Tools & Machinery, and this is the system I used when making this project. The auger is a joy to use and drills easily through even the hardest of timbers. **GW**



1 You can see that I failed technical drawing at school. I drew a rough sketch of the design I had in mind; this was more to achieve the correct proportions rather than producing a working drawing



2 I chose to use ash for the lamp base as it's a timber that gives you options when it comes to texturing and staining. The downside is that the open-grained nature of the timber can cause the colours to bleed into each other



3 To drill through the tailstock you need a hollow live centre like this one from Axminster. As my big lathe is a No.3 Morse taper, I use a converter with the end cut off to convert from a No.2 Morse taper to a 3



4 Mount the stem in between centres with a normal drive in the headstock. The holes in the live centre will allow the shavings to exit; this stops the drill binding up in the tailstock



5 This is the business end of the drill, which is designed to drill quickly and cleanly. The drill is high speed steel, 8mm in diameter and manufactured by Fisch so should last a long time if looked after properly



6 I found the best speed to be around 600rpm, but this would be timber dependant. The drill will feed itself in with very little effort, but remember to keep removing the bit to clear any build-up of shavings



7 Keep drilling until you are just over halfway through. If you find the drill starting to bind or get hot, use a little food-safe oil as lubrication or you could rub a candle on the end



8 When you turn the work around to drill in from the other end, use a counterbore drive – a normal centre will not work as you have a hole in it. Keep drilling until the hole is all the way through



9 With the piece still between centres you are ready to turn the stem of the lamp. Clean up the top of the lamp with a slicing cut using a skew chisel. The point of the live centre fits in the hole, allowing good support for the end of the piece



10 Cleaning across the end exposed a crack in the top. The best way to repair this is with thin CA adhesive. You can see how capillary action has made the glue travel all the way through the split, thus fixing it



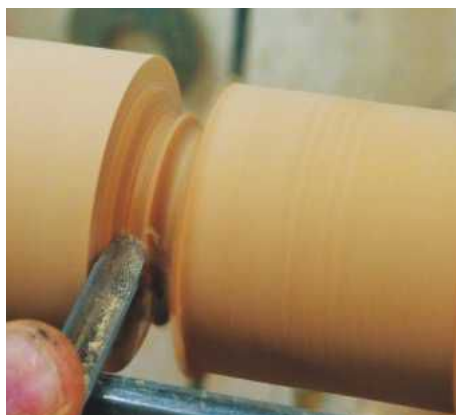
11 The spigot to go into the base needs to be accurate, so here I measured the drill that I would use for the base with a pair of Vernier callipers. The cut is made with the 10mm skew until the callipers just fall over the spigot



12 All the relevant details need to be marked along the shaft as reference points for turning – as this was the prototype, I just adjusted the design as I went along



13 The 10mm skew is the best tool for cutting away the bulk of the waste. The best way to use this tool is to keep the handle down and lift it into the cut; this ensures it is cutting rather than scraping the timber away



14 Once all the fillets are cut down to size you need to turn the coves in between them. The 10mm signature gouge is perfect for this as its short bevel will easily support the cutting edge



15 After all the fillets and coves are turned you need to sand them to a finish. Before you go any further use sanding sealer – nowadays I prefer to use the acrylic spray type as opposed to the cellulose-based ones



16 I chose to spray the fillets black with ebonising lacquer but I could have painted them by hand. The black can bleed into the end-grain of the ash, but I hoped that it wouldn't cause too much of a problem



17 Now it's time to refine the shape. The 13mm signature gouge with its short bevel is the best tool to use for turning the tulip shape on the top. You need to carefully work up against the black fillet in order to get a crisp edge between the two



18 I used the 10mm round skew to cut the large beads as I experienced less vibration doing it with this tool as opposed to the spindle gouge. The finish left from the tool is superb and requires little sanding



19 When it does come to sanding you have to be very careful not to touch the black. I find sanding in this position to be the most effective as I can perfectly see where I have been and, more importantly, where I'm going



20 This worked pretty well and I was reasonably happy with the transition from black to natural wood. If I wanted this to be absolutely perfect, I would have opted for a denser timber, such as maple



21 With the stem finished, mount the base on a screw chuck and true up with the gouge. Work the tool from right to left so if the timber breaks out at the end of the cut, it will be removed in the shaping process



22 When using a recess to hold the work, it's important that it is cut accurately. The diameter required is transferred onto the base with a set of dividers



23 I made the recess about 3mm deep; this is so that once the lamp was wired up, I could fill in the hole with a piece of hardboard of the correct diameter before applying baize to the bottom of the lamp



24 When making a two-piece project such as this, the 'marriage' between stem and base is very important. The size of the bottom fillet is measured with the Vernier callipers – be careful not to damage the painted surface



25 When marking out something like this, only use the left-hand point of the callipers to make a mark; this needs to line up with the right-hand point; if you allow the right-hand point to touch they can fly back at you



26 With a drill mounted in the tailstock you can drill the base for the stem. If you're careful you should be able to go all the way through without hitting the chuck. The hole needs to go all the way through to allow the flex to pass out sideways



27 Even though this base is like a bowl, I used the 13mm spindle gouge to do the shaping. Working from the small to the large diameter means I am working with the grain and will achieve the best finish



28 The spindle gouge will allow you to do the fine detailing on the edge of the base, and a bead top and bottom will set the shape off perfectly. Remember to cut with the grain: this is often in a different direction than it would be on spindle work



29 To get into any really tight spots, I used a Craft Supplies 9-in-1 tool. Although no longer commercially available, I am not sure it ever did nine things well, but it does make nice narrow grooves



30 You need a cross hole in the base to allow the flex to come out of the side. This is relatively easy to do if you are careful with the drill. A 7mm diameter hole is perfect for most sizes of flex



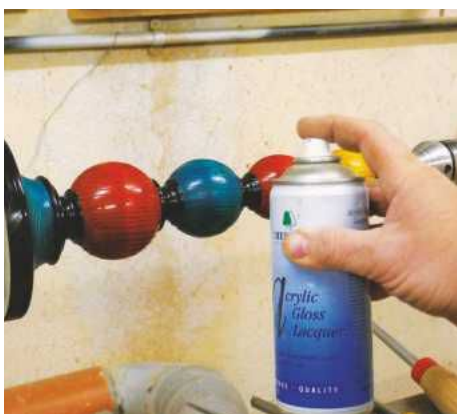
31 After spraying the base with ebonising lacquer, remove the waste wood to leave the bottom and top beads black, then you just need to sand the natural wood to a fine finish



32 I think the lamp looks pretty good with the contrast between the black and the natural wood, and leaving it like this would probably make the item more commercially viable than the coloured version I'm making here



33 A good quality stain needs to be carefully brushed on. In hindsight, I might have had more control if I'd used the airbrush to apply the stain. I wasn't sure which beads should be which colour, but I think I got it about right



34 I feel that a project like this needs to have a gloss finish, so I gave the lamp about five coats of acrylic gloss lacquer with a light cut back between each application until I'd achieved a wet look finish



35 It's important to get all your lamps tested by an electrician so they are safe for use. I get each one PAT tested and they are wired according to the current regulations



36 The completed multicoloured lamp base should look something like this

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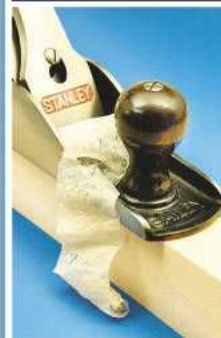
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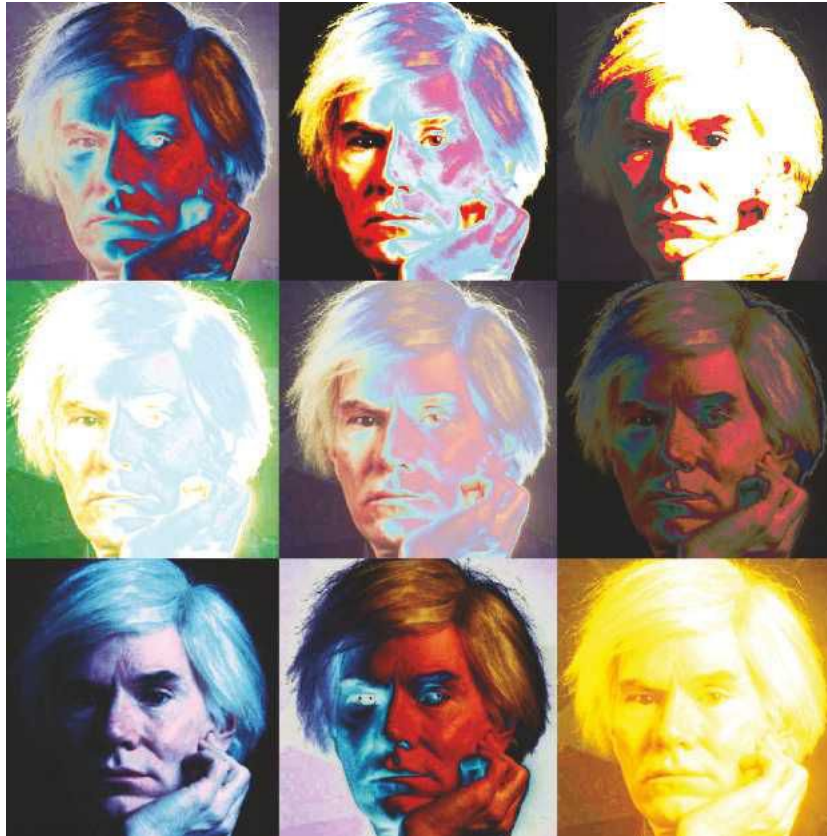
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The urge to make something (a canvas, cake, sonata, chiffonier...) looks like a noble instinct. Creativity is considered to be one of Man's finest attributes. The craftsman is seen as attuned to, at one with, the workings of the world. S/he is a creator in the shadow of the Creator, and bathes in reflected glory. I'm not going to argue with that.

But there is another side to the record. The B side isn't so upbeat. The urge to make something is the urge to redress an imbalance. It's not a straightforward imbalance (as if you hadn't been allowed to make things before) but an indirect one. We translate feelings into facts; and perhaps acts of retaliation.

Most obviously 'making' is an antidote to being ignored. An obelisk, for example, or a triumphal arch; a painting on the wall and a string quartet in the corner are there to be noticed. They want to be noticed. So how can the architect/designer/maker/player be other than overt and demonstrative, aka loud, however quiet s/he might be in private?

The more the need to be noticed, the mistier the heights of creativity that might be reached. Great artists don't tend to lead simple contented lives. The more the imbalance, the more the correction necessary. Pain, despondency, grief, and loss are better stimulators of art than ease and pleasure, which are ends in themselves. This offers a nasty conundrum: would you rather be a great but troubled artist or Mr/s average?

Seep is in the eye of the beholder

If you are a single woodworker designing, buying, converting, machining, jointing, decorating, assembling, finishing, delivering, collecting, it is inevitable that your personality will seep through at every stage. As surely as it seeps out, it will then seep in to the beholder. Initially, perhaps it will be more of a wash, as first impressions are inevitably strong (for good and for bad).

Later, as the piece begins to be taken for granted, the wash becomes a wipe. As it is noticed afresh from time to time, an occasional ooze. Even when no seep is apparent, the piece will continue to leak on the same wavelength if (to mix a metaphor) below our hearing. Unlike the sonata which is heard today and nowhere at all tomorrow, a piece of woodwork hangs around.

It employs a different language to the verbal. When you voice an opinion, you invite contradiction, but when you make a piece of furniture, it is silent. Visual language is not categorical, not black-and-white like verbal language. Words draw lines between this and that, provoking disagreement at exactly where those lines should be. Visual lines describe bulk and space, here and not here, and can be moved imperceptibly and incontrovertibly. The viewer might intellectualise about the design and execution, but the piece will continue to hum its own tune.

Enactors on a stage

We do what we do partly because we want to, but largely because we have to. I don't mean having to fix the shoe rack in the utility room before someone trips over and hurts themselves. No, come to think of it, I do. Every act of woodwork will in some way reflect its maker - its enactor. It's not something you can do much about, even should you want to.

Perhaps the worst thing to do, however, is to be self-conscious. It is better not to make statements; not to proclaim and shout, for this is likely to distort the very voice you are trying to have heard - your own. Don't even think too much about it. Just be yourself. In everything you do and everything you make you are displayed. Be warned, though: now, far from being ignored, there is nowhere to hide.

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Precision Power Tools

Coronet Herald Heavy Duty Cast Iron Electronic Variable Speed Lathe



"The Herald lathe looks stunning with a retro feel to a very modern lathe... With large blanks mounted you can use the variable speed control to keep the machine stable and vibration free, and overall it has a very solid feel... Would I recommend this lathe? Yes without a doubt, it's well designed and built to a high standard."

Online Review



Heavy-duty spindle lock
and 24 point indexing



Features the latest motor
technology to deliver
huge amounts of torque
from the 750 W
output motor



Rotating headstock
features accurate angle
stops and can swivel 360°



Specifications

Maximum bowl diameter:	533 mm
Maximum between centres:	508 mm
Maximum swing over bed:	355 mm
Spindle speeds:	96-5040 rpm
Motor input P1:	1000 W
Motor output P2:	750 W
Thread:	M33 x 3.5
Taper:	2 Morse taper
Weight:	48 kg
Size:	W870 x D290 x H252 mm



"The new Herald - Sets a new standard"

It surpasses my expectations by a country mile! With its excellent finish, capacity, accuracy and its range of speeds, I'm sure this Coronet Herald has the required credentials the majority of wood turners could ever wish for! The size is ideal for the turner with limited space, has outstanding capacity for its footprint and is very quiet indeed... Record Power most certainly have a winner."

Online Review



ONLY
£999.99
Inc. VAT

BUY SAME TIME +

16011 Cast Iron Bed Extension	£149.99	Save £30
16013 Cast Iron Outrigger	£39.99	Save £10
16015 Tubular Stand	£129.99	Save £20
16012 Bench Feet	£59.99	Save £10

Prices valid until 28.02.2018. E&OE.

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100
years
Experience • Knowledge
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Incorporating some of the most famous
brands in woodworking, Record Power's
roots stretch back over 100 years.