RouterCentric - Casket-style jewellery box

WOODWORKING Plans & Projects

The UK's essential workshop project & technical manual

Issue 79 April 2013

Bird table project

Get the kids involved!

PROJECTS
- Bar stool
- Turned bud vase
- Cherry display cabinet
- Scrollsaw chopstick stand

TECHNIQUES
- Japanese saws
- Compound mitre saw
- DIY Kitchen renovation

FEATURES
- Disston saw with depth stop
- BA Restoration & Conservation

ON TEST:
- Jet lathes
- Mirka abrasives
- Einhell mini saw
- Bosch spiral saw

Real Bosch! How To Guide

Ever wondered how the professionals do it? Not sure and need some advice on doing a new task?

Not only is there the guide below, but you can also have the workshop wizard Alan Holtham run through this task in the online "How To" video by scanning the QR code with your smart phone or alternatively visit our YouTube channel at the bottom of the page.

QR Code: Scan me

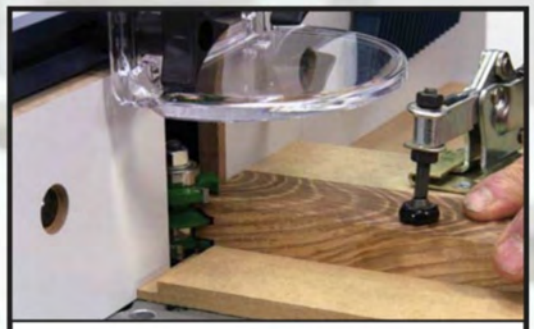
Making a Raised panel door

In this issue Bosch and Alan help you out with a guide to cutting and assembling a raised panel door using a router and worktop jig.

Main tools for the job

You will need a powerful ½" router, a router table and a set of panel door cutters

The timber must be thicknessed precisely



Use a homemade jig to scribe the rail ends

Adjust cutter height to machine profile

Make trial cuts and adjust height until joint is flush

Machine the profile on rail and stile edges

Form the panel mould with progressively deeper cuts

Assemble the door, sand the joints and radius the outer edges

Finished panel

To watch more "How To" videos visit
www.youtube.com/user/BoschProfessional

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Welcome from the Editor

Hello everyone and welcome to issue 79 of *WPP*. I hope that you, like me are back in the workshop getting on with the projects that had to wait for winter to pass.

There have been several – not many – observations about the techniques I use and recommend especially with the preparation, use and care of hand tools. I should point out these are my own idiosyncratic methods and as with all things there is no one true way to do anything; these are the things that work for me and I feel they should also be good for readers too. However, it is always worth exploring other techniques, tools and materials and finding out what works best for you. To give but one example of a technique; mortising, which can be done by hand or machine – what is the correct width for a mortise in a piece of wood? The commonly held belief is the third/third/third rule, i.e. that the mortise should be a simple third of the stock width. There are references to this everywhere on the 'net, but strangely when an American woodworking magazine did strength tests on various joints the mortise and tenon with a wider tenon did much better than a standard width under a destructive stress test. Indeed I was taught at technical high school to make tenons in a 25/50/25% ratio width-wise and this principle has been backed up by a fellow GMC editor who spent many years working on oak buildings and restoring National Trust properties. A variety of factors must be taken into account when designing structures and their jointwork – the size of the receiving stock, the position of the joint in the structure, the length of the tenon, is it haunched or franked? We all need to be critical of our own work while observing how not just one, but many professionals and fellow woodworkers tackle these problems. At the end of the day, if something works well, do it because its success means it cannot be wrong, even if it isn't the ideal method.

Talking of hand tools, my collection of bench planes and moulding planes is expanding faster than I can restore to useable condition or find display cabinet space for! Why? The answer is that once everyone knows you are a collector, all these rusty or woodwormed relics find their way off dusty cobwebbed garage shelves and end up in a carrier bag left at the front door… be warned; if you start a collection of anything, you may get more than you bargained for!

PHOTOGRAPH BY GMC/ANTHONY BAILEY

The commonly accepted third/third/third mortise rule

Anthony Bailey, Editor
Email: anthonyb@thegmcgroup.com

SAFETY MATTERS

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

Problem finding Woodworking Plans & Projects magazine?

You can reserve a copy from your newsagent or call Tony Loveridge, our circulation manager, on 01273 477374 or email him at tonyl@thegmcgroup.com. Alternatively save money and take out a subscription (see left hand panel)

This month in

WOODWORKING Plans & Projects

On your pull-out plans this month...

...Display cabinet

34

8

20

66

PROJECTS

8 Bird table
A great project to introduce children to the wonders of birdlife and woodworking

20 RouterCentric – Jewellery box
The Editor brings you a simple project, ideal for the special lady in your life!

34 Display cabinet
Jim Robinson makes a display cabinet for his Grandson's model collection

58 Chopstick stand
Fred and Julie Byrne put their knives and forks down and take to the scrollsaw!

62 Plans for You – Bar stool
This one from Simon Rodway's on the house... cheers!

66 Turned bud vase
Mark Baker creates an attractive bud vase in spalted beech

TECHNIQUES

15 Machine Workshop – Compound mitre saws
Walter Hall helps you master another piece of workshop kit

52 DIY Solutions – Kitchen renovation
James Hatter shows you how to refit a kitchen to bring it up to date

70 Hand Built – Japanese saws
The Editor takes a scrupulous look at Japanese saws

Woodwork on the web

To find more great projects, tests and techniques like these, visit our fantastic website at:
www.woodworkersinstitute.com

FEATURES

28 A student perspective of furniture conservation and restoration
Amber Bailey takes us on a brief journey through the essential techniques used to preserve our furniture heritage

50 My Working Day
We catch up with *WPP*'s technical illustrator, Simon Rodway

80 Tools of Yesteryear
Colin Sullivan takes a look at a Disston saw from around 100 years ago

KIT & TOOLS

32 Test: Einhell mini saw

43 Hot Stuff
Our monthly selection of the best in tools, gadgets, gizmos and books available in the world of woodwork

47 Craftsman's Corner
We look at a new tile router from Bosch and Jet lathes

74 Test: Mirka abrasives

REGULARS

1 From the Editor
Anthony Bailey introduces you to *WPP*

4 Noticeboard
We let you know about the upcoming events in the world of woodworking, and take a look at what you've been sharing on the Woodworkers Institute Forum

79 Next issue

Noticeboard

All the latest news from the world of woodworking, plus tips, letters and images from the Woodworkers Institute forum

Weird and Wonderful Wood

Weird and Wonderful Wood has become an annual experience not to be missed – a specialist event with a difference dealing solely in wood for those with a capacity for wonder; a celebration of many aspects of woodwork and the woodworkers themselves.

There will be over 100 artists and craftspeople with demonstrations including carving and sculpture, fine furniture making, musical instrument making, displays by traditional fletchers and bowyers, chainsaw carving, wheelwrighting, hurdle making, woodturning, pole-lathe turning, as well as traditional gypsy caravan displays. There will be a working mobile sawmill on site, so if you want to bring your own tree, it can be cut for you!

Workshops, for both adults and children are free and include activities such as archery, willow weaving, withy work, paper making, gypsy flower making, pole-lathe turning, scrap wood, puppet making, jewellery making, den building, and Monkey-Do tree climbing.

It's a friendly, relaxed and somewhat extraordinary event with something for all the family. Allow time to enjoy a wealth of excellent local food and drink, including a licensed bar.

DETAILS

When: 18–19 May, 2013
Where: Haughley Park, Wetherden, Stowmarket, Suffolk, IP14 3JY
Tickets: Prices per day – adults: £6; concessions: £4, under 16s: £3, under 3s: free
Contact: Weird and Wonderful Wood
Tel: 01359 240 724
Web: www.weirdandwonderfulwood.co.uk

PHOTOGRAPHS COURTESY OF WEIRD AND WONDERFUL WOOD

Social media & competitions

If you're not already familiar with our Facebook and Twitter pages, then do take the time to have a look and follow us. On Facebook, search for 'Woodworkers Institute' and on Twitter, we're @woodworkers. You can keep up-to-date with everything that's happening on the website, in terms of new article uploads, the latest press releases, weblogs, as well as a host of special features.

You can use our Facebook and Twitter pages to meet other woodworkers, interact, socialise and get news of regular competitions.

THE SOUTHERN TOOL FAIR

Now in its fifth year, The Southern Tool Fair brings together the biggest selection of hand and power tools under one roof. The top tool manufacturers will be showcasing product launches and demonstrating their tools. Workshops include woodworking seminars from Festool and ITW Construction Products, plus loads of demos of the latest tools. If you rely on quality tools to enhance the efficiency of your work and are keen to see new products first-hand in a hands-on environment, then you don't want to miss The Southern Tool Fair! Entrance is free and open to all, and if you pre-register online you can skip the queue, be entered into the free prize draw and you'll even get a free bacon roll! Sounds too good to refuse...

DETAILS

When: 28–29 June, 2013
Where: The Ageas Bowl, Botley Road, West End, Southampton, Hampshire, SO30 3XH
Contact: The Southern Tool Fair
Web: www.toolfair.uk.com

PHOTOGRAPH COURTESY OF THE SOUTHERN TOOL FAIR

From the forum:

Toy fire engine

I made this fire engine for one of my grandchildren. It is designed to be played with, made from plans from the book *Making Heirloom Toys*. I have changed a few things on it, and it is made from the scrap bin in the shed. Size is 405mm long by 100mm wide. The firemen are just held in place by little pegs to add to the playability. The grandson collected it today and is over the moon with it.

I love to create things like this which are fun to make, after all that is why I work with wood. C & C most welcome.

Derek

Great to see it finished Derek, looks good to me

Ron

Excellent work!

Claude

Nice Job, Derek!

Turnpike

It looks almost as much fun to make as it will be to play with.

Ivan

PHOTOGRAPHS BY MAKER

PR Industrial Toolshow 2013

Toolshow 2013 is building on the massive success of the 2012 event and aims to be the largest tool show in the country. Toolshow 2013 will be over twice the size of the 2012 event and takes place at the award wining American Express Community Stadium, the new home of Brighton & Hove Albion FC, on the weekend of 20–21 July. PR Industrial has years of experience in the industry and aims to bring one of the largest gatherings of suppliers to one venue in the south east of England for the country's ultimate tool show.

The event this year features free parking, free entry and free demonstrations as well as a range of big brands in the woodworking and tool industry offering you great deals and big savings. Exhibitors at the show include Trend, Festool, Veritas, IRWIN, Mirka, Stanley, Metabo, Makita and Bosch, as well as a host of others. See the website for the full list.

To receive regular updates on the show you can follow Toolshow 2013 on Twitter – toolshow2013 – and on Facebook, search for prindustrialtoolshow2013.

PHOTOGRAPH COURTESY OF PR INDUSTRIAL

DETAILS

When: 20–21 July, 2013
Where: The American Express Community stadium, Village Way, Brighton, East Sussex, BN1 9BL
Contact: PR Industrial
Web: www.toolshow2013.co.uk

THE EUROPEAN WOODWORKING SHOW 2013

The fifth European Woodworking Show is being held at this historic venue in Essex this September. Larger and even more diverse than last year's successful event, it is targeted towards woodworking hobbyists and showcases a wide variety of woodworking skills, techniques, crafts and woodworking tools. The show is loosely arranged into five woodworking zones: Workshop Machinery, Woodcarving, Hand Tools, Woodturning and a Traditional Crafts Zone with a mix of over 80 top class exhibitors plus food stalls, a story teller and St Peter's Brewery. A wide variety of tools are on sale from small workshop machinery and power tools to a superb selection of hand tools, workbenches, books, short course providers, timber, finishes, furniture and craft. There will be many varied demonstrations too; for full details on the show and the historic Cressing Temple Barns, visit the show's website.

PHOTOGRAPH COURTESY OF CLASSIC HAND TOOLS

DETAILS

When: Saturday 21–Sunday 22 September, 2013
Where: Cressing Temple Barns, Whitham road, Cressing, Nr. Whitham, Essex, CM77 8PD
Tickets: £10 on the door, concessions and discounted pre-booking available. Under 16s: free
Contact: The European Woodworking Show
Tel: 01473 784 983
Web: www.europeanwoodworkingshow.eu

PHOTOGRAPH COURTESY OF ICHF EVENTS

Weald of Kent Craft Show

With this inspiring show you can embrace the start of the summer and find the best that British craftspeople have to offer. Over 250 craftspeople will bring you the very best in handmade gifts and treats, plus there will be traditional craft demonstrations and workshops catering for the whole family, from woodturning and pyrography to decorative ceramics and paper making. As well as something from most every area of craft you can think of, there will be falconry displays, fly fishing demonstrations, plus a whole marquee dedicated to specialist food and drink.

For a fun family day out make sure you take time out of your day to enjoy live music, face painting and an adventure playground that children will love! Come rain or shine, there is something for everyone at the Weald of Kent Craft Show this May Bank Holiday.

DETAILS

When: 4–6 May, 2013
Where: Penshurst Place, Penshurst, Tonbridge, Kent, TN11 8DG
Tickets: Adults: £7/£5 advance; seniors: £6/£4 advance. Under 16s: free if accompanied by adult or £3. Combined show ticket and entry to Penshurst House & Gardens £10 in advance
Contact: ICHF Events
Tel: 01425 277 988
Web: www.ichf.co.uk

Yandles Spring Show

Yandles Spring Show is always a highlight on the woodworking events calendar.

Thousands of visitors come from across the country to enjoy the informal and friendly atmosphere created within the surroundings of this historic timber yard.

The usual working site is transformed with marquees hosting a vast array of leading craftspeople. Live demonstrations will keep you entertained with new techniques to learn, useful advice on tools and handy tips. The sawmill itself is converted for use by international manufacturers, traders and publishers displaying the hottest new product lines.

When: 5–6 April, 2013
Where: Yandle & Son Ltd, Hurst Works, Hurst, Martock, Somerset, TA12 6JU
Contact: Yandles **Tel:** 01935 822 207 **Web:** www.yandles.co.uk

PHOTOGRAPH COURTESY OF YANDLES

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Bird table

Here is a great project to introduce children to the wonders of birdlife and woodworking!

Let us introduce Guy Fordham and his two boys Terry and Tristan. Guy is a very practical person, being a systems electrical engineer and a keen restorer and driver of Land Rovers and passing on his skills to the boys. Terry, Tristan and their little sister Tiana are keen to have a bird table in the back garden, mum Karen is fine about that, so long as it doesn't attract unwanted visitors as well. So we suggested they might like to try their hands at making their own. Made in a simple but stylish design which humans can appreciate, while the birds can enjoy the facilities.

Tristan learns how to use a tenon saw, note the clamp to make workpiece holding easier

Terry tries his hand at using a block plane, a smaller plane very useable in young hands

Young person safety

This project must be done under adult supervision. There was a time when health and safety issues weren't the concern they are now. There are many more hazards, especially with the availability of power tools. In particular, powered saws of any kind or other tools such as the lathe, must only be used by adults. It is important that any young person attempting woodworking or other craft activities is given proper instruction in the use of each tool and the need to work safely, i.e. wear old clothes, long hair in a net, no loose clothing or jewellery and enclosed footwear. Ear defenders and proper dustmasks when machine sanding and most important of all, eye protection – especially as young woodworkers are generally shorter than the adults teaching them and so nearer to the bench!

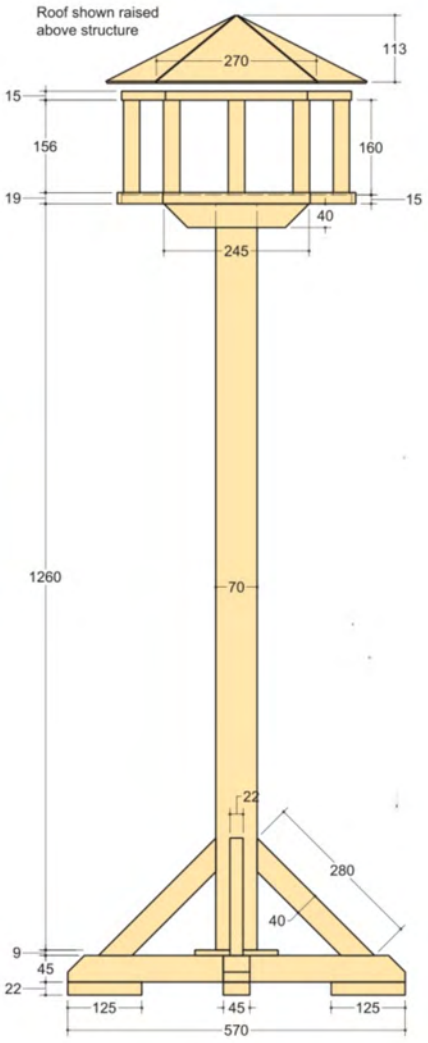
Caring for birds

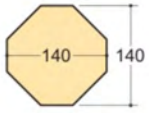
The RSPB website should be your first stop for information before starting this project. They have plenty of information including basic construction considerations, where to position your table once complete, maintaining its structure and hygiene, what food to use and when, and how to deter neighbourhood cats and squirrels. The timber we chose was mostly treated but a type of treatment safe for wildlife. If you can't buy the correct grade locally, use untreated timber and finish it thoroughly with a 'birdsafe' finish. Nowadays there are plenty of predators in our back gardens looking for a free lunch, so site this bird table away from fences and hedges so artful animals cannot climb onto it.

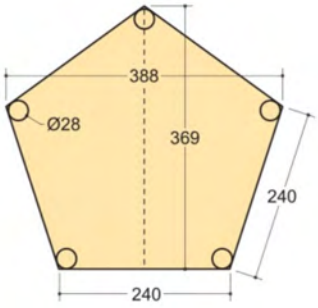
Making the base

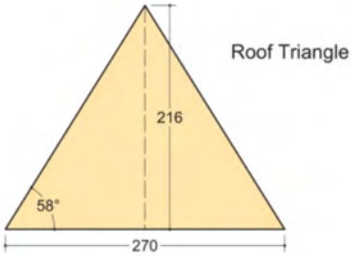
1 Cut the column to length using a handsaw and bench hook. Mark around the wood first with a trysquare and pencil and sight down the saw to get a straight cut – push forward, then back again repeatedly to get the saw to cut properly. If you aren't used to using a handsaw, draw it backwards several times to make a slight starting cut.

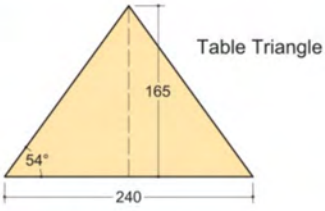
2 Now cut a thin ply plate with the corners taken off. Use a block plane to get rid of the rough edges. This will be drilled to fix on the end of the column. It needs four holes, one for each side of the column so it will fix into the base feet.











The plate needs to be mounted nice and square, so it's a job for Dad to do!

Terry cuts the foot pads while younger bro' Tristan tries to master a heavy cordless drill

3 Screw it on to the column after drilling two holes in the ply with countersunk recesses for the screws to sit in properly. Angle the column in the vice so it is easy to do this operation. Now put the column to one side until the base is done.

4 The base consists of crosspieces, one goes right across the other one which is split into two short sections. Each end of the base pieces needs a pad drilled and screwed underneath it to reduce contact with the ground so it stands evenly and avoids getting too damp.

5 The column needs to be screwed on to the full-length foot first. Once this is done the two short pieces are then screwed in place. Make sure that the ends press tightly against the long one.

6 Cut some angled braces to make the stand rigid. The ends are cut at 45°. Without these the stand could easily collapse. Make sure the column is upright. Mark around the column so they are all level with each other and also drill holes near each end so the wood cannot split as you screw them on.

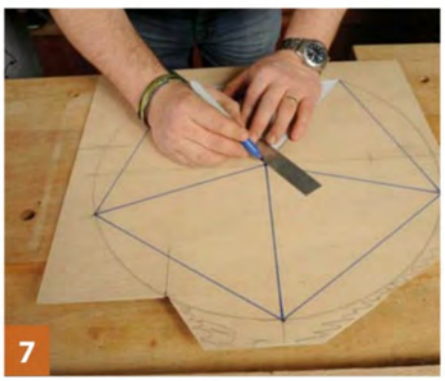
The bird table

7 Copy the full-size template for the base and cut out the copy. You can now step out the shape on thin ply to create a template, drawing around it then moving it round until the last shapes meet up. You should have a neat pentagon – five-sided – shape. Cut around it so you can draw it out on the thick ply needed for the bird table.

8 Cut two roughly matching-size squares of ply and fix together with panel pins. Draw around the template and cut out both pieces together so you end up with two matching pentagons.

"Hold that column steady will you?"

Nearly there for the base, a good bit of mitre cutting practice!



Dad needs to sort this one out so it creates a successful pentagon shape

Rather a lot of sawing to get right, it's hard graft, so over to Dad again...

A sanding block is easy to use but mind those splinters

9 Sand the edges smooth using medium abrasive stuck to a small strip of ply. This is an easy way to sand surfaces without rounding them over.

10 Now cut five pieces of thick dowel to make the bird table uprights. You need to cut them very squarely so they will sit upright and not tilted. Make sure they are all the same length.

11 Drill a hole near each point of the pentagon and countersink the holes to take screw heads. The dowels each need a smaller hole drilled in them to take the threaded part of the screw. Each time a hole is drilled it needs to be countersunk so the screw head will sit in properly.

12 Now screw the top pentagon to each of the five dowels and turn it upside down so the other pentagon can be screwed on to the other ends of the dowels. You now have the feeding platform. You need help to hold it level and firmly while you do this.

Don't be too smug Terry, are you sure it's really cutting square?

13 Turn the bird table on one of the sides and cut and pin a ledge on all round made from a small strip of softwood. The joints are mitred to fit together properly. This ledge will keep food on the table and give the birds' feet something to grip on while they feed.

14 Cut two strips of batten with angled ends to go underneath the bottom pentagon. These will attach the bird table to the post that supports it. Use an offcut from the post to get the correct gap, then drill, countersink and finally fix the battens in place.

What does a snail have to do with countersinking? Anyway it makes very smooth holes

The columns give it that Roman touch don't you think?

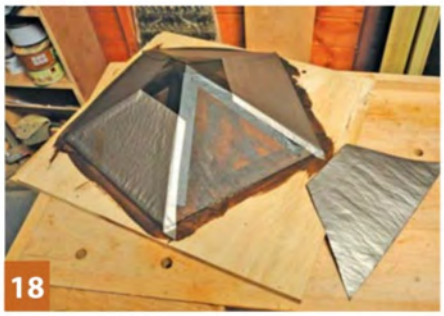
That hammer is a bit big really but we seem to have mislaid the pin hammer

We're getting there...

A slight gap is needed between each panel or it won't fold properly

Many hands make a roof work

"Are you sure it's level, Dad? Do keep checking before I tighten the screws!"



The top pieces go on last so the rain can run off properly

"Dad, make sure you get the mastic right on the edge without it running off the side"

15 To make the roof mark out a series of five pentagon shapes on thin ply using the roof template drawing. Cut them out with a handsaw and lay them together with a slight gap between. Use all-weather tape along both faces of each joint.

16 It helps to have more than one pair of hands to pull the roof pieces into a cone shape and then tape the last joint on both faces.

17 The bird table is now screwed to the column through each side of the brackets that are fitted underneath. Make sure you drill the holes properly first.

18 'Flashing' roof repair strip is the easiest way to cover the roof to make it waterproof. Brush on the special adhesive that comes with it but don't get in a mess. Cut the flashing and lay it starting at the bottom and make sure the joins are properly sealed down.

19 Press the roof down firmly but make sure it sits evenly. Leave the mastic overnight to set.

20 Paint all the exposed woodwork with wood finish that is safe for wildlife. Now drill and screw the bird table battens to the post. Place the bird table somewhere where you can see it in the back garden but not too close to the house so you don't scare them away. Now add some bird food or kitchen scraps and see who comes to dinner! ■

20 Turn the whole thing upside down first to paint so nothing gets missed when you put it the right way up!

FESTOOL

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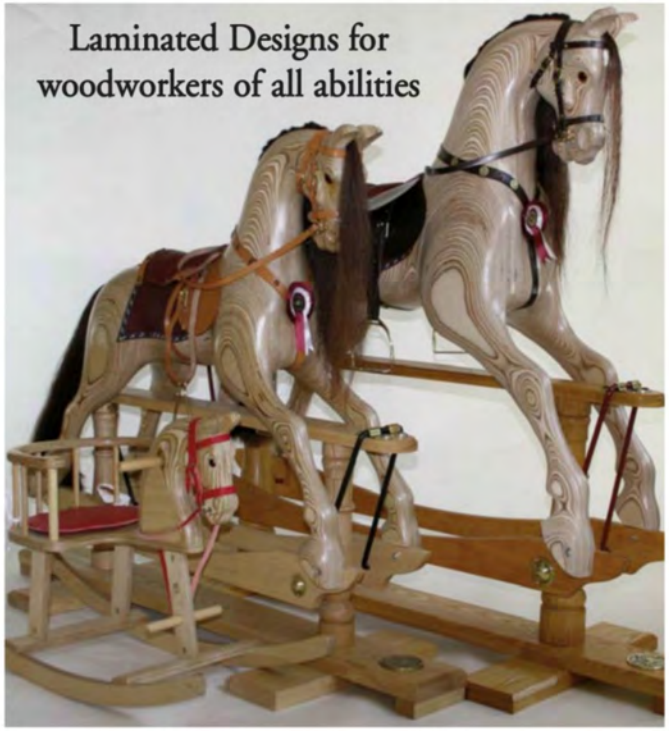

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Compound mitre saws

PHOTOGRAPHS BY WALTER HALL

Walter Hall helps you master another machine, this time the compound mitre saw

In the early 1970s when I first took a serious interest in woodworking, cross cutting and mitring – if not done by hand – were either carried out on a tablesaw or using a large, and not very portable, radial arm saw. The introduction of powered mitre saws meant that a machine was available which not only took up much less space in the workshop but could also easily be transported for on-site working.

Different types

There are four different types of powered mitre saw available on the market. The basic mitre saw is a development of the chop saws used in metal working but with a swivel base that allows angled – mitre – cuts to be made in one plane only. Compound mitre saws incorporate a vertical swivel mechanism that allows the blade to be tilted to one side to make compound mitre cuts. The capacity and in particular the width of cut of these two types is constrained by the size and fixed nature of the saw blade.

This limitation gave rise in the 1980s to the development of the sliding compound mitre saw, in which mounting the cutting head on a sliding arm or arms gave the machine greatly increased cross cutting capacity. Finally we have the dual compound mitre saw, which has a vertical swivel mechanism that allows the blade to be rotated in either direction and so makes life much easier when cutting complicated compound joints.

In this article I will be looking at sliding compound mitre saws, demonstrating with a small but very versatile Evolution machine that has a blade designed to cut both metal and wood, and a larger, professional quality machine from DeWalt.

How they work

Compound mitre saws consist of a cast bed into which is built a swivelling table. A horizontal tilting mechanism is attached to the rear of the table and on this is mounted the slide tube or tubes. The cutting head which consists of a circular saw blade driven by an electric motor is fitted on a pivoting frame to the front of the slide mechanism. A blade guard to protect the operator from the revolving blade is interlocked with a handle on the front of the cutting head which allows the saw to be operated by pulling the slide mechanism towards the operator, lowering the blade into the work and pushing back towards the body of the machine to make the cut.

FEATURES

Blades

As with saws of all types, the quality of the blade is of prime importance to achieving the best results. Most saws come equipped with a general purpose blade, but finer blades with a higher tooth count are available for precision work such as picture framing and box making. Also available are multi-material blades which can cut mild steel and other metals as well as timber. With such blades there is a compromise between versatility and the quality of the cut in timber.

The bed

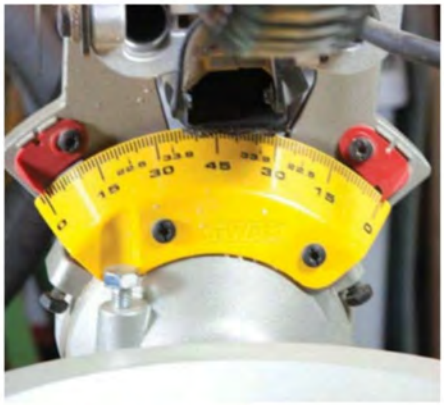
An accurately cast and machined bed helps to ensure accurate cuts as does a well-constructed fence which is square to the table. The fence may be marked with a measure for length. Extending supports are usually fitted to the ends of the bed to support the work on either side of the table.

Swivel base

The swivel base can be turned to any angle in the horizontal plane for mitre cuts. Click stops will usually be fitted at commonly used angle settings such as 90°, 45° and 30°. A gauge indicates the precise angle and a locking knob or lever locks the setting.

Slide mechanism

The slide mechanism consists of a tube or tubes to which the cutting head is attached. The tubes slide through the machine body allowing wider cuts than would be possible with a fixed blade saw. Some newer machines have two shorter sets of tubes which make for a more compact saw that takes up less space if it is bench-mounted.



Vertical swivel gauge

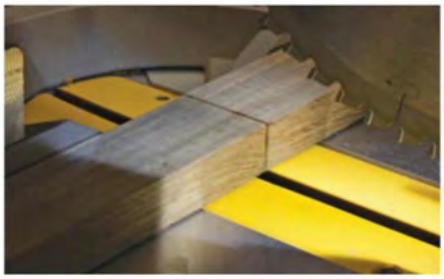
A gauge is also fitted to the vertical swivel, which will pivot to one or both sides for bevel and compound cuts. As with the swivel base this will have stops at common angles. A locking lever or knob retains the setting.

Extraction port

An extraction port is attached to the rear of the blade housing to remove the large amount of dust generated by the saw.

Laser cutting guides

Most compound mitre saws are fitted with laser cutting guides to indicate the line of cut. On better machines the laser will be adjustable to ensure accuracy. The DeWalt saw used for this article has a new 'Shadow Line' cut indicator, which not only allows for accurate alignment of the cut but also illuminates the work.



Cutting height

Cutting height adjustment is achieved by means of a stop that restricts the depth to which the blade may be lowered. This enables joint cutting and the cutting of rebates.

Stops

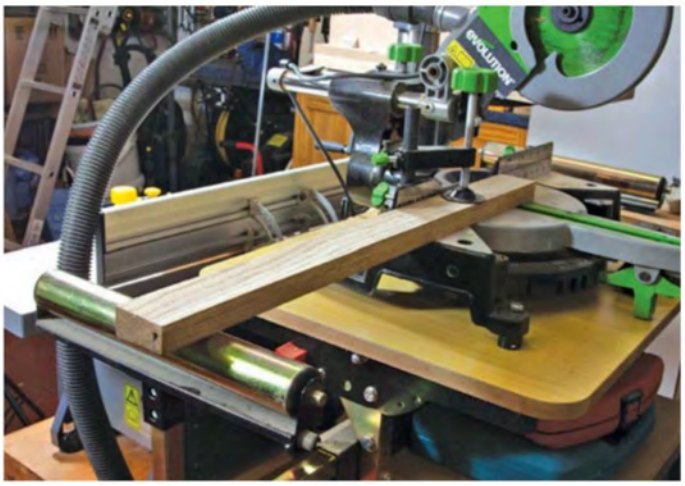
Stops may be fitted to the fence or support bars to facilitate repeat cuts and clamps built in to the fence or bed which enable securing of the work during cutting.

Switches and interlocks

Switches and interlocks in the handle ensure that the saw cannot be operated when the saw blade is fully exposed.

HEALTH & SAFETY

A good, solid stand is essential



Long pieces need extra support

- Compound mitre saws should be mounted on a solid base. They may be bench mounted for workshop use, or fitted to a dedicated stand for portable or site working. The saw should be securely bolted or clamped to the base.

- The work should always be clamped to the bed of the machine. The action of the blade tends to lift the work from the bed so it is important that hands are kept well clear of the cutting area. This is especially important when using multi-purpose saws to cut metal as serious injury can result from unclamped work.

- Most mitre saw stands will incorporate roller supports to enable long boards to be worked on in a safe manner. Where such support is not available, freestanding roller stands should be used.

- Dust extraction is essential, as mitre saws, like all circular saws, produce a great deal of fine sawdust. A vacuum extractor with a power take off that will switch on and off with the saw is ideal.

- Personal protection from noise dust and other flying debris is essential. Although many saws have quiet induction motors, circular saws are never quiet and hearing protection is strongly recommended. Eye and respiratory protection, however, are essential and best provided by means of a powered full-face respirator.

- Before making any kind of cut, ensure the work is properly clamped and all the locking knobs and levers on the saw are tightened. Cross cutting is achieved by pulling the cutting head towards the operator, lowering the blade into the work and pushing the saw through the work. Never pull the saw through the cut towards you.

Mitre saws are very messy – extraction is a must

PPE is vital because of the dust emitted

Always use the work clamp for safety

GETTING THE MOST FROM YOUR COMPOUND MITRE SAW

- Mitres are cut with the swivel base rotated to the correct angle and locked in place with the locking lever. As with cross cutting, push the blade away from you through the cut.

- Bevel cuts are made with the vertical swivel set to the appropriate angle. The cutting method is the same as stated before.

- Compound mitres require setting of both horizontal and vertical swivels.

- Repeat cuts can be achieved by means of the stops fitted to the saw or, if no stops are fitted, by clamping a wooden stop block to the fence. A spacing piece will be required to ensure that the full depth of cut is achieved across the whole of the joint. Make sure everything is well clamped.

- Trenching is facilitated by setting the depth stop to the required depth of the rebate and making repeated cuts until the required width has been attained.

- Joint cutting of tenons or cross halving joints can also be achieved using the depth stop. The waste may then be removed with a bandsaw or chisel as appropriate for the joint.

- When cutting mouldings the face side of the work should always be facing the bed of the machine to avoid breakout.

- Complex mouldings such as crown moulding are best cut using a jig to ensure accuracy. Shop made jigs are fine, but here I am using a dedicated crown moulding jig to cut the mouldings for kitchen wall cabinets. ■

Avoid breakout with the best face underneath

There are plenty of presets for standard work

The head can be adjusted to any angle for bevel cutting

You can line components up to trim to the same length

A stop block allows quick cuts

You can set the saw head for trenching

A crown cut moulding jig used to support the cornice

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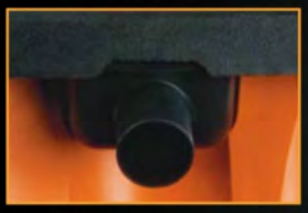

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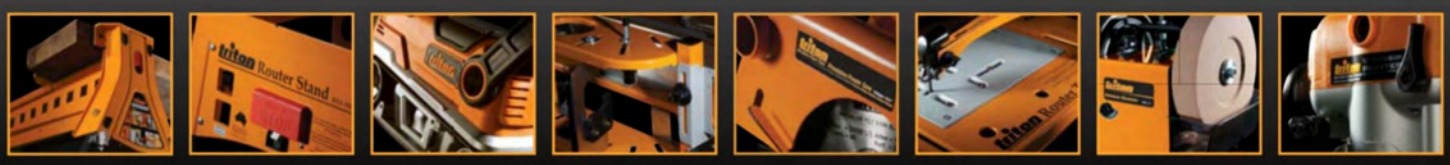

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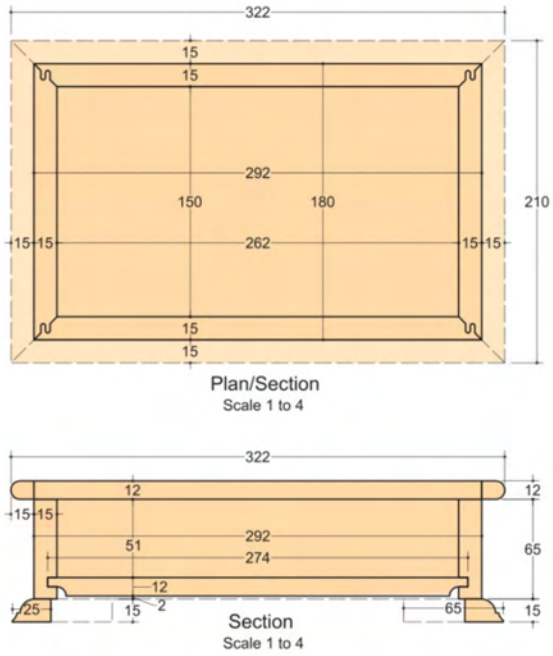
PHOTOGRAPHS BY GMC/ANTHONY BAILEY

RouterCentric

Jewellery box

The Editor brings you a nice simple project that would make a perfect present for that lady in your life to put her sparklers in

The timber I decided to use for this is meranti *(Sorea spp.)* which is a little soft but fairly stable and easy to work. The lid has a roundover moulding around the edge to hold it flat at the ends and ensures no end grain is visible. I chose a lock mitre joint for the box corners but you could do finger joints, dovetails or contrast veneer slips in kerfs – saw cuts – across the corners.

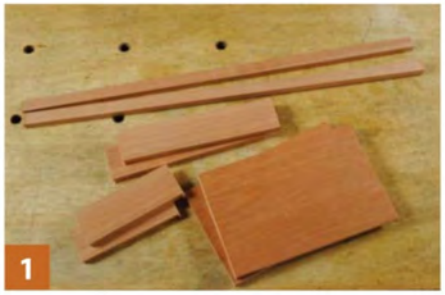


1 Cut all the parts out oversize and prepare to thickness. The base will need to be thinner than the other components.

2 The lock mitre cutter is installed in the router and 'breakthrough' fence clamped to the main fence and pulled backwards onto the cutter until it projects the correct amount for the first pass.

"A sub-table surface is needed for the corner joints"

3 The cutter doesn't fill the insert ring opening so a sub-table surface is needed for the corner joints that will be pushed through on end. A thin piece of 1.5mm birch ply means enough of the cutter will still project. Push it up to the cutter to make a neat recess then pull away and switch off.

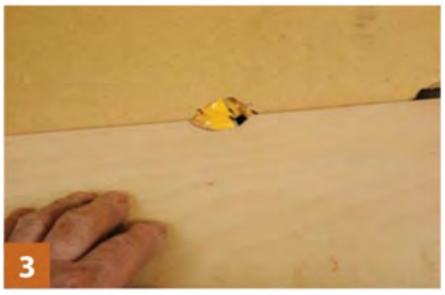


A mahogany-type wood seems most suitable but the choice is yours

The lock mitre cutter gives a strong but very discreet joint

4 Special Trend fabric-based double-sided tape is used to stick the thin sub-table sheet down. Use enough so the work area will stay flat. Stick the thin ply back in position.

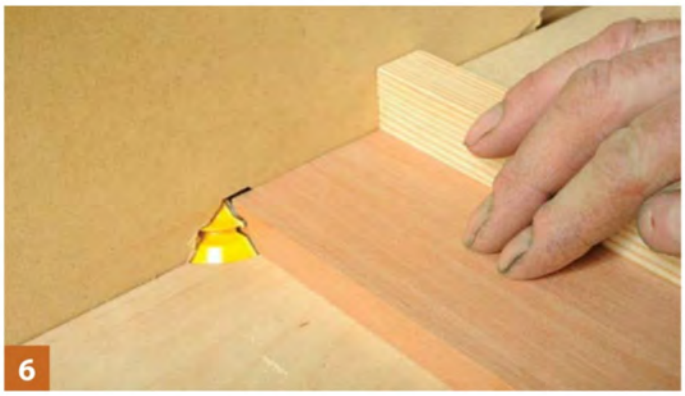
5 A carefully squared pushblock is used to machine the workpieces accurately. The end grain contact edge can have its contact friction reduced by using a hardening wax.



Sub-tables are often used with spindle moulders but they also work with router tables

Standard double-sided tape won't work but you can use carpet tape to stick the sub-table sheet down

The edge of the pushblock being waxed to run better



Maintain a careful forward motion, do not allow it to slide backwards or it will shoot away

Ensure to keep the workpiece tight against the rear pushblock so it stays vertical

6 The fence is set to take most of the wood away but leave enough for a second pass to final depth. This is important because the finger-like lock mitres can break away easily. A series of test cuts are vital if you are to achieve really neat accurate joints.

7 The ends of the box are done vertically to create the matching interlocking other half of the joint. The short grain is particularly vulnerable to breakout. Since the joints are completely hidden you can afford to feed the workpieces slowly over the cutter as any burning of the surface will be hidden. You must have a vertical pushblock behind as well as a safety pushblock against the side.

8 Move the fence back to the final position to make the second pass. The gap revealed between the sub-table and fence does not matter at all.

9 An end piece showing the complete and undamaged joint. The edges can be lightly abraded to de-fluff them. The joint must go right to the outer edge, thus creating a sharp corner.

Making the second pass. A sub-table serves to maintain support right up to the cutter itself

With care you will get perfect joints but any minor breakout won't show if it does occur

10 A lock mitre joint slightly parted to emphasise the precision of the cut edges. With glue added it will create a very solid reliable joint.

11 The bottom needs to fit into a slot all around the box. Set the cutter, in this case a 6mm groover, slightly higher than the thickness of the bottom panel.

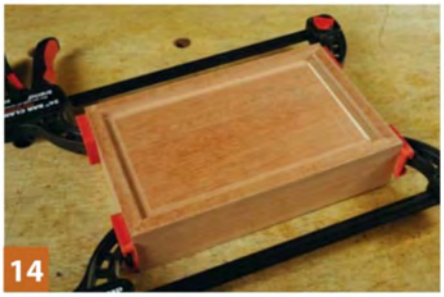
12 When you come to the end of each groove, slow the cut down to avoid ripping out surrounding wood. Now cut the bottom panel to the right size to fit the grooves when the box has been dry assembled.

A neat discreet joint done with just one cutter

The tongue does not have to be 6mm but it is a good size for rigidity

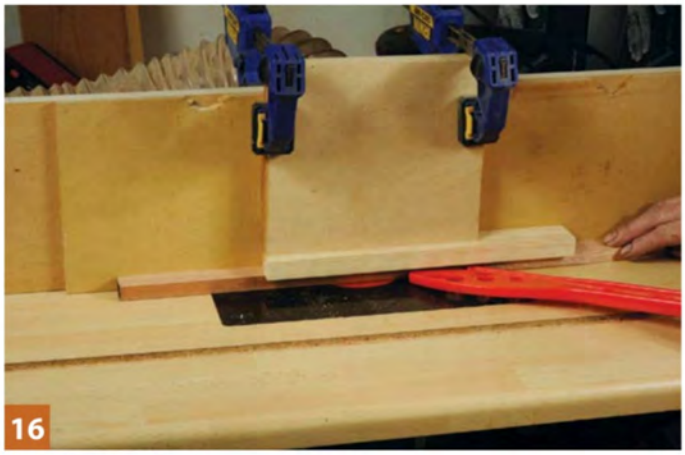
Again care is needed as you reach the end of the cut as the cutting edges pass through the joint

If you don't have a panel raiser you could choose another cutter profile as it won't be seen



I did the vertical cuts on the ends but you could do them on the long sides; just don't get the cuts mixed up!

The box is now very rigid but needs the feet added



A 'semi tunnel' hold down

Make sure the joints will close properly and sit at 90°

13 Mount a plain bevel panel raiser in the table with a sub-fence as usual for better support. Machine the raise in several passes until the resulting tongue is just slightly thinner than the groove.

14 Because of the way the joints interlock, when gluing up just two clamps are needed to pull the components together.

15 The completed box ready for the next stages. The interior surfaces do not need sanding if you are going to line it.

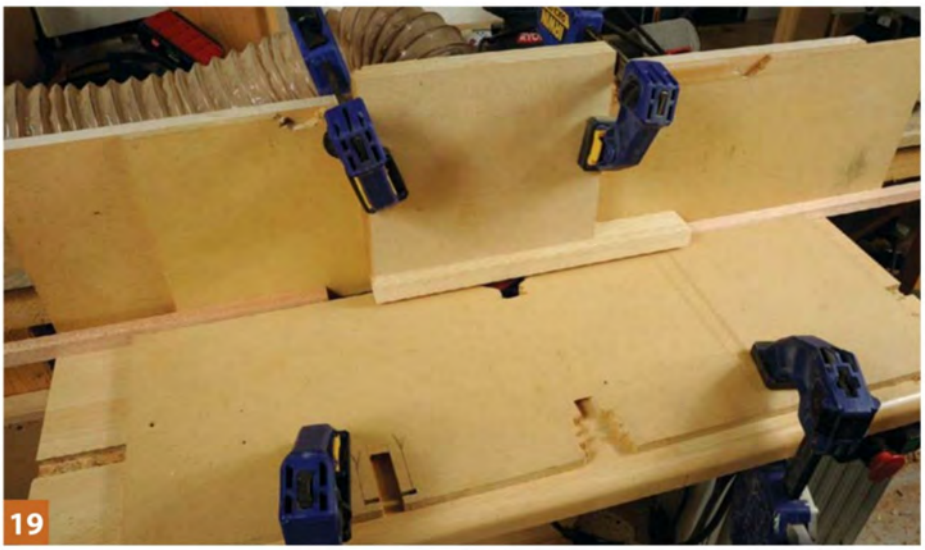
16 The feet are made from a narrow strip of prepared timber using a 'classical' profile on a large combination cutter. I used my pushblock to act as a hold down with a standard pushstick at the side when feeding the piece through. The fence needs to be moved across after the first pass until the correct shape has been formed.

17 Now cut and glue the feet sections together. A mitre saw is best but with care you can hand saw the joints. An aliphatic resin glue is best because it has 'grab' and is fairly quick to dry.

18 The feet are glued and aligned in place and a weight placed on top until the glue has set. Make sure the feet stay in position once the weight has been placed on top. Now cut the lid to the size of the box.

19 The solid edge for the lid is again formed on the router table, but as it is even smaller than the foot section I decided using an old sub-fence from the side would be good as a hold down clamped carefully in place.

I positioned the feet by eye but you can mark them so you have lines to work to



Although I have often shown pressure fingers in use I actually prefer continuous flat support as the sections to be machined are the same size

20

It doesn't matter if a section gets fed through again as a 'push piece' will run through without any damage occurring

21

Wipe away surplus glue to make sanding easier

20 One length of wood is used to push another one through. This is safe and efficient and the hold downs form a 'virtual tunnel' thus preventing the workpiece from chattering and getting damaged.

21 The lid now has its edgings mitred and glued in place using masking tape to hold the pieces in place. Keep the top faces flush to simplify sanding and finishing.

22 The hinge recesses are carefully sliced out of the surface broken with only the very lightest mallet blows before paring the wood away.

23 A Georgian mahogany spirit dye was applied first and allowed to dry. Over this a brown aerosol dye was then sprayed in several light coats to give a much richer and even finish to the light pink meranti.

24 A small jewellery box lock was cut into the rear of the box front. The screws were part driven, then removed and the ends nipped off to avoid breakthrough.

25 A silk-type lining is carefully spray mounted to standard A4 paper cut to the various sizes of the faces inside the box. The box exterior is masked and also spray mount coated inside.

26 Cutters shown are, from left to right: small lock mitre, 6mm groover and large multi-profile. ■

22

Note the MDF pad clamped behind to prevent breakout

23

The dye is run slightly over the inner edge so no bare wood will show with the lining in place

24

Knife around the lock case to give the exact position and measure and mark the keyway from the front

25

Don't let dye or dust contaminate the material

26

Left to right – small lock mitre, 6mm groover and large multi-profile

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A Student Perspective of BA Furniture Restoration

PHOTOGRAPHS BY AMBER BAILEY, UNLESS OTHERWISE STATED

My workbench ready and waiting for any challenge!

Amber Bailey, a second year BA student takes us on a brief journey explaining some of the essential techniques used in the process of preserving our furniture heritage

When asked what subject I am studying at university, the answer Furniture Conservation, Restoration and Decorative Arts tends to completely throw people. It's a title that conjures up images of apprentices in times gone by, labouring away in workshops brimming with pots and jars containing secret recipes. It's a subject that sounds far too technical for the most of us but despite the fact I strongly believe this not to be the case, when first stepping into the world of conservation and restoration, no amount of preparation can really ready you for the journey that is about to encapsulate your life. There are many aspects involved that most people wouldn't necessarily associate with it; when trying to summarise the subject for myself, I have found it breaks down nicely into these seven possible steps.

Consideration and analysis

Before any work can begin on an object, a considerable amount of research and analysis must take place. This way there is no danger of being historically inaccurate or creating further problems, particularly when working for a client. Any work that is completed by a conservator or restorer is at his or her own discretion and it's their responsibility to advise clients in the most appropriate course of action in all aspects of a project.

It is important to establish how the piece was, and is, used or displayed. Furniture in museums tends to be situated in very controlled environments regarding temperature, humidity and lighting – there is less chance of an object deteriorating further, or at the very least the process is slowed down considerably. This furniture is also not required to endure any day-to-day usage, therefore core strength is not a major issue. 'Working' furniture on the other hand

Modern workshops are a far cry from the days of apprenticeships

Carefully removing wax and dirt using isopropyl alcohol

PHOTOGRAPH BY GMC/ ANTHONY BAILEY

Edwardian fireside armchair in need of restoration

– the type of furniture that we come into contact with during our average day – needs structural stability and a certain level of durability.

To collate and record all historical research, experimentation and analysis into a single document, a 'Condition Report' is conventionally used. It also acts as an agreement between the restorer or conservator and the client on what the project will entail. This document can then be a point of reference for any future work on a given piece.

Cleaning

Cleaning is essential to realise the actual state of a piece of furniture. Removing marks, paint splatters, ring stains, etc. is an easy and efficient way to smarten up a piece. It is important to discreetly experiment at first on removing the marks so that there is not the risk of causing severe damage with a chemical reaction. Water and soda crystals are an ideal first solution to try, but if the stain or mark shows no signs of disappearing then a series of stronger chemicals can be tried, working through substances such as alcohol to the more aggressive ones like paint stripper.

Health and safety is a necessary precaution at this stage; all chemicals must be handled with care, in a well-ventilated room and whilst wearing the appropriate equipment.

Cleaning can also involve dusting and vacuuming down a piece of furniture, which may be part of a regular cleaning routine, particularly in museums or stately homes. When using a vacuum, it is preferable to use one that is conservation grade; this means it will have less suction and there is less of a chance for delicate fragments to be pulled away from the furniture. It is always advisable to wrap the nozzle end with a piece of cloth and elastic band so that any broken pieces won't get sucked into the vacuum. Using a soft brush to sweep dust and dirt into the nozzle is also a means of keeping the vacuum from touching and scratching the surface of the furniture.

Integrated pest management

Bugs will forever be the bane of any conservator or restorer's life, global warming providing comfortable temperatures for infestations. Not only can pests cause aesthetic damage, they can have a serious effect on structural stability of a piece.

Although we are all well acquainted with the common furniture beetle (*Anobium punctatum*) and the indicators that they are at home in our furniture, there are in fact an extensive variety of pests that affect both wood and upholstery.

When there are the initial signs of an infestation it is important to contain the problem straight away so that it does not spread further. The easiest technique for this is to wrap the item of furniture in clingfilm; treatment can then follow.

Treatment can be done in a number of ways, normally using extreme temperatures. The easiest technique for small items is to bag them up and place in a freezer for several weeks – this will also work to kill mites in clothes or old books. Insecticides are available in DIY stores, or simply

Using a filtered vacuum nozzle to ensure nothing important gets lost

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

The furniture beetle is very common to antique furniture

The unmistakable outline of an old beech bench plane with woodworm present. Make sure items are properly sealed before putting them in among your frozen food!

Labelling each individual piece of a chair

Carbon fibre is a universal strength-embued material, found everywhere from fishing rods to Formula 1 racing cars

Cataloguing screw positions using a sheet of foam, these modern screws came from an antique piece! They still have to be itemised correctly though

Clamping a spoon curved arm with a purpose-built clamp made of rubber and scrap wood

rubbing white spirit into the infested wood is a simple method that can be done in the comforts of a home garage or workshop.

Structural stabilisation and consolidation

Structural stability is integral to the success of any piece of furniture; when an item such as a chair fails – normally due to a breakage – it has lost core strength, which is incredibly difficult to retain in quite the same way afterwards. Thankfully, due to the advancements in material technology, we now have access to epoxies and fibre composites, which are exceptionally strong and can be unobtrusive in the consolidation of a piece of furniture.

Consolidation is the overall label used to describe the bringing together of an object's structure in its entirety. This encompasses the need for measuring, marking, gluing, clamping and any other processes that are required to unify the object. To establish which sections need to be reinforced, further deconstruction may be required.

It is advisable to always mark each section up with its position to avoid creating a jigsaw puzzle for yourself! Even details such as screw removal need to be catalogued to avoid any problems at a later date.

A lot of conservation and restoration is based on decision making; deciding whether to use hand or machine tools, a protein-based glue or a strong modern but potentially irreversible glue, etc. It is also important to consider how the piece will be clamped whilst drying – a 'dry run' is always advisable so there aren't any nasty surprises that need to be dealt with during the glue's opening time. When clamping, scrap pieces of softwood or acrylic provide an ideal cushion to stop the show-wood from being dented.

Decorative treatments

One of the major indicators when dating an object is its type of decorative treatment. Different time periods and locations are associated with specific decorative treatments, such as marquetry, which was particularly popular in France between the 17th and 18th centuries – although not exclusively so – commonly regarded as the renaissance period.

Using the window method to create a marquetry panel of medieval knights

Painting using pigments, super fine white shellac and isopropyl alcohol

French polish is a basic requirement that any restorer must learn as is the more complex art of colouring

The stages involved in water gilding

Filling in tack damage with West System epoxy, which can also be coloured to match the show wood

Starting to reupholster the Edwardian fireside armchair seen earlier

The decorative arts include other forms of marquetry such as inlay and boulle marquetry, gilding, painting and carving, etc. Craftsmen would traditionally specialise in one area; however, in modern practice it is much more common to have a wider skill set.

Surface treatments

The surface treatment of furniture is so frequently treated as an afterthought yet it is actually a highly undervalued skill. It has often been said that if you really learn the art of polishing and colouring you will never be out of work, as it seems to be a skill that even the most experienced of conservators and restorers can struggle with.

One of its real beauties is that it can create masterful trickery. The vast array of finishes: stains, waxes, polishes, etc. make it easy to alter the colour of wood or to give the appearance of age. This is especially useful when an item of furniture requires some 'patching'.

It is often assumed that when conserving or restoring a piece, the surface finish must be stripped right back and a new application put in its place; this is not always the case. Depending on the state of the finish, it may just need to be reworked.

Conservators and restorers frequently deal with over-waxed and polished furniture. Many people fall prey to the myth that antique furniture requires a buff up with polish on a regular basis to keep it looking pristine; this is simply not true. Polishing need not be done more than once a year. This is why you may find a furniture surface tacky if you run your finger along it.

Upholstery

Upholstery is a step that is only required on certain items of furniture, namely chairs, which ideally need reupholstering every 10 years. This may not mean that the entire upholstery must be taken off and started again, some of the layers may be suitable to keep. Resist throwing away the original upholstery, as it will often serve as a good template for cutting the new fabric.

The scale of tack damage found on a piece indicates the number of times it may have been reupholstered. If it has been replaced an excessive amount, re-tacking into the wood may be an issue. West System epoxy, originally designed for the boat building trade, provides a means of filling in this kind of damage.

Upholstery no longer just involves the traditional method of horsehair filling; the 20th century has provided us with a vast range of different materials and chair styles that require knowledge on 'modern' materials such as foam.

For further information, see details below. ■

Contacts

BAFRA – British Antique Furniture Restorers' Association
www.bafra.org.uk

Icon – The Institute of Conservation
www.icon.org.uk

Einhell mini hand-held circular saw

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

When we tried out one of Einhell's latest circular saws we got in a bit of spin... The question is, can a 'mini' saw really behave like a 'maxi'?

Einhell, like all power tool manufacturers, are finding new and inventive ways to bring us tools with a plug on. We've had plenty of large portable circular saws but not many this small, the nearest equivalent being biscuit jointers with 100mm diameter blades 4mm thick. The Einhell BT-CS 860 L has a blade diameter of just 85mm and a 1.6mm kerf. Two blades are supplied, a TCT one with 20 teeth giving a medium cut, and an 80 tooth fine-cut HSS version with quite long teeth. The upper blade housing has a separately switched, battery-powered laser aimer fitted which takes a large single flat battery cell. There is also a cut-depth stop and scale. The aluminium base has a tough plastic lower guard fitted with a lift lever with a bi-directional sprung push button to unlock the cutterhead, allowing the saw to plunge and cut. On the other side of the housing there is a small spout to which a plastic extraction outlet is attached. There is also a drive belt cover which unscrews if you need to fit the spare belt provided. A fence can be fitted for guidance and there are two Allen keys for blade changing. Lastly, the 450W motor is protected from overload and reset with a red push button.

Verdict

It is often the case that we need to cut thinner boards or make slots without needing to use a larger saw or router, in the latter example. There are cordless circular saws but cost versus convenience make the Einhell an acceptable alternative. It's a well-engineered bit of kit and gives a good result with enough power to cope. The fence is useful especially as projections on the machine preclude using a batten for guidance. The laser is useful for following a drawn line but fenced working is a safer option. Plunging is a one finger, one hand job so you can release the plunge lock. The plastic extraction spout fouls the fence lock knob so it's one or the other. A handy tool but not developed to its full potential. ■

AT A GLANCE

Known brand
Good quality
Versatile

THE NUMBERS

Manufacturer: Einhell UK
Model: BT-CS 860 L mini hand-held circular saw
Motor input: 450W
No load speed: 6,000rpm
Max. cut depth: 23mm
Blade dia.: 85mm x 1.6mm x 10mm bore
Weight: 2kg
RRP: £54.99 (RRP Inc VAT)

WHERE TO BUY

Web: www.einhelltools.co.uk

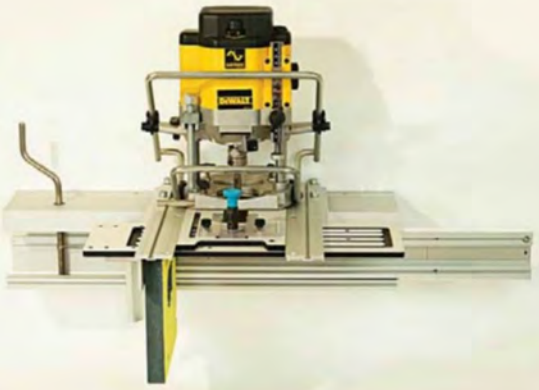
PROS & CONS

✔ Easy to handle
✔ Good for manmade board
✘ Awkward plunge lock

5 STAR RATING

Versatility: ★★☆☆☆
Performance: ★★★☆☆
Ease of use: ★★☆☆☆

Simple for the beginner



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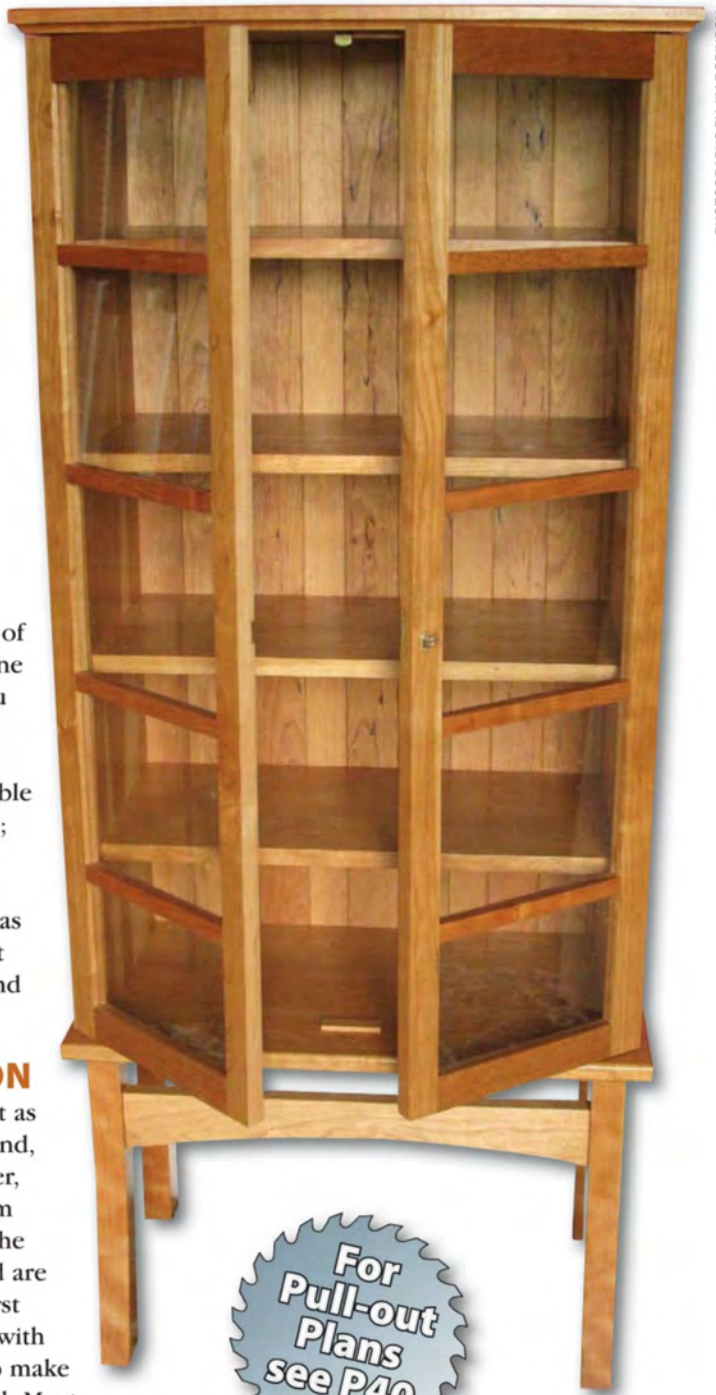
Display cabinet

Jim Robinson creates this display cabinet to house his Grandson's collection of models



PHOTOGRAPHS BY JIM ROBINSON

My Grandson is a keen model maker and he needs a display cabinet, so as to be expected I have been given the contract. The cabinet is to be made in American cherry (*Prunus serotina*) with glass doors. I envisioned that it would be wall hung but he lives in a rented flat and is not allowed any fixtures on the walls. The design therefore incorporates a removable stand so that the cabinet is still suitable for wall hanging if the situation changes.

Models are very tempting for small fingers, so looking ahead I suggested a lock should be fitted to the glass doors. American cherry nearly always contains a proportion of sapwood on at least one side of the boards. You need to decide before starting whether you want the sapwood visible as a decorative feature; however, I decided to keep the outside faces as free from sapwood as possible and confine it to the internal faces and shelves.

CONSTRUCTION

1 The display cabinet as opposed to the stand, which is described later, was made entirely from 25mm sawn boards. The longest boards needed are for the two sides so first select enough boards with one reasonable face to make up the widths required. Most American cherry comes in boards of about 127mm in width so I had to use two and a half boards to make up each side.

The display cabinet is made entirely from 25mm sawn boards

Plane one side of the board flat then pass through a thicknesser

Before gluing, cut biscuit slots at about 200mm spacing

For Pull-out Plans see P40

2 Plane one side of the boards flat, then pass through a thicknesser until you finish with a 22mm thick board. After thicknessing plane the edges to be joined square, if you alternate adjacent boards against the planer fence any slight error will be cancelled out.

3 Before gluing the boards together cut biscuit slots at about 200mm spacing, this is to help keep things in line when gluing, although from a strength point of view it is probably not essential with modern glues.

4 Apply glue to one face only but both biscuit slots, then cramp together and hold in cramps until set. I prefer to use a Cascamite-type glue rather than PVA because it is easier to sand. PVA glue is heat sensitive and can spread when sanding and it is also subject to creep, after a period.

5 Four shelves were needed so these were made up of boards in the same manner as the sides but this time the thickness is 19mm. You will also need to join together in a similar manner enough boards to make up the width for the top and bottom. I used a thickness of 22mm for these. Be careful when positioning the biscuits that they are not too close to the ends so that they become visible when trimming the ends to length. Note the bottom is made slightly wider than the top so that it sits better on the stand. Use a belt sander to remove the glue and level the joins.

The sides

6 Leave the sides longer than required if possible to allow extra bearing surface for the router when cutting the housing at each end, which when trimmed will form the long tenons to join the top and base to the sides. Cut the sides to the finished width required plus about 3mm to allow for trimming after cutting the rebate for the back. Four housings are needed in each board to take the shelves; these should be 19mm wide and 12.7mm deep.

7 Two extra housings need to be cut on each side piece, one at the top and one at the bottom. These housings are taken out on the reverse

Apply glue to one face only but both biscuit slots, then cramp together

of each board to a depth that leaves a 10mm thickness so that when sawn through a 10mm wide tenon is formed. All the housings are taken out with a 19mm diameter straight cutter in the router which is guided by a batten or jig clamped to the surface, the housings are stopped short of the front so they are not visible.

Use the same cutter but this time with the router guided by a fence to take out the rebate at the rear of both sides to take the planked back. Do not take the rebate at the rear of the top and bottom at this stage until you are sure where to stop the ends. Trim off the surplus at the top and bottom of the sides so that you are left with a 10mm wide tenon, 12.7mm high.

Fitting the shelves

8 Trim the shelves 260mm wide and 565mm long making sure the edges are square, allowing for 12.7mm penetration into the housings at each end.

The boards making up the shelves were thicknessed to 19mm before joining together; however, if the shelves are too tight a fit in the housings they may need a little more sanding at each end until they are a

The thickness needed for the four shelves is 19mm

Leave the sides longer than required to allow extra bearing surface

good fit. Before you glue the shelves in place you will need to cut away the front corner so they finish flush with the internal face of the sides – I remove this corner on the bandsaw. If you have a trial run with scrap to make sure it is a good fit then you can set the fence and the depth stop and it is not then necessary to mark the position on each individual shelf.

Two extra housings need to be cut on each side piece

Trim all the shelves 260mm wide and 565mm long

When everything is in line and square hold in cramps until set

Select wood 22mm thick to glue together to form the top and base

9 The shelves and inside faces of the sides should now have their final sanding ready for fitting. Apply glue to the housings only, so that surplus glue is pushed in rather than out. Fit the shelves in the housings, check all is square and true, then hold in cramps until the glue has set.

10 Select sufficient wood 22mm thick to glue together to form the top and base. Biscuits are useful to keep the boards in line when gluing, but make sure they will not be visible when finally trimmed to size. When the top and base have been removed from the cramps they are cleaned up ready for sinking the trenches to hold them in place, do not cut to the exact size at this stage, the extra length in particular gives extra surface for the router to bear against.

11 Rather than take measurements, position the top and base in the correct place on the sides, then draw round the tenons to determine the exact position for the long mortises. Form the mortises by taking out the housing with a straight cutter in the underside of the top and similarly in the base.

Place the top and base on the sides in the correct position, then trim the ends of the tenons after taking a direct measurement to mark out the amount needed to be trimmed off. Form the rebate to take the back, remembering to stop in line with the side rebates. A little hard trimming will be needed to complete the corners; trim the top and base to the exact size required before forming the mouldings.

12 I used an 8mm self-guided coving cutter in a hand-held router to form the mouldings at the front and sides of the top. I rounded off all the edges with a small self-guided rounding over cutter.

Do not glue the top and base in position before completing all the sanding required on the sides first.

THE DOORS

The doors are rectangular in section with the rebate for the glass cut out after gluing together. Cut tenons on the top and bottom rails, use a router to sink corresponding mortises on the side rails to accommodate them. When glued and set, cut the rebate to take the glass at the rear of the doors with a self-guided rebate cutter.

Do not attempt to cut the full depth of the rebate in one pass but take small cuts; if you take the final pass with the router travelling in the reverse direction a better finish will be achieved; however, take a very light cut and ensure the router is held tight to avoid it running away from you.

Use an 8mm radius self-guiding coving cutter to form the mouldings

The glazing bars

13 The glazing bars are made in two parts – see drawings. Fit the web section of the glazing bars into small mortises cut into the frame, I used a router to cut these.

Machining the stopped mortises

The router is guided by a jig when mortising

A glazing bar glued and fitted into position

Machining the door hinge recesses

14 Cut a small trench in the underside of the flat top section of the glazing bar so that when glued in position the web top is level with the door front and the underside is level with the rebate to take the glass. Notice that the glazing bars are positioned so that they line up with the shelves to increase visibility.

Fitting the doors

15 The doors of the display cabinet are fitted in position with three 38mm hinges on each door. I fixed the hinges on the doors first. A router can be used to take out most of the waste; set the depth of cut to the thickness of each hinge leaf.

After screwing the hinges in position the doors can be placed flat on the cabinet and a marking knife used to outline the small recess required on the side front for the hinges. I made the cabinet doors just a fraction oversize so that when the doors were fixed to the cabinet a small low angle block plane could be used to plane the clearance required for a good fit.

16 The left-hand door is fitted with a small bolt at the top and the right-hand door fitted with a lock. Take out the rebate for the lock.

17 The constructed carcass, minus back.

18 Very carefully mark out the position required for the escutcheon. Drill a hole and use a small chisel to cut the recess for the escutcheon making it slightly undersize so when tapped into place with a small hammer it is a tight fit and can be sanded flush. Cut a small recess at the rear of the left-hand door for the lock to engage into.

Note the lock rebate on the door frame

THE CABINET BACK

The back of the cabinet consisted of random width boards and these are best made and finished before fixing to the cabinet – this makes the finishing process easier. Some of the boards were made to the full length of the back and others made from short ends were joined at the rear of the shelves by fixing with screws at a slight angle.

Making the back boards

19 The boards were thicknessed to about 10mm after resawing from 25mm sawn boards using the bandsaw. Make the width of the boards no more than about 90mm in width, this reduces the amount of shrinkage that can occur at the joints. If the boards are wider more than one screw may be needed at each shelf position and this restraining could make shrinkage splits more likely.

The bar carcass sitting on steps to show approximate finished height

An inset escutcheon is needed to achieve a neat result

Rebating a back board

After thicknessing the board and planing the edges square use a self-guided rebate cutter to work a rebate half the thickness of the board on alternate edges so that the boards overlap at the joins.

20 If you plane a small chamfer at the edges then when the boards butt each other a small 'V' is formed which looks better as a feature than a small gap especially if the boards do shrink slightly. It is much easier to apply the finish to the cabinet if the boards are Danish oiled before fixing.

Chamfering the back boards looks better

Using Danish oil to finish the carcass

Fixing the glass

3mm glass is used for the doors because of the relatively small panes; if you omit the glazing bars and use a large sheet of glass then it would be safer to use thicker glass. Fix the glass in place with small fixing strips about 10mm wide and 3mm thick, these should again be Danish oiled before fixing. Use a PVA glue to fix these strips but only apply spots of glue at about 25mm intervals, this makes it possible to remove the strips. If a pane needs replacing, without doing too much damage to glazing bars, the doors should be finished before fixing the glass.

Finishing

21 After you are sure the doors are hinged properly and are a good fit the finish can be applied. We did not want a high gloss finish so two coats of Danish oil were applied as a sealing coat before applying wax polish with a Scotch-Brite cloth to remove any slight nibs. The wax was then burnished. Remember to dispose of any cloth used for Danish oiling safely because spontaneous combustion can occur due to oxidation.

THE STAND

The stand is fixed to the base of the cabinet using angled table plates. These plates are screwed firmly to the side rails but the slots are used for the screws fixing the stand to the cabinet; this allows for any differential movement as a result of the opposing grain direction.

The rear legs are positioned about 19mm away from the rear of the cabinet, so that the skirting does not prevent the rear of the cabinet fitting snugly against the wall. The front legs have a slight curve so that they project somewhat in front of the cabinet to give a little more stability as well as improving the appearance.

22 The legs and side rails were cut from sawn timber that after planing and thicknessing was just a fraction under 38mm thick.

Plane the rear feet all round after first cutting to size, make the upper 127mm of the front feet straight and then curve the lower part. I drew the feet out full size then transferred the outline of the curved part to the wood

Transferring the curve from paper onto the wood

using pencil carbon paper. Take care with grain direction so that there is no short grain at the bottom of the foot to cause a failure.

23 Plane the rear of the front foot to remove saw teeth marks, and then smooth out any irregularities with abrasive paper. The front surface of the front feet is convex so remove the bandsaw teeth marks with a spokeshave; this is easier if you hold it at a slight angle to the direction of cut. Complete the shaping by sanding it smooth.

24 The side rails for joining the feet together are cut from the same board but were thicknessed so that they finished about 32mm

Shave the wood at an angle to reduce the effort required

Removing mortise waste with a big router

Squaring out the sockets by hand

Cutting the waste away

thick. Cut the front and rear rails from 25mm sawn boards and plane the thickness to about 22mm thick. The front rail has a curve at the base and this can be easily marked out if you bend a steel rule and hold in place while a willing volunteer draws around it with a pencil.

The curved underside is cut on the bandsaw and teeth marks removed as previously with a spokeshave followed by sanding.

The side and end rails are both joined to the legs by 12.7mm thick tenons. I used a router guided by a fence and fitted with a straight cutter to remove most of the waste...

25 ... before squaring the ends by hand using a chisel.

26 The tenons can be cut to the required 12.7mm width by setting the fence so that an equal thickness is taken from each side.

27 If your bandsaw is well set up the tenons can be cut easily.

The ends are done as sub assemblies

Cut the rails to the length required plus the length of the tenons, and then use the fence to cut across the grain to form the cheeks.

ASSEMBLY

28 Before assembling the stand I took all the sharp corners off using a 3mm radius self-guided cutter in a router. It is less nerve racking if you assemble the stand in two stages. First glue the legs to the side rails and hold in cramps until set. If glue is only applied to the mortises there is less mess to clean up because any surplus glue is pushed in rather than out.

29 When the two ends are set it is a simple procedure to join the ends with the front and rear rails. The stand is now ready for the finishing process. This is the same as the cabinet.

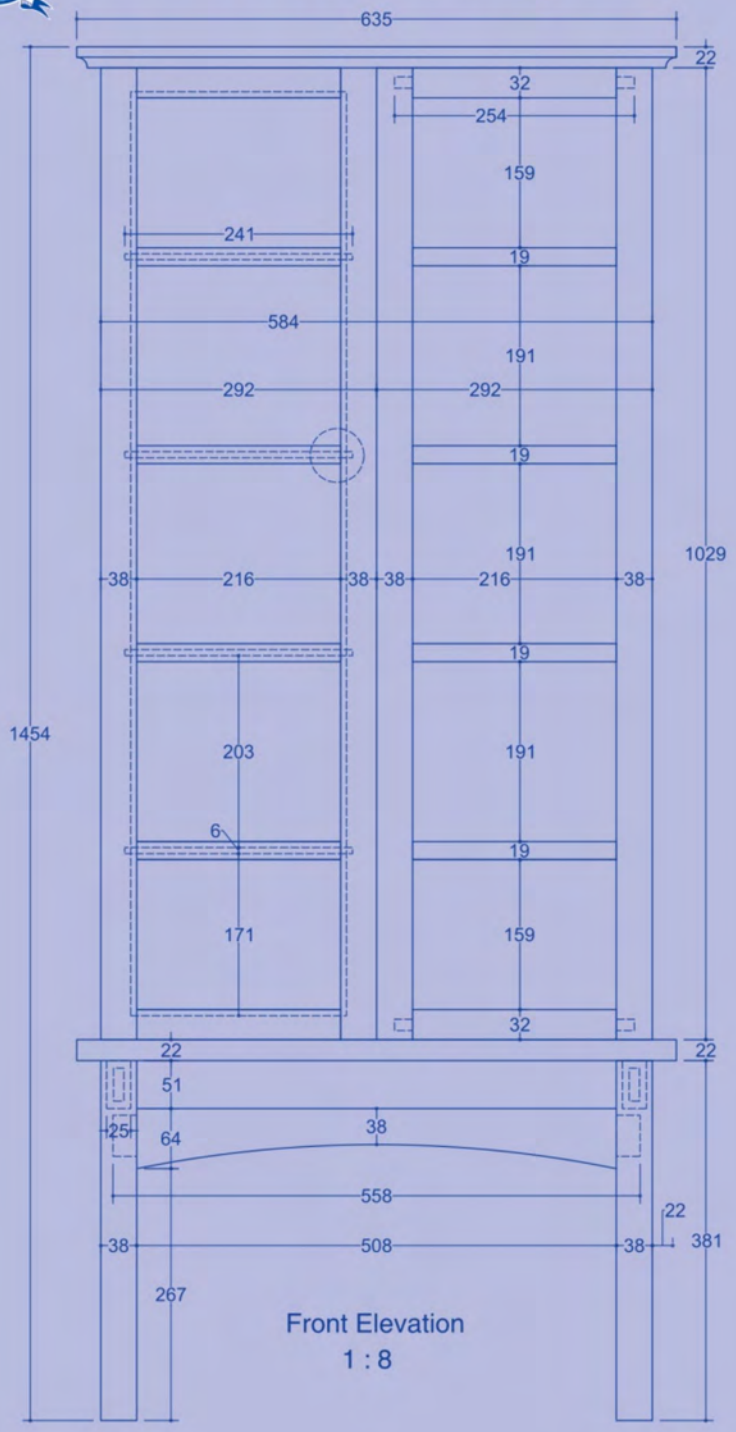
30 The finished cabinet and stand. ■

The stand is now completed

Forming the tenon cheeks on the bandsaw

The finished cabinet is ready for 'display not play!'

Your free display cabinet plan



Front Elevation
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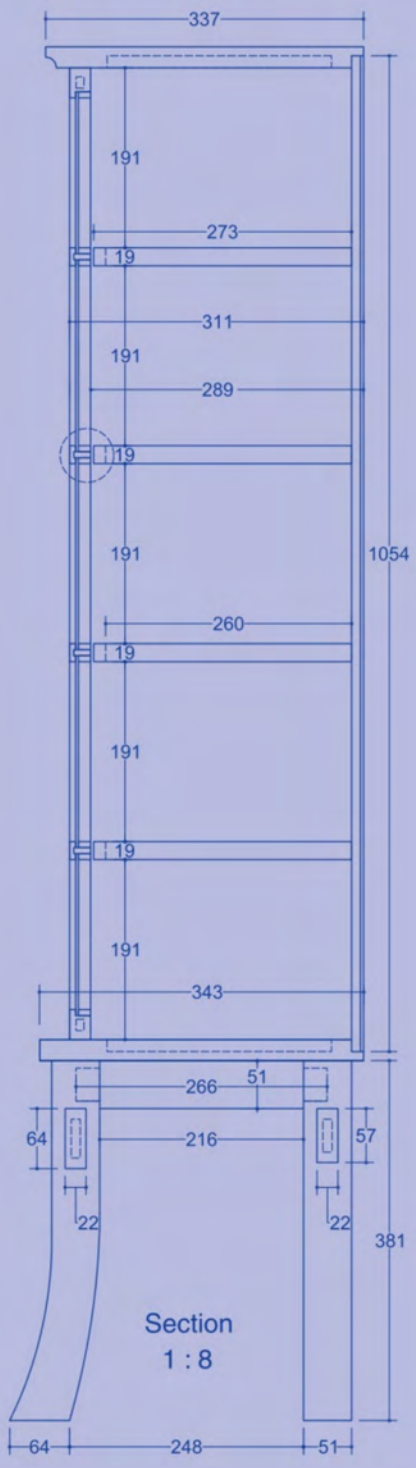

Section
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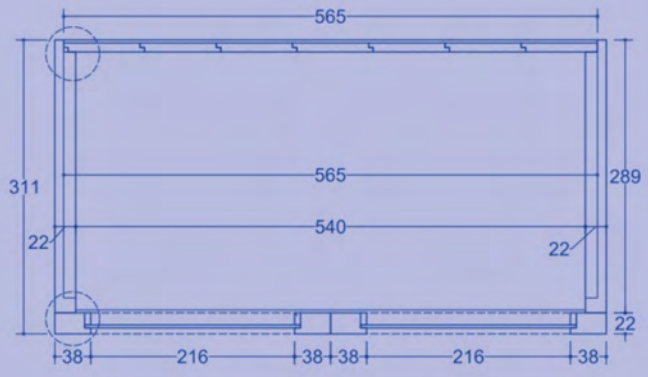

Plan/Section
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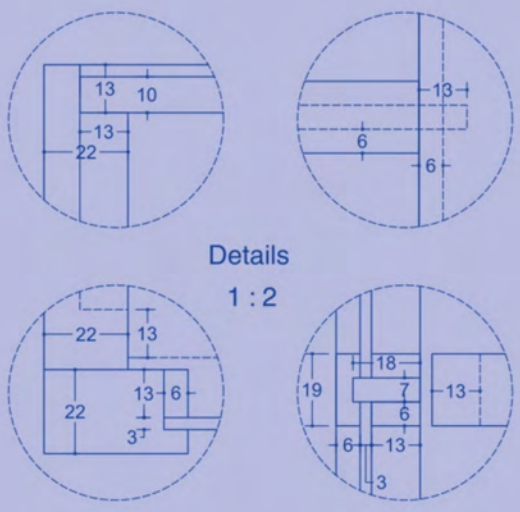
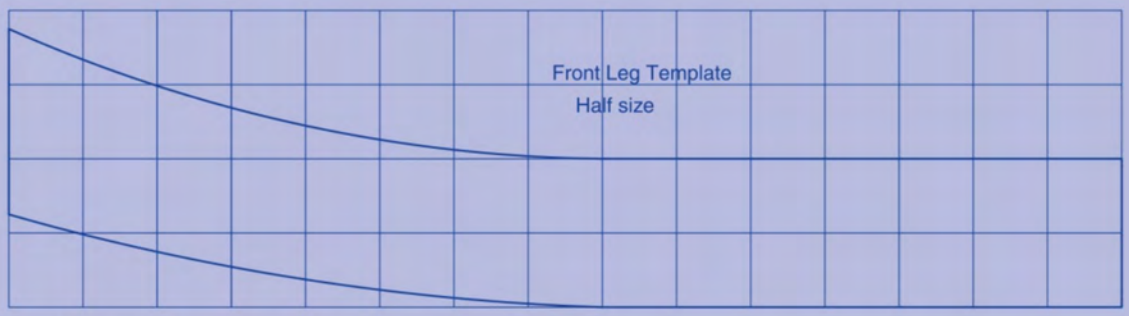
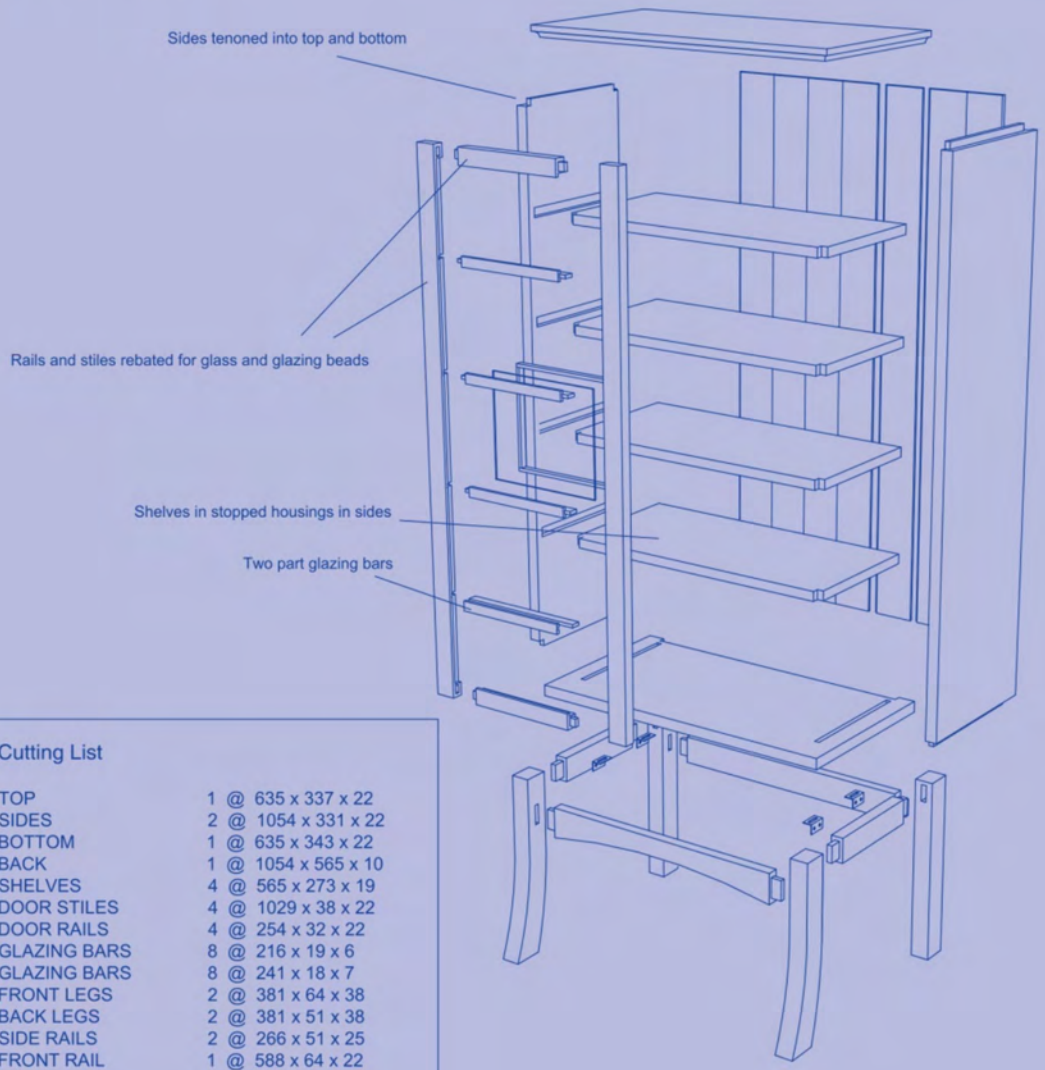


Details
1 : 2

WOODWORKING
Plans & Projects



Grid shows one inch squares



Cutting List

TOP	1 @ 635 x 337 x 22
SIDES	2 @ 1054 x 331 x 22
BOTTOM	1 @ 635 x 343 x 22
BACK	1 @ 1054 x 565 x 10
SHELVES	4 @ 565 x 273 x 19
DOOR STILES	4 @ 1029 x 38 x 22
DOOR RAILS	4 @ 254 x 32 x 22
GLAZING BARS	8 @ 216 x 19 x 6
GLAZING BARS	8 @ 241 x 18 x 7
FRONT LEGS	2 @ 381 x 64 x 38
BACK LEGS	2 @ 381 x 51 x 38
SIDE RAILS	2 @ 266 x 51 x 25
FRONT RAIL	1 @ 588 x 64 x 22
BACK RAIL	1 @ 588 x 57 x 22

Note: back is shown as single piece in cutting list. Front leg dimensions do not allow for wastage and shape should be taken from template.

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Hot Stuff

Prices are correct at time of printing and inclusive of 20% VAT. Photographs and information courtesy of the manufacturers

TORMEK Small Knife Holder SVM-00

£25.40

The new Small Knife Holder SVM-00 from Tormek can handle those really small knife blades which up until now, have been difficult to sharpen. Normally they have been sharpened freehand but every time it was a challenge to get a consistent shape and almost impossible to control the edge angle.

The new holder works in conjunction with the Tormek Knife Jig SVM-45 and opens up the ability to work with complete control on a much wider range of small knives. You can now sharpen knives of different shapes for whittling, chip carving and detail work. The SVM-00 can also handle narrow chefs' knives like boning or fish filleting knives. Even folding pocket knives can be sharpened with perfect control.

CONTACT: BriMarc
WEB: www.brimarc.com

NEW BriMarc catalogue

Free

BriMarc Tools & Machinery has just launched its new 2013 Tools Catalogue.

This 116-page catalogue is packed with some exciting new brands including UJK Technology which offers a range of routing and pocket-hole tools and accessories designed by woodworking experts for the hobby and professional craftsman.

Also new to the catalogue is Shesto, suppliers of polishing kits and lights for all crafts. Plus, new from Proxxon are the AH 80 surface planer and the FD 150/E metalworking lathe.

CONTACT: BriMarc
WEB: www.brimarc.com

Kreg Multi-Mark Tool

MINI TEST

The Editor tries out the latest little gadget from Kreg

£11.40

This dinky little gadget is one of those go-anywhere bits of kit that you can pull out on the spot and put to good use. It is principally a 'second fix' carpentry layout tool with a number of different functions. A slot in the side at one end for the scale to slide in gives a 45° angle, perfect for architrave cuts around doors, etc. A slot at the other end gives 90° and a vertical position allows you to set out different measurements and usefully, to get the same marked setting all the way along a workpiece. The spirit level does the obvious and the scale can be removed for use on its own. A ledge on the tool can be used to offset the architrave the correct distance back from the door lining.

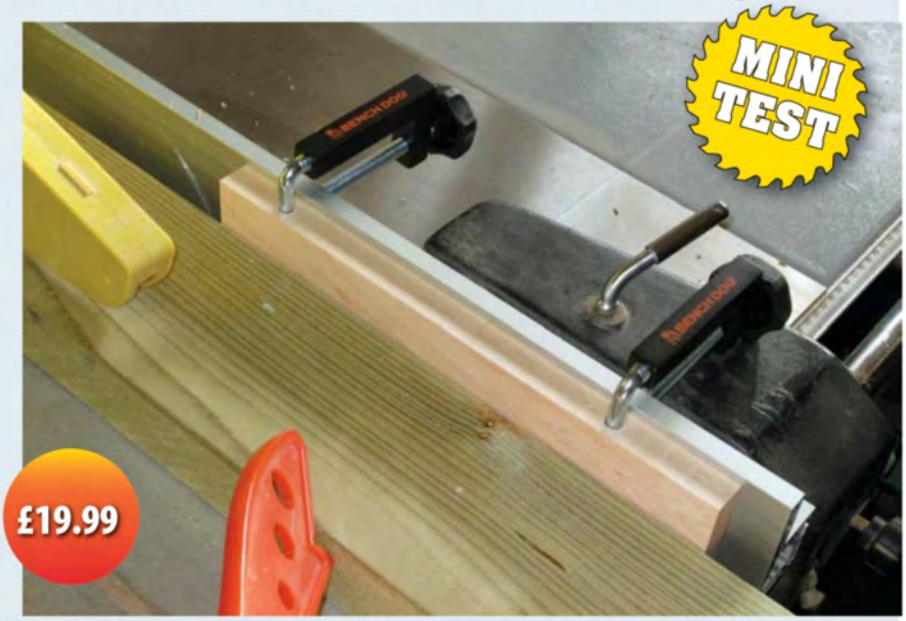
Verdict

The Multi-Mark is ideal for dealing with door frames, from setting out the hinge positions to fitting the architrave. However, it has many other uses. It is accurate enough for carpentry but not so good for cabinetwork if you want exact 90° settings. However, it proved very useful for scribing and transferring distances with scale in the vertical position. The spirit level agreed perfectly with a much longer level, so it could be good for checking in confined spaces.

CONTACT: Kreg
WEB: www.kregtool.eu

Bench Dog Universal Fence Clamps

The Editor clamps down with Bench Dog



These simple gadgets are designed to make your life easier and I can confirm they certainly do. How many times have you wanted to add a sub-fence to a router table, tablesaw or bandsaw? Some fences don't have a sub-fence or any means of fitting one which is where these clamps come in. I wanted to do some ripping on the tablesaw which meant bringing the fence just forward of the blade to allow the timber to change shape as tension is released during cutting. I chose a planed piece of oak (*Quercus robur*) and drilled two holes to fit the Universal Fence Clamps to and quickly and safely attach it to the fence. They come as a pair of clamps with loads of adjustment including the bent arm which can also be wound in or out. Small, handy things to keep ready for any suitable machining job.

CONTACT: Bench Dog
WEB: www.benchdog.eu

TUFFSAWS SuperTuff Premium 3-4 Vari-Tooth blade

The SuperTuff Premium 3-4 Vari-Tooth is a new bandsaw blade that has sections of 3tpi and 4tpi. This makes the blade really versatile and able to cope with cutting stock from around 15mm thick up to the maximum depth that the bandsaw can cope with. The blade is made from thinner material than standard blades which makes it easier to tension and along with the thin kerf tooth design, limits the amount of waste created. Originally designed for re-sawing, ripping and veneer cutting, the new tooth design has also made it a great general purpose blade. Prices are dependent on the blade length.

CONTACT: Tuffsaws
WEB: www.tuffsaws.co.uk

From £14

SuperTuff Premium 3-4 Vari-Tooth

WOOD BEAVER Nail Proof drill bit

It has been four years since Armeg Ltd, the UK's leading supplier of innovative drilling and tool solutions launched their Wood Beaver into the market, and Armeg have now added the new 'Nail Proof' Wood Beaver to their range.

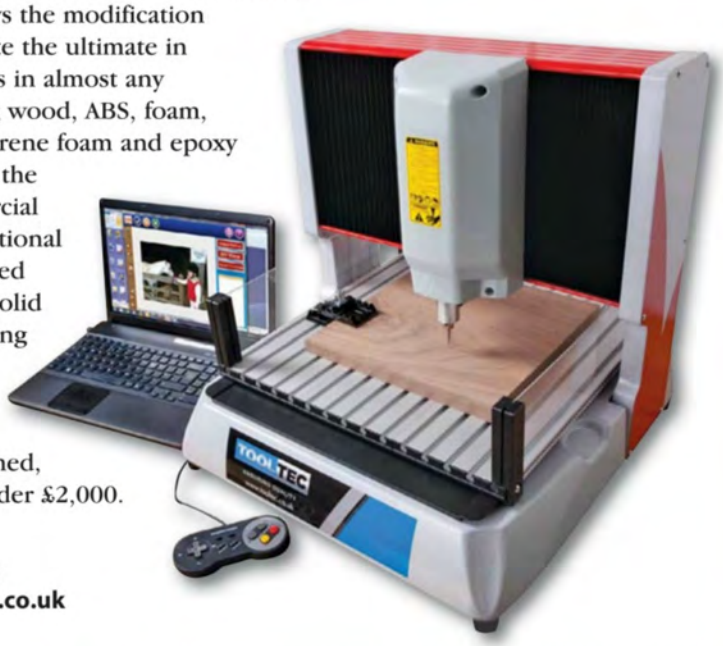
Designed with all the benefits of the original Wood Beaver, the bi-metal 'Nail Proof' features a stronger HSS cutting head, allowing it to provide effective drilling, even after nail strikes. The four precision ground cutting teeth are designed with a robust profile, providing more resistance to harder materials and giving the 'Nail Proof' longer life and durability. Increased protection against unexpected nail strikes combined with increased tool durability make the 'Nail Proof' the ultimate addition to any tradesman's tool kit. Prices vary, suggested price range from the manufacturer shown.

CONTACT: Armeg
WEB: www.armeg.co.uk

TOOLTEC Click 'N Carve CNC engraving machine

Under £2,000 POA

This all new Tooltec CNC engraving machine has virtually limitless applications, with easy-to-use software which allows complete novices to create carvings from pictures in minutes. The flexible edit software allows the modification of pictures to create the ultimate in high quality images in almost any material, including wood, ABS, foam, modelling wax, styrene foam and epoxy tooling board. For the advanced, commercial or enthusiast, additional software can be used to create true 3D solid models with amazing replication and accuracy. At time of print the price is yet to be confirmed, but will start at under £2,000.



CONTACT: Tooltec
WEB: www.tooltec.co.uk

£51.59

BOSCH Professional workwear trousers

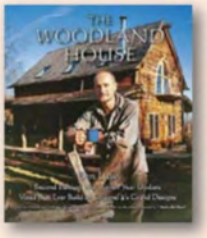
The Bosch Professional trouser with kneepad pockets offers additional features such as top loading kneepad pockets, Cordura® reinforcements on these pockets ensure high abrasion resistance. Multiple pockets keep tools and utensils within reach at all times, and are reinforced with double fabric to protect them from damage by sharp objects such as pencils. Bosch professional kneepads provide insulation, repel moisture and protect the wearer's knees from damage. See the website for the full range of Bosch Professional workwear.

CONTACT: Bosch
WEB: www.bosch-professional.com

BOOK & DVD REVIEWS

The Woodland House

by Ben Law



Ben Law's woodland home, voted 'Best Ever Build' on Channel 4's Grand Designs could not be a more environmentally friendly build, as presenter Kevin McCloud puts in his foreword, "this, in carbon terms, is an invisible house." This inspirational book documents the entire process from the initial idea through the design and construction and now has an added seven year update, where we visit the home with jasmine and roses climbing up its weather-darkened cladding. It's a beautiful building which looks so natural, it's as if it grew there! A fascinating, heartwarming read which documents the entire build in scrupulous detail and gives a great insight into the experience.

ISBN: 978-1-85623-044-5
PRICE: £14.95 (plus P&P)
FROM: Permanent Publications
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Taunton's Built-Ins Idea Book

While this book doesn't show you how to make the many stylish storage solutions within, it is a fantastic source of design ideas to get the mind of any idle-handed woodworker ticking towards a new project made to fit their home. There are chapters on every part of the home, and each and every photo screams both style and practicality. If you want to organise and update your home, this is a great starting point.

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Craftsman's corner

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Bosch GTR 30 CE Professional tile router

Our 'old china' **Anthony Bailey** has a go with this cracking piece of kit

If you need to splash out on a tile cutting tool, maybe Bosch's tile router is the one for you? I remember many years ago, an editor colleague at the time said "This gadget is going to do away with all woodworking routers." Well, it never it happened I'm glad to say; the tool he was referring to was the RotoZip spiral saw which is still going strong in the USA, but here at home it has transmogrified into the Bosch GTR 30 CE tile router – a tool with much more limited objectives, i.e. routing tiles. It shares the features of one of the RotoZip machines and can be fitted with diamond dry core bits. It is a 'grip' router, which means it sits vertically and you hold it in your hand with a safety strap at the back for security when working on vertical surfaces, etc. It has a push-on, flick-off switch, variable speed dial, plenty of fan ventilation and it sits in a plastic base mounting.

Remove the base and you have access to the collet with a spindle lock and one spanner action. The plastic base allows height adjustment and has an extraction outlet for the supplied hose and adaptor.

Verdict

As this isn't a plunge tool, you have to press on the base holding the machine at an angle for initial entry and then bring the router upright; then, move in a slight circular motion if you need to increase hole size. PPE is essential, especially eye protection and an effective dust mask, although you should use extraction too. This is a 'second fix' tool for bathroom and kitchen installers and plumbers needing to fit additional pipework, shower fittings, cisterns, etc. It works well, just as intended, but it's a shame you can't fit other cutter bits for woodwork or drywall use such as making cutouts for switchboxes. Using the 25mm diamond core bit made fast work of cutting through a standard white tile without any fuss at all. This is definitely the tool to use when nothing else will do it. ■

THE NUMBERS

Manufacturer: Robert Bosch UK
Model: GTR 30 CE Professional tile router
Motor input: 701W
No load speed: 15,000-30,000rpm
Collet sizes: 6.3mm (supplied), 4mm
Cutters: Diamond core 6mm, 9.5mm,12mm, 25mm, 35mm (supplied)
Weight: 1.5kg
Price: £336 (RRP Inc VAT)

WHERE TO BUY

Web: www.bosch-professional.com

BOSCH

The Jet 1442 lathe has a good capacity over the bed to be able to turn good sized bowls and platters

PHOTOGRAPHS BY GMC/ ANTHONY BAILEY, UNLESS OTHERWISE STATED

Jet lathes

Woodturning Editor **Mark Baker** turns his attention to lathe selection

With over one metre capacity between centres, balusters, spindles and table legs are easily within its scope

When selecting a lathe one has to consider budget, what you intend to turn, and the space in your workshop. Some budget also needs to be set aside for turning tools, PPE – including dust extraction – holding devices, which might include a chuck if you are looking to turn a variety of things, and last of all, a selection of finishes and abrasives.

It is prudent to do your homework to see what is about and check like with like as far as product is concerned. There are many lathes about, but like everything in this world, not all are made equal. Ask your friends what they have. When you look also check out the backup service of the company you buy from. Not only is it good to get the best deal, but knowing that should something go wrong you can always get support and backup is vitally important too. Jet lathes have one of the largest ranges of lathes available and here we only just touch on a few of them to show what you might look for when choosing your own.

I am using the Jet 1442 which is a mid-sized lathe capable of a wide range of turning projects including spindles, balusters and chair legs as well as good-sized bowls, platters, hollow forms and so much more. At 165kg it is quite heavy, so has a good amount of mass. Its capacity between centres allows you to turn plenty of furniture/architectural elements, and its bowl turning capacity of 355mm over the bed is large enough for much of the standard bowl turning likely to be tackled. The headstock has the facility to be swivelled or moved along the bed so you can increase the turning capacity for faceplate/bowl work with the use of a freestanding rest – an optional extra – which is a handy facility to have.

The basic kit supplied is a knock-out bar for the headstock drive centre and tailstock revolving ring centre. It is also supplied with a faceplate; a basic, but ideal start to the turning kit required. The lathe sports a manual lever-operated variable speed control and has a preset eight-speed range of 370-2,500rpm. The low speeds are needed for big and out-of-balance work, while the higher speeds are needed for turning smaller pieces such as pens and small diameter spindles and boxes.

Mini/midi lathes

This type of lathe is typically quite compact with an over-the-bed capacity of about 250–300mm and about 500mm capacity between centres. These suit people who have limited space and they can be tucked under a bench when not needed. They are excellent for people starting out. Note, however, that as with most lathes, you will pay extra for having variable speed control. This is not vital, but is very helpful and stops a lot of belt changing on manual speed change lathes. Usually this type of lathe has a fixed headstock. If you are looking to turn spindles/balusters and chair legs, etc. you will not have the between centre capacity to do this. Now here is the ingenious part: you can buy bed extensions for the Jet lathes, and with the bed length increased you can easily work on larger spindle work. Starting at about £292 for a standard manual speed change lathe you can get a nice lathe to get going with and one that may well do everything you need of it. Prices move up to £552 with electronic variable speed.

Mid-size/large lathes

As you look to work on larger items you need an increase in the capacity and mass of the lathe, so it is stable in use. Often supplied with a stand or including an integral stand, these lathes take up more space and are considerably heavier. They often have a moveable or swivel headstock which allows you to work in a more comfortable position, and the use of a freestanding floor rest allows you to turn far larger items such as large bowls, platters and table tops. Starting at about £1,149 going up to over £4,000, there is a marked increase in price.

The Jet 1442 has a headstock that will swivel or can be moved along the bed

Everything comes neatly boxed and assembly requires two people to connect the parts together. They are heavy, so two people really is a must. Setting mine up, it all went together well and apart from a wipe down with WD40 to clean up the anti-rust coating, it was ready to use.

The bed length allows furniture and architectural work to be tackled with ease. And the manual variable speed makes everything nice and easy when changing speeds from roughing down the out-of-balance work to a higher speed for finishing a piece. That said, one thing to remember is that with this type of manual speed, when changing from a small project to a larger one, remember to change the speed before you fix the project in place. This type of speed control can only be altered when the lathe is running.

Bowl/faceplate turning is easily undertaken and the above-bed capacity is large enough to create a family-sized fruit/salad bowl with ease. Since the headstock swivels you can add a little more capacity to the diameter and a better working stance by angling it about 25° or outwards. The toolrest assembly can reach this far without problems, but swivel the headstock further and you will need a freestanding rest.

This lathe is all about having options – you can tackle many projects with the standard setup, with the facility for more options should you need them later. ■

Don't forget, large lathes can tackle small scale work too

Jet JWL-1442

Distance between centres: 1,065mm
Max diameter over bed: 355mm
Net weight: 165kg
Dimensions: 1,795 x 510 x 1,210mm
Power input: 1,300W
Speed: 370-2,500rpm
Spindle and tailstock taper: 2MT
Spindle thread: 1in x 8tpi
Price: £1,149.50 (Inc VAT)

Jet JML 1014 Mini

Distance between centres: 350mm
Power input: S6 40% 645W
Max diameter over bed: 250mm
Net weight: 30kg
Dimensions: 800 x 200 x 355mm
Power input: 500W
Speed: (6) 400, 700, 1,000, 1,500, 2,200, 3,300rpm
Spindle and tailstock taper: 2MT
Spindle thread: 1in x 8tpi
Price: £292 (Inc VAT)

Jet JWL 1642

Distance between centres: 1,092mm
Power input: S6 40% 1,940W
Max diameter over bed: 400mm
Net weight: 200kg
Dimensions: 1,760 x 510 x 1,450mm
Speed: 0-1,200, 0-3, 200rpm
Spindle and tailstock taper: 2MT
Spindle thread: T38
Toolrest stem diameter: 1in
Price: £1,789.50 (Inc VAT)
www.brimarc.com

JET

PHOTOGRAPHS COURTESY OF BRIMARC

My Working Day

Simon Rodway

We pay our technical illustrator a visit

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Woodworking Plans & Projects; the clue's in the name – for every project, we supply plans, and that's where we turn to Simon Rodway. Simon has been providing illustrations for us and our sister magazines since the very first issue of *Furniture & Cabinetmaking* in 1996 – in fact, he is the only person to have contributed to every single issue of *F&C*!

Simon gained his skills in technical drawing when studying architecture: "I suppose what I do day-to-day is best described as 'virtual woodworking'" he explains; we send him the pictures and step-by-step instructions for each project, and he then builds them, not in the workshop, but in 3D on screen in his home study, using AutoCAD. His most important piece of kit is not a router or bandsaw, but a mousemat: "This thing saved my working life!" he says, "I started to get terrible RSI from using a mouse on the desk all day – now I have this larger mousemat which I put on my lap instead, and the problem has completely disappeared."

After Simon creates the 3D model, he pulls it apart on screen to show you how it's made, generating sections, plans and elevations. The drawing is imported into SketchUp, where it is rendered and grain and colour added, from SketchUp to PhotoShop, and then finally into Illustrator. In the dark but not that distant past, Simon would then print out and post the finished drawings, but he now sends these to us online, so we can slot them into the project pages in no time! ■

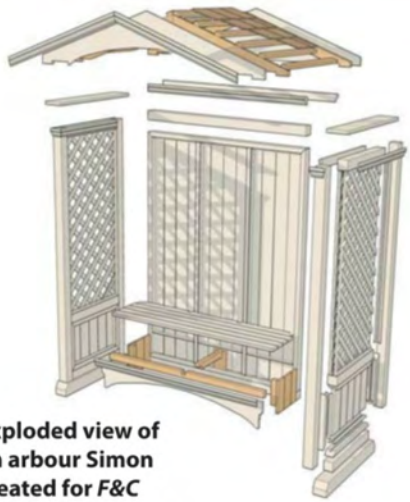
Simon at work in his home study

Simon's 'lap mat' eradicates the occupational hazard of RSI

Contact

Simon's website, LineMine, is a resource for sharing and selling technical drawings and 3D models

WEB: www.linemine.com



Exploded view of an arbour Simon created for *F&C*

Simon's Golden Rule

"In technical illustration, you should never sacrifice clarity for looks. It's important for the drawings to look fresh, interesting and lively, but their main purpose is always to explain how something works or is put together. That means that the illustrations also have to be accurate, and understanding what you are drawing is crucial to this."

Likes

"I love the fact that my commute to work is down a single flight of stairs, especially on cold, dark winter mornings. The variety of things that I draw means that I've never got bored in nearly 20 years of illustration, and I usually look forward to Monday morning."

Dislikes

"I spend a bit too much time on my own, and can end up having conversations with myself. I also spend too much time sitting, so I try and make sure I go for at least one walk every working day."

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DIY Solutions

Kitchen renovation

James Hatter brings a 1980s kitchen into the 21st century!

Kitchens get a pretty hard life, with continued use of the doors and drawers and the harsh environment, so it is not surprising that they can soon get tired looking. There are many ways that a kitchen can be uplifted, including new decoration, and replacement door and drawer fronts. Existing doors and drawers can be painted with specialised paints for melamine-faced surfaces. Worktops can also be replaced. But if a completely new kitchen is preferred, together with a change of layout, then hopefully this piece will help you.

This feature gives guidance on the processes involved in replacing a kitchen. It is intended to give a realistic insight as to the feasibility of tackling some, or most of the work yourself. The labour charges for a fairly straightforward installation can be in excess of £1,500, so a DIY option provides a significant saving. Often, even if you have modest DIY skills, there will be certain aspects of the work that can be achieved, resulting in a saving, while leaving other aspects requiring greater skill to a professional. Aspects such as gas and electricity supplies, however, always require qualified professional help.

Most suppliers of kitchens offer a design service. This requires accurate measurement of the room, and this is best sketched on paper, noting the positions of doors, windows, and electric and gas points. Also, list any obstacles that may affect choice of layout. Taking pictures of the existing kitchen will allow the designer to get a better understanding of the room layout. Have a clear understanding of your requirements, and the type of kitchen style you want. The resulting design option will list the required units, and prices, and provide computer plans and views.

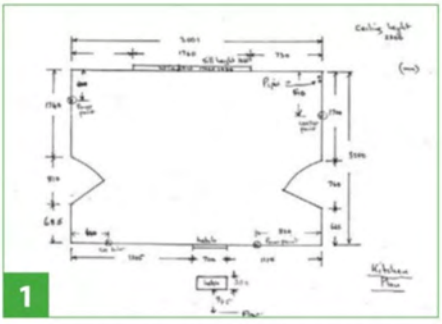
This guide makes use of the recent update of a 1980s kitchen to illustrate the processes. The kitchen measures 3m x 3.2m. The design chosen was a Shaker style that has cream ash-effect in-frame panelled doors and drawers. Kitchens invariably contain electrical outlets for sockets, cooker, extractor fans, under-unit lights, gas points and

PHOTOGRAPHS BY JAMES HATTER

Following the design and ordering exercise, the general approach is as follows:

- Removal of old appliances and old units
- Work done prior to new kitchen installation – electrical and plumbing first fix, wall repairs, ceiling and wall initial decoration and floor covering, if appropriate at this stage
- Assembly and installation of the new unit carcasses – both floor and wall, including any modifications required to accommodate service access
- Worktops and insert requirements – worktop joints, sink and hob cutouts
- Wall tiling or alternatives
- Unit fronts and doors, and drawer installation
- Second fix electrical and plumbing
- Appliance installation – oven, fridge, freezer, washing machine, sink, and any others
- Finishing touches – fitting plinths, adding trim, using sealants

The existing kitchen was looking very tired!



1

An accurate plan drawing is essential

2

Appliances need to be safely disconnected by qualified tradesmen

any other requirements. Any intended addition or alteration to any electrical circuit in a kitchen requires the work to be carried out and inspected to 'Part P' of the Building Regulations. Similarly, any gas work must be carried out by a Gas Safe installer. Water and drainage plumbing needs to follow good practice, and for a competent DIYer, plastic push-fit fittings offer an effective approach. In all cases do not take chances, and if you have any doubts at all, use professional help.

Often the kitchen supplier will send useful information, and instruction sheets a while before delivery of the kitchen units. This gives opportunity to become familiar with the assembly process. Even with the best planned kitchen you are bound to find some aspects requiring some common sense approach. The full renewal of a kitchen is no mean task, and as a first option, contact the kitchen designer to talk through any issues.

The overall cost of the example was £6,900, doing mainly DIY, though the electrical work required inspection and certification, at a cost of £150.

GETTING STARTED

1 Make a sketch of the kitchen measurements, including as much detail as possible. Take this to a kitchen supplier. The representative will feed the information into their computer system and produce a scaled plan, including the units you choose. In addition you will get a detailed list and computerised views of the finished kitchen. Thoroughly check through the information to ensure any errors are dealt with at an early stage.

2 The work starts with the safe removal of the old electrical and gas appliances. This may require the services of a qualified electrician and a Gas Safe technician.

The easy way to remove a top is to cut through it

Make sure that you cut out wide of any services

3 Remove old wall units. The removal of old wood-based worktops is assisted by cutting through using a jigsaw. Take care not to cut through any services that may lurk below the surface.

4 With the worktop removed, the old carcasses can be removed. These are likely to be attached to the wall, and to each other.

5 The kitchen is likely to be out of action for some time, so to allow use for basic needs, it is useful if the sink and tap supplies can be left in place for as long as possible.

6 With all the units removed, it offers a good opportunity to make good the walls, and apply a white emulsion. If you are retiling, either remove the old tiles or leave them to tile over.

7 It is also a good time to have the first fix electrical and plumbing services. Make sure the qualified electrician is officially registered to do 'Part P' work.

Make sure you have temporary facilities

Level and repaint the walls

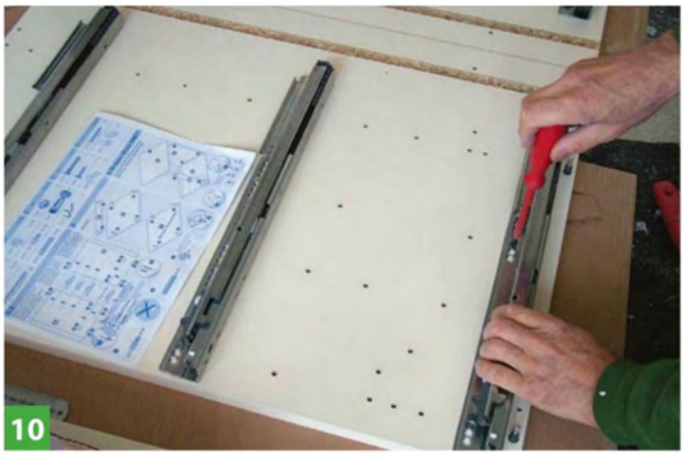
8 If a new floor covering is planned then it can be laid prior to installing the unit carcasses. This photo shows a natural stone Travertine tiling applied using the correct adhesive. I preferred to tile the whole floor area, although the area to be covered by the carcasses made use of cheaper tiles. This makes levelling the unit carcasses a lot more straightforward.

9 Typically, new units are supplied as flat packs. Open up the box, and remove the contents including the instruction sheet. Check all items are present.

Get the services chopped into the walls

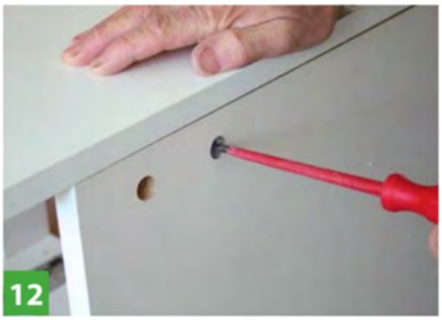
Make sure the existing floor is stable and level

Do read and understand the instructions – it saves time!



Attach all fittings before assembly

Feeding the panel over the post



Cam screws make for fast assembly

The back panel makes it strong

Take care when turning over so the feet stay on!

10 The unit illustrated is a drawer unit, so the runners are installed prior to assembly of the item. Start by screwing in the posts that will be used to join the sides. There may also be dowels. Cam screws are positioned as required in the adjoining panels.

11 The first step in the carcass assembly is to feed the panels over the posts.

12 Tighten the cam screws that will grip onto the posts, and pull the joint together.

13 Slide the back panel into the rebates in the sides. Use the supplied screws to attach the back panel in place.

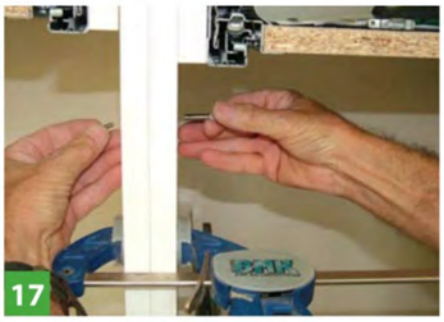
14 Stand the carcass upside down and insert the supplied feet. Screw in each foot to the value given in the instructions, these will be finely adjusted later, when the unit is in position.

15 Start by placing the first unit in a corner, then line up the next unit. Continue along the line. Check if you need to make any out-cuts for plumbing or electric socket access, or to overcome any obstructions. Use a spirit level to ensure the units are plumb and level.

16 Attach 'L' brackets to the top rear of the carcass units; mark the position for the wall attaching screw. Temporarily pull the units forward to drill the wall for a wall plug. Move the units back, ensuring they are still plumb and level.

A spirit level is essential for a good result

All units must be secured to the wall



Now tighten adjoining units together

Check the fit of the appliances

You will need help to lift the wall cupboards up

A dogleg joint is needed for the postform worktop

Take care not to tear the laminate

17 The units are joined to each other with screw inserts. First clamp the sides together, then drill a hole through, feed the screw insert through and engage and tighten with the matching screw.

18 It is advisable to ensure you have the correct space for any built-in units, by temporarily fitting them in place.

19 Further units are added including the wall mounted ones. Attach decorative end panels if these are included.

20 The worktops are cut to size, allowing for the required joints. A worktop jig will provide an accurate way of cutting matching butt and scribe joints. For non-wood worktops you will probably need to have these fitted professionally.

21 Use progressive passes of the router to give a clean final cut. The jig also allows panel connector recesses to be cut to take worktop connector bolts, which are tightened to bring and hold the joint together. The addition of size 20 jointing biscuits makes for a strong level joint.

22 The cutout for the sink is made. This can often be carried out prior to fitting the worktop, using, for example, a jigsaw from the underside surface. However, in my case the worktop length was long, and prior cutting would risk causing damage to the thin edges, so there was no choice but to cut this in situ. You will also need to paint the sawn edge of the sink cutout.

23 With the worktops in position and fixed to the top of the carcass units via 'L' brackets and screws, you can now attach rear edging to the wall using a grab adhesive such a Gripfill or No More Nails; the solvent-free versions are more than adequate.

A saw and guiderail will give a neat cutout

An upstand looks better and is more hygienic too

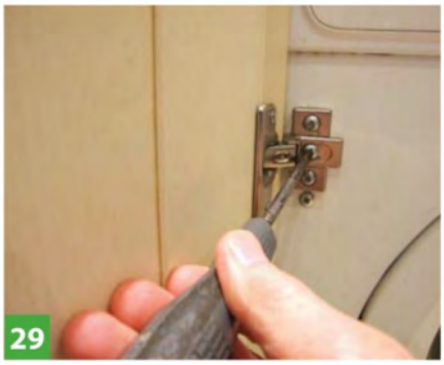
Hide ugly pipe work by boxing in

New tiles can be bonded to the old ones

Border tiles finish the edges off

You now fit the door hinges

Makes sure the doors hang correctly



Matching doors hide the appliances

24 Pipes can be covered using plastic moulding, or as in this case, a length of squared 'U' shape made using 6mm MDF and painted. This is fixed in place using grab adhesive.

25 Wall tiling can now progress. New tiles can be securely fixed to old ones if they are secure, make sure the surface is clean and slightly abraded with the correct adhesive used.

26 Border tiles can be added if required.

27 Attach the appropriate hinge part to each carcass, and hinges and handles to the doors.

28 Attach the doors to the units, making necessary adjustments for the correct fit.

29 Fit, or have fitted the range of appliances and any accessories chosen. If the appliance is a built-in unit then these will require a door to be fitted to that unit.

30 Finish the kitchen by adding any traditional trim and the plinth. ■

A beautiful clean-lined kitchen ready to use!

Chopstick stand

Fred & Julie Byrne

put down their knives and forks and take to the scrollsaw!

PHOTOGRAPHS BY FRED & JULIE BYRNE

Asian food and the use of chopsticks are becoming more and more popular. Friends of ours recently spent time in Japan and came back totally hooked on the whole Asian food experience, they brought back some very impressive chopsticks that are far too good to be hidden away in a drawer, so we came up with the idea of a display stand, similar to the stands used for a samurai sword.

The stand and rests are both laminated using two dark and one light wood, the design details within the stand are cut out first, and the three woods are then laminated together. The kanji – Japanese characters – scrolled out within the base represent "Happiness – one happiness scatters a thousand sorrows." We thought this was quite appropriate as sharing food with others is a happy occasion. You could of course use any kanji you wish or any other design that pleases you.

YOU WILL NEED

Scrollsaw – No.3 & 5 blades
Patterns
Glue stick/spray adhesive
Pillar drill – 1.5mm drill bit
Sandpaper – 280 to 320 grit
Wood glue
Clamps
Finish of choice

Cutting list

Chopstick stand
Base: 3 @ 190mm x 45mm x 2mm – 2 dark wood, 1 light
Roof: 3 @ 190mm x 55mm x 2mm – 2 dark wood, 1 light
Sides: 2 @ 170mm x 60mm x 6mm – dark wood

Chopstick rests
1 @ 18mm x 18mm x 45mm
Laminate 3 @ 6mm x 18mm x 45mm – optional

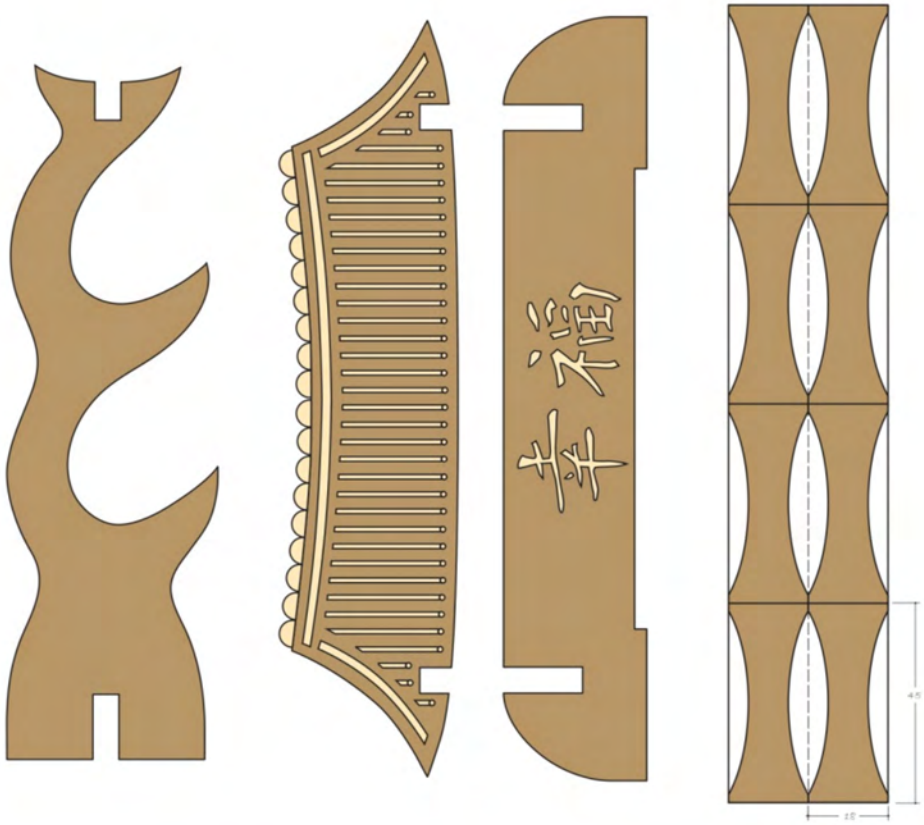
Getting started

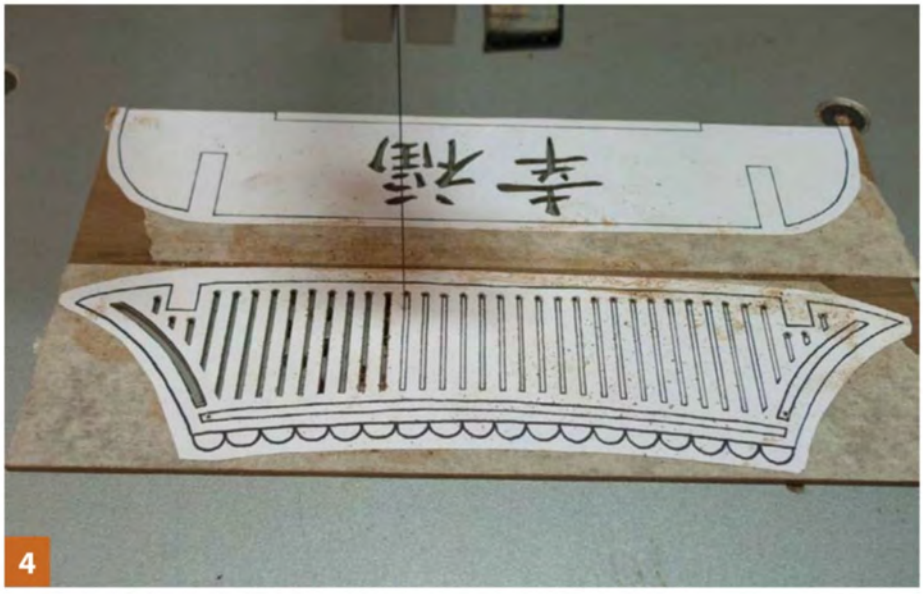
1 Prepare the surfaces of your chosen wood by sanding the outer surfaces only. Adhere strips of the extra wide masking tape prior to attaching the patterns – this makes the pattern much easier to remove.

Use wide masking tape as a base for the pattern

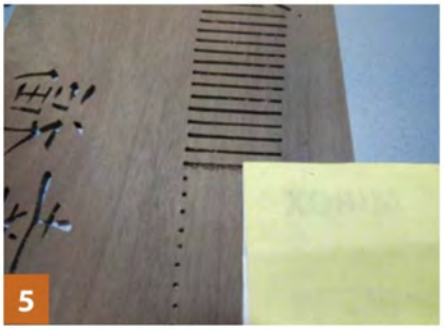
Drill all the pilot holes ready for cutting

Remove all inner cuts of the kanji



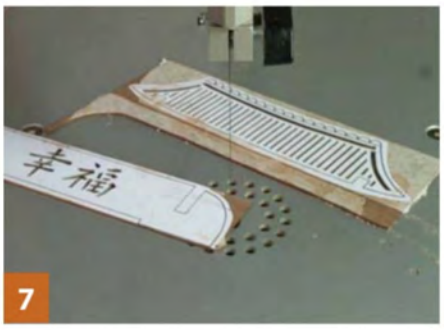


Work from left to right starting each cut on the left-hand side



Sand the underside smooth

Do the long cut last to retain strength



Cut outside the outer pattern line

2 Using a 1.5mm drill bit, drill all the blade pilot holes in the roof and base sections.

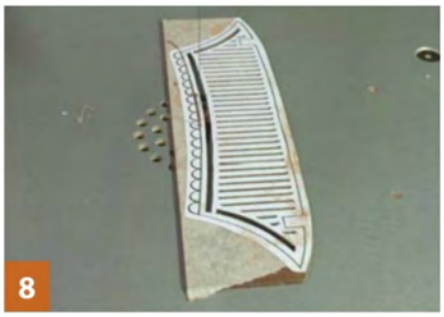
3 Set up the scrollsaw with a small No.3 blade and carefully remove the inner cuts of the Japanese kanji within the base section.

4 Cut the short line detail within the roof. Working along the line from left to right, make the first cut into each line down the left-hand side, thus finishing the cut on the right side. This will help to support the rest of the piece as you work to the end.

5 Sand the underside to remove the burr as you go, to keep everything nice and flat.

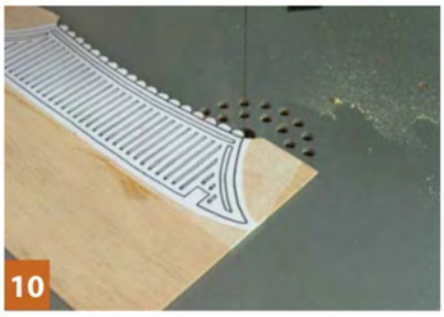
6 Leave the long cut at the top of the roof until last, again this will help to support the piece until the very last cut.

7 Next, once all the inner cuts have been made, cut approximately 3-4mm around the outside of the pattern you are going to use. When the roof and base of the stand have been laminated together they can then be cut as one.

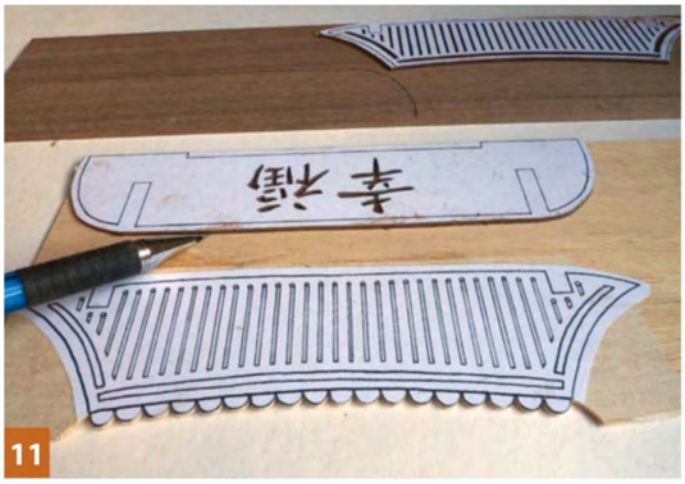


Remove the scalloped detail – the dark outer wood

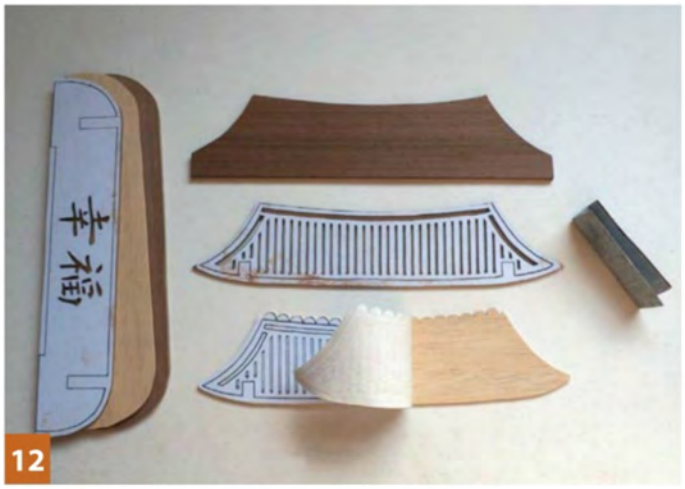
Carefully cut the scallop shapes – the light middle wood



Cut around leaving a border



Trace around the cutout sections



Remove the pattern before lamination

8 Cut along the top of the roof section to remove the scalloped detail, as this is only seen on the lighter wood that is in the middle of the lamination.

9 Next, cut around the scalloped detail at the top of the lighter middle section of the roof…

10 …then as before cut around the outer edge leaving a 3-4mm gap.

11 Use the cut out base and roof sections with their patterns still attached, to trace around the prepared remaining woods to complete the laminations.

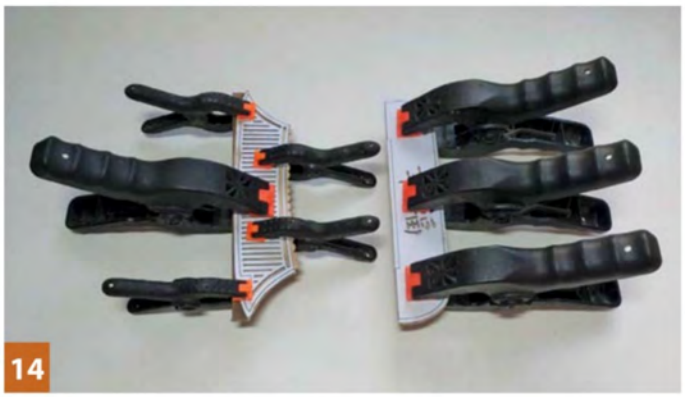
12 Remove the pattern from the middle – light wood – sections of the roof before laminating.

13 Apply an even layer of glue and then laminate the base and roof piece together, remove any glue that may have oozed out within the cut out detail.

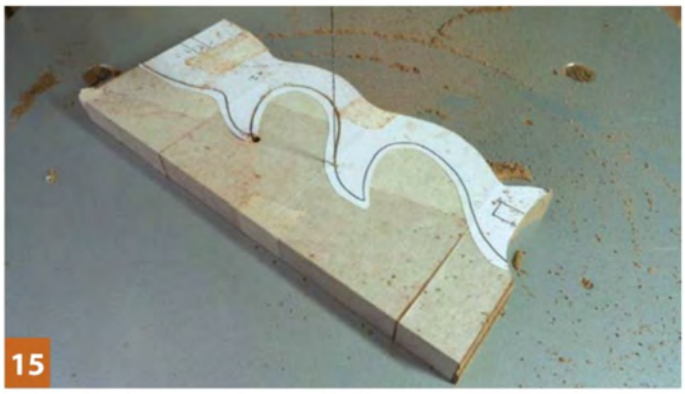
14 Check as you clamp that the pieces do not slip out of alignment and then leave to dry.

15 Meanwhile, secure the two side panels together with masking tape and attach the pattern, then, using a No.5 blade cut around the perimeter.

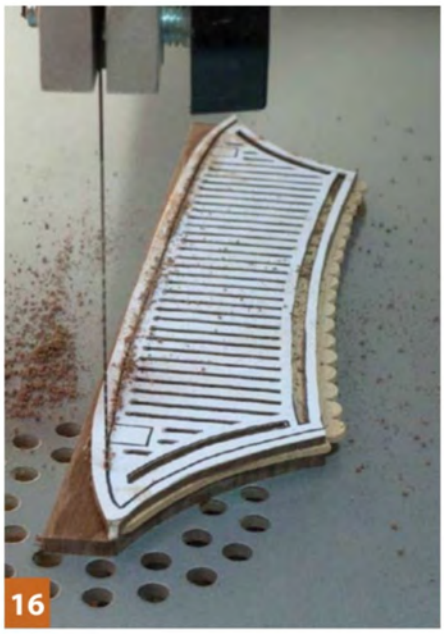
Laminate the sections together



Make sure nothing slips out of alignment



Secure the sides together before cutting



Now cut around the outer edge

16 Once the base and roof sections are dry, cut around the outer edge.

17 Remove the patterns and masking tape.

18 Using a fine grade sandpaper – 320 grit – lightly round over the edges to give that finished look.

Remove the patterns

19 Check the fit; the base and roof sections should fit snugly into each of the side panels; make any adjustments if needed. Apply a finish of your choice; we applied two coats of a clear liquid polish, giving a good buff in-between.

The chopstick rests

20 First fold the pattern along the dotted line and then attach it to the prepared wood.

21 Using the same No.5 blade, cut along one side of the pattern retaining the pieces as you go. Reposition the cut pieces and secure them with the masking tape, turn the piece over and cut along the other side of the pattern.

Rub over with fine abrasive paper

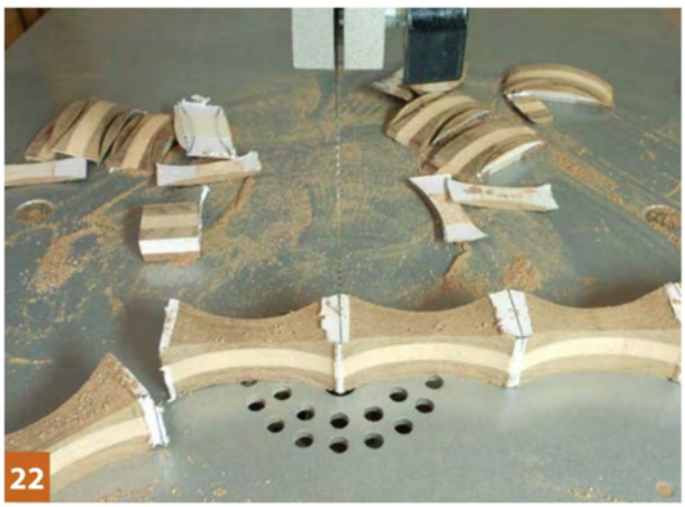
22 Once both sides of the pattern are cut out, cut through each pattern to make the individual rests.

23 Apply a finish of choice; we applied two coats of tung oil, letting it dry thoroughly between coats. Now you just have to get your food from the plate to your mouth! ■

Check the fit of the sections and sides

Stick the pattern around the wood

Cut the sides and re-tape them

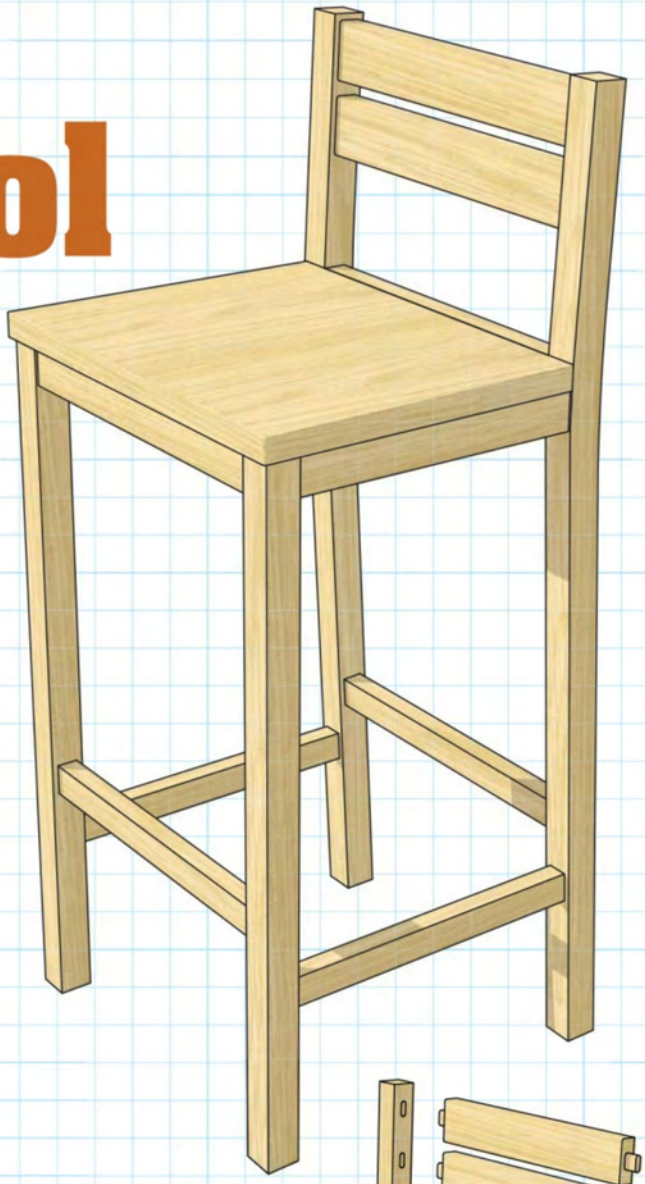


Cut through each pattern to create the individual rests

Apply two coats of tung oil

PLANS 4 YOU

Bar stool



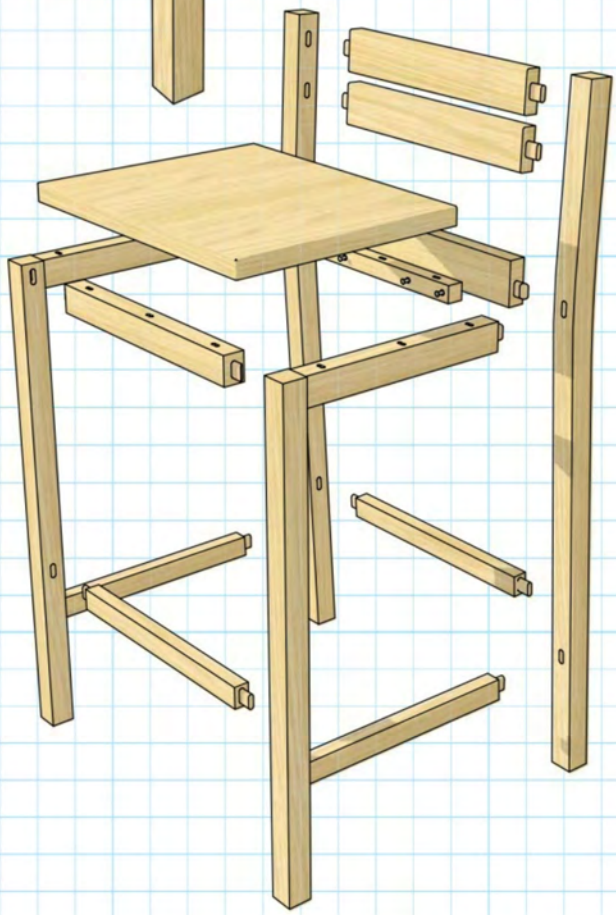
This one from **Simon Rodway**'s on the house!

This month's project is a bar stool, which is probably more likely to find a place at a breakfast bar in your kitchen than in the local pub, but the basic purpose remains the same; a stool with a back and long legs to allow you to sit comfortably at worktop or bar height, and indulge in your favourite tipple or ham and eggs, whichever seems more suitable at the time.

I have used Domino joints throughout the construction, which potentially saves a huge amount of time compared to the more traditional mortise and tenon route. However, I am aware that Domino jointers are expensive and specialised, so a cheaper alternative here would be to use loose tongues and a router, if you don't fancy cutting angled shoulders on the lower side rails.

Apart from the back legs, which are angled above and below seat level, the construction is really very simple. In fact, you can make it even more straightforward and cut out the angles, and this avoids any messing around with angled joints as well. However, I like the look that a slightly raked seat back and legs gives, and it's arguably a bit more comfortable to sit on as well. You should be able to cut the legs out of a piece 75mm wide, with the 2° angle above the seat, and 3° below. The legs are flat at seat and seat rail level on the front face, but a shallow curve on the back face between the top and bottom angles gives a nicer feel, in my view. You can also taper the legs above the seat to give a slightly lighter look, retaining enough thickness for the upper rails of course.

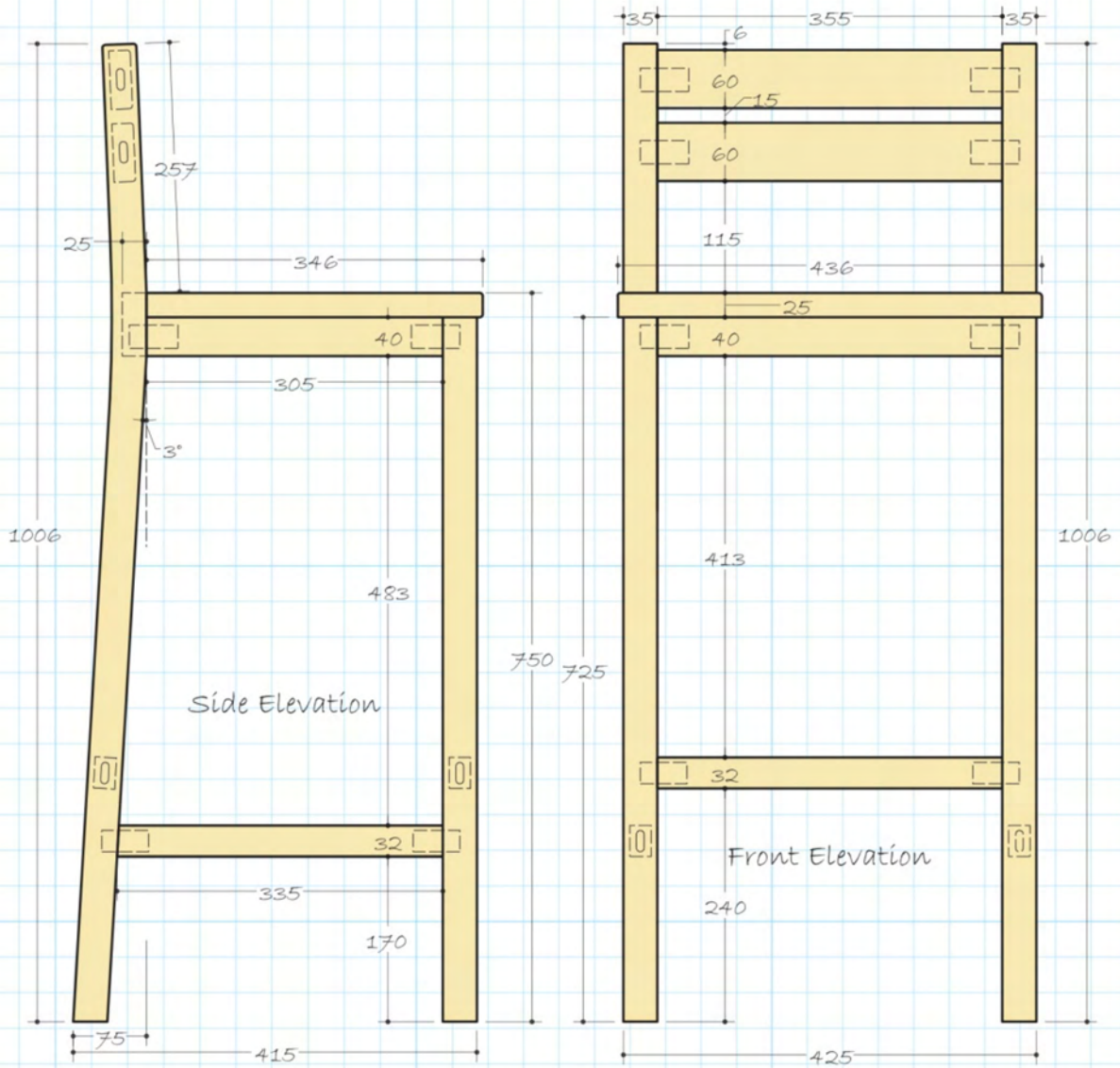
Marking out the pairs of legs together is important in



Cutting list

Back legs*	2 @ 1006 x 35 x 35mm
Front legs	2 @ 725 x 35 x 35mm
Seat	1 @ 436 x 346 x 25mm
Back rails	2 @ 355 x 60 x 22mm
Back seat rail	1 @ 355 x 65 x 25mm
Side seat rails	2 @ 305 x 40 x 30mm
Front seat rail	1 @ 355 x 40 x 30mm
Front lower rail	1 @ 355 x 32 x 25mm
Back lower rail	1 @ 355 x 32 x 22mm
Side lower rails	2 @ 335 x 32 x 22mm

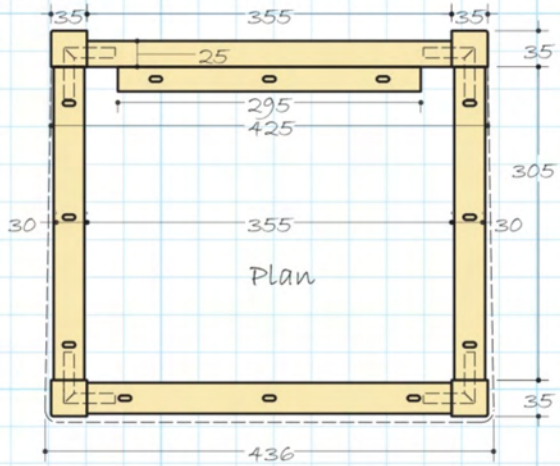
*Note: Allowance of 75mm width on back rail for shaping angles



the same way as you would with a standard chair. Make up each side as a frame, joining the front and back legs with the seat and lower rails, making sure that you mitre the ends of the seat rail Dominos. Cut all the mortises on the sides of the front and back legs as well, and the slotted screw holes in the front and side rails and the back seat support, which should be at right angles to the grain direction of your seat, before gluing the frames together.

It's much easier to cut the Domino mortises on the ends of the lower rails before you angle them at one end. The mortises into the back legs are a bit trickier, and a small jig which holds the jointer over the leg is the best bet here. Before joining the sides together, mitre the ends of the Dominos at seat level, and round over the front corners of the top seat rails. You can do the same to the lower rail at the front, along the top edges, as this is where feet will be planted, and this rail is slightly thicker for that reason.

You will probably need to make the seat up from several pieces to achieve the sufficient width. The seat is slightly wider towards the front, and shaping is up to you. As a minimum you need to round over all top edges, but you can dish the seat towards the front if you feel like a bit of carving as well. Screw the back seat support 25mm down from the top of the back seat rail and fix the seat to the frame by screwing up through the slots. Now sit back and enjoy that drink. ■



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Clarke CON750	1300w	60/45mm	185/20	£64.99	£77.99
CCS-2					
Makita 5704RK	1200w	66/46mm	190/30	£104.99	£125.99
Rage	1050w	54/35mm	185/20	£89.98	£107.98

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- Belt speed 480M/min

£69.98 EX VAT £83.98 INC VAT

Clarke POWER PLANERS

Makita

- 82mm cutting width

FROM ONLY £24.99 EX VAT £29.99 INC VAT

CON1020

MODEL	INPUT POWER	DEPTH OF CUT	EX VAT	INC VAT
Clarke CEP1	650w	2mm	£24.99	£29.99
Clarke CON1020	1020w	3mm	£36.99	£44.39
Bosch PH020-82	680w	2mm	£64.99	£77.99
Bosch GH026-82	710w	2.6mm	£129.98	£155.98

Clarke ROUTERS

RYOBI trend

FROM ONLY £39.98 EX VAT £47.98 INC VAT

* DIY # PRO

MODEL	MOTOR (W)	PLUNGE (mm)	EX VAT	INC VAT
CR1C*	1200	0-50	£39.98	£47.98
Ryobi ERT1400RV#	1400	0-55	£89.98	£107.98
Trend T5# ‡	1000	0-50	£149.98	£179.98
DeWalt DW622K-GB# †	1400	0-55	£219.98	£263.98

PRICE CUTS! ‡ was £203.98 inc.VAT

Clarke DOVETAIL JIGS

- Simple, easy to set up & use for producing a variety of joints • Cuts work pieces with a thickness of 8-32mm • Includes a 1/2" comb template guide & holes for bench mounting

Router not included

CDTJ24

FROM ONLY £49.98 EX VAT £59.98 INC VAT

MODEL	SIZE	EX VAT	INC VAT
CDTJ12	300mm	£49.98	£59.98
CDTJ24	600mm	£84.99	£101.99

DEWALT BANDSAW

DW876

- Motor size: 1000w
- Cutting capacities - 200mm cutting height & 315mm throat depth.
- Table size 500 x 500mm • Blade length: 2215mm • 230v Induction motor

£499.00 EX VAT £598.80 INC VAT

Clarke ROTARY TOOL KIT

CRT40

£26.99 EX VAT £32.39 INC VAT

Kit includes:
- **Height adjustable stand with clamp** • Rotary tool
- 1m flexible drive • 40x accessories/consumables

Clarke CONTRACTOR CR2 ROUTER

£109.98 EX VAT £131.98 INC VAT

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INCLUDES ROUTER

ERT1400G Router
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- 14,000-31,500rpm
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Router not included

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- Converts your router into a stationary router table • Suitable for most routers (up to 155mm dia. Base plate)

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£119.98 EX VAT £143.98 INC VAT

CWL325V

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

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- 100mm cutting dia.

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MODEL	TYPE	NAIL SIZE	EX VAT	INC VAT
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181EL	Nail	10-35mm	£37.49	£44.99
DU050	Nail/Staple	15-30mm	£79.98	£95.98
400EL	Nail	15-40mm	£69.98	£83.98
DU035	Nail/Staple	15-30mm	£44.99	£53.99

Clarke JIGSAWS

Makita BOSCH Power Tools

CJS380

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*DIY #Professional

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EX VAT	INC VAT
Clarke CJS380*	420w	55/6mm	£14.99	£17.99
Clarke CON750#	750w	80/10mm	£29.98	£35.98
B & D KS600*	450w	60/5mm	£49.98	£59.98
Bosch PST700*	500w	70/4mm	£49.98	£59.98
Makita 4329#	450w	65/6mm	£64.99	£77.99

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PC60	5.5Hp	32amps	£319.00	£382.80

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MODEL	SIZE	EX. VAT	INC. VAT
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3 PCE CHISEL SET INCLUDED WITH CWL1000

CWL1000

SEE CATALOGUE FOR ACCESSORIES

MODEL	CENTRE TO CENTRE (mm)	TURNING CAP.	TURNING SPEEDS	EX VAT	INC VAT
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CWL12D	940	305mm	5	£199.98	£239.98

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MODEL	MOTOR	SPEED RPM	EX VAT	INC VAT
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- Powerful 750w motor
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BS1

MODEL	WATT	M/MIN	EX VAT	INC VAT
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Bosch PBS7A	600w	250	£74.99	£89.99
Clarke CBS2	1200w	480	£69.98	£83.98
Makita 9911	650w	75-270	£92.99	£111.59

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BOSCH Power Tools PSR18

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PRICE CUT!
‡ was £82.79 inc.VAT

MODEL	VOLTS	BATTS	EX VAT	INC VAT
CCD180	18v	1	£36.99	£44.39
CCD240	24v	1	£46.99	£56.39
Bosch PSR18‡	18v	1	£59.98	£71.98

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MODEL	MOTOR	CFM	TANK	EX VAT	INC VAT
Tiger 8/44	2 Hp	7.8	24ltr	£114.99	£137.99
Tiger 8/64	2 Hp	7.8	50ltr	£164.99	£197.99
Tiger 9/24	2.5 Hp	8.7	24ltr	£149.98	£179.98
HUNTER 55	2.5 Hp	8.7	50ltr	£179.98	£215.98
Tiger 9/60	2.5 Hp	8.7	50ltr	£189.98	£227.98
AM17EC150	3Hp	14	150ltr	£419.00	£502.80

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£74.99 EX.VAT £89.99 INC.VAT

- Suitable for most sizes/ makes of saw
- Inc. outriggers & rollers

Clarke 16" VARIABLE SPEED SCROLL SAW

WITH FLEXI DRIVE AND WORKLAMP

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INCLUDES 64 PIECE KIT

- Parallel action arm design produces quick, accurate cuts in wood and plastic
- 50mm cutting depth • Flexible drive kit for additional grinding, polishing & sanding

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MODEL	MOUNT	MOTOR	THROAT	EX VAT	INC VAT
Clarke CBS190	Bench	350w	190mm	£119.98	£143.98
Clarke CBS250	Floor	370w	245mm	£179.98	£215.98

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- Tables tilt 0-45° left & right
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B=Bench mounted
F=Floor standing

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MODEL	WATTS/ SPEEDS	EX VAT	INC VAT
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CDP101B	245/5	£79.98	£95.98
CDP151B	300/5	£106.99	£128.39
CDP-10B	370/12	£159.98	£191.98
CDP301B	510/12	£199.98	£239.98
CDP451F	510/16	£239.98	£287.98
CDP501F	980/12	£429.00	£514.80

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- For easy, precise and smooth cutting of wood parts • Carbide tipped saw blade
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MODEL	BLADE DIA./BORE	MAX. DEPTH OF CUT	EX VAT	INC VAT
RT-XM305U	250/30mm	75mm	£219.98	£239.98
RT-SM305L*‡	210/30mm	65mm	£219.98	£263.98
RT-SM430U *	250/30mm	75mm	£239.98	£287.98

PRICE CUT! ‡ was £299.98 inc.VAT

evolution MITRE SAWS

Makita

- Quality range, ideal for cross, bevel & mitre cutting
- 45° tilting blade & table • Dust extraction system

RAGE3

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MODEL	BLADE DIA. BORE	MAX CUT DEPTH/CROSS	EX VAT	INC. VAT
Fury 3	210/25.4mm	60/200mm	£119.98	£143.98
Evolution Rage 3	255/25.4mm	75/300mm	£169.98	£203.98
Makita LS1040	260/30mm	95/130mm	£199.98	£239.98

Clarke 1000M VARIABLE SPEED WOOD LATHE

CWL1000V

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Record WV7

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EX VAT	INC VAT
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Stanley Multi Angle	Clamped	72/60/40	£16.99	£20.39
Record V75B	Clamped	75/50/32	£18.99	£22.79
Clarke WV7	Bolted	180/205/78	£24.99	£29.99

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CBG8W features 8" whetstone & 6" drystone.
With sanding belt

MODEL	DUTY	WHEEL DIA.	EX VAT	INC VAT
CBG6RP	DIY	150mm	£27.99	£33.59
CBG6RZ	PRO	150mm	£37.99	£45.59
CBG6SB#	PRO	150mm	£49.98	£59.98
CBG6RWC	HD	150mm	£54.99	£65.99
CBG8RSC	HD	200mm	£59.98	£71.98
CBG8W (wet)	HD	150/200mm	£55.99	£67.19

MITRE SAWS

BT-MS 2112

FROM ONLY £49.98 EX.VAT £59.98 INC.VAT

MODEL	BLADE DIA./BORE	MAX CUT DEPTH/CROSS	EX. VAT	INC. VAT
BT-MS2112	210/30mm	55/120mm	£49.98	£59.98
BT-SM1534	210/30mm	62/310mm	£149.98	£179.98

BLACK & DECKER POWERFILE

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KA900E

- Great for hard to reach areas
- 13mm wide belt, 120mm long arm • 350w motor

VAC KING Earlex WET & DRY VACUUM CLEANERS

FROM ONLY £46.99 EX.VAT £56.39 INC.VAT

- A range of compact, high performance wet & dry vacuum cleaners for use around the home, workshop, garage etc.

* SS = Stainless Steel

MODEL	MOTOR	CAPACITY WET/DRY	EX. VAT	INC. VAT
CVAC20P	1250W	16/12ltr	£46.99	£56.39
WD1000	1000W	13.5/12ltr	£56.99	£68.39
CVAC20SS*	1400W	16/12ltr	£59.98	£71.98
CVAC25SS*	1400W	19/17ltr	£64.99	£77.99
CVAC30SS*	1400W	24/21ltr	£84.99	£101.99

Clarke PORTABLE THICKNESSER

- Max thickness capacity 130mm
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- Wet bath

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Clarke 6" BENCH GRINDER WITH SANDING BELT

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CMS10S2

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Bud vase

Mark Baker makes this attractive bud vase in spalted beech, great for learning to turn!

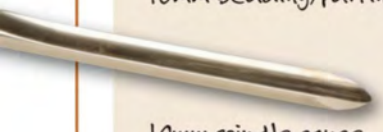
Bud vases – also called weed pots – are something that most people love to make. They are ideal to develop your turning skills and can be made in a myriad of shapes and sizes, are attractive to look at and can be made from found wood, logs, timber from the scrap pile as well as those lovely pieces that catch your eye from the wood store. As you can see, you have a lot of scope as to design, size, what timber to use, and they don't require a lot of tools to make lovely presents for people. This is a spindle turning project, which means the grain runs along the length of the vase – the other phrase used is running parallel to the lathe bed when fixed between the tailstock and headstock.

Have fun with these and don't get hung up on the size, vary it according to the piece of wood you have, just make sure all the proportions and scale of the design work together.

You will need

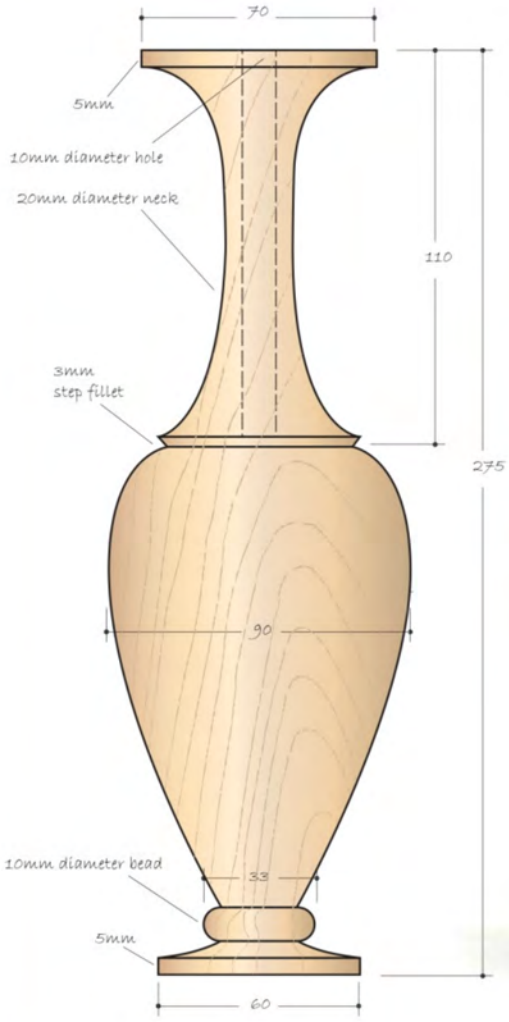
19mm spindle roughing gouge

10mm beading/parting tool



10mm spindle gouge

Drill chuck that fits in the tailstock
Drill bit for drilling central hole
Scroll/geared chuck and jaws
Drive spur for the headstock
Revolving centre for the tailstock
Abrasives from 120-320 grit
Acrylic sanding sealer
Wax finish
Paper kitchen towel
Wood – of your choice
PPE – faceshield, dust mask, extraction, etc.



PHOTOGRAPHS BY GMC/ANTHONY BAILEY

1 Choose your wood – I used spalted beech (*Fagus sylvatica*) – and cut it to the size you need. Mark the centre point at either end and mount it between centres. Secure the tailstock and lock the quill when the revolving centre is nicely located.

1

2 This piece had some loose bark sections – common on log pieces and burrs too. This can fly off unexpectedly during turning, so it is best to remove all loose sections before turning on the lathe. Then, check the toolrest is in place and clear of the spinning wood before switching on the lathe. The lathe can be set to about 900rpm to start with.

2

3 Use a spindle roughing gouge to reduce the wood to a nice even cylinder. Remember to work from the centre out to either end of the work with the flute always pointing in the direction of travel – never enter the tool into the very end of the wood and expect to cut in a straight line like that. This tool will grab if you do that. When almost a cylinder, a smoothing cut can be made by starting about 25mm in from one end and running the tool along the work until you reach the other end, then reverse the tool just to deal with the 25mm section left from the start of the cut.

3

4 Now use the beading/parting tool to cut a spigot on one end to suit your chuck jaws. Remember to keep this as large as possible to provide support during the turning. Once cut, remove the work from between centres and fit the work into the chuck jaws and clamp it all nicely tight and secure. Remember to use the tailstock to align the work whilst tightening up the jaws.

4

5 You now need to drill the end hole to accept the dried flowers. I used a 10mm drill bit for this. If you wish to use real flowers, then the hole needs to be bigger so you can put test tube-type units in the hole so you can put water in them to keep the flowers alive. These are typically about 13mm in diameter, so a bigger drill and a slightly thicker neck design would be needed to accommodate this. Mount the drill chuck in the tailstock and advance the drill until you reach the depth required – regularly extract the drill during the cut to clear the swarf.

5

6 You can of course drill the work first then start the drilling process, but the hole may not be perfectly aligned down the work and might be a bit tricky to get thin straight stems on a vase without breaking through if there is a misalignment. After drilling the hole, just touch the opening section with 220 grit abrasive to clean the hole a little, then locate the revolving centre in the hole – cut and secure it in place and use a spindle gouge to clean up the end grain.

7 Once cut, increase the speed to about 1,250–1,500rpm. Remember this is dependent on the stability of the lathe, integrity of the wood, hold of the wood and so on. Think smart and work safely. If in doubt keep the lathe speed low. Use the spindle roughing gouge to start shaping the neck. This wood was dry, but it cut quite cleanly. The first cuts are to refine the top of the vase working down with successive cuts to the lowest point. Never cut uphill.

8 Now work from the other side – the main body of the vase side – again, cutting downhill to meet at the bottom of the curve you are creating.

9 After roughly shaping the neck area – too thick at the moment – rough shape the main body section. This will help get a sense of proportion and balance to the piece.

10 Go back to the neck area and refine the curve and how the neckline meets with the flared outer rim. A spindle gouge is great for this.

11 Gradually work from either side, like with the spindle gouge, to get to the shape and depth required. Remember there is a hole down the central internal section, so don't go too thin.

12 I fancied having a shoulder which creates a visual break between the main body from the neck section, but something that didn't break the visual flow of the curve. A gentle shoulder works well with this.

13 The rim looked out of proportion so the 10mm beading/parting tool is an ideal tool to trim the rim to the required width. A light shearing action is required.

14 After the main shaping has been done, remove the piece from the chuck, re-fix the drive spur in the headstock, or in this case, in the chuck, and re-centre the work between centres as you had it in the beginning. The indents from this initial mounting should be in place.

14

15 Once everything is secure and the tailstock and quill locked in position, refine the base section. Use a spindle roughing gouge to quickly remove the bulk of the waste.

15

16 A spindle gouge is the right tool to use when refining the shape. The body form can taper to quite a small diameter near the base but of course it would not provide a very stable base so let's create a little detail – a very classical one in fact – and that is to create a flared-out foot detail which has a bead in between the main body form and the foot.

16

17 The detail that makes this work is the bead. It creates a visual transition between the two curves. The bead can be cut cleanly with the spindle gouge working from the crown of the bead down on either side. The foot is now wider and the piece will be stable on a shelf or table.

17

18 After the foot is done, use abrasive to sand the piece. Note the use of the extraction nozzle to get some at-source extraction as close to source as possible. This should not negate the use of a dust mask, or better still buy a powered respirator/head visor combination. Work through the grits down to 320 grit. I am using two hands to hold the abrasive, cradling it around the work. If you use this method, ensure you have your arms well clear of the work, revolving chuck and tailstock centre. If in doubt use one hand, holding the paper underneath the work.

18

19 After sanding apply a finish of your choice. I chose to seal the wood with an acrylic sanding sealer. This acts as a base for the next finish. Once the sealer is fully dry you can apply a wax coat over it. The wax can be applied to a paper kitchen towel and then worked over the running work. Always keep the paper towel moving so you get an even covering of wax on the surface. ■

19

Hand Built

Japanese saws

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

The Editor shows us he is as sharp as ever when taking a scrupulous look at Japanese saws

When I discussed traditional handsaws I briefly mentioned the difference between them and Japanese pullsaws. Because the latter type is so vast and the advantages to the user are so great, I felt it was worth looking in greater depth at this more recently adopted type of hand tools. They have been around for many years but the popularity of the pullsaw has grown and grown with good reason.

TYPES OF SAW AND HOW THEY ARE MADE

Compared to the hand-forged methods employed to make Japanese laminated steel chisels, pullsaws are much more of a production line job. Just like the hardpoint saws we all use for carpentry, the pullsaw blades are punched from a long strip of steel making the key part – the blade – a relatively easy thing to do. However, high levels of quality checking are used to ensure precision and consistency. After that the type of saw the blade will be used for, determined by its tooth pattern will dictate the sort of handle that is used. Handles can be wrapped in split bamboo or rubberised plastic depending on the quality or type of saw.

Types of saw

'Dozuki' is a backsaw, having a folded stiffening strip to hold the blade rigid and is often supplied with very fine teeth, making it ideal for use as a dovetail saw.

'Ryoba' is for deep cutting both rip and crosscut, having two edges with different size teeth. 'Tatebiki' teeth are the ripsaw type and the 'Yokobiki' have crosscut teeth.

An Azebiki panel saw

A bamboo-wrapped Kataba handle on this saw

A fine-toothed Dozuki backsaw

A single-sided flush cut saw – the blade has a screw fixing

A flush cut saw with two types of teeth

The Huntley oak saw blade, designed by former *F&C* Editor Michael Huntley

A small Dozuki saw

A Kataba with a rip blade and rubber handle

A double-edged Ryoba

A large Dozuki saw

'Kataba' is both a rip and crosscut, with teeth on one side only and without a back.

'Azebiki' is a small 'Ryoba' designed to cut into a surface with its convex blade. There are panel saws with a hook tooth at the tip to allow mid-panel starting.

'Mawashibiki' is a thin-bladed saw for cutting curves.

'Kaeba' has a disposable blade and means 'changing blade'. However, since Japanese saws are normally fitted with interchangeable blades it could apply to any of them.

'Kugihiki Nokogiri' is a flush cutting saw – it means nail cutting saw – a 'nail' being a dowel or peg.

These are some of the most common types but there are others not all of which are sold with Japanese names and the names do not always appear to be used correctly in the UK; my apologies if I have made any mistakes with nomenclature. It should be noted that they are often sold with their English description – panel, flush cut, etc. – which makes things much more understandable.

Key features

The teeth cut on the pull stroke as they angle backwards, the light return push stroke does not cut...

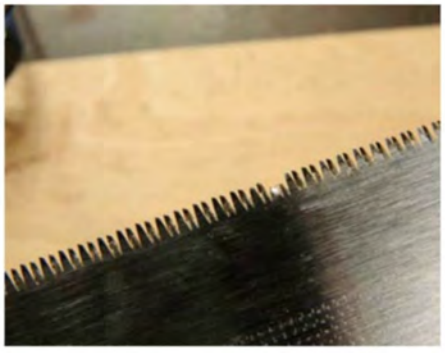
...therefore the blade can be much thinner as it is under tension, not compression like a western-style saw, thus giving a narrower kerf or slot

The teeth in many cases are quite fine and sometimes without any 'set' at all which makes for very neat precise cuts

Once mastered they are easy to aim and cut true

Unlike a conventional push saw you can trim off tiny amounts

Fine tooth blades will cut rigid plastics very effectively



The blades can be replaced when the teeth become damaged or the blade body gets buckled by severe jamming

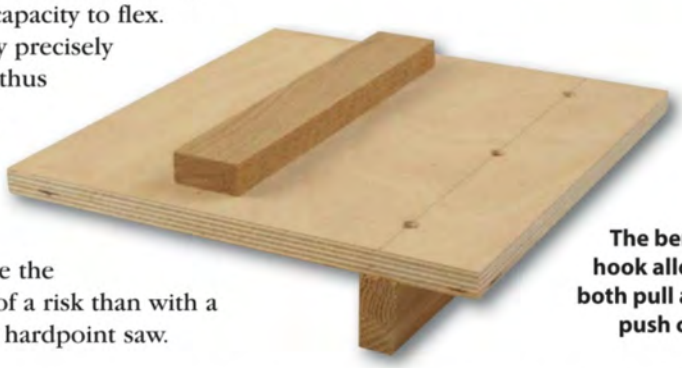
The handle shapes and surface finishes offer a pleasingly different experience for the user

Usage tips

Using a pullsaw is easy when you get the knack

A clean, fine kerf is the result

Start the cut at the edge



The bench hook allows both pull and push cuts

Just wielding one of the larger pullsaws in the presence of anyone unfamiliar with such a tool can inspire nervous awe as the blade and handle combined can look more like a weapon than a saw. Certainly the thin blade and long handle can make a novice uncertain about how to go about using a pullsaw.

1 It is very easy so long as you remember it has a pullstroke only; pushing will cause the blade to buckle and jump, and teeth may break as they are both hard and brittle, although the main part of the blade does have some capacity to flex. The teeth are very precisely cut to shape and thus can cut fingers as well as wood. However, because not so much effort is needed to move the blade this is less of a risk than with a standard western hardpoint saw.

The Editor's mixed selection of saw types

A small tub of rust proofing compound will save your tools

2 Because the teeth are quite small depending on the type of blade and the easier start of cut, lining pullsaw teeth up against a marked line is easy and on subsequent strokes will not normally deviate. This natural in-built accuracy combined with their light weight makes these tools a pleasure to use.

3 The traditional-style long handles can be held how you choose, but I normally grip in the middle because it feels right; it is a matter of balance and comfort so the saw stroke is both fluid and controlled. Sight down the blade as you would do with a pushsaw, following the marked line with the blade.

4 Because you start at the front of a workpiece it is in theory easier to keep to a line. Incising to the line first, which is best with very precise pushsaw work, is not required as the blade cuts such a fine kerf and will start cutting easily.

5 Small components are best crosscut using a bench hook designed so the workpiece sits beyond the fence of the bench hook, as it will then be pulled forward towards the user with each stroke.

6 I like to mix my saws, so I use a hardpoint for board cutting, a large tenon saw for large joint cutting and several Japanese saws for the fine rip and crosscut, dovetails and flush trimming.

7 Nice tools need to be cared for and these are no exception. A light rub with camellia oil on the blades avoiding catching on the teeth is the most that is needed needed although a favourite is using an anti-rust compound in the tool cabinet as the blades can then be left un-oiled.

8 Blades do get damaged occasionally, so check the teeth and the straightness of the blade. The hook-in type fit around a pin. Wrap the blade or wear gloves to avoid the risk of injury.

9 The blade back support is tapped on the bench so the blade drops into the slot properly. Several taps may be required for the blade to be seated properly.

10 Removal entails tapping the back edge of the blade to get it to come loose. Be careful as it may fly across the workshop floor. Note that saws without a spine must have their blades wrapped for safety and instead of the back edge of the blade, tap the handle on the bench.

11 Special saws and saw guide kits are made which enable you to cut very accurate mitre and crosscuts or even precise board cutting.

12 Certain blades have a bevelled or hook tooth allowing mid-panel starts without resorting to other methods. Once you cut through you can turn the saw around and work from the other end as well.

13 Choose the saws that are right for the job. There are many kinds of Japanese pullsaw designed for different purposes and in different styles. Most dealers will only stock a limited range, so try and find the manufacturers' websites, which will give you a lot more choice and information. ■

Wrap the blade or your fingers when changing this type of blade

A backsaw blade being tapped in place

Remove the blade with a few taps

This mini saw guide made by Z-Saw creates very accurate cuts

To buy the saws used in this article, visit Classic Hand Tools: **www.classichandtools.com**, and Z-Saw: **www.woodworkprojects.co.uk**

A hook tooth blade can make a mid-panel entry

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Mirka Abranet abrasives

It can take grit and determination to test abrasives properly but that's what we told **The Editor** to do!

Mirka Abrasives have a vast range of products for all kinds of purpose but the one that is almost their 'signature' range is Abranet. This unique material is a mesh loaded with precisely graded abrasive particles. It uses a very 'persistent' non-friable – does not break down with use – abrasive compound. What makes it unique – although other manufacturers may make their own claims – is that Abranet is a fully extractable material without the need for punchings to allow dust to be removed during machine sanding. Better still, the open web means that particles don't stick as they would on conventional abrasives, which would clog up quite easily, shortening its life and causing noticeable indenting and scoring on the job – none of that occurs with Abranet. On the face of it Abranet is a complete 'win-win' over other types. Not only that, it is available in a multiplicity of sizes including small DIY Abranet Eco packs and it can even be cut to shape to suit a specific pad size. The mesh naturally clings to hook-and-loop sanding pads which it is intended for, not the clip-type traditional sanders.

A microscopic view of the Abranet's abrasive mesh

Verdict

I have used the more common grades of Abranet on a number of orbital sanders and I can confirm that it is a very effective abrasive with a good working life and very consistent results. It is completely extractable so long as the machine draws dust up effectively in the first place, a vacuum extractor will make a difference. Dust can be emitted at the edges of a job when a pad runs over the edge but otherwise a much safer sanding option than usual. The only downside I have found is the mesh can wear the sander's backing pad with prolonged use. It can also be used with Mirka's special Ceros sanding system in a professional environment. ■

PRICES

The price range varies tremendously depending on the size, mesh and pack type. Just as two examples only: 150mm dia. disc, 180 grit x 50pc pack = £49.72 (Inc VAT)
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There are countless other sizes available in packs of 50 or 500 with grits running from 80-1,000, so visit the Mirka website to obtain further information

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Disston No.14 backsaw with fence

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Colin Sullivan takes a look at this saw made around a century ago

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

The history of the handsaw as we know it today goes right back to the start of the Industrial Revolution. The use of water power made it possible to use large diameter grinding wheels essential for the mass production of hand saws.

It is interesting how the Disston saw is regarded as the best but in fact we were making saws of equal quality long before. Henry Disston was born in England in 1819 and the whole family went to America when he was 14 years old. By 1840 he had his own saw making company, this lasted up to 1955 and after a series of takeovers finally ended up with the Sandvik Tool Company.

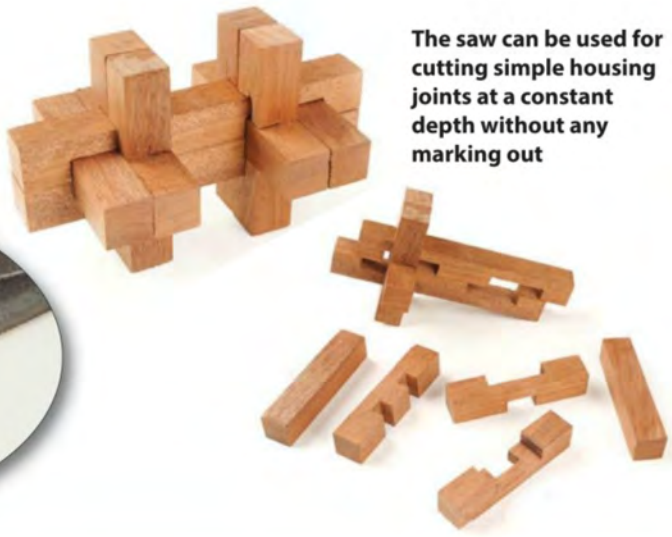
The No.14 backsaw was first listed in their 1914 catalogue and patented the same year, described as being "quickly adjusted to cut any special depth", and having a cherry *(Prunus spp.)* handle. The carving on the handle quickly identified the saw as Disston and may have been partly responsible for the popularity of their saws. The catalogue describes the saw as having "Disston crucible steel blade, warranted. One edge toothed nine points for cutting with the grain; the other 13 points for cross cutting.The slotted heavy steel back, by means of the wing nut and lever tightener is quickly adjusted to cut any special depth required. Adapted for tenoning, shouldering, dovetailing, cog cutting. Or any purpose where a definite depth of cut is desired. Made in five separate lengths from 200mm to 405mm long."

The front end of the blade has teeth to engage with teeth in the depthing bar, and a slot arrangement where the bar fits into the handle

The quick release lever opened for blade removal

Not stated in the catalogue are the Japanese-style saw teeth on one side of blade for cutting along the grain – an unusual detail at that time.

This saw must have been very useful for cutting the housing joints on staircase strings and bookcase sides, the sort of work that is now all done with the router. I had noticed in an old woodworking magazine instructions on how to make a wooden puzzle, and set about making one to try out the saw, partly because the housing joints were all the same depth and partly because I wanted to get a feel of the saw. A normal tenon saw can sometimes feel top heavy, but this saw has most of the weight in the stop bar lower down the blade and balances more easily. I found it rather good to use and I am surprised there is not a saw of this sort available now.



The saw can be used for cutting simple housing joints at a constant depth without any marking out

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