WOODWORKING CRAFTS

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

Steam-bent lamp Herb planter **Compound angles** Furniture restoration
Pyrography **Art Deco inspiration** Display unit **Bug house** Hanging bookcase

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WOODWORKING
CRAFTS

Issue 62

IT'S ABOUT TIME

The lockdown left lots of us with very different ideas about time. Many found their regular routines changed or simply swept away, leaving them with lots more time on their hands – or much less. Time took on a different perspective, sometimes stretching out and then concertinaing in on itself.

Woodworking takes time – especially if you want it to be perfect. Whether you're carving, turning or making for work or for fun, you are investing your precious time in your project, and in yourself. Has the lockdown left you thinking differently about the time you spend in your workshop? Are you ready to take on a bigger project or learn a new skill, or are you hesitating? Remember, it's never too late, as we find out on page 24.

This issue is packed with ideas for projects big and small, from making a mobile unit for your tablesaw to a handy herb planter. Some of our contributors have taken a step back in time to lovingly and sympathetically restore a Queen Anne-style dressing stool and an antique oak table, while others have carved projects from scratch including salad servers and a lamp turned from an old oak post. Why not take time to learn the history of the lathe, or upskill with the craft of pyrography? We also take a look at Art Deco style, working with green wood and whether it's always a good idea to rush to plant trees, and we meet young furniture maker and beekeeper Tom Rowell.

And finally, don't forget to take time for a tea break and have fun with our puzzles on page 85.

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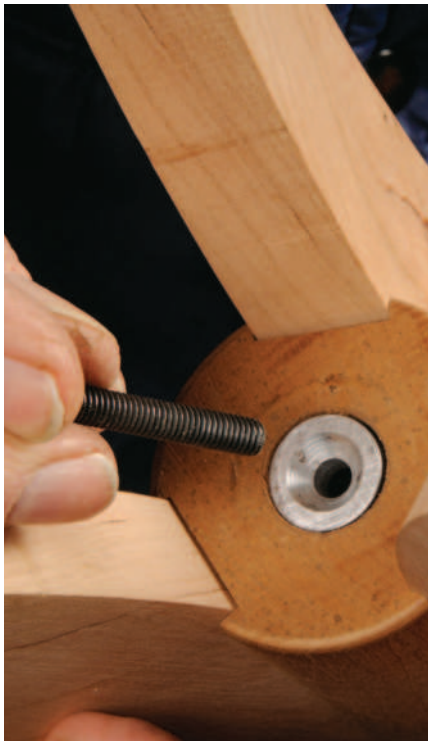
Woodworking is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines, and all readers should observe current safety legislation.



WOODWORKING CRAFTS

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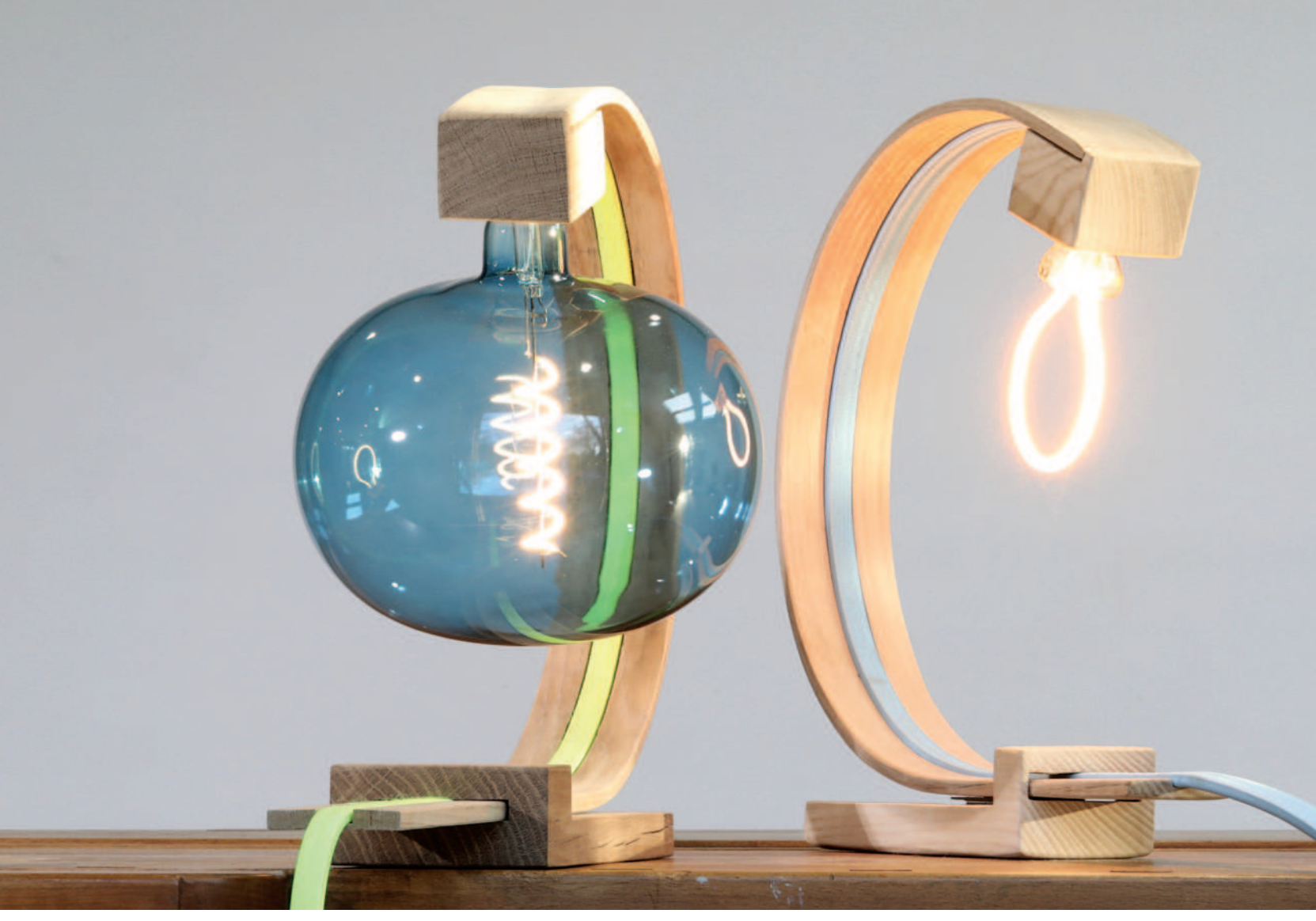


Making a steam-bent lamp

Abdollah Nafisi explains why steam bending is easier than you think and shows how it can add a creative twist to your work

The design of this lamp was a playful challenge to myself, which came about as the result of multiple experiments. I wanted to create a product that would be easy to produce in high numbers in our studio, in a range of colours and timbers, and then sold in our online shop. I also wanted it to be a tool to teach students a set of basic woodworking principles and serve as an introduction to steam bending for our courses at West Dean College. I believe this design involves many simple skill sets, which hopefully you will be able to apply to other designs and your own creative projects.

Selecting and preparing the wood

When selecting wood for bending there are four things to bear in mind:

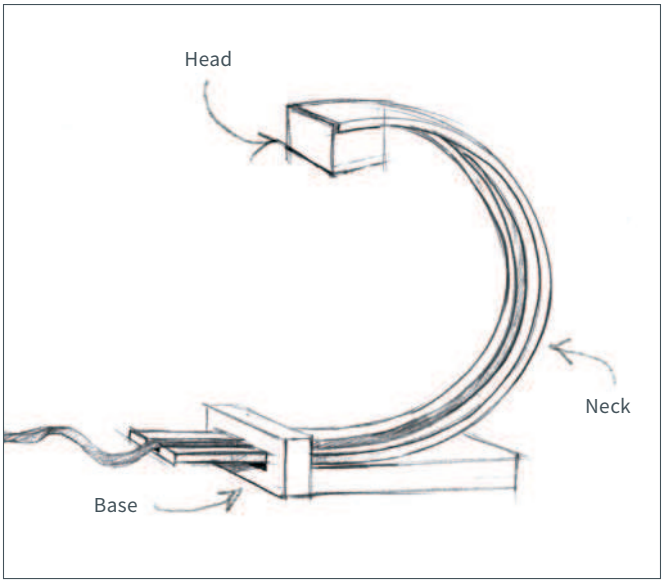
1 Selecting the correct timber. You are ideally looking for a straight grown tree that has not been under much tension or compression. You can find this out by speaking to your local wood supplier. Or, if you fell the tree yourself, just make sure to choose a tree that isn't leaning to any sides and has grown straight upwards.

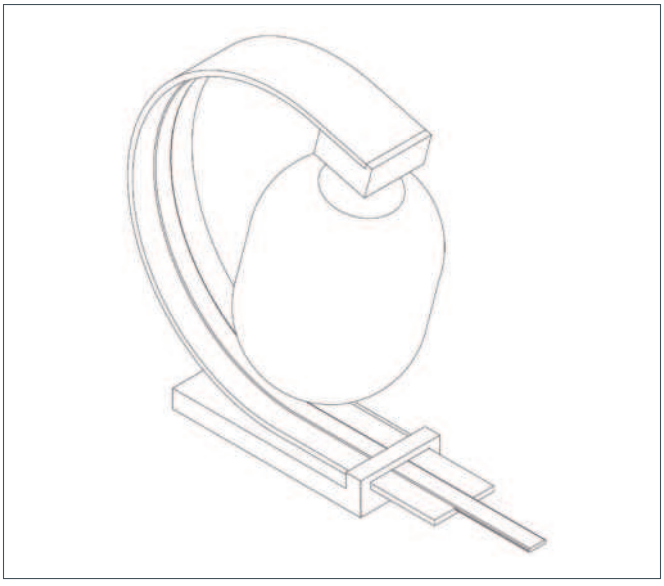
2 When choosing, look for the straight and parallel grains running along both ends of the timber.

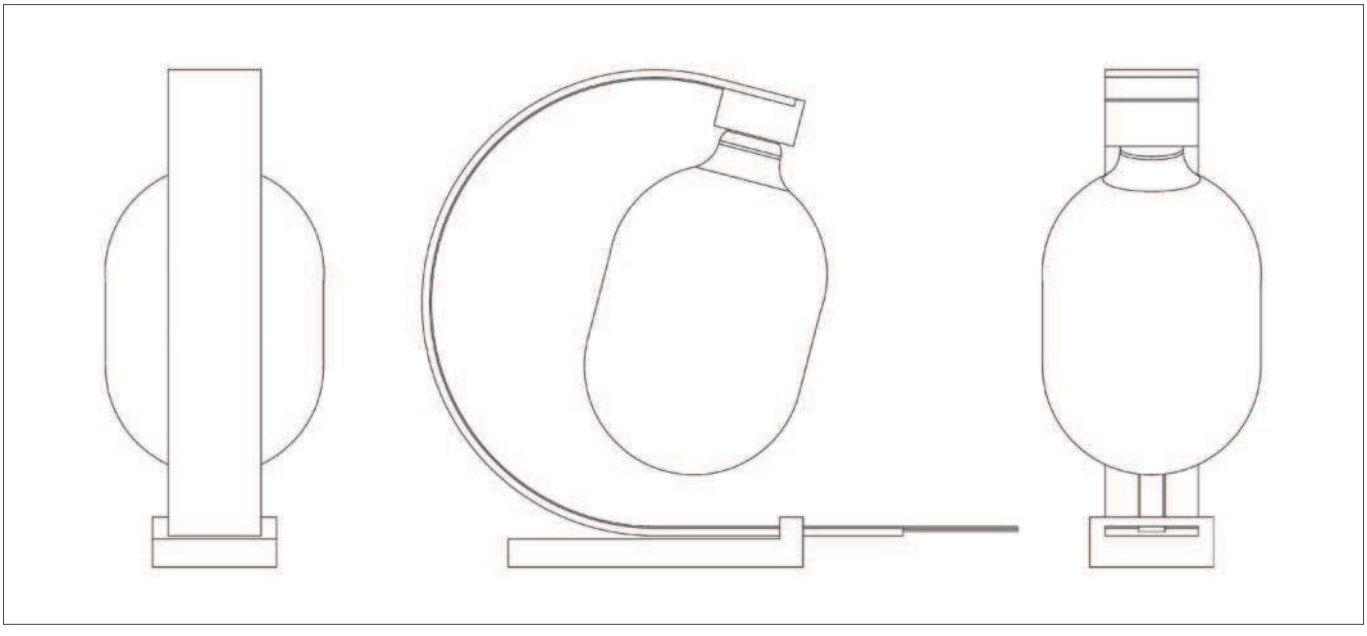
3 Make sure that the wood is free from defects or knots, because these will cause your wood to crack or break while bending.

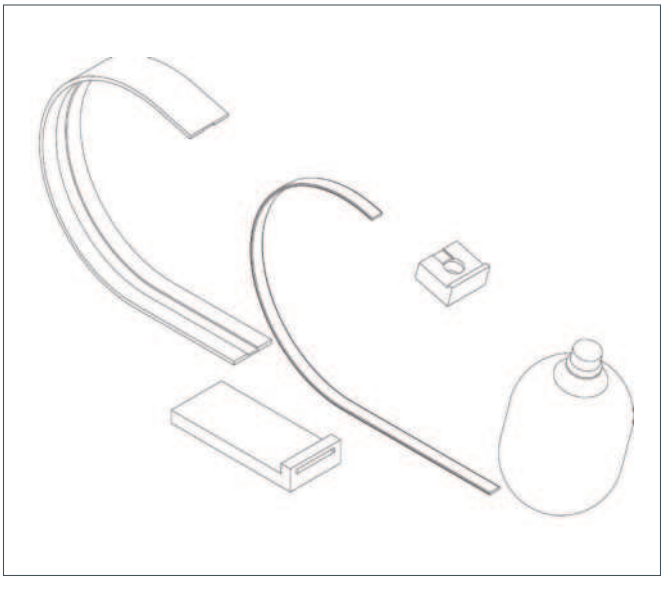
4 Try to get hold of 'fast-grown' timber – look for wider gaps between the grain rings, which indicate that the tree has had a well rained season. This will ease the bending process. Again, speak to your local wood supplier; in my case I have two tree surgeon friends that supply me with fast grown wood for steam bending.

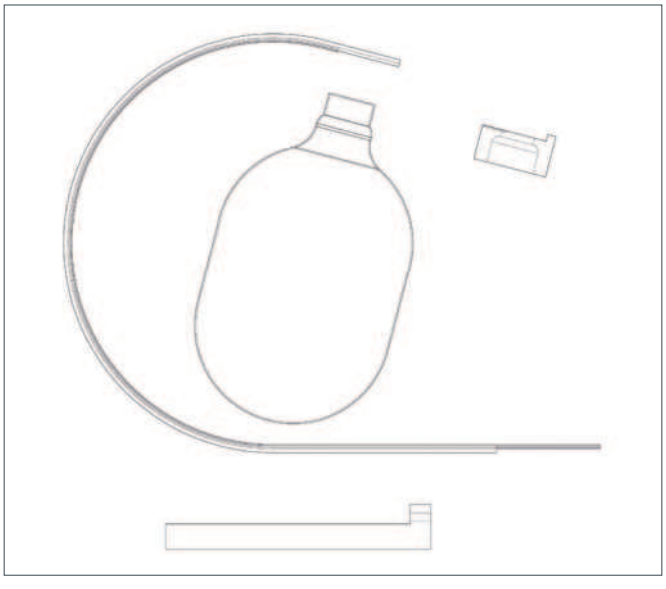
PHOTOGRAPHS BY KATE PINCOTT

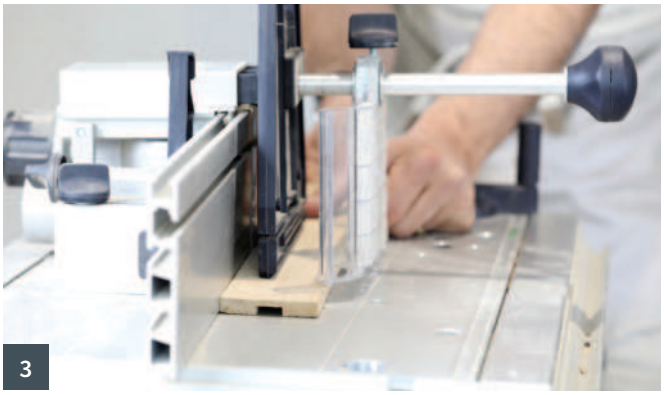

Head
Neck
Base

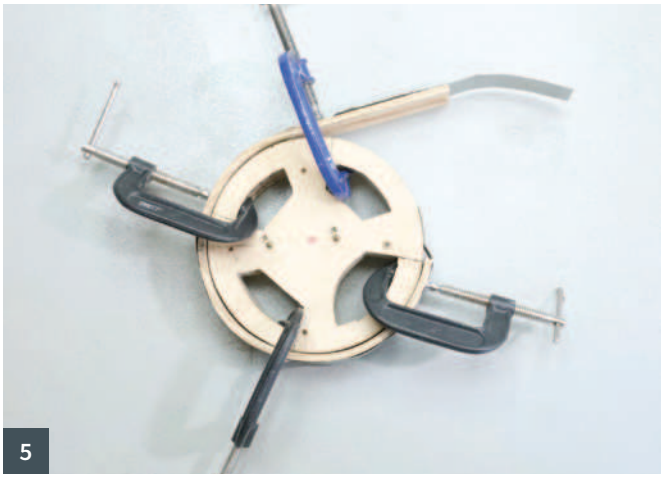












1 Straight grain vs non-straight grain **2** The lamp neck accommodating the lamp head and wire **3** Rebating the wood on the router table
4 Rebated wood ready to be steamed **5** The neck is bent by the clamps on to the jig **6** Neck of the lamp drying after being steam bent

Sizing up

I used the planer thicknesser to size the wood to 11mm, which is roughly the same thickness as my 10mm mortising chisel. This is useful because, after sanding the wood and losing about 1mm, it will fit nicely into the slot of the base I'm going to cut neatly with the mortiser. At this stage, sanding the wood is very helpful – it's much easier to sand the wood when it is still flat.

Steaming the wood

To bend the curve in this design I chose to use the enjoyable method of steam bending, a technique that has been used by woodworkers since the 1840s.

In this method the wood is heated with steam for about an hour per inch of thickness to loosen the lignin that holds the wood fibres together. The wood is then bent in a time bracket of a minimum of 1 minute to a maximum of 3 minutes; if it's left for longer than 3 minutes, the lignin will start to get cold and revert to its hard nature, causing the wood to crack.

I made a very simple steam box from 18mm hardwood ply; the box size is 300 x 250 x 1,500mm. One end is sealed and has a hole in the centre (matching the pipe diameter) to accommodate the steam pipe into the box and the other end is the door, which is secured with two hinges. At this stage, I placed three pieces of wood on a piece of galvanised mesh which is situated in the middle of the chamber. The

7 The base with the hole cut out **8** Mortising the block by the mortiser machine **9** Cutting out the cantilever by the crosscut saw **10** Cutting out the inside of the lamp hole with the drill press for better access

mesh raises the wood off the box floor, which is very critical, because about 80% of the heat gets congested at the top of the box. The mesh helps the steam to spread evenly around the wood, as well as holding the weight of the wood. I needed one piece of wood for my bend and I usually add in two extra pieces in case the wood doesn't behave itself.

Technically 40 minutes in a well-sealed steam box will do the job, but I tend to reasonably over steam the wood just to be safe as different wood species behave differently. In the UK, the best woods for steam bending are oak, elm, ash and beech, which I find locally where I live in Sussex. Bending green wood (freshly cut wood) is the best, because of its higher moisture content, but I have found you can also bend kiln-dried wood, although you'll need to double the steaming time.

Bending the wood

This is a critical step, as good timing and following appropriate health and safety measures are two things that will lead to a successful bend. Always make sure you're wearing clothing with long sleeves and be sure to wear gloves, especially when opening the door of the steam box – the steam comes out very fast! There are four things to keep in mind while taking the wood out of your box:

1 Keep your face away from the direction of the steam.

2 Approach the wood from underneath the chamber door because the steam escapes upwards, so the lower section is much cooler.

3 Be prepared to close the steam box if you are working on your own, to avoid the temperature of the box dramatically dropping.

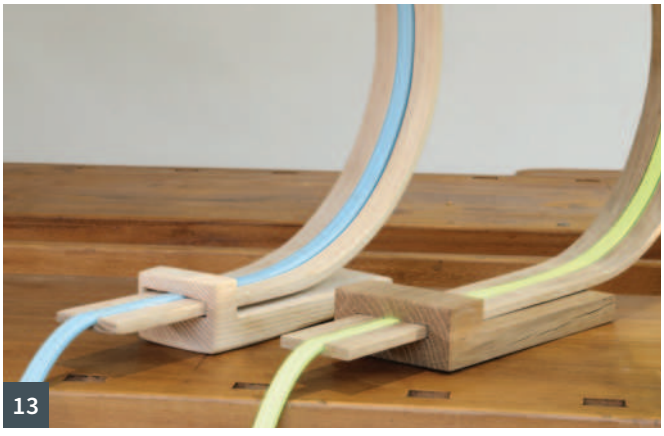
4 Have multiple clamps ready next to your jig and opened to the correct size before you take your wood out, as there is no time to lose when you place the wood into your jig.

I placed the wood into the fold, where the compression strap (a 1mm-strip of galvanised sheeting) is screwed to the jig and attached my first G-clamp on top of both, in the centre of the wood/strap. Clamping in the centre is important as the wood may bend sideways otherwise.

The compression strap prevents the surface of your wood from coming under direct tension, so after stiffening the clamp, firmly pushing the wood around the jig while pulling the strap tightly at the same time, will give the smoothest curve and avoid cracking.

Using multiple clamps around the jig while bending is essential. With a circle-shaped jig we can guarantee a consistent circular shape for our lamp, because the wood is over extended further than the 'U' shape of the final lamp design in order to allow for 'spring back'. Spring back is the slight distance a bend unfolds as it dries, over bending this angle compensates for this.

The last clamp was secured to where I'd almost created a complete circle. The rest of the wood had to remain straight to be joined into the base. At this step, I usually leave the wood in the jig for about 10 minutes to cool down, then I unclamp the wood and tie it up with cotton string or tape. I look at the shape of the wood from all angles, to make sure it is consistent and parallel all the way around. Then it's good to leave it in a dry, warm place over night. Do not place the wood close to any sources of heat from one side, such as a radiator, as it may bend sideways. The temperature is best when it is spread evenly around the wood.



11 Chamfering the lip of the lap joint on the head of the lamp using a sharp chisel **12** The head of the lamp is now ready to be installed **13** Lamp cord and neck fed into the mortised cantilever of the base **14** The bulb is fitted in the lamp holder and shining onto the blue cord and the grain of the neck beautifully **15** Abdollah patiently finishing the base of the lamp behind his assembly bench

Making the base

The lamp base needs to be reasonably heavy to provide good stability, and it should be proportionally wider than the neck of the lamp to provide a good balance. I used a 200 x 100 x 45mm block of oak.

To make the cantilevered end of the lamp, I marked and cut a rectangular hole in the top of the base to size, matching the section of the lamp neck. I used a mortising machine to achieve the maximum accuracy and speed for the 40mm-deep cut. I set my cutter on 45mm depth, 5mm more than the depth of cut I needed to make, so that when it goes through the base it will have clearance and give a clean cut. You could also use a hand mortising chisel, but you must use guides next to your chisel, to make a straight cut all the way in.

For the cut-out of the base (see drawing) I marked and cut out 175 x 25mm of wood with the bandsaw (this cut can also be done by hand saw); the result of this cut will give a finished 'seat' for the lamp neck to sit onto. I then sanded the base.

Making the head

The head of the lamp needs to encase and cover the bulb holder. The head's width is calculated by adding the height of the bulb socket, the wire thickness and the neck thickness. For this part I used two hole cutters: the first is a deep cut to the size of the bulb socket so that it fits in tightly. The second cut is a few mm wider, but shallower, to leave some room for ease of access to the electrical installation and safety fittings.

After cutting out the holes, it was time to cut out the lap joint where the top of the neck neatly meets the top of the head, joining at the lip. I used a marking gauge sized to the thickness of the neck. I drew a cut line on the top of the lamp head block, leaving 7mm for the front edge lip design (this is optional, you could also just make it flush without the lip), with the cut diameter of 55 x 7mm. I used a bandsaw to cut the 55mm and used a cross-cut hand saw to cut the 8mm lip to get a clean finish.

Once the lap joint cut was made, I rebated a small groove with a hand chisel on the top and inside the lamp head for the wire to sit inside snugly. The block is ready to sand.

Assembly

This section is divided into five steps:

1 Fitting the lamp holder and connecting it to the wire. I used instant glue around the inner circle and PVA on the rest of the surface. This is a critical step as I had to pay extra attention to gluing the head neatly to the top in a short time as the instant glue secures in 20 seconds and also use a clamp for the PVA to dry in the joint (for electrical parts ask for the help of an electrician if you are in doubt).

2 I used instant glue in four points to fit the wire in the groove.

15

3 I applied some PVA on the base where the neck rests and passed the wire and the lower neck into the mortise using a gentle force for a perfect fit. The fitting will apply enough pressure for the PVA to harden.

4 Wiring up the plug and screwing up the lamp.

5 Turning the power on and smiling!

Conclusion

This lamp design was conceived with batch production in mind, while allowing different types of wood to retain their own character due to the nature of different woods' reactions during steam bending. This modular approach with interchangeable variety of woods, bulbs and coloured cords lends itself well to a great range of outcomes, as well as reflecting the different personalities of the students on our courses.

I hope that you will have a go at making this lamp yourself and add your own modifications, please post them on Instagram and tag @woodworkingcrafts and us @nafisistudio. Good luck!

Safety note

Ensure you are aware of and comply with the regulations for the manufacture and sale of electrical items for your country. If you are in any doubt, enlist the help of a certified electrician.

The rush to plant trees

Gary Marshall asks whether planting more trees is always a good thing

Gary Marshall attended a talk earlier this year (held just before the Coronavirus lockdown) given by Dr Tony Whitbread, the President of Sussex Wildlife Trust. The talk was entitled 'What have plants ever done for us?' After the talk, Gary asked the question: 'Could there be problems inherent with the current rush to plant trees?' Tony's answer is at the end of this article. Read on for some background, some evidence and Gary's take on the subject.

Background

We've been planting trees in Britain since before the Romans came. Some trees, like the holly and the hawthorn were revered and were often planted to mark sacred or other special sites. However, it seems likely that for many centuries more trees were felled, cleared, grubbed or grazed than were planted. Those woods and coppices that weren't cleared were often the subject of rotational management, for fuel,

PHOTOGRAPHS BY GARY MARSHALL, UNLESS OTHERWISE STATED

ABOVE Newly planted woodland **LEFT & BELOW** Ancient Woodland
BOTTOM Nelson's famous ship *The Victory*

PHOTOGRAPH COURTESY OF WIKICOMMONS

building materials and everything that today is made from plastic or metal. Other woods became confined to inaccessible places or areas where nothing else would grow.

Mass clearances of timber occurred in cycles when national need arose – such as the building and seafaring boom in Tudor times. Between 1600 and into the 1800s there was a movement towards plantations for timber production. Planting was mainly practical but also foresters would experiment with blocks of species: sweet chestnut, elm, ash, beech and oak were common. These plantations differed from the older ones (now protected Ancient Woodland) in that they were often on previously cleared land, parkland or even on unproductive land bereft of trees – including enclosed former common land.

Due to cheap imports many such plantations weren't harvested – the cost of transporting and processing far outweighed the value of the timber. Good, accessible straight or specifically shaped oak, however, has always had a value, but imports rendered much of this unsaleable too. Nelson's ships relied heavily on Estonian and other imported timbers. Nearly all the planting from 1600 was carried out by private landowners but such planting more or less dried up by the turn of the 19th century.

World War I brought the UK's lack of homegrown timber and reliance on unreliable imports sharply into focus. To rectify this, the government set up the Forestry Commission in 1919. We've all seen the results: serried ranks of conifers in blocks and lines with scant regard for landscapes – and little or no regard for ecology.

By World War II most Forestry Commission timber was still too young for harvesting, though many other forests and ancient woods were 'raided' for their best timber. This practice continued until 1975. Bad mistakes were made, such as planting conifers in ancient woodlands – even the total clearance of Ancient Woodland sites to

An oppressive old-style Forestry Commission plantation on an Ancient Woodland Site

Sympathetically changing old-style conifers to mixed woodland

plant conifers. Since 1975 there has been an increasing awareness of the damage caused by such policies and the Forestry Commission is a greener (but unfortunately leaner) body. Moorland, heathland and mountainsides are now not targeted for single species plantations. Heathland restoration and selective felling (rather than the old brutal clear felling policies) is leading to a potentially more user-friendly treescape for wildlife, for the public, and for national and private commercial timber growers. Timber is still potentially a massive national asset, but it is not valued in the same way as, say, the aviation, banking or motor industries.

In recent times we have seen the creation and development of Community Forests. In England from north to south these are: The Great North Forest, The Tees Forest, Red Rose Forest, The Mersey Forest, South Yorkshire Forest, The Greenwood Community Forest, Forest of Mercia, Forest of Marston Vale, Watling Chase Community Forest, Great Western Community Forest, Thames Chase Community Forest and Forest of Avon. There's also a big move to improve city and townscape greening with street trees and community woodlands, too. There's no reason, except short-sightedness, why such planting could not also have a useful commercial element in terms of homegrown timber.

The current tree rush

Recent announcements by the government point to the planting of hundreds of millions of trees to capture and offset carbon emissions from our dangerously warming atmosphere. With grants likely to become available and a rush to plant more and more trees, large multi-national companies are keen to associate their names with tree-planting schemes. Well-meaning individuals and organisations can also get sucked into the current tree planting fervour. I'm mad about trees but I like the right trees in the right place. I look for quality in our woods and forests – the quantity in terms of new planting should only be as a result of trying to achieve such quality.

Evidence of the tree rush

One of the most notorious examples of 'over enthusiastic' tree planting came to my notice in February and resulted in my question to Tony Whitbread.

At a dairy farm in Cumbria – a partner farm of the Nestlé mega-corporation – new 'woodland' had been planted in an area where there are rare, wildflower-rich meadows containing greater butterfly orchids and other threatened indigenous plants. The Woodland Trust were consulted but a database check (not a visual site check!) did not reveal any problems. Now, thank goodness, all the saplings have been removed and won't be a shading threat to this valuable grassland. To their credit Nestlé were quick to take action and apologise for this blunder. But it shows what can happen.

My take

So I wonder just how many other naive eco-led tree planting schemes have already damaged habitats in the UK and throughout the world. There are so many good organisations out there to help sensible tree planting schemes to become our future lungs and timber resources. But even they should not just rely on things such as distant 'data checks' to mitigate against potential damage.

Understand the land, the habitat, its wildlife, people and our own timber needs when sanctioning major schemes. Even old brown field contaminated 'wasteland' could be harbouring valuable species.

As promised at the beginning of this article, here's Tony Whitbread's answer to my question: 'All established habitats are valuable in their own right; soils and species-rich grasslands store and process huge amounts of carbon. They are also invaluable to our insect and microflora and fauna, which support all of life on Earth. These are increasingly rare habitats that have often developed over hundreds of years. Well-meaning, green-leaning decision makers must avail themselves of local and specialist knowledge before embarking on grandiose schemes in the name of greenness. Look before you plant! To be truly green is also to be properly informed.'

PHOTOGRAPH COURTESY OF WIKICOMMONS

TOP LEFT Heathland – previously a target for conifer plantations **TOP RIGHT** Standing dead tree – a valuable micro-habitat. Lost in the past to clear fell and replant schemes **CENTRE LEFT** A green winged orchid – a signal that no new wood should be considered here! **CENTRE RIGHT** Block planting on high ground – a thing of the past? **ABOVE** Homegrown timber in the landscape. Sometimes pictures can speak louder than words so here are some views of wooded landscapes that I would deem suitable for sympathetic and selective timber production – and mixed replanting, leaving room for other vital life too!

PHOTOGRAPHS BY FRED AND JULIE BYRNE

Herb planter

Fred and Julie Byrne use their scrollsaw to make this very useful herb holder

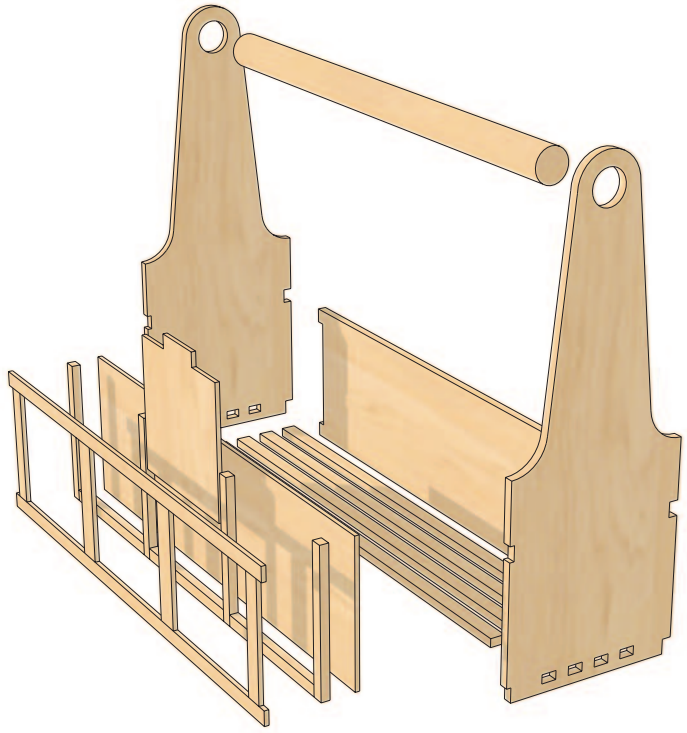
Designed to sit on the kitchen windowsill and be taken into the garden on nice sunny days especially for watering, this planter is a compact and convenient way to hold the fresh herbs you use most. Whether they are grown in your own garden or bought from the supermarket or garden centre, they'll be just at hand to use as you wish!

You will need

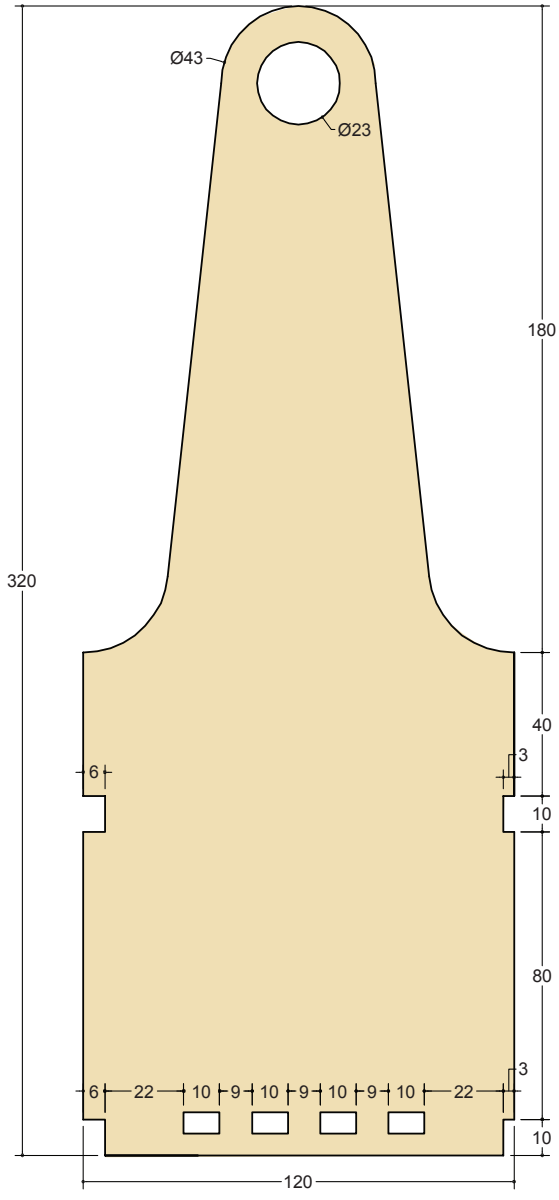
- Scrollsaw – No.2 & 5 blades
- Pillar drill – 0.5mm, 1mm drill bits
- A quantity of 6mm & 3mm hardwood
- 23mm dowel (broom handle)
- PVA wood glue
- Glue stick/spray adhesive
- Masking tape
- Sandpaper & block
- Wood stain (optional)
- Finish of choice

Cutting list

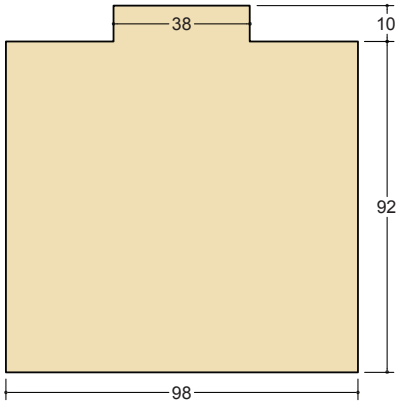
- 2 x side panels – 6 x 120 x 320mm
- Back panel – 6 x 100 x 352mm
- Front panel – 3 x 100 x 340mm
- 4 x slats – 6 x 10 x 352mm
- Front panel detail – see pattern
- 4 x inner dividing uprights – 6 x 8 x 100mm
- 3 x inner lower supports – 6 x 8 x 102.5mm
- 2 x upper & lower fascia – 3 x 10 x 352mm
- 2 x outer edge fascias – 3 x 12 x 80mm
- 2 x centre fascias – 3 x 16 x 80mm
- 5 x herb name plates – 3 x 98 x 102mm



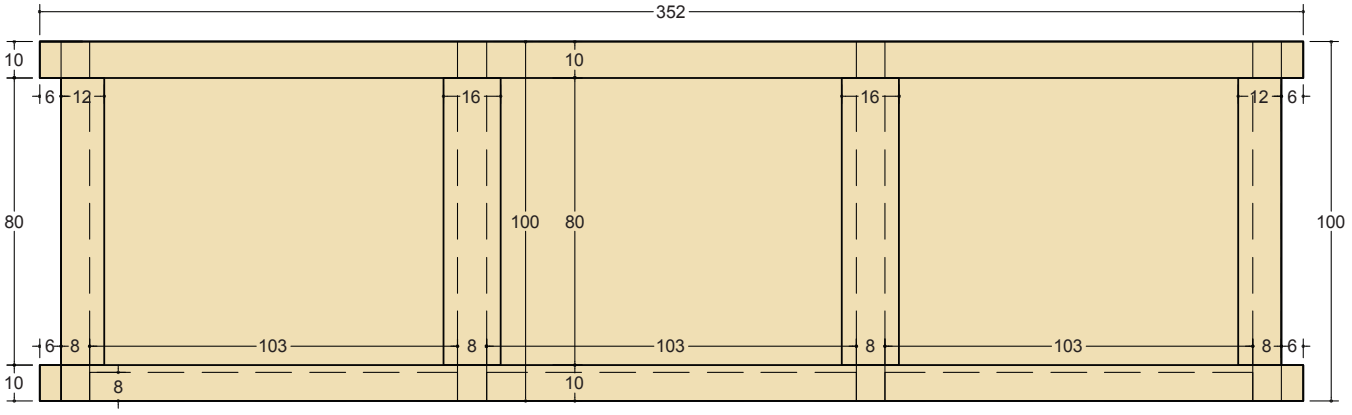
HERB PLANTER



END PANEL
SCALE 1 : 2



HERB NAME PLATE
SCALE 1 : 2



FRONT PANEL
SCALE 1 : 2

Herbs
Parsley
Basil
Mint
Thyme
Chives

Getting started

1 Fit the scrollsaw with the No.2 blade and cut out the blanks for the herb name plates. Make a copy of each herb name you wish to use and then glue the names to the blanks.

2 Using the pillar drill fitted with the 0.5mm drill bit, drill the blade entry holes into each letter.

3 Cut around the inside line of the letter first and then the outside – that way the stress placed onto the small connecting piece is kept to a minimum.

4 Continue to cut out all the 3mm pieces from the cutting list with the No.2 blade, then change to the No.5 blade before cutting out the 6mm pieces.

The side panels

5 Using the masking tape, secure together the two side panel pieces from the 6mm stock.

6 Attach the pattern and the written word 'Herbs' detail if wished.

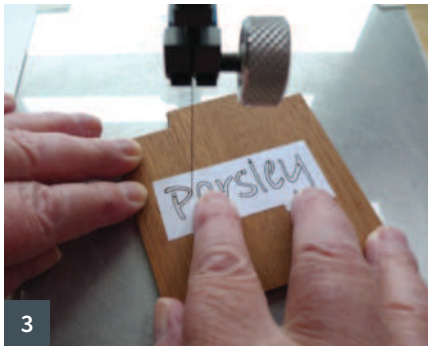
7 Drill the blades' entry holes and cut out the lettering as before.

8 Next, cut straight up both sides of the pattern.

9 Separate these two side panels by peeling back the masking tape on the underside, then turn the underside piece completely over so that the word 'Herbs' is back to front – this will enable the word 'Herbs' to be facing in the correct position (to the outside) on the finished piece. This is necessary because the lower section of the side panels is slightly different, making them non-interchangeable.

1


2



3

10 Re-secure the two panels with masking tape and drill the remaining blade entry holes for the handle and four bottom slats.

11 Cut out the pieces and finish the cutting by removing the four 10mm notches on either side.

12 Now is a good time for a dry run to make sure everything fits as it should, and to make any adjustments if needed.

Sanding

Remove the patterns and then give all the pieces a light sanding going through the papers, then remove the fine dust with either a tack cloth or vacuum cleaner.

Finishing

First we applied a wood stain to the handle to match the red wood used, and then set this to one side to dry.

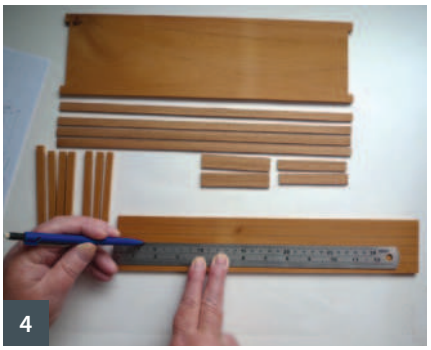
13 For gluing up, start by gluing the four inner upright dividers and three lower supports onto the front panel and allow to dry for a few minutes.

14 Next, glue on the six fascia pieces and wipe away any excess glue that may have oozed out, then set the front panel aside to dry.

15 Then glue the slats into the side panels and then the back panel, remembering to wipe away the excess glue as you go.

16 Slide and glue in the handle.

17 Glue the front panel into position and secure the whole thing with clamps or masking tape. Finally, give the whole piece a few coats of protective varnish, with a light de-nib between coats or, of course, a finish of your choice.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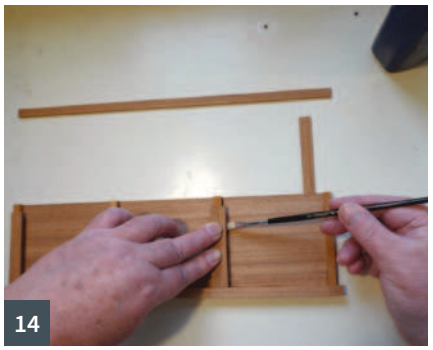
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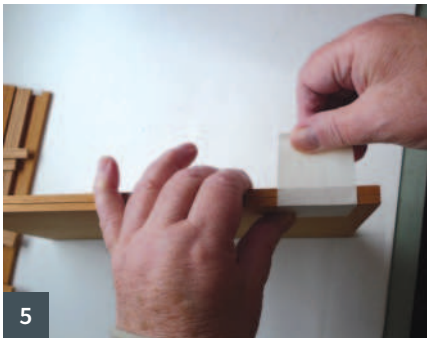
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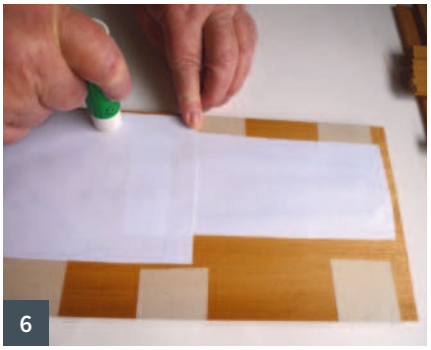
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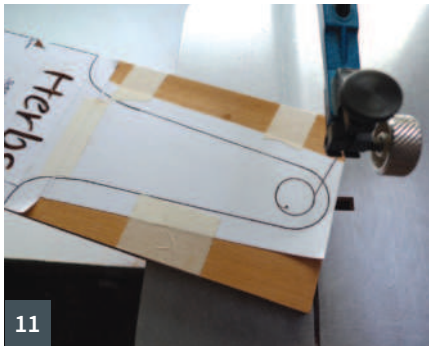
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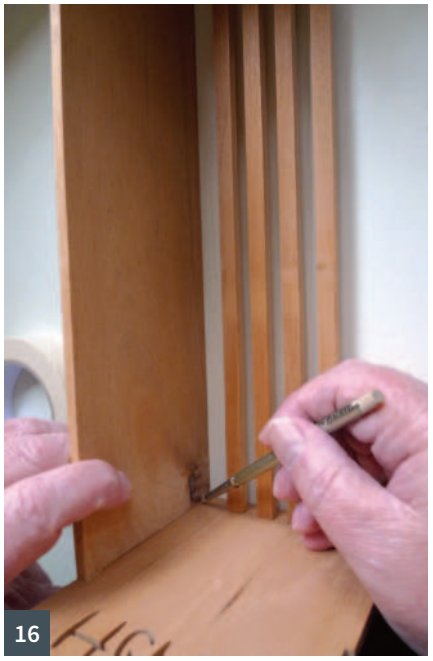
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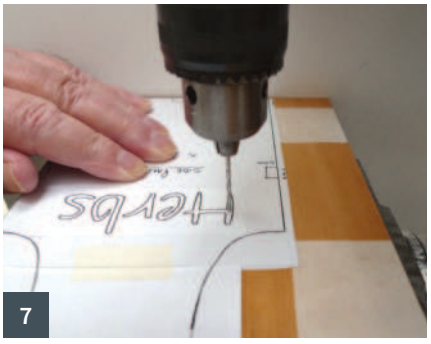
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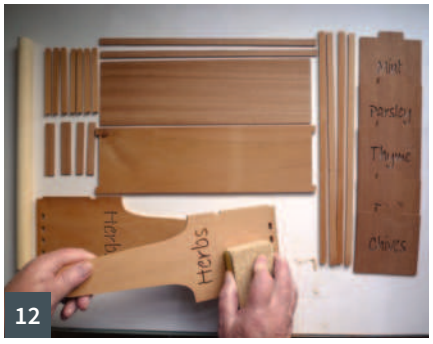

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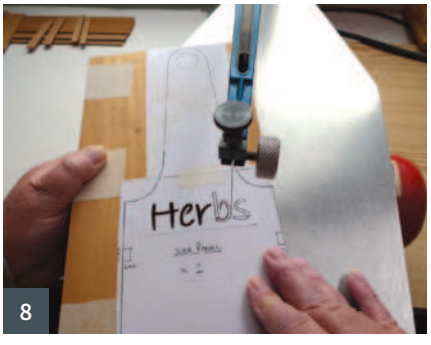

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Taming compound angles – by hand, and without maths

Charles Mak shows how you can handle compound angled joinery with a simple block and a few hand tools

Most cradles, trays or chests featuring compound angled joints are made using a power tool like the tablesaw, and often with the help of a compound angle calculator. While the sloping joint adds visual interest, many woodworkers hesitate to take on such a challenge.

When I use angled joinery, whether done with machines or by hand, I always prefer to utilise a maths-free approach. That approach was used when I recently made a basket with outward-sloping sided pieces. Not only without maths, I also tackled the compound-angle joints by hand. Let me show you the trick I employed.

The angled jig is a clever solution

In a compound angled butt joint, a bevel angle is applied to the top edge, bottom edge and both ends of all components including the bottom. There are two challenges to overcome with the hand-tool approach: bevelling the narrow edges to a precise angle, and sawing out the angled ends dead-on.

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PHOTOGRAPHS BY CHARLES MAK

1 The first challenge in cutting precise angles is handled by using an angled jig, guiding all the edge cuts. The jig is just a block of wood with the desired bevel cut on one of its faces. A higher slant angle will produce a more pronounced sloping look, but also a smaller base. So choose a slant angle (for example, 10° to 12.5°) that suits the look you want.
You can make the jig by ripping on the tablesaw or by hand-planing. Here is how to make the bare-bones jig by hand.

2 First, decide on the angle of slant and draw the chosen angle on both ends of a block about 40 x 90 x 350mm long in size.

3 To complete the layout, run a pencil line on the face connecting the two angle points, which serves as a depth line.

4 To do the bevel, set a hand plane for heavy cuts and plane the face with the grain, monitoring the progress against the depth line. As you get closer to depth, adjust the plane to cut finer shavings. Check the bevel on three points to verify its accuracy, and you are ready.

Marking out the bevels prevents errors

5 The basket is composed of two sides (front and back), two ends (right and left), a roped handle and a bottom. Mark all the components, (I used cabinetmaker's triangles), to keep track of their proper orientation. The edges will all look similar and it is easy to cut a bevel in the wrong orientation, so it is prudent to lay out the angle in its correct direction on all the edges of the ends and sides as well.

Bevel the top and bottom edges of the front/back sides

6 To bevel the top edge of the sides, set the work flush with the jig, with the high edge to be planed off on the far side. The plane is then placed with its cutting edge on the work, and with the plane's edge riding on the jig.

7 Plane down the high side on the workpiece.

8 If you are worried about cutting into the jig, you can add a spacer between the jig and the work.

9 After bevelling the top edge, turn the workpiece end to end, and plane the bottom edge. Lastly, bevel the other side piece in the same manner.

Bevel the top and bottom edges of the right/left ends

10 As the top and bottom edges on the end pieces are end-grain, put a chamfer on the exit end first to avoid blow-out.

11 After bevelling the first end piece's top and bottom edges with the aid of the jig, work on the second end piece.

Cut the ends of the sides and end pieces to the slant angle

For all workpieces to splay and meet at their joints, the two ends of each piece also need to be crosscut to the slant angle. The solution to crosscutting precisely is to guide the saw cuts with a knife wall.

12 In the first step, mark out the slant angle on all the pieces with a marking knife.

13 Chisel a knife wall – a shallow sloping channel – along the scribed line on the waste side. Then place the saw in the channel and saw off the waste part. The cross-grain knife wall will guide the sawing, resulting in a precise cut.

14 Finally, to remove the saw marks, gang up the pieces in pairs and make a few passes with a low-angle plane. Another way to handle end-grain edges is to plane towards the middle from both ends.

Mortise the ends for the handle

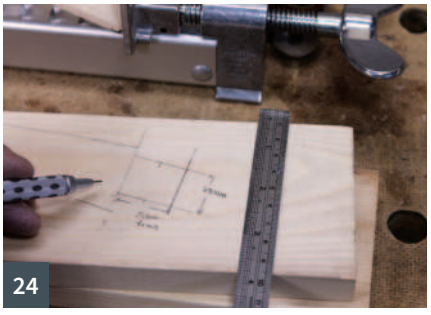
A handle can, of course, be attached straight across between the end pieces with dowels, but why not challenge yourself with a curved handle and a through mortise-and-tenon joint that is both strong and pleasing to the eye.

15 First, start with laying out the desired shape (I've marked a symmetrical curve here) for the top portion of the end pieces.

16 Next, mark out the mortise in the centre of the end pieces. When marking, follow the 'one-third' rule of thumb, meaning the width of the mortise is about one-third of the thickness of the tenon.

17 Bore the holes and pare the mortises from both sides.

18 Take care not to bruise the ends or chop outside the lines.



19 In the last step, cut the end pieces to shape with a coping saw, and clean up the edges with a spokeshave. In pulling strokes, grip the shave's body (the metal part of the handles) with the thumbs and middle fingers, resting the index fingers on its top to prevent chatter.

Drill holes for the dowel joinery

20 The basket is held together with dowel joinery. First, drill the holes on the sides of the end pieces with the aid of a dowelling jig. With a dowel centre, locate the matching hole locations on the side pieces, and bore the holes. Make the dowels slightly longer to be trimmed flush when the basket is glued up.

Mark the tenons

At first glance, it is rather challenging to try to lay out the tenons for the curved handle to match the mortises on the end pieces that are slanted. The trick lies in starting with the handle stock uncut in its rectangular shape.

21 With the basket dry-assembled, clamp the handle stock to one side of the end pieces. Transfer direct measurements from the end pieces to the handle stock for the shoulders and tenon.

22 Trace the curve profile on the handle stock, using a drawing bow…

23 … or a strip of wood bent in the desired configuration.

24 Complete the tenon layout on the blank, double-checking the tenon accuracy.

25 Finally, crosscut the handle stock to its final length, and bandsaw it to shape.

26 Clean up the work with the spokeshave. When using push strokes, hold the shave's body with the thumbs and middle fingers only, while the index fingers press down to prevent chatter.

Cut the tenons

27 To cut the tenon, saw the tenon to width and transfer the lines for the cheeks.

28 Then rip down through the end-grain, and cross cut off the waste on the shoulder lines to form the cheeks. Fine-tune the joints with a shoulder plane or wide chisel, as necessary.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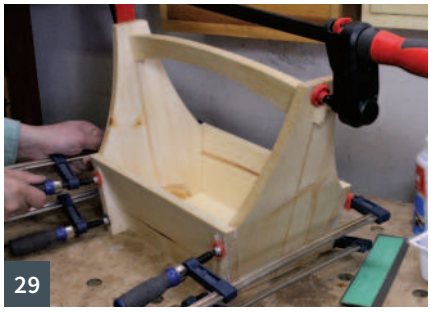
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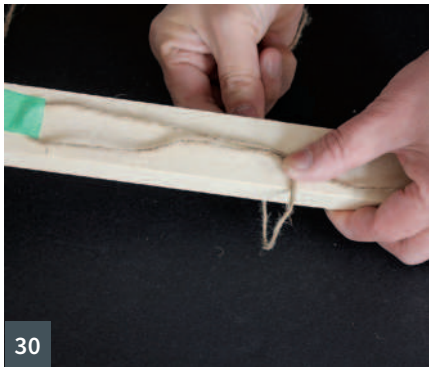
1 Begin the wrap by a tight turn over the standing part of the whip cord.

2 Continue to wrap tightly toward the bight, a dozen turns or so. Then put the working end of your whip cord through the bight.

3 Pull the other end back to draw the working end under the turns to about the centre of the whipping.

4 Trim the ends.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Bevel the bottom of the basket

Dry assemble the basket to find the dimension for the bottom piece. If you are building the basket in a dry season, make the bottom just slightly narrower in width. In addition, when the bottom is glued in place, apply glue only to the middle section on both ends to allow for wood movement. Finally, bevel the bottom on all edges using a hand plane and the angled jig.

Glue up and finish the basket

29 Glue up one side of the basket including the handle, then the other side. Trim the dowels flush, and clamp everything in place. Angled cut-offs are double-face taped to the work and used as clamping cauls. Ease all the sharp edges and apply a few coats of finish to bring out the wood's character.

Rope the handle

Twine, a simple and easily obtained object, can be wrapped on the handle to add a decorative yet functional touch to the basket. To rope the handle, I used a whipping technique shared by a friend of mine, Robert Lee, author of two books on knots and a woodworker himself.

30 I chose a rope of 2mm in diameter to wrap the middle section of the handle. First, tape the end of the loop on the handle to keep it from interfering with the wrapping.

31 Then start by making a few wraps over the other end of the twine to secure it in place.

32 After making enough wraps to cover the desired length (about 100mm), feed the twine through the loop.

33 To finish, pull the other end of the loop to draw the working end of the twine under the wrap, and trim the excess. The thin cord is nice to touch and is in harmony with the size of the handle. What a refreshing way of wrapping up a woodworking project!

Filled with fresh fruits or your favourite desserts, the splayed basket can make a classy centrepiece on the dining table. Or, as the design team – my wife and daughter – demonstrated (as seen in the opening shot), it can make a great gift basket. Bringing it to someone's house will set the stage for an unforgettable party. The best part will be in knowing that its tricky joinery was tamed with your own hands – both figuratively and literally!

Seize the day

Sometimes life can get in the way of pursuing your passions and following your dreams. But it's never too late to do the things you've always wanted to do

Think of something you've always wanted to do: play Debussy's Clair de Lune on the piano, design and build your own dining table and chairs, carve a masterpiece. Now think of all the reasons that have meant you've never even taken the first step to get there: exams to pass, parents to please, career ladders to climb, mortgages to pay, families to raise, older relatives and grandchildren to look after. The list goes on… and on. But perhaps it's time for the reasons to stop (that includes number one, the commonly shared, widely believed: 'I can't do that') and for the road to achieving that long-held passion to start.

What's standing in your way?

In her international bestseller, *The Artist's Way: A Course in Discovering and Recovering your Creative Self*, Julia Cameron states: 'Give yourself permission to be a beginner. By being willing to be a bad artist, you have a chance to be an artist and perhaps, over time, a very good one. When I make this point in teaching, I am met by instant defensive hostility: "But do you know how old I will be by the time I learn to really play the piano/act/paint/write a decent play?" Yes… the same age you will be if you don't.'

Julia makes a valid point. You'll be the same age whether you start something immediately or not. Two years from now, wouldn't it be better to feel that you've made progress rather than still being in the position of contemplation?

Time for you

Sometimes it can be hard to give yourself permission to do things that bring you joy and happiness. It can also feel daunting to start something new, especially if you're at an age where you feel largely proficient and confident in a lot of what you do. But stepping outside your comfort zone, however frightening, can bring with it plenty of benefits.

Time for friends

Starting a new passion project can also lead to new friendships and contacts, perhaps you'll join a club or society dedicated to your new hobby, or maybe you'll discover a community of like-minded people online. Social media can be a great resource for advice when you're picking up a new craft.

Finding inspiration

Finding a passion project might come easily. It's usually the thing that creates a small bubble of excitement and energy when you think about it. It could be when you pick up your camera and head out for the day or if you snap a great shot on your phone. You might feel it when you run your hands over timber and start thinking about all the wonderful things you could make. Choose something you love and which, if possible, gets you into that magical 'flow' state mentioned by creatives and performers, where you feel energised and time disappears.

After all, you're doing this for your own satisfaction. It's a chance to express yourself. There are no rules and there's no need to please others or seek financial gain. There's the opportunity to get in touch with your inner child, to play, to colour outside the lines. Take up pottery and throw your own vases; note your inner dreams in a scrapbook; become a member of the local amateur dramatics group; write; draw; paint; take photos and share them on Instagram.

It's never too late

Remember that age is no barrier to your dreams. Samuel L Jackson was 45 when he achieved his breakthrough success in 1994 movie *Pulp Fiction*; Irish writer Frank McCourt was 66 when *Angela's Ashes* was published; and Laura Ingalls Wilder, who penned the *Little House on the Prairie* series, published the first of eight books at age 65 and finished her final book aged 76. As British author and poet George Eliot once said: 'It is never too late to be what you might have been.'

WORDS: ANGELA WATT

'When you're curious, you find lots of interesting things to do'

WALT DISNEY

PHOTOGRAPH: ANNA BERDNIK/SHUTTERSTOCK.COM

Starting a passion project

- If you're keen to pursue a long-held interest or learn a new skill but aren't sure where to start, you might consider some of these questions:

- What things did you love doing as a child? Did you have a favourite hobby that you've long forgotten about that you'd like to explore? Was there a project that you once started and haven't returned to for years?

- Do you follow certain people or subjects on Instagram or other social media platforms? Perhaps they could give you an insight into a project you'd like to try.

- What books are you interested in when you go to a bookshop or library? Do these give you an insight into a passion?

- Do you find yourself thinking: 'I'd like to do that.' If so, what's the first action you need to do to start?

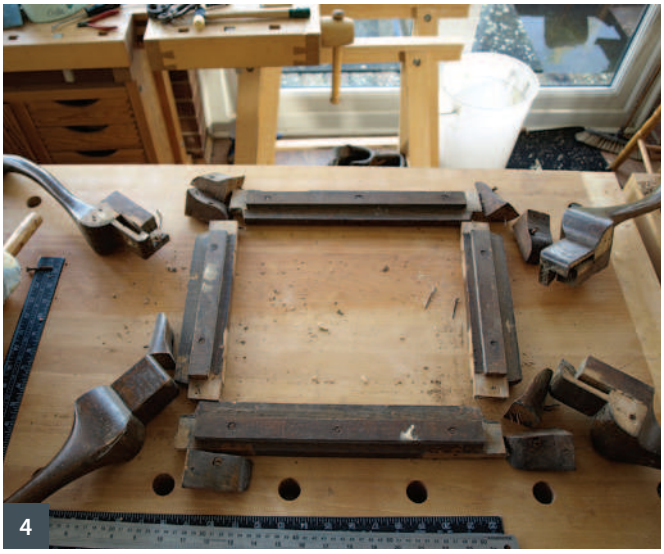
- Are you inspired by other people and their projects and skills? Are they doing something you'd love to do?

- Who do you know that might help or support you with your passion (if you feel you need it)?

Dressing stool repair

With a threadbare cushion and four loose legs, this Queen Anne-style dressing stool was in need of some gentle repair. Mitch Peacock took on the challenge

No respectable 18th- or 19th-century lady would be without a dressing stool, although today these cushioned stools are more likely to be used as tall footstools to aid the circulation in old legs. Either way, they cease to be fit for purpose once their joints and cushion fail, as was the case with this early 20th-century replica. I could make a new one from scratch easily enough, but could I sympathetically repair this one, retaining much of its character and patina? I'm not a restorer, so I had to approach it from the perspective of a maker – how would that turn out!



PHOTOGRAPHS BY MITCH PEACOCK

Assessment and disassembly

1 With the loose seat removed, a thorough assessment of the stool's joints could be made. In some cases, repairs can be accomplished without disassembling, but with almost every joint having failed, and evidence of rudimentary past repairs, such as nail heads, I took the decision to break the stool down to its component parts.

2 The loose seat itself had lost any cushioning effect the old stuffing ever had, and its embroidered canvas covering was faded and threadbare in places. As such, it was probably headed for the bin.

3 Nails were removed where possible, attempting to limit damage to the surrounding areas as much as I could. Veneer pins had been used to keep the leg wings/blocks aligned, which I suspect were original, but I think the various panel pins and finish nails were possibly the result of previous repairs. The leg wings each had one screw attaching them to the rails, in addition to hide glue. These screws were carefully coaxed out, first attempting to tighten them before loosening: why this method works so often is a mystery to me, but it's well worth remembering. Where two of these leg wings were still held tight by their glue, I moistened and warmed them with towelling and warm water, to reactivate the glue. Unfortunately, I exerted too much pressure on one wing before the glue softened, and a section of rail split out.

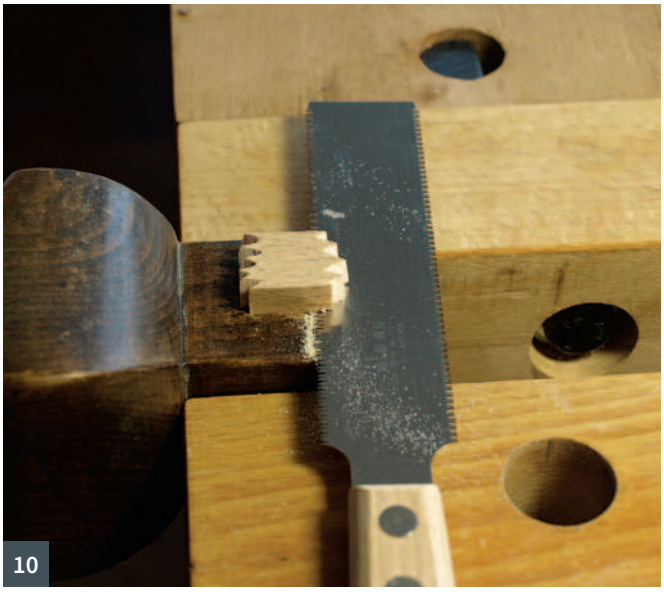
4 Most of the leg to rail joints could be pulled apart by hand. Some fell apart, but one side rail was quite obstinate and required the use of a spreader. Many bar clamps can be converted into spreaders by reversing the clamp heads on the bar, and can exert sufficient pressure to disassemble chair frames and the like.

5 It's best to remove old glue completely. This is something that's often neglected when people first attempt to fix loose joints but a small investment of time doing this with card scrapers, etc., will be more than paid back in the lifespan of the new joint.

6 The old finish was cleaned of dirt and wax, using first soapy water, and then a fifty-fifty mix of white spirit and methylated spirit.

7 I checked my assumption that the original finish was shellac by placing a drop of methylated spirit on an out-of-sight area of finish, and testing that the finish softened after a little while. The test proved that I was right. This was good news, as it meant I would have no problems freshening up the tired finish later on.

8 With all the components apart and clean, I took the opportunity to draw some measured plans, in case I decide to make a copy of the stool in the future.



Repairs

9 Before gluing the stool together again, I needed to repair the damage from removing all those nails. I also had to fix the main reason behind the joint failures – loose fitting joints.

10 For the worst nail damage, I made a jagged-edged patch, which was glued into a corresponding excavation. The others were filled with melted shellac stick.

11 Where the rail to leg joints were loose, I glued sufficiently thick shims onto the tenons. The stool is designed with flush joints, so choosing how to shim each tenon face was important to maintaining this.

12 Snug fitting of the tenons was made, once the glue had set, using a shoulder plane.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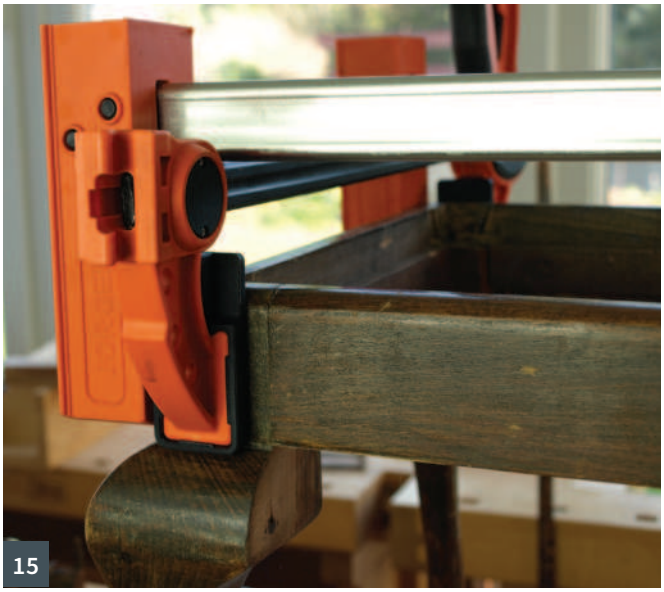
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13 Half of the leg wings looked as if they had been lightly chewed by a dog. I wanted to maintain the aged appearance of the stool, but chewed wings weren't desirable for that, so I filed and sanded the damage away.

14 I made a much better loose seat by constructing a simple beech frame. This was sized to allow for webbing and covering material, and the corners and edges were all rounded over to avoid tearing the upholstery fabric.

Assembly

15 The legs and rails were glued and clamped up, before gluing and screwing the leg wings in place.

16 The wing that had come away with part of the rail was glued back in place with no difficulties. The split itself didn't extend to the show side of the rail, but even if it had, the split closed up invisibly – what might initially seem like a disaster, isn't always so.

Finishing

17 The wood figure on the stool is actually painted, so wherever this had been erased, such as where the chew marks had been removed, I tried to match it as best I could.

18 Shellac was applied where needed, blending into where it wasn't. Sufficient coats were used to protect the newly painted areas, and to give a consistent appearance all over.

19 A very fine abrasive cloth was used to knock back the finish a little, before furniture wax was applied and then buffed off.

Upholstery

20 Webbing was woven, stretched and stapled over the new seat frame, producing a taut base with a little give. Fire-resistant foam was cut and sculpted slightly, and then the edges pulled down and stapled to the top edge of the seat.


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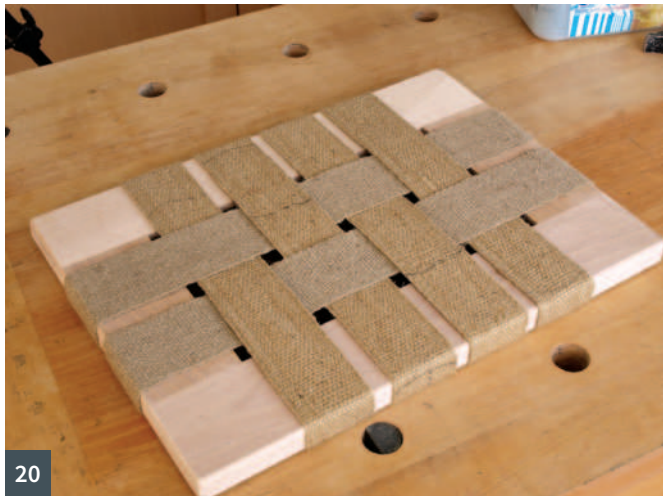
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21 Polyester batting was added to separate the foam from the finish fabric. It softens out the rough sculpted surface of the foam, and reduces the friction with the fabric, ensuring a smoother surface and a longer lifespan.

22 The upholstery fabric was then stretched tight over the padding and stapled to the underside of the seat frame, starting at the centre of each edge, and working towards the corners.

I would be lying if I said I was perfectly satisfied with the result, but the experience will help with the next repair, and I've already found someone more than happy to give the stool a good home.

PHOTOGRAPHS COURTESY OF TOM ROWELL

LIFE IS BUZZING

Young entrepreneur Tom Rowell tells us about the impact woodworking has made on his life

I have been teaching myself skills by trial and error ever since I can remember. I've always loved creating things with my hands and being around nature. I was fortunate to grow up in the rolling hills of Dorset with the Jurassic Coast on my doorstep. The absence of a father figure in my life meant I had to take on the challenge of developing practical skills myself, from fixing my bike to building chicken houses. I was also a competitive sailor for many years and the fine-tuning of my boat could be the difference between winning or losing a race. This worked well for my OCD and made me aware that attention to detail really matters.

Finding a passion for woodwork

As a dyslexic I struggled with the majority of schoolwork but in my last two years of senior school I came to realise how much I loved being in the woodwork shop. I would run to get to the class and then be the last to leave – I even used to stay in after school hours with my teacher Mark Richardson, who would drop me back home in the evening as he lived in my village. This allowed me to have one-to-one tuition with Mark. Being dyslexic this, and the sailing, made a huge difference to my confidence. I have found the best way for me to learn is to watch, understand and practice.

At 19 I was slightly lost with what to do with my life but I knew I loved woodwork, so I started sending emails out looking for a job in the industry. A few weeks later I met Andrew Murray from Watermeadow Furniture. Andrew was the first person in many years who was willing to show me useful skills. He is a very talented furniture maker/restorer with many years of experience. Here I developed my bench skills using hand tools, machinery, wood finishing and learnt about attention to detail in the structure of furniture.

Spending a year with Andrew put a bigger spark in my heart for woodwork and I was eager to learn more. This led me to move to Bristol and enroll on a furniture-making course alongside a very talented teacher, Gary Dingle. Here I developed my designing/making and joinery skills. The advantage of working in a class is that you learn from each other's mistakes and you're able to brainstorm together; I found that talking about each other's projects helps to speed up the learning process. In addition, I rented space in a shared workshop with friends but I always dreamt of having my own space, somewhere I could flourish. After two years of living in Bristol I was offered my own unit back in Dorset, how could I say no!?

‘I say to myself daily, “Once a method has been established the method can be improved”, this is my motto.’

Young entrepreneur

So at the age of 22 I started my first business, Tom Rowell Designs. The first three months were tough as I was constantly investing money into the business and, not knowing what I would get back in return, it was a huge gamble. It also took me a while to adjust to relocating back to sleepy Dorset, moving back into my Mum's, leaving all my friends and connections I had made in Bristol. But it had always been a dream of mine to have my own workshop in which to develop and create my ideas and be my own boss.

Now, nearly a year into my venture, I have learnt so much, and every day is a lesson, from designing and making stock, tool/machine maintenance and of course the skill of business. I can honestly say that no day is boring. Of course I have days where I feel unsure of what I have put on the line, all the thousands of unpaid hours and thousands of pounds. However, every time I get nervous about what I have invested, I remind myself of how far I have come in such a short amount of time and wonder where will I be in a few years…

The best boost a maker can get is when someone buys your work or when you receive positive feedback after delivering a commission. I love seeing my work in situ. Last year I did a few summer and Christmas craft markets so I made some small pieces that would be suitable as gifts. I made a range of items to see what was most popular and I'd then make more of them for the next market. I am always reminded that everyone has different tastes, though. It's lovely to meet people at the craft markets who want to invest in my products and in me. It puts a massive smile on my face and makes me more creative! I always enjoy meeting like-minded people who love wood as much as I do.

Using local timber

I am trying to be as low impact as possible by using locally sourced timber, mainly from Dorset but some from neighbouring counties, too. We have such beautiful trees here, so why import exotics? One of my many missions at the moment is contacting tree surgeons and landowners and asking for wind-blown trees, which I can plank and season myself. Soon I will be able to tell the client where the tree stood and the life it had before it became a piece of furniture. Buying fresh timber is an investment and is a must if you want to increase profits.

Woodworking and beekeeping

Alongside my business I have a growing apiary. This is an extremely meditative hobby and I believe everyone should give it a try. Beekeeping is fascinating as there is so much to learn and the rewards are beerilliant!

My two passions complement each other really well. I have the pleasure of making my own hives from cedar, which is great to work with due to the aroma it produces, and I can use the beeswax to make my own furniture wax and chopping board butter. This gives me full control over the sustainability and the standard of the products I use and sell. I am keeping my bees as natural as possible by not using any chemicals and not taking their entire resources which they rely on. I will be buzzing for life.

Family inspiration

My Mum has always been a successful businesswoman and has always powered through the lows. She has been my inspiration and gives me my drive to be my own boss. She runs a business called Upstairs Downstairs Interiors and we often work together making furniture, armchairs, footstools and chaise longues, etc. Any frame that she needs, I can make.

The lockdown impact

This summer I was meant to be doing monthly craft markets and stocking local shops but due to the Coronavirus everything has been put on hold. The virus has been a massive shock to all of us and has changed life as we know it, but I love how it's bringing people and communities together. Hopefully people will learn from this and will start to shop locally and support small businesses more.

My plans now and for the future are to push for a bigger online presence, I am already on social media and am starting to make a website. I am also in the process of designing my own range of furniture that I can offer to clients and shops. After I've established my new products I can make mini production runs and bring in a steady income to grow the business and maybe one day have an apprentice join me. Please give me a follow to watch my journey.

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Food preparation boards

Peter Brett uses a couple of handy jigs to make these colourful kitchen projects

Like woodworkers everywhere, I am completely unable to throw offcuts away. It was when my wife finally split the last serviceable cutting board in the kitchen that I was galvanised into using some of them.

Materials

Food safety is important, so 'tanniny' woods like oak and poisonous woods like yew and laburnum need to be eliminated straight away. Fortunately I mainly work with British hardwoods and I had bits of beech, maple, ash and some pieces of fruitwood like apple: great for cutting boards, even if they were small pieces.

With careful preparation, and good use of the gluing jig, a board surface can be made nearly flat, and can be flattened off with a jack plane used at 45° to the grain and then sanded to a smooth finish. Many of the scrap pieces I use have a planed top and bottom surface. Running these through the bandsaw to create strips will leave a pair of planed surfaces ready to be glued: flat enough to form a tight edge-to-edge joint.

Tools

If you don't have a planer thicknesser, don't be discouraged. Careful selection of wood or re-sawing on a small bandsaw can solve many of the difficulties. I still use my hand planes for creating flat, square edges.

The most invaluable power tool I use is a powered mitre saw (chopsaw), which is ideal for making mitred corners and cutting components to length. Next most useful is a router or a router table for doing breadboard end joints and finishing boards with rounded or chamfered edges. Flattening is done with a belt sander with three grades of belt (60, 80 and 120 grits) and I used my random orbit sander for a final going over.

A useful jig

This handy jig allows me to get my strips of wood completely flat and at right angles to each other. It is made out of a flat piece of 20mm-thick plywood and some 50 x 50mm softwood. The ply should be about 450mm long and about 400mm wide as square as possible. On one long side a piece of the 50mm square softwood is screwed to the ply. Another piece of the squared softwood is screwed at right angles to the first piece. This creates a right-angled corner into which the board strips can be registered and clamped. The whole top surface of the jig is covered in plastic parcel tape to stop any squeezed-out glue sticking to it. It may also be useful to screw a piece of timber underneath so that it can be held in the vice or workmate.

PHOTOGRAPHS BY PETER BRETT

1 Different thickness pieces here are problematic. It is best to use the thicknesser if you have one
2 With pieces that are similar thickness it is possible to hand plane them flat
3 The right-angled gluing jig. The tape stops glue sticking **4** The jig in use. More than one clamp will be needed when gluing up for real

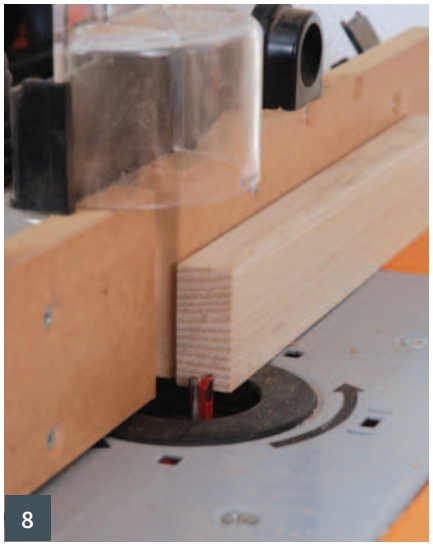
Mitred corners

To avoid having end grain of the board I have used mitred corners and breadboard ends. I usually do one corner at a time, starting with a width and a length piece that are both a little overlength. The faces of the pieces must be square to the edges of the board so that the mitres fit square too. I use the clamping jig to dry fit and adjust them for a perfect fit with a sharp block plane. Then the two mitres on the other ends of the pieces can be marked for length and the mitres cut. Glue the first mitred pieces onto the edge of the board, and when set, mark and cut the next two mitres on the next two edging pieces. They are then glued to the main board in the gluing jig. The mitred corners can be reinforced with a veneer slip if necessary.

Breadboard ends on the router table

Once you have made up a section of board that you think will be suitable, make sure that it is flat, of even thickness and with square ends. The end pieces need to be of the same thickness too with the long edges square. I usually keep the end pieces as one piece until I cut the grooves on the router because it makes handling them so much easier, and then they are cut in half.

Using a straight bit (usually 6mm diameter) set the fence so that the bit is roughly in the centre of the end piece. Then taking progressive small cuts, make the groove about 20mm deep. To ensure that the groove is centred, run it past the cutter twice for each cut – with both faces of the piece run against the fence.



5 Laying out the initial mitred corners in the jig before clamping. The corners should fit well under clamp pressure
6 Clamping set-up for the first corners
7 Ready for clamping up the last mitres. Clamps will be needed for width and length
8 Set the cutter near the middle and not too high for the initial cut. The piece will have to be passed twice through the cutter – once on each side to ensure that the groove is in the centre of the end piece
9 The completed grooved endpiece is used to correctly set the depth of cut for the rebate cutter
10 The rebate jig. Made to fit a range of board sizes. The sides need to be square and parallel. The end piece can be made wider to help support the router base
11 Timber ready to be rebated. Make up spare width with a filler piece and make sure that the wedges are tightly fitted to prevent the piece from moving. An extra clamp on the end will ensure a good result

Now use a 20mm diameter straight cutter. The depth of cut of the rebate is set by reference to the grooves cut in the end pieces; use a scrap piece first. Then the fence is set to cut the roughly 20mm-wide rebate out of the end of the prepared board. It doesn't matter if it is a little more as the extra can be planed off.

Jig and router method

The rebate jig is a square-cornered rectangle of 20mm-thick ply big enough to hold the flat board. On each long side of the ply a piece of softwood is fixed so that they are square and parallel. They should be thicker than the cutting board by a few millimetres. A 50mm-wide piece of softwood the same thickness as the side pieces is fixed to the width of the ply and at right angles to the length pieces. The router base rests on this and it is also used as a guide for the router fence. The thicknessed and square-ended cutting board is held in place using a pair of long wedges to keep it square, with a clamp for extra security. Using a straight cutter in the router and set to the correct depth a rebate can be machined. Keep the weight of the router firmly on the 50mm-wide fence guide.

Design and decoration

The most obvious design for a food preparation board is strips of offcuts planed to size and thickness and glued edge to edge. However, a striking result can be achieved by using contrasting strips glued together. Try for different effects by varying the width of the strips and varying degrees of contrast and colour. Carefully arranged 'random' strips of different woods can also look good.

A simple way of getting decoration is to use contrasting veneer strips glued on the edges. Obviously, people tend to use fancier boards on the dining table for presenting cheeses or special breads, while plain boards are used in the kitchen for food preparation.

True 'chopping boards' are made of small pieces of timber with end grain presented as the working surfaces. These boards are great to use and kind to knives, but are difficult to build well since each piece needs to be perfectly square to the next piece for the best glue joint. Accurate square edge planing, a good tablesaw to cut the segments and a gluing jig will help to get a good result.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12–16 Different options for food boards **12** Simply made with contrasting strips and rounded edges done with the router **13** Very decorative with contrasting veneer strips and carefully arranged contrasting body strips **14** Mitred ash board with veneer contrast strips to break up the light wood **15** An end grain 'chopping board' – much more work than long grain boards **16** 'Random' strips can be very decorative too

Finishing and aftercare

Chopping boards do not have to have a finish applied to them but the problem is they will stain very quickly. I recommend using a finish, but it must be food safe. You can use vegetable or sunflower oil but these do not fully cure. A better option is a specialist food-safe wood finish, which, when cured, prevents staining and is durable.

Simply wipe on the finish with a cloth or brush, wipe off excess after a minute or so and let it dry. Then rub down the workpiece with fine abrasive and apply another coat, wipe off the excess and let dry.

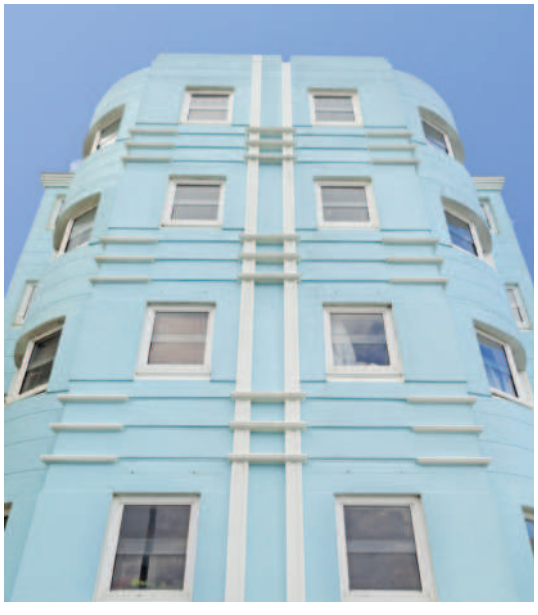
The boards need to be cleaned after use in warm running water with washing-up liquid and a microfibre cloth or brush. They should never be soaked and should always be dried in a rack or on edge. Soaked boards will eventually split and damp also encourages bacteria. Meat, fish, vegetables and cheese should each be cut or served on different boards.

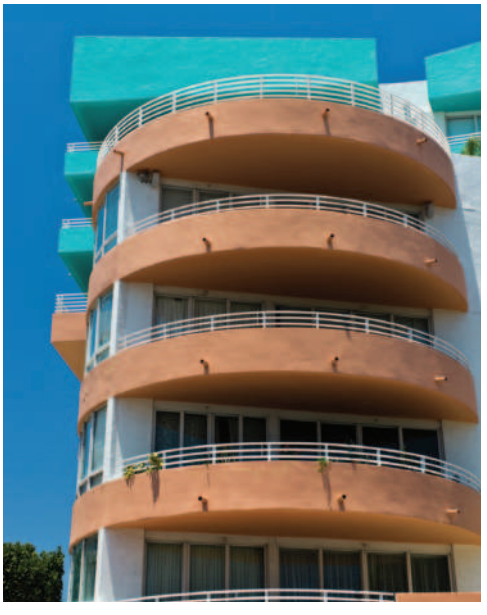
Art Deco style

Anthony Bailey takes inspiration from early 20th-century design

Why Art Deco? Well maybe, the question should be, why not? From a design point of view, the 20th century is surely the most complex to unpick. The late 19th century saw a movement from mass-manufactured, over-ornate ghastliness to the handcrafted restrained style of the Arts & Crafts movement. This was then followed by the expansively florid Art Nouveau style, to find itself exhausted by the time of World War I. Postwar, cleanly defined Art Deco became big news and later developed into Modernism with its straight, square blockiness, which seemed to somehow presage yet another global war in its regimented style. Each period seemed determined to overthrow the last, with Art Deco in the interwar period being a reaction to the harshness and privations that went before. Because art and design evolve and feed off so many influences, there is no neat beginning and end for the Art Deco form but it can still be recognised by an accustomed eye.

PHOTOGRAPHS BY SHUTTERSTOCK.COM





Less is sometimes more

True Art Deco is admirable not because of any ornamentation as found in previous styles, but because of what it actually threw away. Its extravagance came not in sentimentality or decoration for its own sake, but in clear bold statements evident in simplicity, striking shapes, clean lines, curves, straight lines that were staged or staggered like Lego blocks. Think of the Chrysler building in New York with its reducing straight sides and multi-hemispherical top profile, a building that points its finger at the sky making a dramatic statement that still has not been outdone by today's much taller structures.

In the 20th century architects of note have frequently designed the fittings and furniture for the buildings they created. So it is no surprise therefore, that the shapes were almost 'kiddie' style, quite simplistic geometry that makes you gasp, not at the simplicity of the thinking but at the sophistication of those apparently quite basic shapes. A curve was not a simple curve but a compound curve, expansive like a draughtsman's 'french curve' or the whorl of a shell. Straight lines were unashamedly straight – unless of course they were not. A style handbook full of contradictions then, but one constant was that ornamentation was invariably restrained, the vibrant often overblown 'look' rarely needed help to complete it.

Art Deco today

That is why it has so much to offer contemporary designers; modern furniture can often look as if a lot of trouble was taken achieving a particular appearance, almost too clever-clever. Art Deco on the other hand looks effortless and with a grace and complete confidence in its many forms. It seems to question standard thinking and then just ignore it all the same. It is an early 20th-century style that can still speak across the generations and be a genuine resource to designers and makers today. On these pages are a variety of images from the world of architecture and furniture design to hopefully interest and inspire readers looking for new 'old' ways of looking.

Art Deco architects and designers

There is a veritable swathe of architects and designers who created not just Art Deco buildings and furniture but also Art Nouveau and Modernist work. Here is a list of just a few notable figures, there are many more you can research online.

EILEEN GRAY (1878–1976)
Le Salon du Verre, furniture
E-1027 circular table

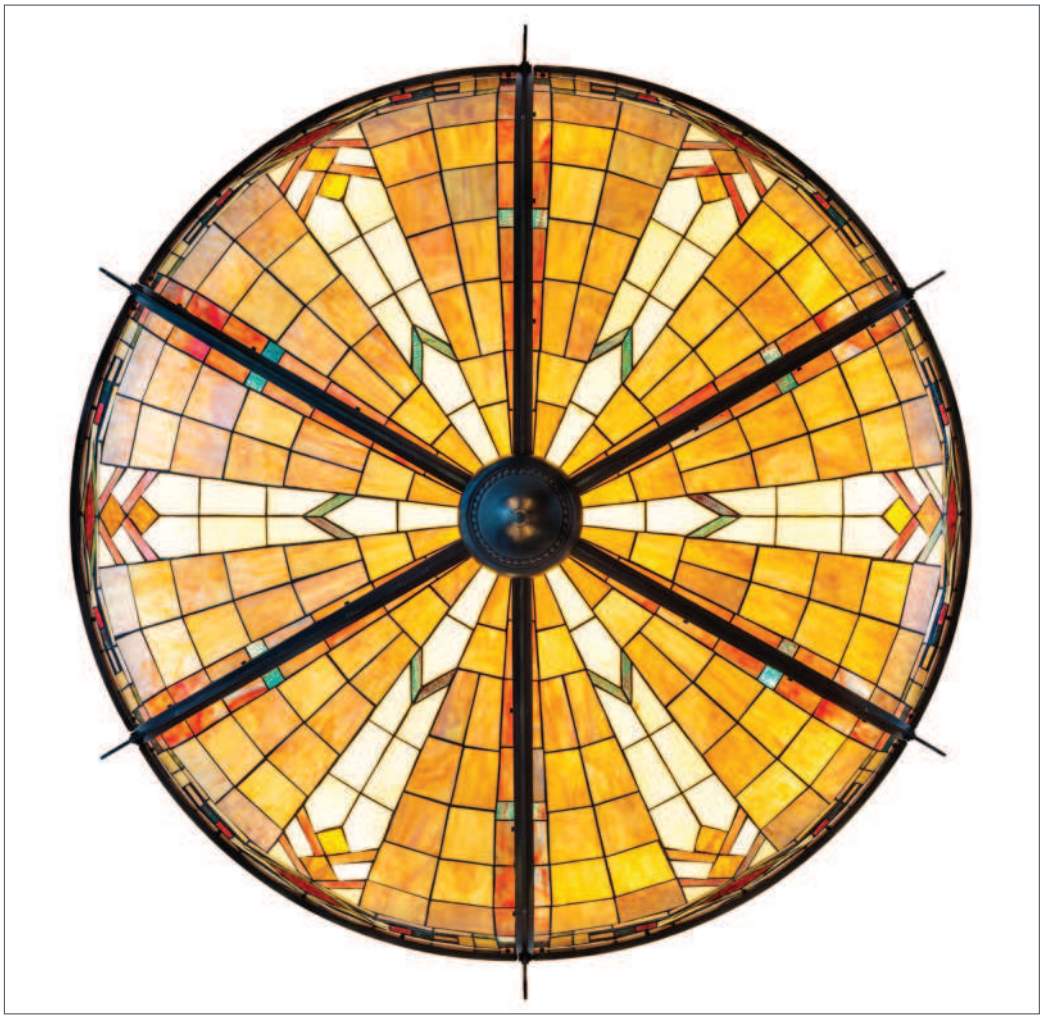
RAYMOND HOOD (1881–1934)
Tribune Tower, Chicago
Daily News Building, New York
The American Radiator Building, New York

ROBERT MALLET-STEVENS (1886–1945)
Villa Cavrois, Croix
Villa Paul Poiret, Mézy-sur-Seine

ERICH MENDELSOHN (1887–1953)
Einstein Tower, Potsdam
De La Warr Pavilion, Bexhill-on-Sea

ÉMILE-JACQUES RUHLMANN (1879–1933)
Tibbattant Ladies Desk
Rolltop Desk
Chariot Chest

HENRI SAUVAGE (1873–1932)
Cité de l'Argentine, Paris
7 rue Trétaigne, Paris



Hanging bookcase

Francesco Cremonini and Giacomo Malaspina join forces to create a built-in piece of furniture in a traditional style

Those who are constantly looking for storage space in their homes often end up taking advantage of the corners, or those recesses that form between wall elements of different thicknesses. That was the inspiration for this bookcase.

A carpenter's tale of two cities

This is not the typical carcass made with one or more doors and little else, but a hanging bookcase of reduced depth, conceived to give a classic and lived-in touch to a modern environment.

It was made by the two of us, in our respective workshops in Rome and Viterbo, about 80km away from Rome. In the first workshop we made the carpentry and in the latter, the decorative frame which runs around the front, guarantees a perfect fit to the wall and provides the means on which to rest the accompanying slide-along steps.

The project

The carcass needed to have a robust base as it would have to support the stepladder resting on it. The bulk of the design however, cannot be explained solely by the structural requirement, in fact the greater thickness of the base allows for better proportions with the all-important frame that surmounts it.

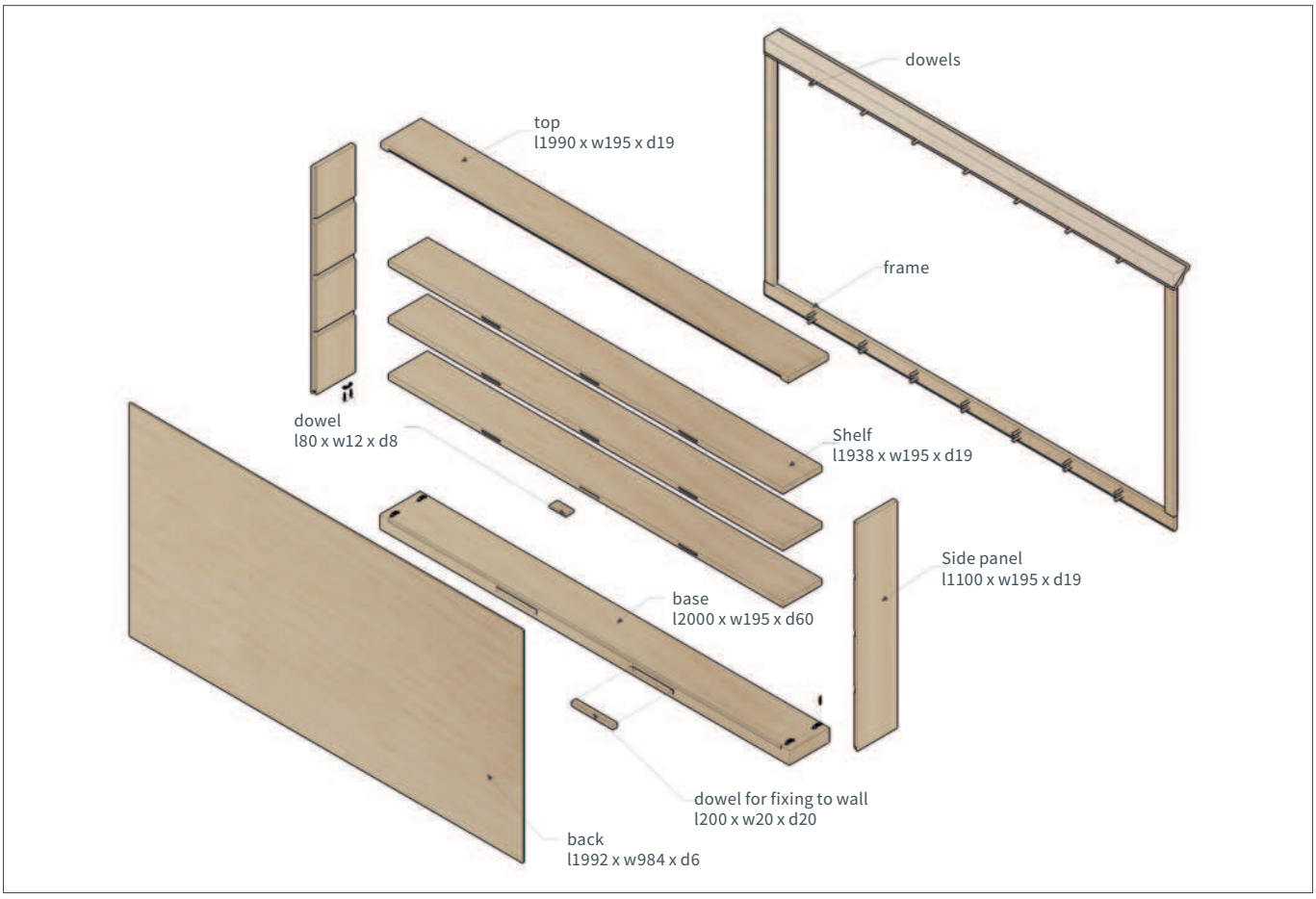
At 40mm in from the ends of this base, the two sides of the bookcase, in 19mm-thick laminated board, are connected to the top using proprietary hardware which allows the furniture to be dismantled for installation and transportation. The same hardware is present in the junction at the top, also in 19mm blockboard and projecting laterally with respect to the sides. The design is intended to fit in the wall recess and it needed good traditional proportions, which explains the relative positioning of the components.

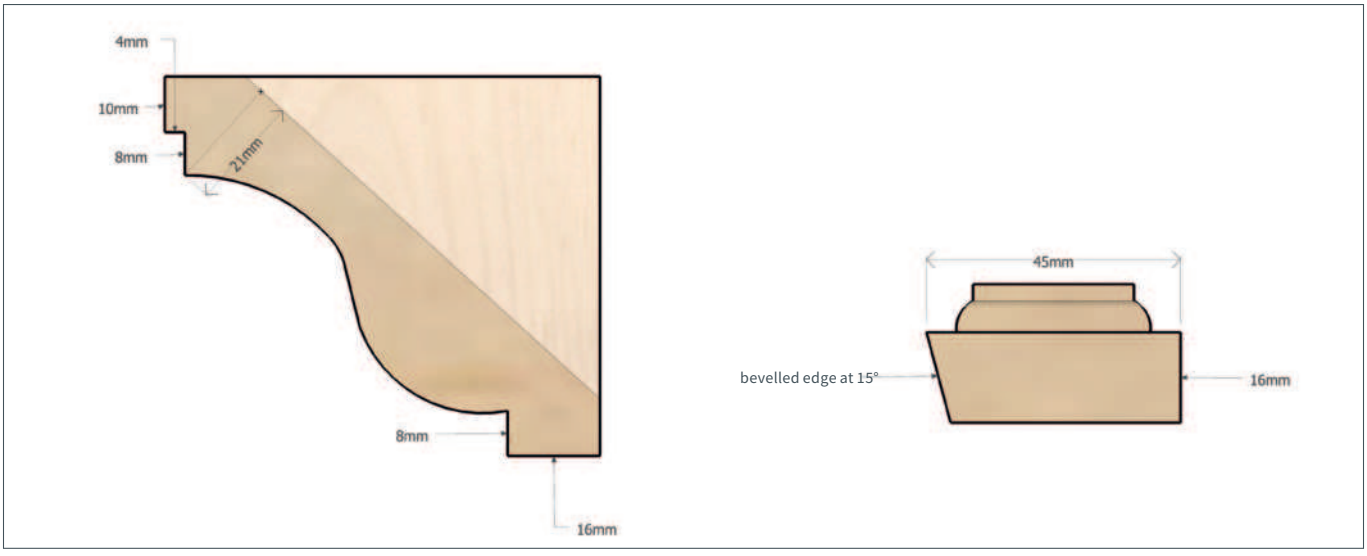
In addition to the base, the structure has three shelves, made of 19mm-thick board, which fit into the respective grooves on the sides. To prevent the weight of the books from causing them to sag, the shelves are fixed to the back of the cabinet, which is made of 6mm-thick sheet plywood. The whole bookcase is surmounted with a cornice moulding to give it a completeness and make it more imposing.

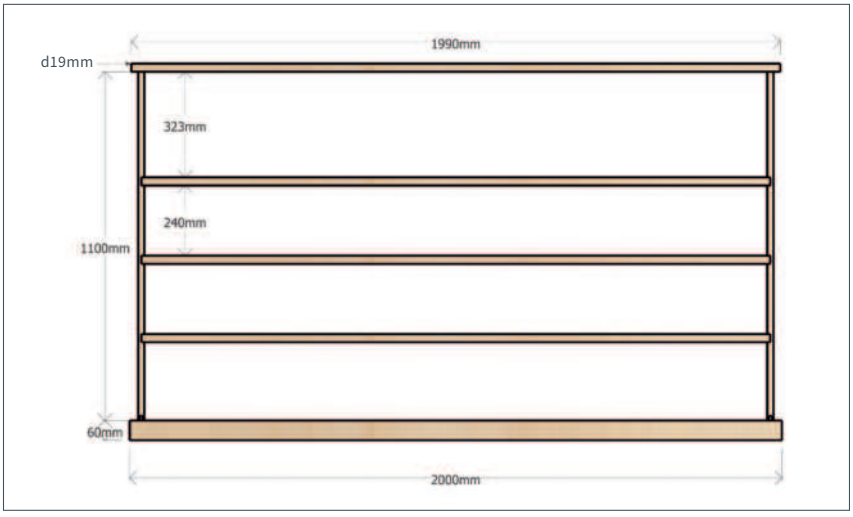
Built-in furniture

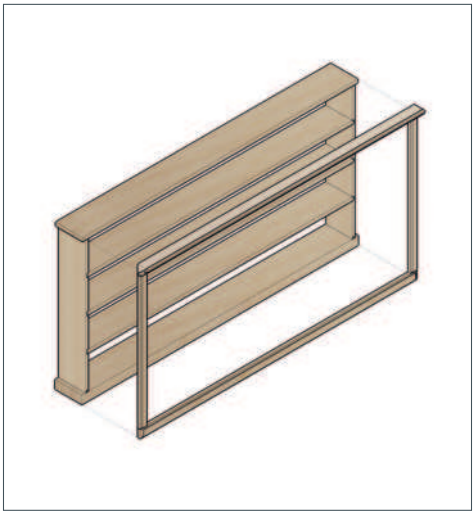
This piece of cabinetry was made to fit closely between two projecting walls. This inevitably posed problems because a close fit requires accurate measurements of what may be uneven walls. The packing blocks used to space the cabinet need to be a good fit and the screws and wall anchors need to be long enough to give good support. The carcass sides must not get pulled outwards when fixing to the walls or they will bow and the shelves will not fit. The moulded carcass edge cover strips need to be a close enough fit to the wall so any gapping is not big enough to be visually irritating and not so tight that they need trimming.

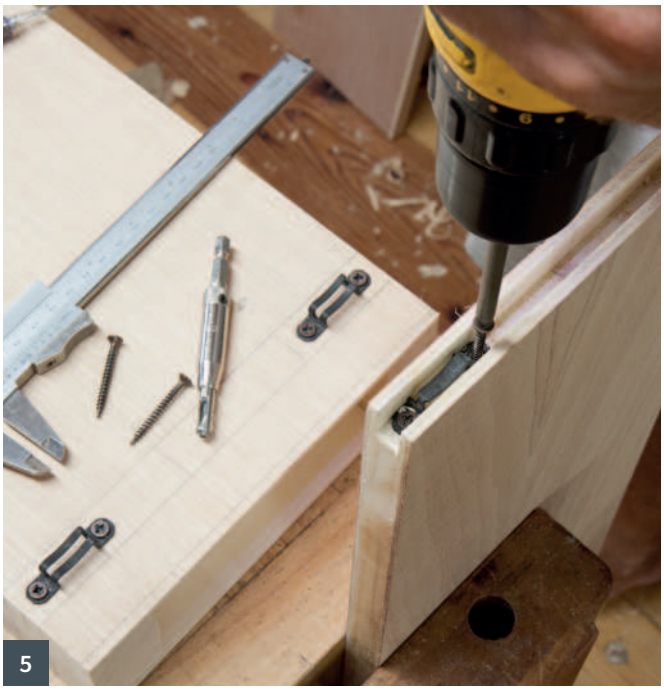
PHOTOGRAPHS BY FRANCESCO CREMONINI AND GIACOMO MALASPINA

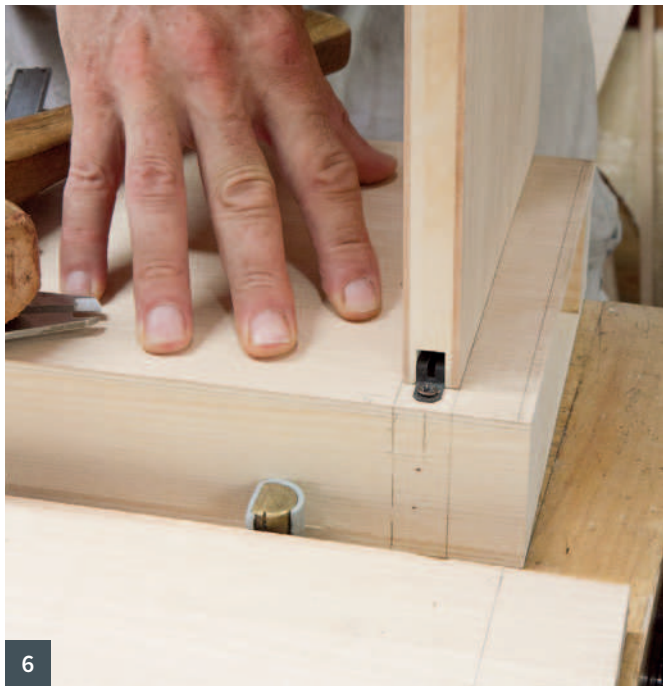

dowels
top
l1990 x w195 x d19
frame
dowel
l80 x w12 x d8
Shelf
l1938 x w195 x d19
Side panel
l1100 x w195 x d19
base
l2000 x w195 x d60
dowel for fixing to wall
l200 x w20 x d20
back
l1992 x w984 x d6


4mm
10mm
8mm
21mm
8mm
16mm
45mm
bevelled edge at 15°
16mm


d19mm
1990mm
323mm
240mm
1100mm
60mm
2000mm







Installing the KD fittings

1 The sturdy box section glued up, note the pads that allow the pins to be removed afterwards.

2 The facing ply glued and clamped in place. Using a plastic sheet avoids glue contacting other surfaces.

3 The Wurth knockdown fittings required grooves on the ends of lateral components. Other types of KD fittings will have different requirements.

4 Checking how the slide-on KD fittings will be screwed in place.

5 The male half of the fitting is screwed into the grooves, one near each end.

6 A firm push and the connection is made or conversely, unmade as required.

7 Gluing the front lipping on to a component, to hide the raw blockboard edge.

Making the shelf grooves

8 A test fit of a shelf in a routed groove. The board to the right was turned over and clamped to guide the router.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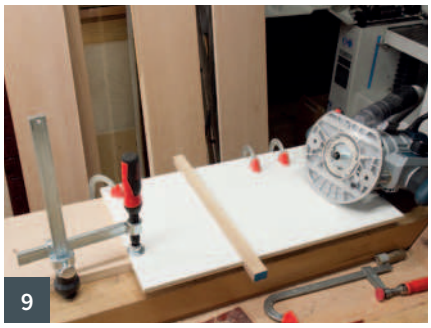
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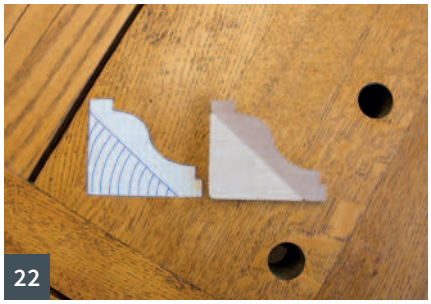
9 Setting out the spacing for the first groove using a spacer for the guide bush.

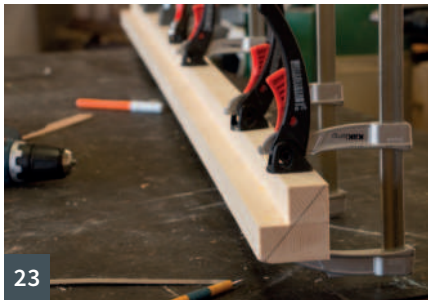
10 Making the first housing groove which will be used to set the distance for the next one.

11 Once dropped in the slot, the router guide bush follows the board edge to make the next slot…

12 … and so on and so on.

13 Test fitting all the shelves to make sure on-site assembly will go smoothly.





14 Marking out where the short loose 'blocks' will go that will hold the back panel on.

15 Making stopped grooves on the router table, note the pencil marks which will line up with the cutter arbor.

16 A trial fit of a block that will be bonded to the ply back panel.

17 Drilling for screwing and gluing the blocks in place.

18 Screwing a block in place with a shelf in position so there is no risk of misalignment.

19 Simple and effective, it just needs care in machining and fitting.

20 Drilling holes for mounting the carcass between walls using masonry fittings.

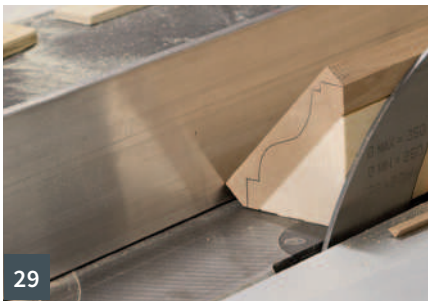
21 The rear of the base showing the back panel groove and carcass side fixing line.

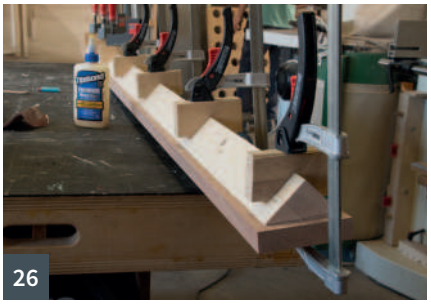
Making the cornice

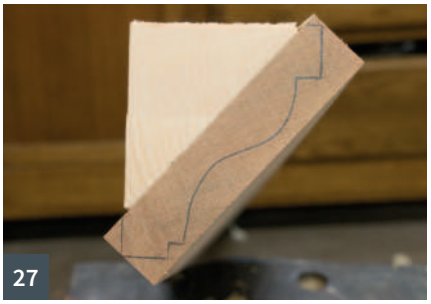
22 A drawing of the cornice profile and a slice of the actual finished profile.

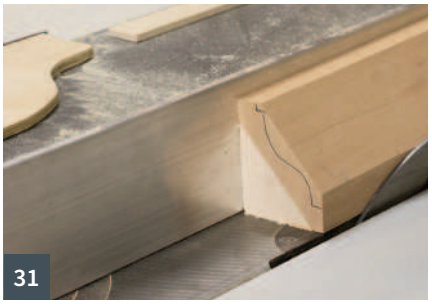
23 First, the pine backing is assembled from two sections, the kerf line is indicated

24 A deep cut following the drawn line resulting in a triangular section.









25 The hardwood section that will be moulded, with a marked line where it will be cut at 45°.

26 Special cut-out blocks allow the two sections to be clamped together while gluing.

27 The profile shape is drawn on one end so the cutters can be set to the shape.

28 Trimming the hardwood flush with the backing section.

29 Now trimming the other projecting rear edge.

30 Trimming the first profile edge.

31 Now for the other profile edge.

32 A groover in the spindle moulder is used to remove the repeated step following the drawn profile.

33 A rebate plane and a couple of moulding planes being used to smooth out the curve to match the drawn shape.

34 A gooseneck scraper makes a fine job of creating an even shape.

35 The cornice is given a good sanding ready for finishing.

36 The finished result and the hand tools that made it.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Final preparations

37 The thick moulded sections that will be applied to the carcass front edges after installation.

38 Loose tenons used to fit the cornice to the carcass top.

39 The 6mm back panel after it has been dyed and rubbed down for finishing.

40 An aqueous varnish being applied to individual components.

41 All surfaces are lightly rubbed back and a hardening wax polish applied.

Installation

42 The carcass has been assembled on site and screwed to the walls with packers in between.

43 The shelves being installed and slid on to the rear support blocks. The carcass edge mouldings still to be applied.

44 The cornice is cut to fit on site, using a Japanese mitre saw.

Mobile tablesaw unit

James Hatter helps keep the small workshop organised with this handy little cabinet

A good option for a compact workshop is a small circular saw bench, and these need to be mounted on a stand or bench to bring them up to working height. A wide range of such saws is available, and included in this range are a number of smaller precision tablesaws suitable for fairly accurate timber sizing. They all have the advantage of taking relatively little storage space, but their light weight can sometimes compromise stability.

The cabinet in this project has been designed for any model of tablesaw. The unit consists of a base cupboard, with two opening doors, and a carrier mounted on top to provide a secure means of holding the tablesaw unit. Plywood is used mostly for the main construction, although more MDF could be used instead, and this would be particularly useful to provide added mass if a lighter saw unit was being used. The overall height of the unit gives a saw table height of 860mm, although adjustments can be made with the base cabinet height to suit your needs.

Dust removal is an important consideration, and to ease removal of this, a pull-out dust tray is incorporated in the cabinet.

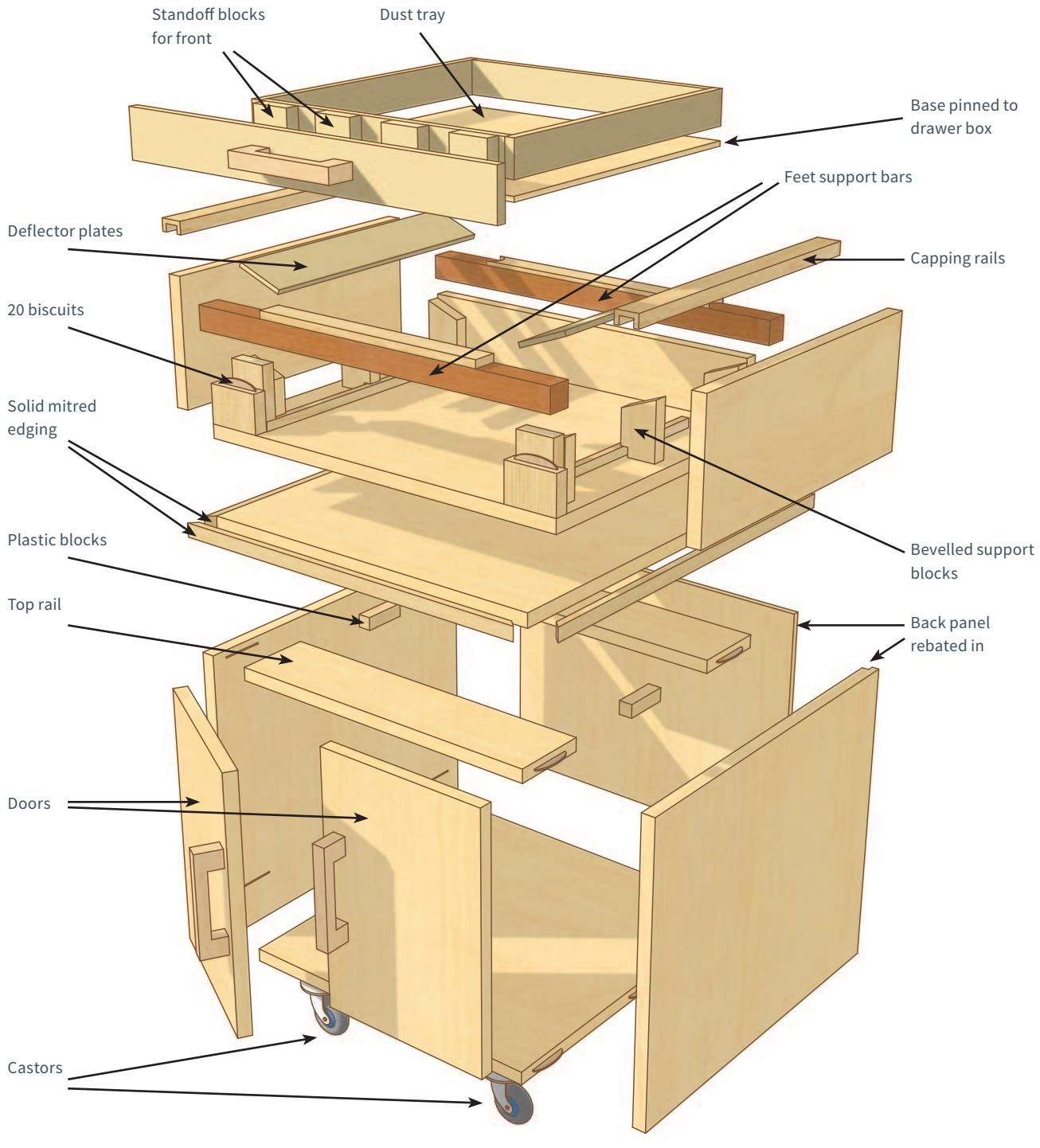
Mobility is achieved using four 50mm rubber wheel castors, the front two having brakes. For improved stability, four heavy-duty adjustable levellers can be fitted, which can be wound down when the unit is in the required position: however, the unit in question was found to be stable enough in use, using just the castor brakes.

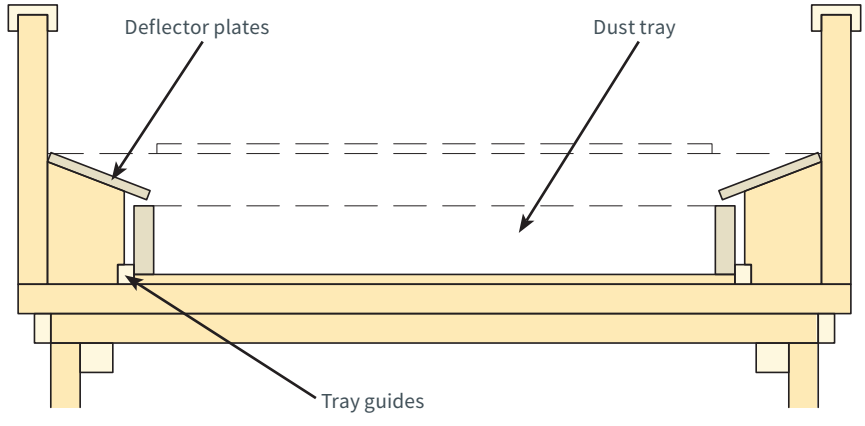
Side detail

The pull-out dust tray

Rear detail

PHOTOGRAPHS BY JAMES HATTER


Standoff blocks for front
Dust tray
Base pinned to drawer box
Feet support bars
Deflector plates
Capping rails
20 biscuits
Solid mitred edging
Plastic blocks
Bevelled support blocks
Top rail
Back panel rebated in
Doors
Castors


Deflector plates
Dust tray
Tray guides

Cutting list

Part	Qty	Material	Length	Width	Thickness
Base cabinet unit:					
Side panel	2	Plywood	407mm	480mm	18mm
Bottom panel	1	Plywood	434mm	471mm	18mm
Top panel	1	Plywood	500mm	470mm	18mm
Top rail	2	Plywood	434mm	100mm	18mm
Top panel attaching batten	2	Pine	60mm	18mm	18mm
Back panel	1	Plywood	454mm	356mm	9mm
Top panel edging	2	Pine	490mm	8mm	10mm
Top panel edging	2	Pine	520mm	18mm	10mm
Doors	2	MDF	350mm	234mm	12mm
Tablesaw carrier:					
Base panel	1	Plywood	440mm	10mm	12mm
Side piece	2	Plywood	390mm	165mm	18mm
Rear support strip	1	Plywood	474mm	80mm	18mm
Rear support blocks	2	Pine	80mm	50mm	30mm
Main front and rear supports	2	Pine	510mm	30mm	30mm
Support backing piece	2	Plywood	50mm	80mm	18mm
Front support piece	2	Plywood	70mm	50mm	18mm
Top edge cover strip	2	Pine	390mm	30mm	16mm*
Dust tray sides	2	MDF	380mm	42mm	12mm
Dust tray sides	2	MDF	344mm	42mm	12mm
Dust tray bottom	1	Plywood	380mm	368mm	6mm
Dust tray false front	1	MDF	510mm	58mm	12mm
Spacer blocks	4	MDF	50mm	42mm	12mm
Dust tray guide strips	2	Pine	320mm	12mm	10mm
Angled supports	6	Plywood	75mm	47mm	18mm
Dust deflector panel	2	MDF	354mm	65mm	6mm
Front location strip	1	Pine	314mm	30mm	10mm
Rear location strip	1	MDF	340mm**	30mm	6mm

*Or use 8mm thickness to avoid the need to cut a rebate
**Make longer, and cut to size, as described

Getting started

1 Cut the required base unit components to size – this can be done using a circular saw against a guide, or a plunge saw can provide a quick and accurate way of cutting sheet ply to size.

2 Mark the panels for the jointing positions, and cut matching size 20 biscuit slots. Where the bottom panel is joined to the side panel, clamp the bottom panel to each side panel in turn to act as a guide. With the bottom panel still clamped to the side panel, cut the matching biscuit slots. Cut a 9 x 9mm rebate to take the back panel at the rear of each side panel, using a rebate bit in a router.

3 Attach a block for the top panel between the top rail positions on each side panel. These, together with screws through the top rails, will hold the top panel in place.

Assembling the base unit

4 Start assembly by joining one end of the bottom panel and one end of each top rail to a side panel, using size 20 biscuits and adhesive.

5 Attach the other side panel using size 20 biscuits and adhesive.

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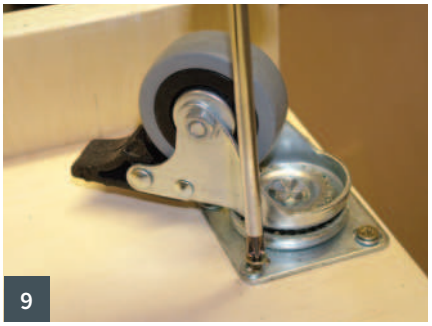

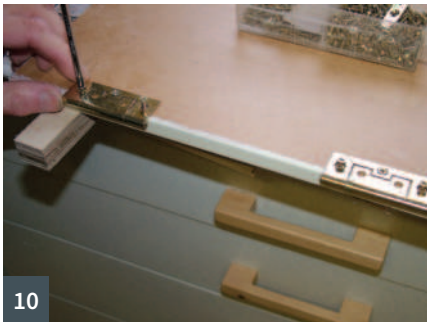

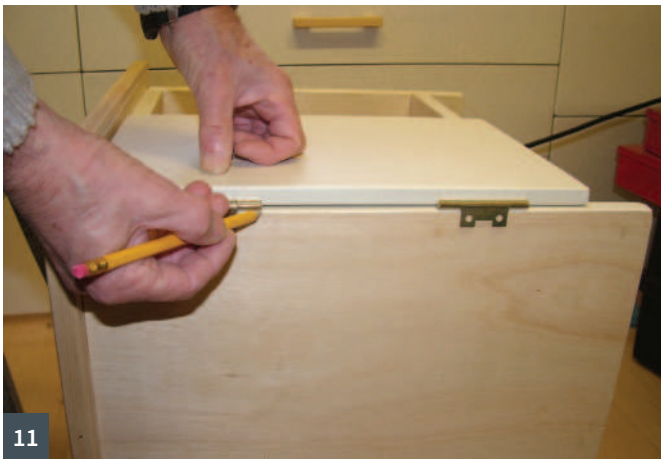

6 Apply cramps to pull the sides together then attach the back panel using adhesive and 3 x 20mm screws. Make sure that the unit is square.

7 Place the top panel so that its edge is flush with the sides and back – this will give a 20mm overhang at the front. Then attach the top panel using screws through the top rails and the attaching blocks.

8 The top panel is edged with pine, which is cut and mitred. Attach this with panel pins and adhesive. The assembly can be sanded then varnished for protection. Any other exposed plywood edges can be just painted if preferred.

9 Fit four castors to the base. Use all swivel types for maximum mobility, with brakes on the front ones. Make sure that each castor can be swivelled freely without hitting the side panel.

10 Attach two 75mm flush hinges to each door.

11 Place each door into position, and mark the position of each hinge onto the front of the side. Use an identical hinge and line this up with the marks made. Mark the screw positions. Drill plot holes and attach each door. Check the operation and fit a door magnet to hold each door. Next, fit suitable handles.

12 The completed base cabinet unit.

TABLESAW CARRIER

13 Cut the components for the carrier to size, and cut matching jointing biscuit slots as required.

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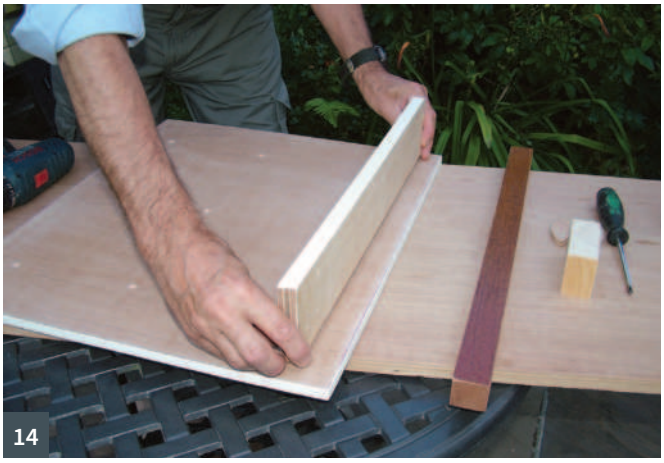
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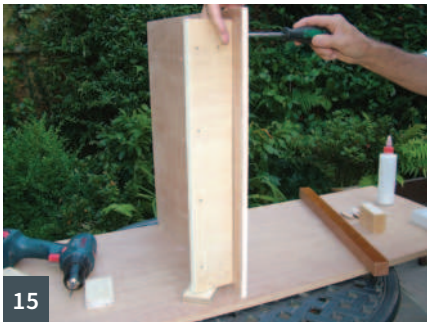
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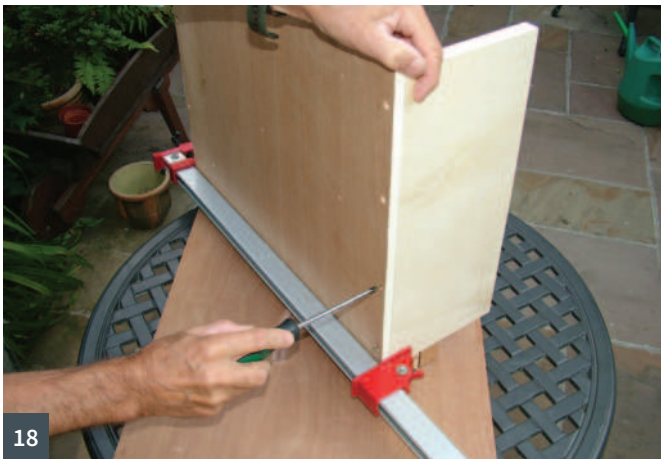
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14 Mark the positions on the base panel of the carrier for the joining components. Drill 4.5mm clearance holes and countersink for the joining screws. Drill pilot holes where the screws enter the plywood edge. You will find it helpful to do a dry fit first, and then reassemble with added adhesive. Start assembly by joining the rear support strip using 4 x 30mm screws and adhesive. Note that the outer edges are 18mm from the outer edge of the base panel to take the side panels.

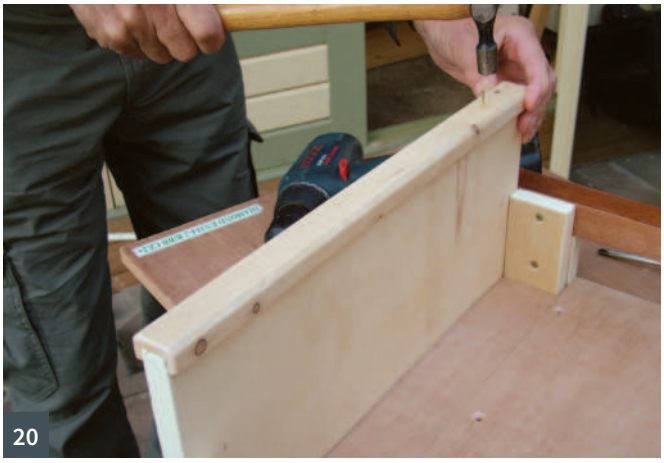
15 Attach the additional rear support blocks – these are lined up with the outer edge of the base panel. Use a screw through the rear support strip, and the base panel. Rest the main rear support onto the support blocks and attach the screws through the top of the rear support strip.

16 Attach each side panel using a size 20 biscuit into the rear support strip, and screw through the base panel.

17 Moving to the front, attach a support backing piece to each side panel, using a size 20 biscuit, and screw through the base panel.

18 Add a further front support piece with a size 10 biscuit slot pre-cut to the front to match one cut in the bottom of the main support bar. Attach with screws through the backing piece and the base panel.

19 Rest the main front support bar on the front support pieces, engaging the biscuit slots. Further attach them with a screw through the front backing piece.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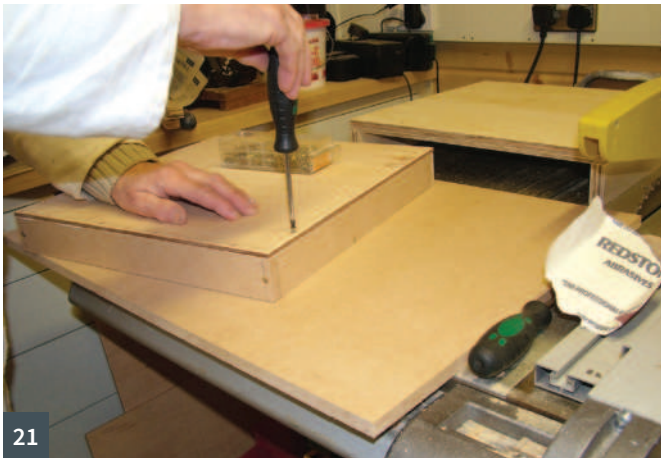
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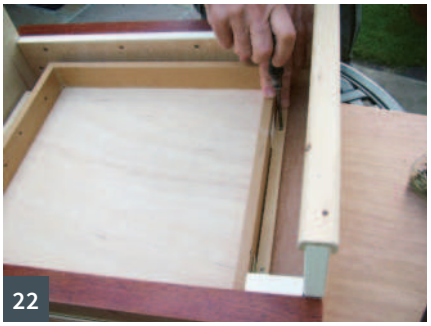
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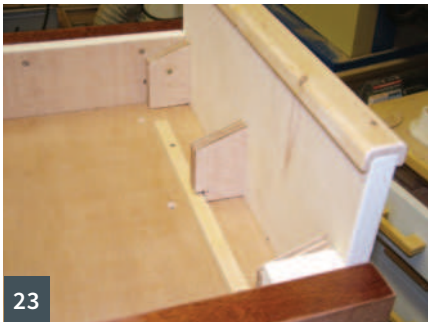
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20 Cover the top edge of each side. A simple edging of 8 x 30mm could be used, or as I've used here, a pine strip with a rebate cut with an 18mm straight cutter in a router table.

Assemble the dust tray sides using screws and adhesive

21 Fix the dust tray bottom using 3 x 16mm screws, or panel pins and adhesive.

22 Slide the assembled dust tray into position and screw down two guide strips – use temporary 1.5mm-thick spacers to give tolerance.

23 To ensure that any dust that falls outside the dust tray is funnelled into the tray, first attach angled top supports, and notch to bridge the guide strips.

24 Attach a deflector plate to the top of the supports. Repeat on the other side.

25 Place the tablesaw onto the carrier, ensuring that it is centrally located. Have a 6mm-thick MDF strip on the top of the rear support, and mark the position of the rear feet.

26 Remove the strip, and use a 38mm-diameter Forstner bit to cut out each footprint. Discard the outer pieces. Attach to the top of the rear support using screws.

27 Add a 10mm-thick strip of pine to the front support so that it fits between the saw's front two rubber rests. Then attach the carrier to the top of the base cabinet using screws.

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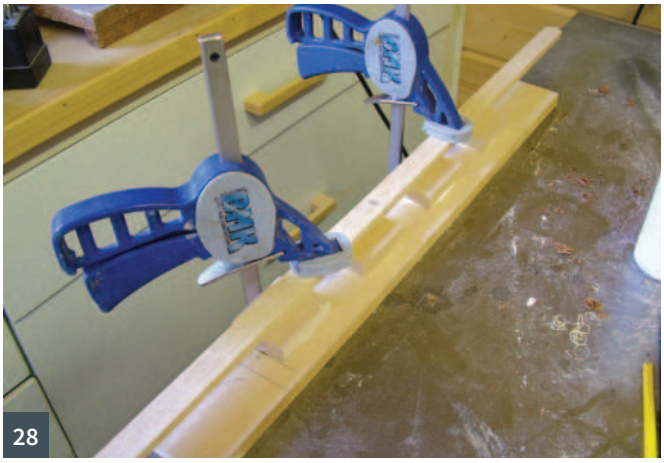

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28 Cut the dust tray false front to size, and four spacer blocks. Use adhesive to attach the blocks to the rear of the false front.

29 With the dust tray in place, place the false front into position, use temporary spaces to give clearance, and then drill through where the handle attaching screws will be.

30 Next, attach the handle and use two further screws though the dust tray front into the false front spacer blocks.

31 The unit is now ready to receive the tablesaw unit.

Bamboo bug house

Derek Jones makes a simple house that will be the perfect accommodation for a range of insects

This bug house uses some easily found natural materials, such as bamboo canes, pieces of wood, twigs and plant stems, to provide a range of homes for lots of different invertebrates.

This project is perfect for making with kids. Start with a search for suitable branches and twigs, and then make your bug house to suit the materials available. Materials that are sourced in the location where you intend to site your box are likely to be attractive to suitable inhabitants. A vast number of invertebrates, including spiders, ladybirds, solitary bees and beetle larvae will find the wood and plant-stem tunnels irresistible and quickly make nests or hibernate in them.

Species to expect

This bug house might become occupied by: Wood-boring beetle larvae, spiders, ladybirds, lacewings, solitary bee species (including leafcutter, mason, sweat, wool-carding and carpenter bees).

You will need

- Softwood or hardwood timber
- Mini-logs
- Bamboo canes
- Lead
- Adhesive
- Clamp
- Fine-tooth saw
- Craft knife

Cutting list

Sides: 216 x 114mm
Top: 127 x 114mm
Base: 127 x 150mm
Roof block: 205 x 127 x 70mm

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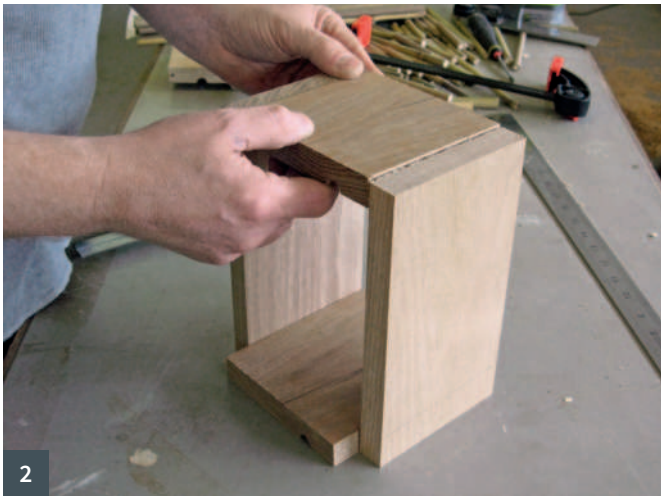

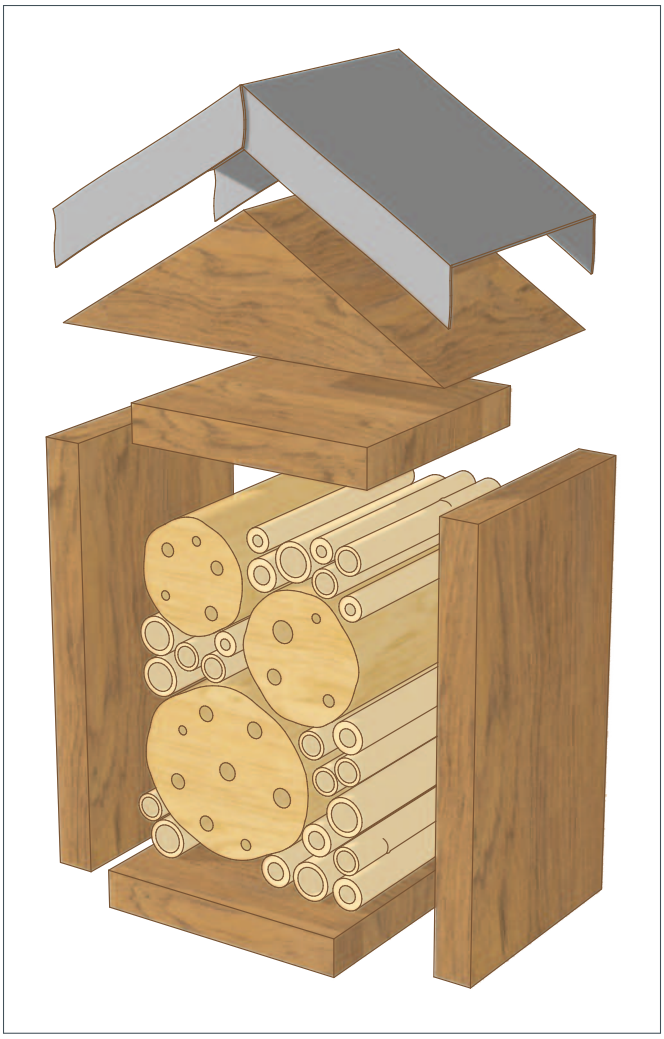

1 Mark and cut out the components for the box frame from solid wood.

2 Check that everything fits together before attempting to fix together.

3 Lay the components out in a way that makes sense, and apply an external-grade adhesive to the joints. You may want to pre-drill any hardwood to make nailing a little easier.

4 A clamp or second pair of hands comes in handy to hold things in place while driving home some nails.


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5 Use a fine-tooth saw to cut the lengths of bamboo to the depth of the box frame.

6 Pack the logs and the bamboo sticks tightly into the box frame. Use the sticks to wedge the mini-logs in place. Drill holes of varying sizes into the logs.

7 Mark a centre line on the roof block on the edges to create the point on the roof.

8 Mark the diagonals from one long edge to the opposite corners and cut to form the roof block.

9 Glue and nail the roof block in place on the box frame and round over the sharp ridge of the roof block.

10 A rigid craft knife can be used to cut the lead for the roof. Don't cut right through in one go. Instead, make a series of light scores along the line.

11 Lead is surprisingly easy to work into shape. Use a block of wood to fold the edges over and mark with a knife again for the corners and edges. Avoid using a hammer, as this results in 'coining' (round dents).

12 If you like, finish with an aerosol stain. Leave for at least 24 hours before putting the box out for the bugs.

Box-building variation

Mineralised felt, which is often used on shed roofs, would make an excellent alternative to lead for the roof.

Step-by-step pyrography

Bob Neill explains the basics of the art of 'drawing with fire'

Pyrography is one of the oldest traditional crafts. It is the burning of designs on items, usually wooden, but it can also be used on leather, cork, fabric and paper. Traditionally, pyrography was used to decorate domestic utensils such as bowls, spoons and drinking vessels. Early examples from many cultures can be seen in museums in London, Paris and other major cities. These artefacts include honey pots from Madagascar, a bamboo goblet from India, a wooden beer mug from Estonia, carved dolls from the Ivory Coast, and wooden boxes from Poland. During the Arts and Crafts movement, pyrography was used to decorate large pieces of furniture, sometimes in the form of relief carving.

SAFETY INFORMATION
Pyrography pen

- Do not touch any part of the hot wire nib.
- Hold the pyrography tool as close to the nib as possible but take care not to touch the metal elements. After long periods of working, the elements can become uncomfortably hot. Some models have guards to protect your hands.
- Keep the nib well away from your eyes.
- Make sure children are supervised when using pyrography equipment.

Ventilation

- Make sure the room is well ventilated when you are working.
- Some surfaces, such as old wood, driftwood or leather, can give off nasty fumes.
- If you have an electric air purifier or a humidifier, use it to remove smoke from the work area.

Dust mask

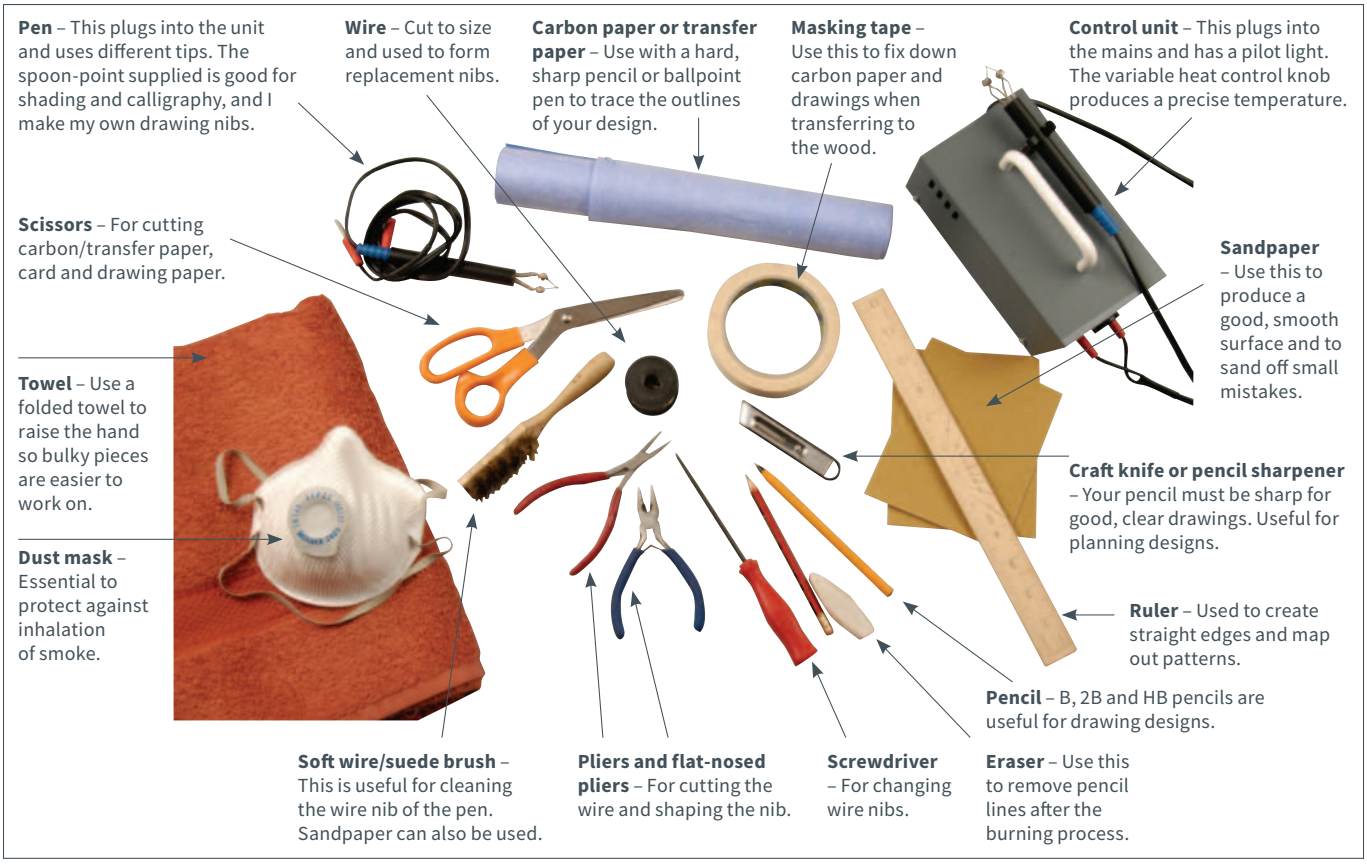
- A dust mask should always be worn when working. This will help to protect against breathing in smoke from the burning wood, or any dust particles produced when you are sanding your work.

Working with fixatives and sealers

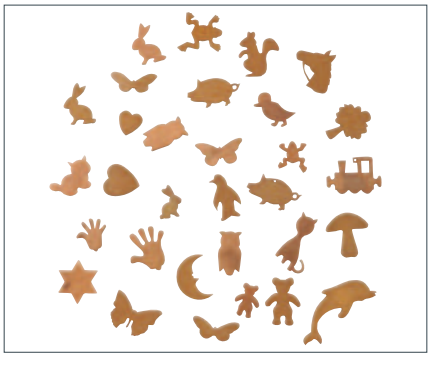
- Take care that you do not breathe in fumes when you are working with fixative, spray sealers or varnishes.
- Make sure the room you are working in is well ventilated.
- Wear a dust mask to help prevent you breathing in harmful fumes.
- Always read carefully and follow the instructions given by the manufacturer regarding the use and storage of products.
- Mop up any spills immediately using kitchen paper or rags, and dispose of them carefully.
- Take care to replace the lids of all products securely after use.

Basic equipment

I have tried out most pyrography machines, from soldering irons to the hot wire machine I now use. This is more expensive but is the choice of most professional pyrographers. Most people have well-stocked tool boxes but you may need to buy a few of the following items.



Rubber stamps



Using templates

Choosing blanks and wood

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Rubber stamps

When selecting rubber stamps, choose ones with good raised outlines and no blocked-in areas. The easiest ones to use are those made from clear plastic so that you can position them exactly as required on your chosen surface.

Using templates

A wide variety of metal templates are available from specialist craft shops, and over the years I have built up quite a collection. Individual templates are reasonably priced, and they can be used again and again so they are good value.

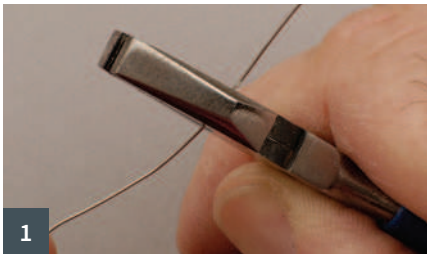
You could punch out your own card shapes, or cut designs from thin card using a pair of scissors as well as using plastic stencils.

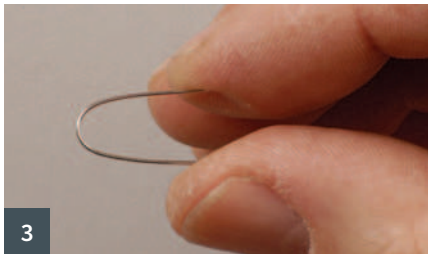
Choosing blanks and wood

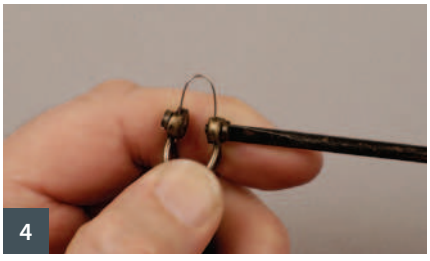
Blanks for pyrography are widely available. For just one item, try local hardware stores or the kitchen sections in department stores or supermarkets. Blanks are also available to buy in bulk from specialist suppliers, which brings the price per item down considerably. You may have a friend who turns wood, which is how I obtain bowls and needle cases.

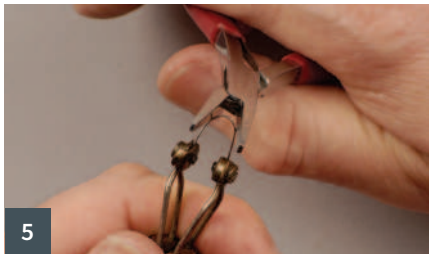
From a distance, a pyrography design looks like a pencil drawing; close-up, it resembles an engraving. Line quality varies depending on the surface of the wood. On soft woods like pine, it tends to blur and run to create smoky areas. A line burnt on harder wood, such as sycamore, is cleaner and more exact.

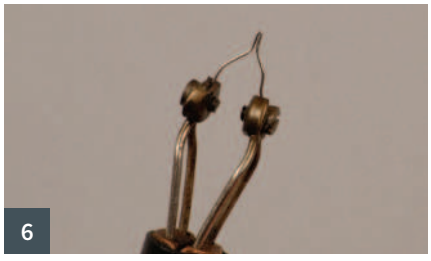
The woods I mostly use are sycamore, beech and good-quality birch ply. Lime, holly and maple are also good choices for pyrography, but soft woods tend to give an uneven line when burnt, and other types of wood may be too hard or too dark to produce a good effect. On more unusual choices of material, including spalted beech or burr maple, being bold and adventurous can produce striking results.











Making nibs

Nibs are shaped from nickel chromium wire. There are four grades: 26 SWG – the finest, 25 SWG, 24 SWG and 23 SWG – the thickest. The best one to use is 25 SWG. For most work, the wire is pinched to a point. Experiment to produce a range of different shapes.

For spoon points, these are available ready-made, or they can also be made by twisting the U-shape so that you have a small circle at the tip. Hammer this out on a hard metal surface.

Using nibs

1 Cut a piece of 25 SWG wire, about 30mm long.

2 Hold the wire between thumb and forefinger.

3 You then need to bend it into a U-shape.

4 Loosen the screws so the ends of the wire slide between the prongs and retaining grommets, then re-tighten.

5 Using pliers, pinch the loop to form a point.

6 The finished nib should look something like this.

Spoon point

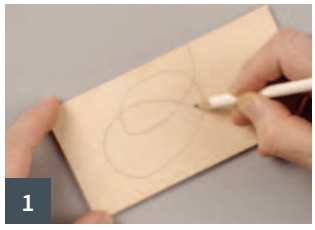
Drawing tip

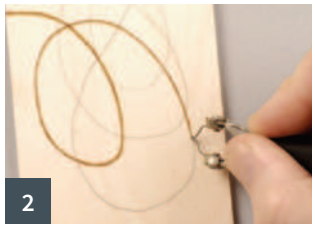
Making marks

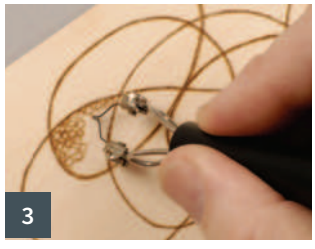
The art of burning requires concentration. The grain of the wood will either assist smooth flow or go against the direction of the tool. By varying the stroke, pressure and heat, it is possible to produce thin and thick lines, deep grooves, dots, textures and tones.

Hold the pyrography pen as you would a pen or pencil, and keep your fingers as near the nib as possible at the bottom of the black plastic sleeve. Do not touch the wire support as it can get very hot. For most woods, the heat control knob should be set so that the wire nib shows just a hint of red. Some woods require a higher heat setting, while veneer and materials like leather, card and handmade paper need less heat. Too high a setting will cause scorching on either side of your burnt line.

The burning technique is similar to painting or sketching. Work with a smooth movement, starting at the top of the design and working with light, short strokes. Work slowly, to give the wood time to burn. At first, you may get blobs and uneven lines – so keep practising.







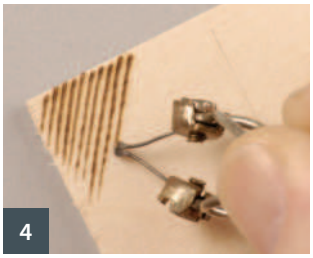
Making a sample board

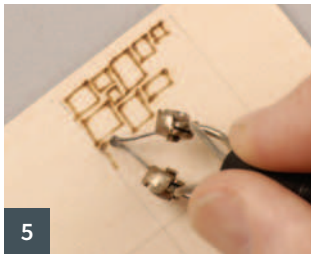
1 Take a small rectangle of birch plywood. Using pencil, draw a random line.

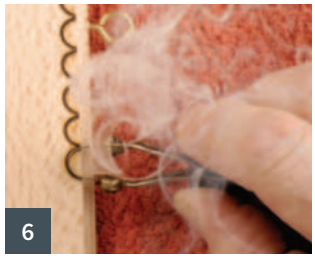
2 Next, burn the outline using a drawing point.

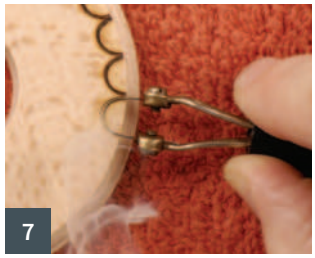
3 Then fill in sections to achieve different effects.

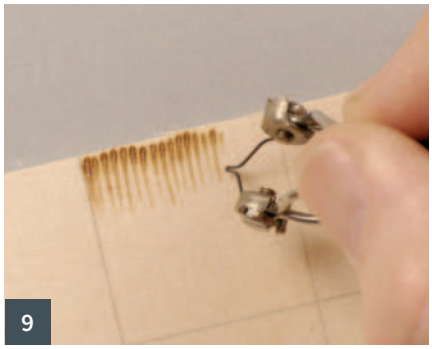
4 Use the board to experiment with as many effects as possible.

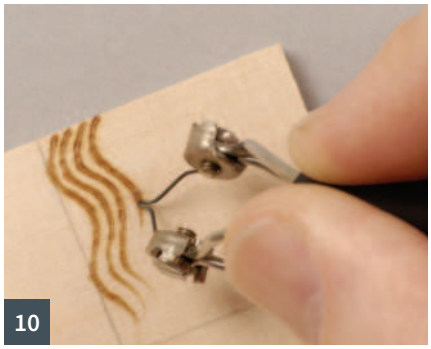












Working effects with a spoon point

1 Work larger dots, letting the bowl of the spoon point rest on the surface.

2 You can also work diagonal shading as a series of fine lines.

3 Work spiral patterns with the inverted spoon point.

4 Work diagonal lines slowly to achieve a good burn.

5 Create a random brick effect with different-sized freehand rectangles.

Decorative edges

6 Using a U-shaped nib, on a flat edge.

7 Using a U-shaped nib, on a curved edge.

Working effects with a drawing tip

8 Work dots by stippling, just touching the tip to the wood.

9 Work short, straight lines, letting the wire rest a bit longer at the beginning.

10 Work wavy lines, keeping the pressure on the tip as even as possible.

11 Cross-hatch small sections randomly to produce an interesting effect.

12 Shade diagonally, working a series of fine lines with the pressure on the nib even.

13 Work dense stippling by burning tiny round shapes very closely together.

14 Work freehand circles for a decorative bubble effect.

Green woodworking joints

John Bullar takes a look at traditional joinery for rustic woodworking

Green wood joinery, including country chair making, is a whole branch of woodworking with its own materials and methods. By 'green' we mean wood that has not been dried – regardless of its colour. While one article can only touch on a fraction of this subject, it is worth being aware of some of the basics, as they are essential to the long-term survival of all types of woodworking joints.

PHOTOGRAPHS BY JOHN BULLAR

Coppicing

1 Much green joinery is made with wood from coppiced trees – ones that have their stems cut back near ground level. The trees re-grow a multitude of new stems which, in a few years, are thick enough to be harvested. This encourages the coppiced tree to sprout new stems and grow again, producing a regular supply of supple young wood from mature trees.

Line of strength

2 Freshly cut timber is full of water – in fact the water often weighs more than the wood itself. This large ash trunk has been sawn in half longways to speed up drying and it shows the darkened heart wood. Smaller, younger pieces will be white all the way through.

3 As the wood dries, nature causes its fibres to shrink in thickness without much change in length. This forms splits along the length of logs. After sawing into length and drying for a few seasons, smaller diameter logs can be cleft directly into billets, using a mallet known as a 'beetle' and a wedge or a handled splitting tool known as a 'froe'.

4 Traditionally, billets are held on a shave horse (a crude forerunner to the Workmate), and then shaped using a drawknife. The worker sits on the 'bed' of the shave horse and uses foot pressure on the hinged frame to clamp the billets. Using a succession of pulling actions on the two handled drawknife, the billets are shaved into hexagons or rough cylinders ready for turning.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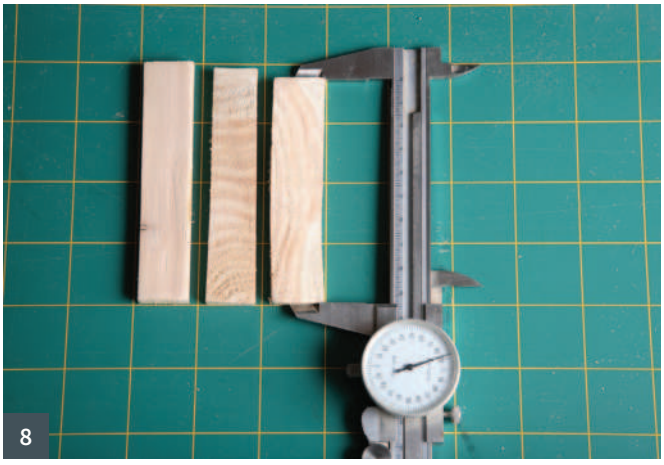
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Turning green wood

5 The pole lathe is a design that goes back to ancient Egyptian times. In the right hands it is a simple but very effective way of turning between centres. A rope is tied to a tall whippy branch, wrapped around the billet and tied onto an A-shaped treadle, worked with the foot. The horizontal body of the lathe is made from two timbers with a gap in between, and a pair of vertical stands called 'poppets' are slotted into this. Steel studding is screwed through each poppet with the ends sharpened to act as adjustable tailstocks.

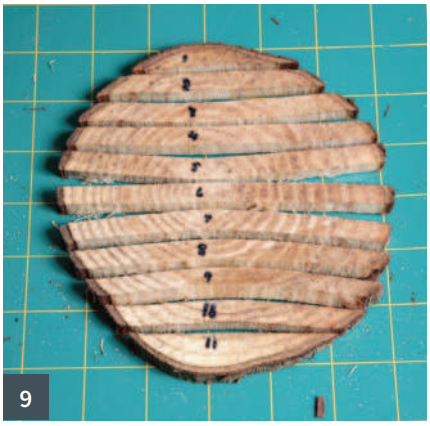
6 A rounding plane provides a quick and consistent way of shaping the tenon ends on chair spindles. Metal rounding planes come in various diameters, while the old wooden ones are adjustable.

7 You can turn green wood on the workshop lathe but be careful to keep the metal dry and rust free. Chair spindles have their ends turned to form round tenons, matching the diameter of their round mortise sockets, and these should be dry for a good fit.

Wood movement

8 If you are making joints in green wood it is important to bear in mind how the wood will shrink when it dries. I cut three samples of wood from a fresh log to exactly the same length, and then dried them all. The sample (left) cut along the length of the grain has hardly shrunk at all. The sample (middle) cut from the radius of the log between the centre and the outside has shrunk by 3%. The sample (right) cut from near the outside of the log following its rings, has shrunk by 6%.

9 The different rates of shrinkage cause flat wood to change shape. To see how this happens, I sliced the end off a freshly felled log, then sliced it into a series of straight samples and dried them. These behave in the same way as a log cut along its length into boards, or cut to make blanks for chair seats. Remember – a green mortise will tighten on a dry tenon.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Flat seats

10 If green boards are edge joined with the rings alternate ways up, they will dry in a wave shape making the finished piece as near flat as possible – interesting but not always desirable.

11 Green boards that are edge jointed with rings the same way will all curl in the same direction, producing a deeply cupped effect. While the result is not as flat as the previous example, it might be useful for a chair seat.

Chair seats

12 If you are edge jointing wood to make a chair seat, decide which way you want the wood to curve as it dries, then glue it and clamp it as you would for making a wide flat table top.

13 Sometimes it is possible to cut a chair seat from a single piece, like this elm. The board is still likely to change shape as it shrinks in the way we have seen, but the figuring of the wood makes it more interesting. It is increasingly difficult nowadays to find good boards that are wide enough for this.

Steaming

14 One of the most straightforward ways to make wood pliable for bending, especially green wood, is to steam it. An electric wallpaper stripper provides an ideal source of steam, then you can 'cook' the wood for an hour per inch of thickness in a steam chest or an old dustbin with some foil to help keep the heat in.

15 After steaming, the wood must be bent immediately into the desired shape and clamped until cold, remembering it will spring back slightly. Round tenon ends will swell slightly during the steaming, so they must be thoroughly dried.

Get the angle

16 To angle a mortise socket for a chair leg, start drilling with the bit vertical then once it has started to bite, tilt it slowly to the required angle.

17 The tenon should be a tight fit in the mortise with practically no taper so it can't work loose. Provided the spindle is well dried and the seat is not, in time the joint will tighten.

18 The tenons on the spindle ends are driven into the round mortise sockets using a mallet. They should be tight and they will tighten further as the mortise shrinks. Glue is not essential here but if nothing else, it helps lubricate joints when fitting.

19 A traditional country chair is always unique, fun to make and comfortable to use – this one is made from apple and elm.


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Easy loose tenons

Anthony Bailey shows you how to make loose tenon joints using the router

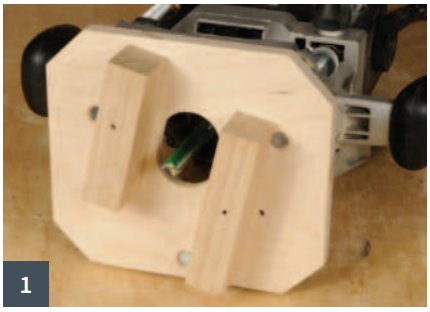
You can create loose tenons using a specialist Domino jointing system. However, if you want to use this construction method but don't have a Domino jointer, you can do just as good a job with the router. In this article, I'll show you how.

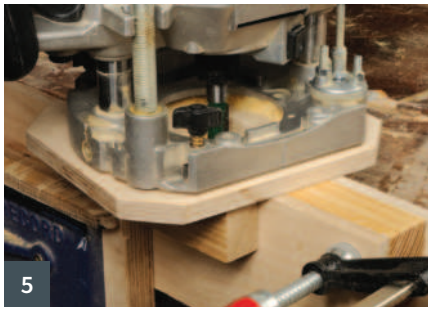
Making the joints

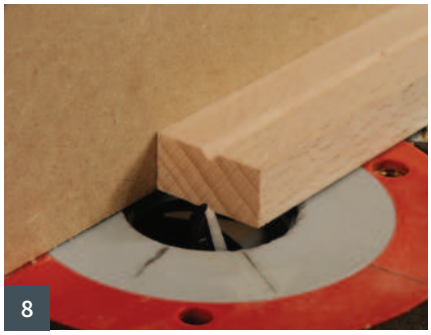
1 To make a routed mortise without two fences or making a mortise box, make this jig instead. It consists of thin ply or MDF fixed to the router base, with two drilled pieces of squared wood fences attached with single screws so they can swivel. The holes must be exactly in the middle of each piece or the slot will be off centre. If you need a mortise wider than your cutter, you can fix one wooden fence further away from the cutter. Do one pass, then turn the router and jig around and machine from the other direction to obtain a wider slot.

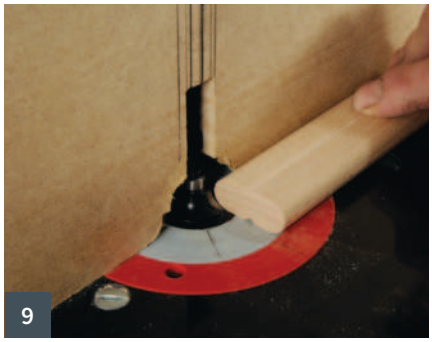
2 Mark out both joint faces from one component to the other so they match exactly. Note that the jig will exactly centre the cutter on the top edge and the mortise will be the cutter width only, so just do start and stop lines for the cutter.

3 Place the router with jig attached onto the already marked out workpiece. Set the desired mortise depth. Now twist the router so the wooden fences press firmly against the two faces, switch on, plunge and proceed to cut in increasingly deeper passes until you reach final depth. You may find the router steadier if you grip the base at one side, as it is at a lower centre of gravity.









4 The first mortise is in the edge of the timber while the other one will almost certainly be in end grain because you are making a frame. This creates an impossibly small surface for the router to sit on. To deal with this, create two L-piece jigs that are made from stock the same thickness as that being mortised.

5 Clamp the L-pieces around the component ensuring they are flush across the top. Then mount the assembly in the vice ready to machine. Sit the router and mortise jig on as before and twist so the fences press against the sides of the end grain jig.

6 Note how the jig will still centre perfectly even though the effective width is increased by the end-grain jig. If some components need to be thinner, such as side rails, mortise all stock while still the same thickness, then run them down to final size in a thicknesser so you can use just one mortise jig.

7 Saw and thickness some suitable stock such as beech so it fits neatly in the mortises in width and length. Prepare plenty and make it to fit all the sizes of mortise you have made.

8 Set up the router table and use the tip of a V-groove cutter to create a glue release slot on each face, roughly in the middle.

9 Choose a small roundover cutter half the stock thickness in the router table with the fence flush with the bearing, and round over all four corners – it should now fit neatly in the mortise. Check the fit and adjust the cutter and fence setting until it is a good fit.

10 Cut the loose tenons slightly under length to give a glue expansion space. Add glue and tap gently home in one joint half and then glue the other half and close the joint. Needless to say, the more joints you make, the quicker this process becomes.

Simple display unit

Alan Holtham's painted MDF kitchen display unit could be made in most timbers but here he explains why he does not sneer at MDF

MDF is often given a bad press among furniture makers, not only because of the fine dust generated when it is machined, but because it is not regarded as 'proper' timber. However, if you take all the necessary precautions, it is actually a wonderful material to work with and has many properties that are superior to 'real' wood.

For a start it comes in huge flat sheets of precise thickness and it stays that way too, as long as you don't get it damp. It is relatively cheap and will not warp or twist and you can machine it in any direction or profile the edges without any 'grain' problems or chipping.

Apart from the dust, the other main downside is that it is difficult to finish, particularly along machined edges. Also it is not particularly strong and tends to split if you screw into 'end grain'.

Nevertheless, if you take all this into account it is possible to design around all the shortcomings and still produce strong and useful pieces of furniture for minimal cost.

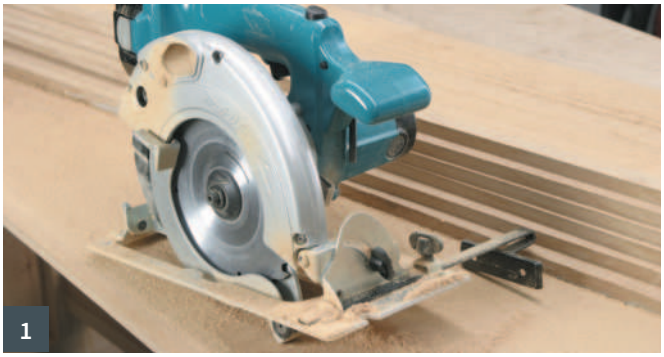
This particular piece was designed for a modern house with a farmhouse-style kitchen with painted units. The idea was to provide a bit of simple display space for everyday crockery as well as incorporating some hidden storage in the form of drawers for all those other bits and pieces of junk that seem to accumulate in the kitchen.

You can vary the dimensions to suit the available space and, as you only need a few basic power tools, the construction is quick and easy. MDF can be bought either in full sheets from a builder's merchant or – more expensively – as cut, more manageable, pieces from the bigger DIY stores. I tend to go for the cheaper option and buy full sheets as the leftovers will always come in useful. This job uses just over half a sheet of 12mm MDF as well as some scraps of 18mm for the top and drawer fronts.

You can leave the back open or fill it in with something for a stronger result. I settled on using up some thin match-boarding left over from a previous bathroom job, but alternatively you could use a piece of thin MDF and rout grooves on it to imitate tongue & grooving.

SAFETY

The very fine dust particles from working with MDF necessitate the wearing of a full-face dust mask, and use of the router means ideally using an extractor directly connected to the router as well.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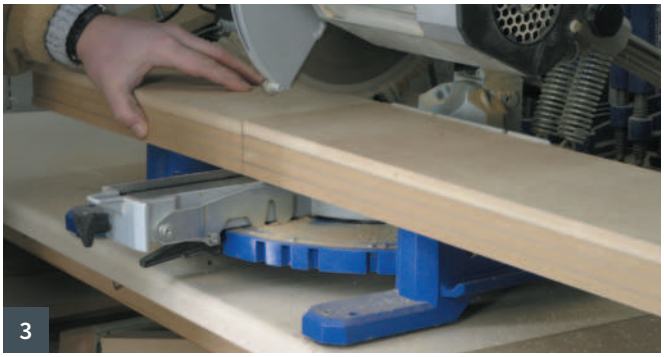
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PHOTOGRAPHS BY ALAN HOLTHAM

Preparation

1 Full sheets of MDF, even thin ones, are difficult to handle particularly if you work on your own, so start by cutting out all the pieces with a power saw but cut them slightly oversize to allow for accurate sizing later. You cannot really expect to cut dead to size at this stage, so I leave everything 3 or 4mm over, which is about the limit of accuracy with a precariously balanced 8 x 4 sheet and a coarse-bladed saw. If you do a lot of work with sheet materials it is worth considering investing in a cordless circular saw. Although slightly limited for capacity these are so easy to use, and there is none of that silly business of getting tangled up in the cable or even cutting through it. You can work away with complete freedom – just keep the spare battery on charge as it always runs out in the middle of a cut.

2 Once you have everything roughly cut, start sizing it up properly using a power plane. If you clamp matching components together and cut them as one they are bound to end up identical, but this isn't necessarily the case if you work them individually. With them clamped together and planed, all the edges are flush, which means that the widths are identical. You cannot make furniture if the components all vary in size, no matter how slightly.

3 Cutting to length is treated similarly but I cheat and use a chopsaw. Even if you do it by hand the same rules must apply – just get the cut as square as possible.

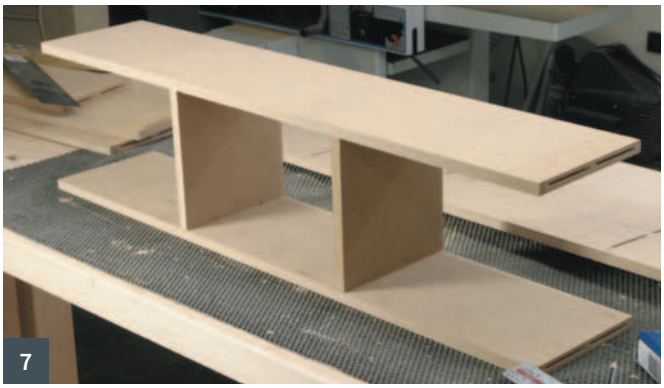
Biscuit joints

4 The shelves are held in place with biscuits as the material is just too thin to screw into them through the sides. Clamp the two sides together and run the biscuit jointer along a straightedge to get the slots lined up on either side. If you mark the position of the biscuits on the straightedge with a pencil line, you will not have any further marking to do, and they will all be in the same place on each shelf. Little shortcuts like this save hours of work as well as standardising the construction.

5 Repeat the process for each of the shelves and the top. I used No.10 biscuits – but set the depth on the jointer carefully or you will go right through the 12mm MDF.

Shelves and dividers

6 The shelves need to be narrower than the width of the sides by the thickness of your back material – in my case 8mm – and are arranged so that the front edge lines up with the front edge of the sides.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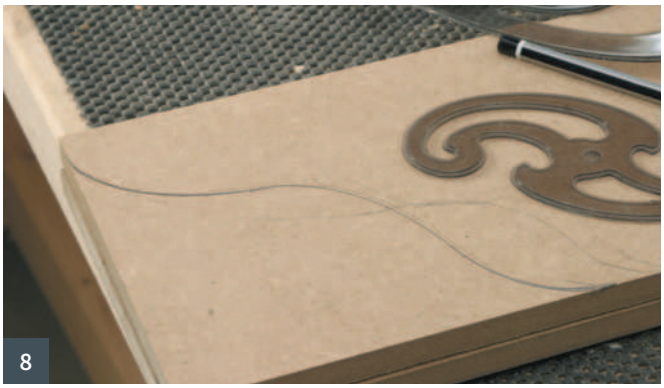
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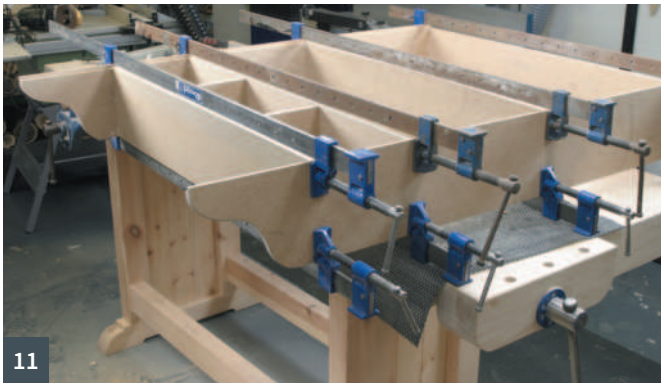
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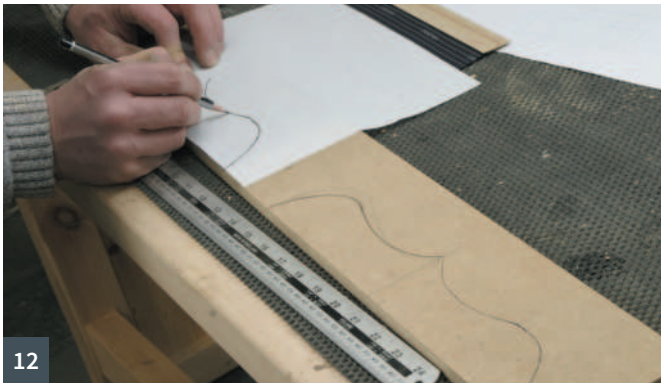
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7 The joints for the drawer dividers are cut in the same way and this section is assembled first, putting plenty of glue in the slots to help the biscuits to swell up.

Ends and sides

8 Before you assemble the rest of the carcass the ends need to be shaped with a simple double curve. Lay it out using a French curve, blending it into a nice flowing line.

9 Again, clamp the two sides together and cut out the shape with a jigsaw with a fine-toothed blade, cutting just clear of the line. Take the cut nice and steady – if you start forcing it the blade will wander off line. The best way to clean up this curve is with a bobbin sander but these are expensive pieces of kit. However, you can make a very serviceable alternative by fitting a cheap drum sander into your drill press and burying the end of it in a false table. Using this set-up you can sand perfectly square, so work back to the pencil line, keeping the MDF moving the whole time to maintain the flow of the line.

10 The last operation before you start the main assembly is to run a rebate down the inside edge of each side to take the back. A bearing-guided router cutter is the ideal tool though you could use a two-flute cutter and the side fence.

Assembling the carcass

11 Now put it all together using plenty of glue around the biscuits and then apply some gentle pressure with sash clamps until it all dries; don't overdo the clamping or you will bend the shelves.

Pelmet, cornice and top

12 The top pelmet is another simple cutting job – just make sure you get it perfectly symmetrical about the centre. I drew out one quarter of the design on paper and then copied it onto the MDF by tracing it through carbon paper. Cut it out with the jigsaw and then sand it in the same way as the sides, though the fine detail will have to be worked by hand as you cannot get into tight corners with the drum sander.


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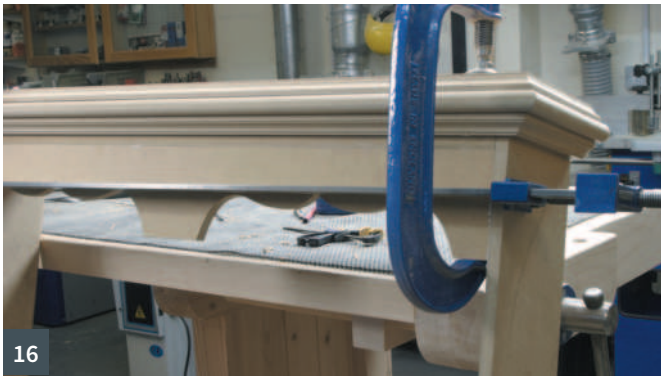
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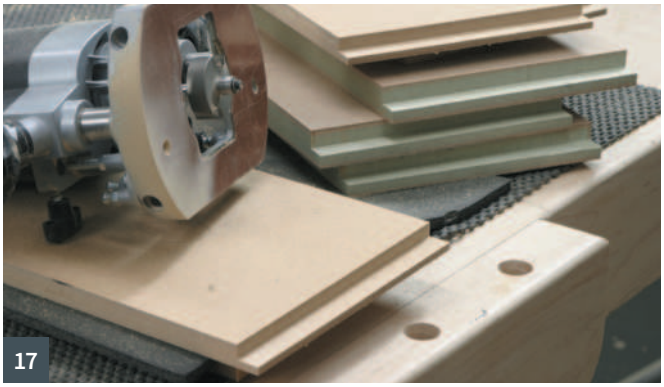
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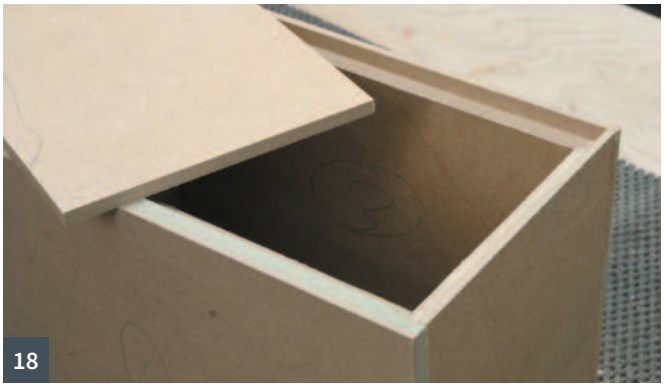
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13 While you are waiting for the main carcass to set, start on the cornice, which is made up from several layers of 18mm MDF in strip form, topped off with a solid piece. I used three layers in total, the lower ones only being strips to minimise the overall weight.

14 Glue and screw them on one at a time, mitring the corners carefully so there are no gaps.

15 The top is a solid piece routed on one long edge and the two ends, then just glued and clamped in place. Take care with the relative sizes of each of these layers to maintain the overall flow of the cornice. You could of course cut it in one using a dedicated cornice cutter but the cost of this cutter makes it uneconomic unless you plan to make a lot of cornices.

16 The pelmet is glued in place using clamps in two directions to make sure it stays in position while the glue grabs.

17 The drawers are made up from 12mm material with 18mm fronts, and the chopsaw helps to get all these cut out nice and square. On reflection, 12mm material all round would have been quite strong enough and would have looked lighter, but at the time I thought a joint in the thicker 18mm would have been stronger. I settled on simple rebates for the corner joint because MDF will split if you try to screw it together. The bearing-guided cutter makes short work of this, but I did have to change the bearing for a smaller one to give me the necessary rebate width.

Drawer rebate and spindle

18 Another change of bearing allows you to cut a rebate to take the base for each drawer, in my case 6mm MDF though you could use ply or hardboard for such small drawers. I glued each corner, then used a small electric nail gun to pin them together for a really strong joint and pins that are almost invisible. Fitting the base also squares up the drawer and adds even more rigidity.


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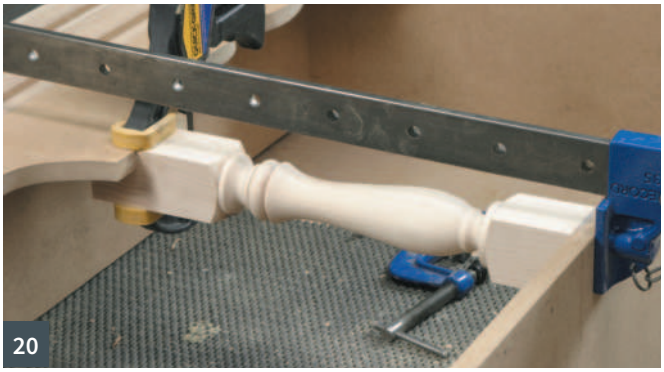
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19 The central support spindle can be left plain or turned to add a bit of detail. If you have access to a lathe it does look a lot better with a bit of turning and it is a relatively quick between-centres job.

20 Ensure you leave a short length of square on either end and then rebate out a section of the top so that the spindle fits flush behind the pelmet. I then just glued it in place using clamps to hold it while the glue set.

Fitting the back

The back is very easy to fit as well – just cut enough pieces of the match-boarding to match the length of the unit – but the two edge ones will have to be cut to width to get the joins symmetrical. Using the router, machine a length of narrow moulding to cover their bottom ends. Don't actually fit the back at this stage as it is much easier to paint the whole thing with the back out.

Cornice detail

21 At the last minute I decided to use a bit more of the bottom moulding to add some extra detail to the cornice and hide the edge of the carcass top, so I mitred the corners accurately and pinned the moulding in place.

Finishing

22 I have experimented with all sorts of finishes for MDF over the years and have finally decided that whatever you use will have the effect of roughening up the moulded surfaces to some degree. My solution is to start with a coat of standard wood primer then sand this down when it has dried. After that use either gloss paint or a coat of emulsion, but this latter needs to be protected with a coat of clear varnish to keep it wipeable. Once you are happy with the painting, glue and pin in the back.

23 You can then add the drawer knobs and some cup hooks along the underside of the drawers. The unit is now ready to hang wherever you want to keep it.

Hanging a door

Rob Sandall and Anthony Bailey fix a common household problem – a wonky door

In this article we'll help you to make short work of what can be a particularly tiresome chore, that is getting a door to hang exactly straight and sitting flush with the floor. The example we're using is this old door, where, as you can see, there is quite a gap between the bottom of the door and the floor. Once, we've got the door fitting properly, we'll add a fresh coat of paint.

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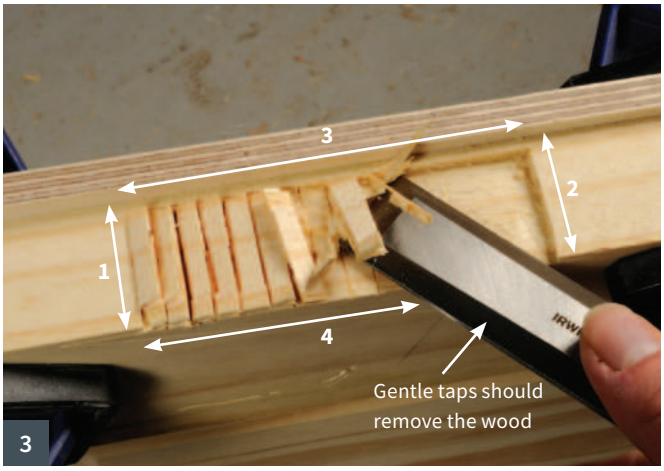

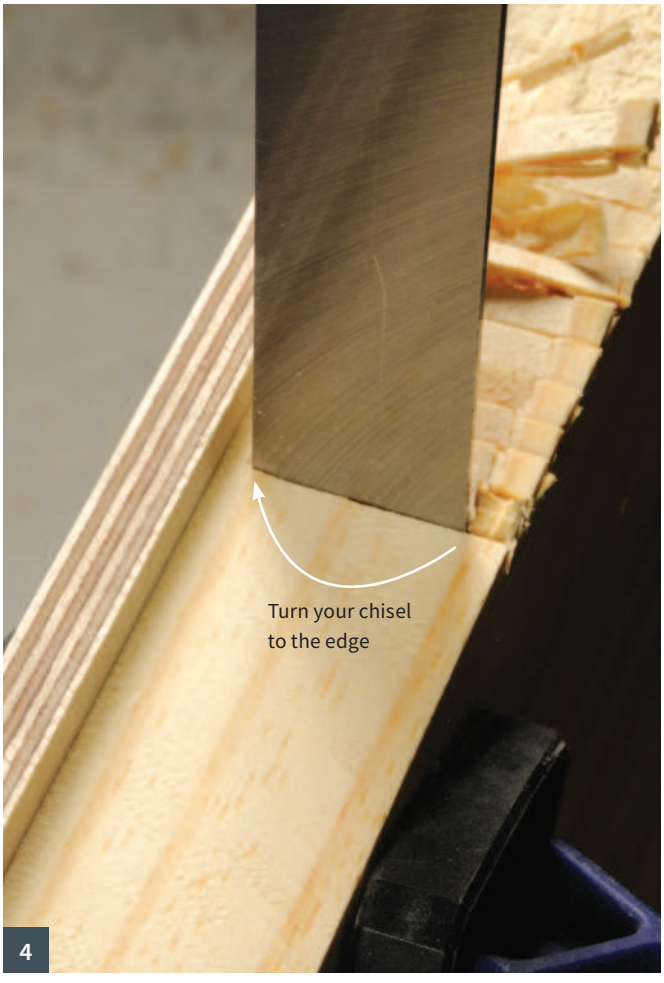

Cut a new door to size

1 There was a sizeable gap between the door and the floor. Having been removed of all paint, the door was revealed to be riddled with filler. Rather than try and reuse a knackered door, we thought we'd start afresh with a brand new one. All it was going to need was cutting down to size, which we did by hand with a saw and a couple of workmates. Either a handsaw or a portable saw with straight edge as a guide will do. Take time to get your measurements right, and compensate for the angle of the frame and indeed the building itself!

Dressing

2 You'll doubtless be trimming the lock side of the door later to fit, because you'll be working to the frame and can happily bevel around the 'lock' edge so that the door won't catch on it. We used a jack plane here, but a power planer (lightly applied) would also be applicable.

3 In order to cut this accurately, first mark lines 1 and 2 with a Stanley knife, using the hinge folded at a right angle flush to the door as a guide. Line 3 is determined by using your marking gauge to mark the centre of the knuckle to the edge of the folded hinge, and line 4

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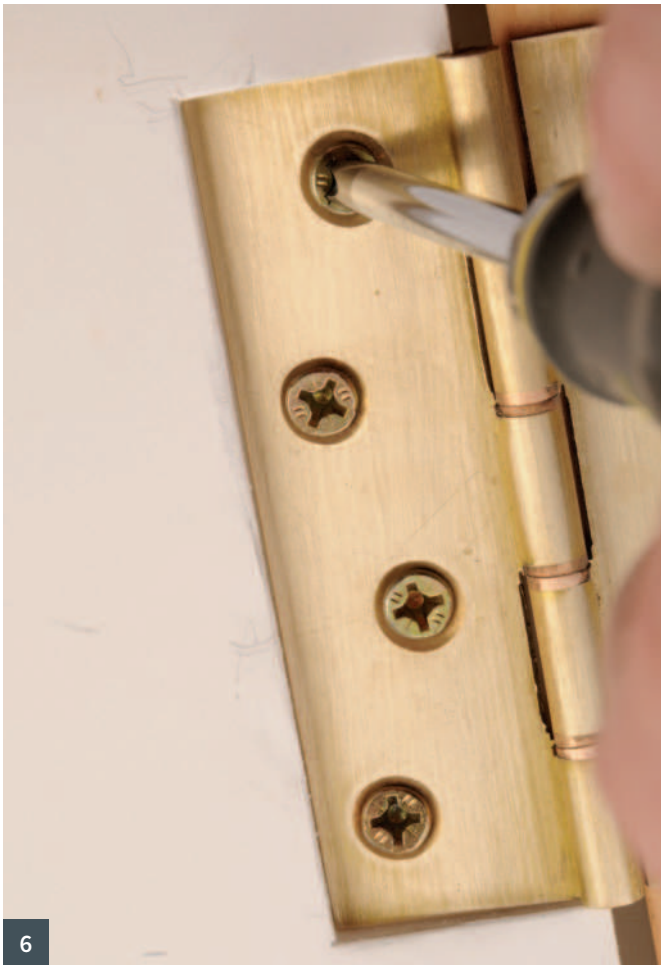

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is almost half the thickness of the hinge's knuckle. Once you have everything marked out clearly, use a wide, sharp chisel (as wide as the hinge recess) to cut away the waste with a series of cuts.

4 Make sure you're cutting edges 1 and 2 with the chisel's blade turned towards the edge for accuracy. Once cut, you can screw the hinge in place.

Hanging the door

5 Once you have made sure the door will fit correctly, use wedges underneath to raise the door to the correct height.

6 You can then screw the door into place.

7 Problem solved! The door now fits tightly without any gaps and it won't drag along the ground.


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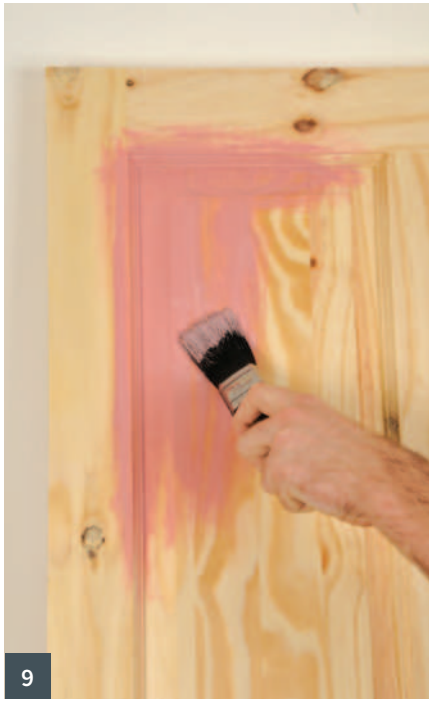
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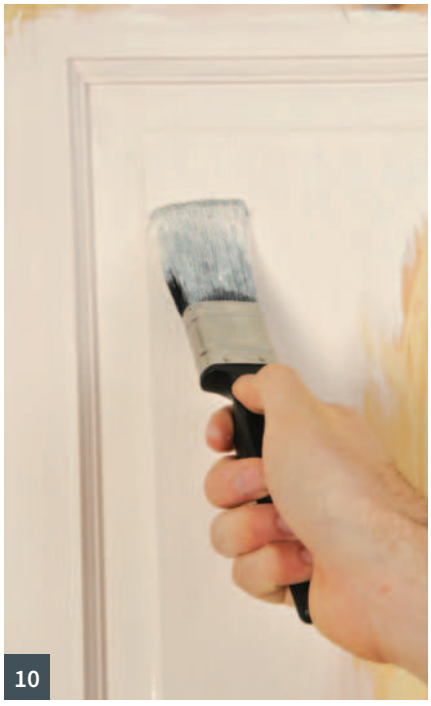
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Painting the door

8 Use knot sealer on every little knot on the door you can find, even the tiny ones. You don't need to apply too much, but make sure you catch them all before you go any further.

9 This is the first coat, which the wood will soak up. We've used traditional pink primer here to illustrate the difference, but white is available and acceptable too.

10 Undercoats provide a firm base for the final top coat. Apply evenly in fluid strokes, watching for loose brush hairs. This will also do a good job of covering up any little holes too!

11 For each coat, paint in the same order to avoid any overspill, and also simply to make the job production-line easy. First paint the outside of the panel, then the inside of the panel, then the muntin, then the rails and finally the stile.

12 You can see clearly here how the painting process should be approached, making sure each coat is evenly covering the whole door before the next coat is applied on top.

13 The finished painted door.


2 The pink primer is left to soak in
3 Undercoat is applied once the primer has dried
1 The knots are covered to seal them
4 We're using 'one coat' gloss, but you may need a second

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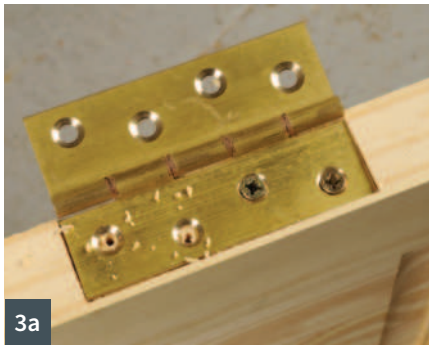
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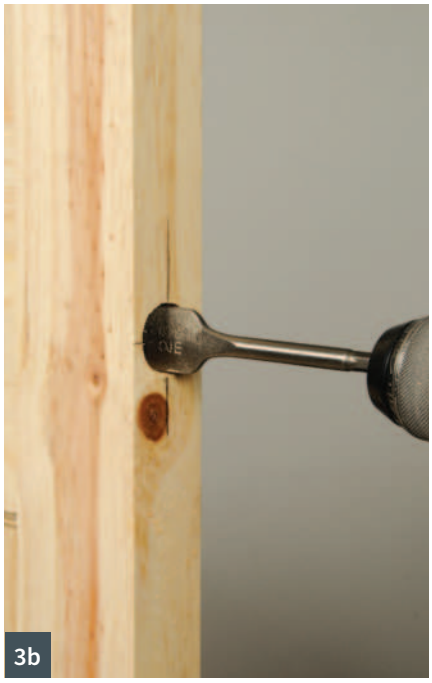
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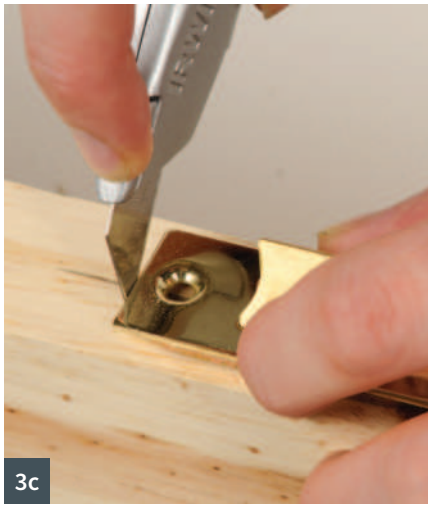
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Door hanging tips

1 Door steady

Don't try to work on the door with it balanced between your legs or similar – this steady was made with a hand saw and chisel to knock out the bottom, and we've used a wedge to hold it tightly in place. Note that for clarity we've placed this at the end of the door, but usually you'd have it dead centre to balance it, or you could always use one at each end.

2 Choosing hinges

Depending on the type of door, you're going to need hinges (preferably brass washered ones to take the everyday wear and tear) and door handles in the style of your choice – we've opted for brass coloured, swept style handles here. You'll also need a latch or lock kit, and the relevant screws.

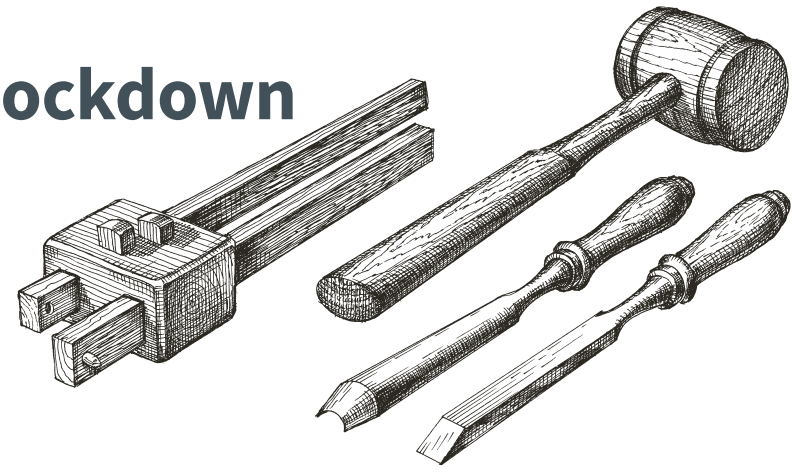
3 Fitting the latch

Use a 25mm drill bit to fit the plain door latch (drilled centred in the mid-rail, because this is a particularly strong area of the door), again scoring and chiselling to fit the latch's brass plate.

4 Final touches

Using a fine grade of paper to polish up your hinges will leave them looking beautiful.

Woodworking in the lockdown



The lockdown has given many of us more time for woodworking but don't forget to take that essential tea break, too!

Like it or not we are all having to restrict our movements during the lockdown caused by the COVID-19 virus and sadly, it has caused hardship to those who have lost their jobs. You are better off if you are retired or are on furlough, but most woodworkers will find they have extra time on their hands.

What better excuse is needed to get out into the workshop and finish off those projects that have been put on hold until there is enough time to complete them – you all know who you are – and that time is now. If you are one of the unusual woodworkers who has completed all your projects, then the next thing to do is to tidy up and organise your workshop. Everyone puts off this job as making things is much more rewarding, but you will definitely appreciate the time you invest in doing this as your tidy and organised workshop will be a pleasure to use.

It is also a great time to make things for family and friends, they always love those personal handmade gifts. If you are having trouble finding open wood stores, you can always consider using reclaimed wood. You may well have old pieces of furniture that are destined for the charity shop that you can break down and turn into new pieces. I am also sure that you have a box of scrap wood from other projects that, with imagination, can be used too.

Use this lockdown time wisely and productively as, thankfully, it won't last forever and when you are back to your busy life you will kick yourself if you just watched reruns on the telly instead of being creative.

Happy lockdown woodworking!

WORDS: ALAN GOODSELL

WORDSEARCH

Architrave
Bookmatch
Caliper
Cedar
Cyanoacrylate
Dowel
Drawknife
Hacksaw
Jigsaw
Joinery
Lathe
Riffler
Spokeshave
Treen
Veneer

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

SUDOKU

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

	7		3	4		2		6
9			7		6			1
2				7	9	8	6	
					2	3		4
4		7	5		8			
			9					
		6					1	7
5	1			8		4		2

PHOTOGRAPH BY SHUTTERSTOCK

Turned table lamp

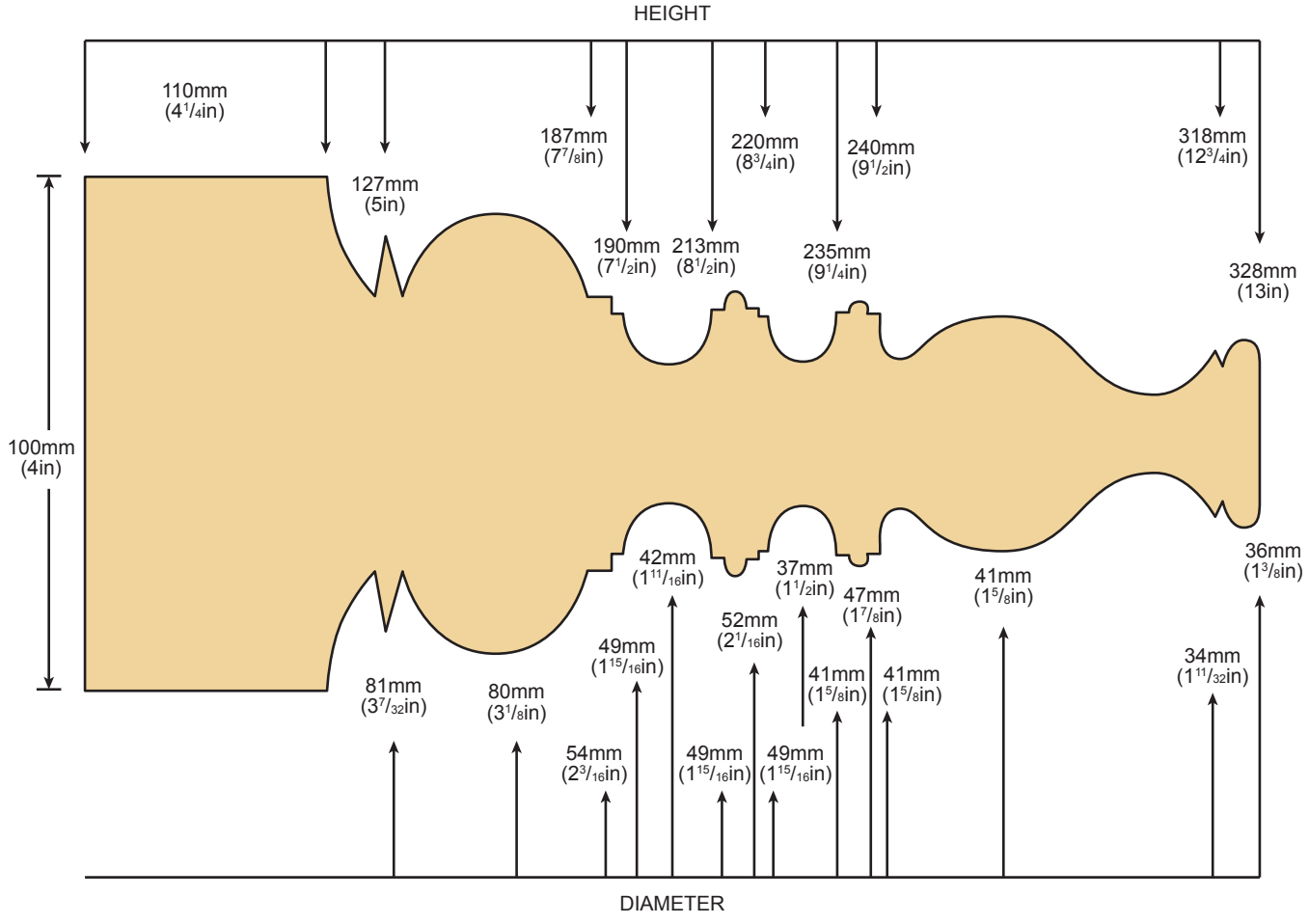
Andy Coates makes a table lamp from a reclaimed oak post

PHOTOGRAPHS BY ANDY COATES

Every once in a while somebody will give you some wood that has already been used for something else. Such gifted wood usually looks quite bad, but despite its appearance there probably is something you can do with it. However, reclaimed wood requires a little more thought and care prior to use. The first thing I always look for is evidence of nails, screws or staples. These will play havoc with your carefully ground cutting edges, and might even present a danger to you; so if you have a small metal detector, the type used by electricians for finding stud partitions, then make use of it and scan the wood prior to selection. Should you find any evidence of metal you will need to decide if you should reject the piece of wood or try to clear the buried metal.

I am using an old oak fence post for this turning project, but some of it was a little rotten, so I have included options for dealing with the less solid sections. The main thing to be wary of is using wood that is so flawed it could cause an accident. Common sense should prevail at all times. Is it worth the risk?

The process I use to make turned table lamps is slightly different to the norm, but it is one I find effective and simple. You may decide to take a more traditional approach.



YOU WILL NEED

- 10mm long-ground bowl gouge
- 10mm long-ground spindle gouge
- 10mm parting and beading tool
- 2mm parting tool
- Long hole boring auger
- Hollow tail centre for long hole boring
- Strip of Formica
- Abrasives 180–400 grits
- Cellulose sealer
- Hard wax stick
- Various surface finishes
- PPE: Facemask, gloves, dust mask/respirator

Specialist equipment

LEFT Three standard head and tailstock drives, which can be useful
MIDDLE TOP Chucks with 55–75mm internal jaws and large grip 90mm+ jaws
RIGHT Standard long hole boring centres
BOTTOM Shell auger, twist auger, twist auger

If you do not have a hollow tailstock, or the required long hole boring kit and associated tail centres, the central bore can be achieved using standard auger bits in a brace. It may require you to bore from each end to the middle, but with care it is an achievable job. Bore the blank prior to turning and mount on the resulting holes to ensure concentricity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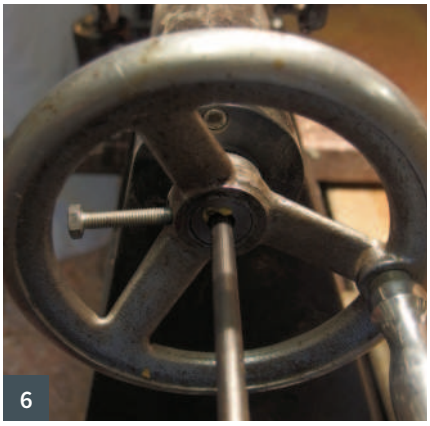
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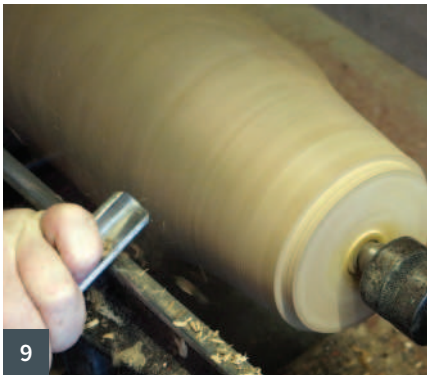
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Turning the lamp

1 Before you begin work, take a look at your blank. Is there an orientation you prefer? On this piece there was a patch of burr that I felt would look better on the base section rather than turned away. This meant that I had to initially mount the blank with this area at the headstock end.

2 Mark the centres as accurately as the blank allows and mount between centres. The first task is to cut a 90mm tenon to suit the gripper jaws. If you do not have gripper jaws ensure the tenon is perfectly formed for your jaw type.

3 When you have a lamp with a square base it is vital that the end is perfectly flat across the corners. If there is a slight concavity here there will be a gap in the middle of the baseline, and if convex the base will not sit flat. This is a good opportunity to practise getting it right.

4 With the tenon turned, remount the blank by the tenon. Ensure a tight hold. Clean up the opposite end, making sure it is flat as noted above. Mark a 75mm diameter. Begin to hollow a recess using a 10mm beading tool. Take light cuts to reduce vibration. Cut to 20–25mm depth. Mark the centre with a small V cut.

5 Reverse the blank and mount in expansion mode into the recess on your C jaws. Do not over tighten as this can cause stress fractures and result in an accident. Mount the deep hole tailstock centre DHTC. If it is not a revolving DHTC, apply some paste wax. Wind the quill in but do not over tighten.

6 I used the $^{5}/_{16}$in shell auger to bore the hole through the blank. Lathe speed should be no more than 300rpm. Carefully feed the auger in and use light force to pick up the cut. Cut 20mm of depth and then withdraw the auger to clear the shavings before returning to cut.


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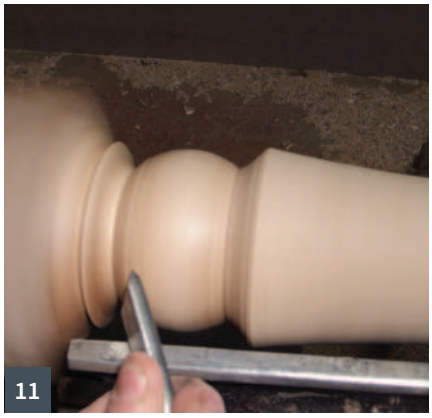
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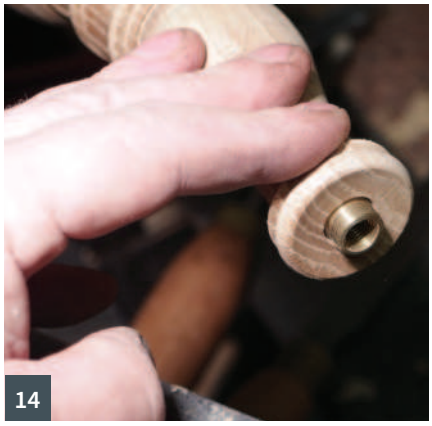
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Take it slowly, working methodically, until the auger breaches the base. You will feel it break through.

7 Having completed the bore, swap the DHTC for a revolving cone centre and bring it in to the hole for support. Now assess your blank and decide where you want the base to be. Either 50/50 or ⅓ to ⅔ works well. As I intend to leave a square section I decided on ⅓ to ⅔ to hopefully retain some of the burr feature in the base.

8 Any turning that requires a square section can prove difficult for a novice; the required cut is initially only cutting four corners and tool control is paramount. My preferred approach is to use the long point of the skew. Use a high entry point and pivot the tool into the cut at the marked point on the blank. Note the masking tape on the toolrest to provide a visual reference for where the cut needs to be. Cut down to achieve a round section.

9 Use a spindle roughing gouge to reduce the blank to a cylinder. Take light cuts and remember, this is reclaimed wood; it may contain splits and cracks you cannot see. Be aware of tell-tale sounds that might indicate a loose section of wood that requires the lathe to be stopped and the fault assessed.

10 Begin shaping at the headstock end, as these will be the wider sections. If your skew work at the pommel left a poor surface finish, you can use a long-ground gouge to clean up the surface, rubbing the bevel fully to ensure good control. Mark off your first feature and begin to turn, taking care not to catch your hand on the four corners of the square section.

11 The first section is a ball shape sitting on a double V-cut flange. The skew chisel is ideal for this, but do bring the toolrest in as close as possible to ensure total tool control. Use the long point, cutting on the tip, and take care at the base of the cuts where the possibility of cutting two surfaces is to be avoided.

12 Reduce the next sections to cylinders suitable for the features to be turned. Mark out in pencil and turn the series of features. These are all standard spindle turning features, fillets, coves, swell and beads. Use the opportunity to practise with both skew and spindle gouges. Keep features crisp and regular.

13 Having completed the stem section clean off the end flat with the tip of the skew chisel. Depending on which type of fitting you have, the next part may be different. The brass fittings I use have a small brass stub that needs to be inset. Take the diameter and carefully cut a recess to suit it in to the end of the stem.

14 Cut a shallow chamfer on the top edge of the recess to provide an area for epoxy glue to pool. When ready for final fitting use two-part epoxy resin, and take care not to let any of it get on to the threads that will take the lamp holder. Use light tailstock pressure in the end of the stub to ensure it is true. Allow the epoxy to fully cure.

15 Before fitting the stub the lamp needs to be abraded, sealed and finished. This is personal choice, and here I have gone for a traditional wax finish. Be wary of the square corners when abrading. A flexible sanding pad can help reduce risk of knocking fingertips.


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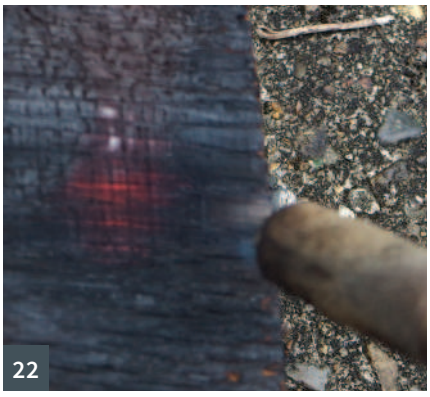
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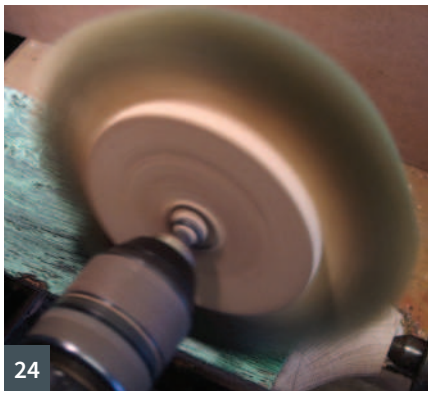
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Electrical safety

16 Having fitted the brass stub you can now build the lamp. If you are giving the lamp as a gift or selling it, there are specific regulations you need to adhere to. Check with local trading standards. At the very least all components must be CE marked, unmodified, cable strain relief fitted and competently fitted. You might also consider having it PAT tested for compliance.

Finishing options

17 Having now turned your lamp from reclaimed wood, you might decide to try something new with it. There are lots of options, but here are a few to whet your appetite. I made a copy of the original to work on. It was abraded to 240 grit to leave the grain quite open to accept the wax.

18 There are a range of different coloured waxes available to try; patinating, liming, coloured. All can provide interest and add value. I chose to use liming wax on the second lamp. Rub the wax well in to the grain, working along the grain as you go. Apply liberally and allow the wax to fully cure. The process here is the same regardless of which wax you choose.

19 Once cured, buff off the excess wax with clean white paper towel. If you have over-spill on the square area you can remove this with a wire brush.

20 On a spare blank I tried a few other approaches. If your blank has soft areas due to rot you can often remove these by using a bristle brush on a drill. Working either with the grain or against it, can produce different visual and textural effects. Play about with it and see which appeals to you.

21 If you prefer a 'natural' look then brushing out the softer grain can result in a pleasing surface that responds well to a simple oil finish. I prefer hard wax oil for such surfaces as it gives a pleasing sheen and is a durable finish.

22 Another approach is to scorch the surface using a blow torch. Allow it to cool down

25

and then use a bronze brush to remove the loose carbon. This can then be oiled or waxed, and will produce a lovely effect, or the surface can then be wire brushed to drag out the softer growth, creating a two-tone effect.

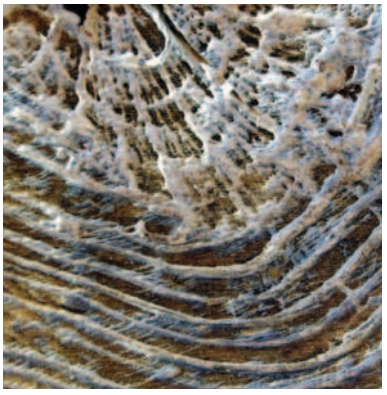
23 Another option is to use a rotary wire brush on the surfaces. Wire brushes can be brutal – especially on flesh! – so take care and ensure you wear eye and lung protection. With wire brushes I prefer to work with the grain, removing softer growth and rot as deeply as possible. Once again your choice here is personal: simple oil or wax, or why not try decorative wax.

24 One of my favourite decorative waxes is verdigris wax. I love the colour, and it really seems to suit 'character' wood. Having applied it liberally and allowed it to cure I then buffed out with a large drill polishing brush. Once the verdigris wax is cured and buffed you could wipe black patinating wax over the surface, getting down into the grain, and wipe off quickly removing the top layer only. This creates a pleasing two-tone effect.

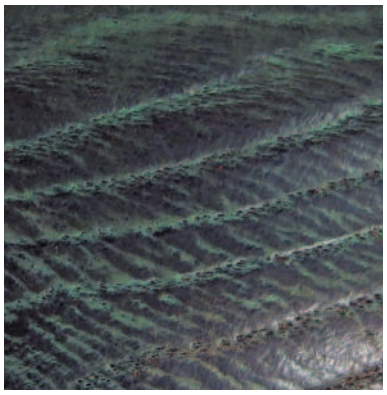
25 Your final lamp should end up looking something like this.

Different surface finishes

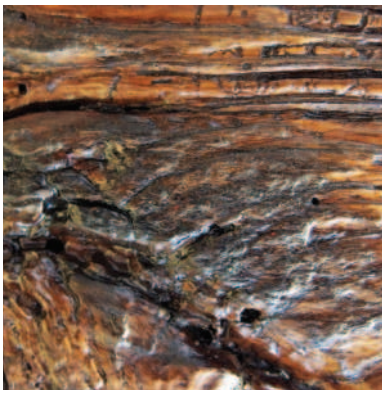
Surface textured with synthetic bristle brush on corded drill. Over-sprayed with red acrylic gloss, allowed to cure and then abraded back to produce contrast



Surface textured with wire brush on a corded drill, liming wax applied and buffed off with a nylon pad



Surface scorched, textured with synthetic bristle brush on a corded drill, verdigris wax applied and buff with polishing brush on a corded drill



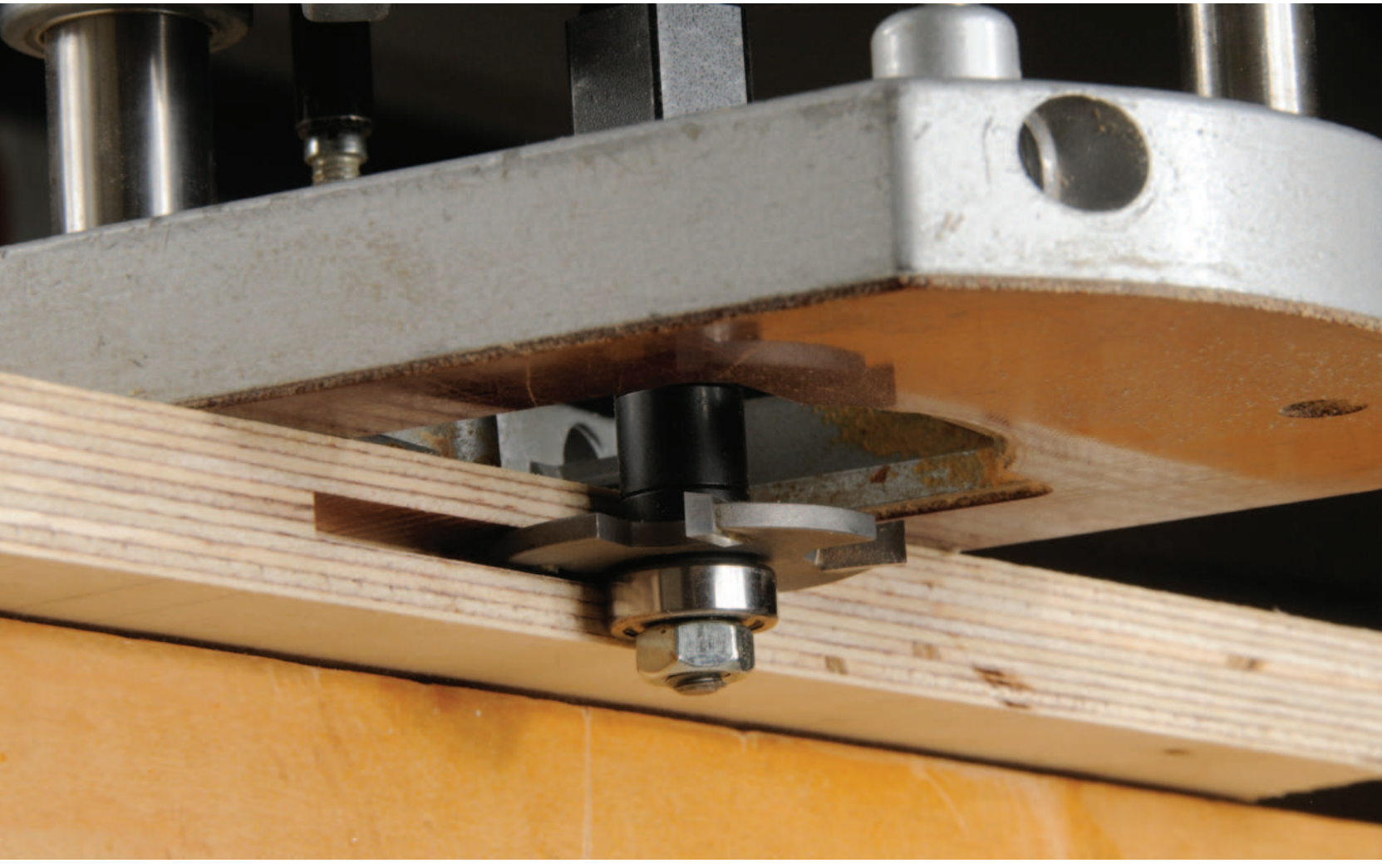
Surface textured with wire brush on a corded drill and hard-wax oil applied, left to cure then buffed with a lint-free cloth

Safety notes

- If your reclaimed blank has nails, screws or staples embedded, you must ensure they are all removed prior to turning. Not only could they constitute a safety hazard for you and your tools while turning, but any stray pieces of metal could also cause the electrical cable to become damaged in use, and this would constitute a very serious safety hazard.

- Every country, and sometimes different regions within a country, has specific regulations for the manufacture and sale of electrical items. Do ensure you make yourself aware of these regulations and comply with them fully. The onus is entirely on you to do so. Failure to comply could not only result in injury, but could also result in the confiscation of stock, civil charges or compensation claims.

- Reclaimed wood can present safety and health issues that 'clean' wood might not. Chemicals may well have been used on, or entered, the wood. There may be inclusions such as nails or barbed wire. There may be splits, cracks, fissures or even parasitic infestations in the wood.



Biscuit jointing with the router

Anthony Bailey explains the benefits of using your router rather than a biscuit jointer

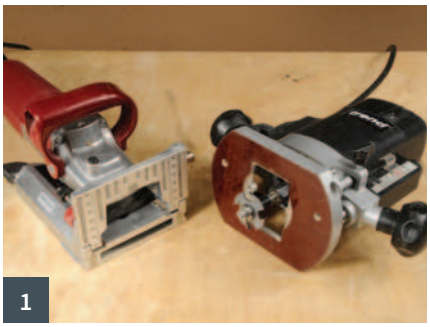
Many woodworkers now use biscuit jointers, just like James Hatter when building his portable saw table unit on page 51. If you want to minimise your outlay and already own a router, or need to form biscuit joints in awkward locations, why not try using a biscuit jointing cutter set fitted to your router?

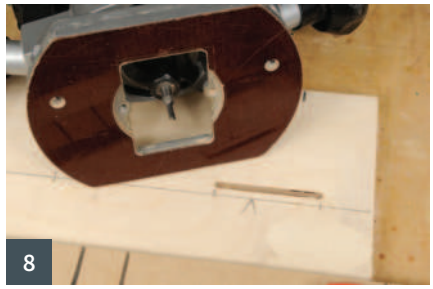
1 For anyone not familiar with biscuit jointing, it is normally done with a dedicated biscuit jointing machine. This creates a 4mm slot of a depth that can be easily changed to suit one of three standard sizes of 0, 10 and 20 biscuits. The speed and ease of jointing has to be seen to be believed – it also allows a degree of sideways adjustment, which is useful. The biscuits are formed from compressed beechwood cut at an angle for maximum joint strength, and with a hatched grip pattern that holds the joint tight as the glue in the joint swells the biscuits. The biscuit jointer, with its flat front face and fence, works well in most circumstances but if you already own a router then you can buy a biscuit jointer cutter set.

2 There are other reasons to do biscuit jointing using the router. Since a standard jointer can only work on flat surfaces, any attempt to do the same thing on a shaped edge will fail as the blade may not even touch the surface, let alone make a slot. A typical example would be a postform kitchen worktop joint, held together by special worktop bolts fitted into routed recesses underneath. Biscuits are the perfect way to keep the two surfaces flush but the dogleg shape of the joint created will prevent a jointer from doing the frontmost slot. Using a router and biscuit jointing cutter overcomes this problem.

3 The typical cutter set can be on any standard shank size but a ¼in fitting is probably best, as you can use a small lightweight router. The cutter is either fixed or removable – in the latter type you must ensure the cutter is fitted the right way round for the motor rotation. There will be three bearings: the largest being for size '0', the next one for '10' and the smallest for '20' biscuits. An Allen screw and washer or nut are used to keep the bearing and cutter in place.

PHOTOGRAPHS BY GMC PUBLICATIONS/ANTHONY BAILEY





4 To set up your cutter, choose and fit the appropriate bearing and check the cutter can plunge through the machine base. Plunge to the correct depth with the power off, which should normally be to half the thickness of the board to be jointed. You can verify this by doing a test cut.

5 Normally with a biscuit jointer, you would just place a strike mark across both boards to be joined and this would be the centre mark for the slot. However, this time, you need two outside marks where the slot should start and stop. You need to experiment to get a slot deep and wide enough – this will vary according to what biscuit size you are using. The best solution is to make a registration stick to suit each biscuit size and use it to mark out each biscuit position.

6 Make sure the depth rod is locked tight and the router plunged and also locked tight. Plug in and sit the router base on the workpiece just enough to support, but so the cutter cannot contact it. Switch on and slide the router into the job sideways and start to cut from the first mark and stop at the second. Pull the router out sideways. DO NOT UNPLUNGE!

7 Machine the other half and do a dry fit with a biscuit to check for fit. Repeat for your other joints.

8 Such a cutter set is fine for edge-to-edge joints but cannot do T-joints such as shelves in a carcass where the cutter needs to be well away from the edge of the workpiece. In this case, you can use a 4mm straight cutter to make the slots using a guide rail, or T-square to guide the router. There is more strain on the cutter so do it in a couple of passes.

9 This cut through shows how a biscuit fits in each type of slot. From left to right: biscuit jointer, router biscuit cutter and 4mm straight cutter. The last two leave bigger glue pockets and the first doesn't give a lot of strength, so ensure the glue has plenty of time to dry. Polyurethane (PU) glue has the advantage of gap filling but good clamping is required.

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- Ideal for use as a garage/workshop
- Extra tough triple layer weatherproof cover
- Heavy duty powder coated steel tubing
- Ratchet tight tensioning

ZIP CLOSE DOOR

MODEL	SIZE (LxWxH)	EXC.VAT	INC.VAT
CIG81015	4.5 x 3 x 2.4M	£229.00	£274.80
CIG81020	6.1 x 3 x 2.4M	£279.00	£334.80
CIG81216	4.8 x 3.7 x 2.5M	£279.00	£334.80
CIG81220	6.1 x 3.7 x 2.5M	£349.00	£418.80
CIG81224	7.3 x 3.7 x 2.5M	£419.00	£502.80

Clarke 1" BELT/ 5" DISC SANDER

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

£74.99 EXC.VAT £89.99 INC.VAT

CBS1-5B

Clarke CIRCULAR SAWS

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

FROM ONLY £41.99 EXC.VAT £50.39 INC.VAT

CON185

*Includes laser guide

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

Clarke PLUNGE SAWS

MASSIVE PRICE CUT NOW FROM £59.98 EXC.VAT £71.98 INC.VAT *WAS £83.98 INC.VAT

CPS160

MODEL	MOTOR	EXC.VAT	WAS	INC.VAT
CPS85	550W	£59.98	£83.98	£71.98
CPS160	1200W	£129.00	£165.80	£154.80

Clarke MULTI FUNCTION TOOL WITH ACCESSORY KIT

- Great for sawing, cutting, sanding, polishing, chiselling & much more
- Variable speed

PRICE CUT £34.99 EXC.VAT £41.99 INC.VAT WAS £45.59 inc.VAT

CMFT250

Clarke 4" BELT/ 8" DISC SANDER

- Includes two tables
- 550W 230V motor

£159.98 EXC.VAT £191.98 INC.VAT

CS4-8

Clarke BELT SANDERS

Makita

- Ideal for surface removal, sanding and finishing

PRICE CUT NOW FROM £34.99 EXC.VAT £41.99 INC.VAT WAS £45.59 inc.VAT

*was £45.59 inc. VAT

ABRASIVE SANDING BELTS IN STOCK

CBS2

MODEL	MOTOR	M/MIN	EXC.VAT	INC.VAT
Clarke BS1*	900W	380	£34.99	£41.99
Clarke CBS2	1200W	480	£79.98	£95.98
Makita 9911	650W	75-270	£99.98	£119.98

Clarke DISC SANDER (305MM)

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

£129.98 EXC.VAT £155.98 INC.VAT

CDS300B

Clarke DUST EXTRACTOR/ CHIP COLLECTORS

CDE7B

CWVE1

FROM ONLY £109.98 EXC.VAT £131.98 INC.VAT

- Powerful 1100W motor
- 50 litre bag capacity
- Flow rate of 850M3/h

MODEL	MOTOR	FLOW RATE	BAG CAP.	EXC.VAT	INC.VAT
CWVE1	1100W	183 M3/h	50Ltrs	£109.98	£131.98
CDE35B	750W	450 M3/h	56Ltrs	£149.98	£179.98
CDE7B	750W	850 M3/h	114Ltrs	£159.98	£191.98

Clarke HARDWOOD WORKBENCH

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

CHB1500

£149.98 EXC.VAT £179.98 INC.VAT

Clarke DRILL PRESSES

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

B = Bench mounted
F = Floor standing

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

CDP152B

MODEL	MOTOR (W) SPEEDS	EXC. VAT	INC. VAT
CDP5EB	350 / 5	£69.98	£83.98
CDP102B	350 / 5	£79.98	£95.98
CDP152B	450 / 12	£149.98	£179.98
CDP202B	450 / 16	£189.00	£226.80
CDP10B	370 / 12	£199.98	£239.98
CDP352F	550 / 16	£229.00	£274.80
CDP452B	550 / 16	£239.00	£286.80
CDP502F	1100 / 12	£569.00	£682.80

Clarke DETAIL SANDERS

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

CDS-1V

ONLY £19.98 EXC.VAT £23.98 INC.VAT

280W

ALL MODELS INC. SANDING SHEETS

Clarke SHEET SANDERS

- Ergonomic design for optimum comfort

CON320

NEW VARIABLE SPEED

FROM ONLY £23.99 EXC.VAT £28.79 INC.VAT

MODEL	SHEET SIZE	MOTOR	EXC.VAT	INC.VAT
COS210	190X90mm	200W	£23.99	£28.79
CON320	230X115mm	320W	£34.99	£41.99

Clarke CPF13 ELECTRIC POWER FILE

- Variable belt speed
- Tilting head

*Black & Decker

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

MODEL	MOTOR	BELT SIZE (mm)	EXC.VAT	INC.VAT
CPF13	400W/230V	13x457	£49.98	£59.98
KA900E*	350W/230V	13x455	£59.98	£71.98

Clarke POWER PLANERS

NEW RANGE

CEP450

FROM ONLY £34.99 EXC.VAT £41.99 INC.VAT

MODEL	WIDTH OF CUT	EXC.VAT	INC.VAT
CEP450	60mm	£34.99	£41.99
CEP720	82mm	£44.99	£53.59
CON950	110mm	£67.99	£81.59

Clarke 3-IN-1 MULTI SANDER

CMS200

NEW

ONLY £44.99 EXC.VAT £53.99 INC.VAT

1/3 SHEET SANDER

DISC SANDER

Clarke PALM SANDERS

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

CPS125

NEW

INC DUST EXTRACTION

ONLY £19.98 EXC.VAT £23.98 INC.VAT

Clarke 18V CORDLESS LI-ION STAPLE / NAIL GUN

- Includes 300 nails and 400 staples
- Supplied with charger, carry case and 1 x 2aH 18V LI-ION Battery

SPARE NAILS / STAPLES IN STOCK

CONSN18LIC

ONLY £109.98 EXC.VAT £131.02 INC.VAT

ELECTRIC AND CORDLESS MODELS IN STOCK

Clarke CONTRACTOR 18V BRUSHLESS COMBI DRILLS

- 2 forward and reverse gears

Powered by Li-Ion

CON180LI

FROM ONLY £109.98 EXC.VAT £131.98 INC.VAT

*was £191.98 inc. VAT

MODEL	VOLTS	BATTS	EXC. VAT	INC. VAT
CON18LIC	18V	2x 2.0Ah Li-Ion	£109.98	£131.98
CON180LI*	18V	2x 4.0Ah Li-Ion	£139.98	£167.98

VAC KING WET & DRY VACUUM CLEANERS

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

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

* SS = Stainless Steel

MODEL	MOTOR	CAPACITY DRY/WET	EXC. VAT	INC. VAT
CVAC20P	1250W	16/12ltr	£49.98	£59.98
CVAC20SS*	1400W	16/12ltr	£59.98	£71.98
CVAC20PR2	1400W	16/12ltr	£64.99	£77.99
CVAC25SS*	1400W	19/17ltr	£69.98	£83.98
CVAC30SSR*	1400W	24/21ltr	£89.98	£107.98

Clarke RANDOM ORBITAL SANDER

- Adjustable front handle improves control
- 7000-14000rpm

CROS3

INC DUST BAG AND SELECTION OF 125MM DIAMETER SANDING DISCS

FROM ONLY £34.99 EXC.VAT £41.99 INC.VAT

Clarke OSCILLATING BOBBIN SANDER

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

COBS1

£129.98 EXC.VAT £155.98 INC.VAT

Clarke BOLTLESS SHELVING/BENCHES

- Simple fast assembly in minutes using only a hammer

SAVE 10%

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

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MODEL	DIMS WxDxH(mm)	EXC.VAT	INC.VAT
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350kg	900x400x1800	£49.98	£59.98

Clarke WHETSTONE SHARPENER (200MM)

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

CWS200B

ONLY £119.98 EXC.VAT £143.98 INC.VAT

Clarke PLANERS & THICKNESSERS

CPT800

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

FROM ONLY £179.98 EXC.VAT £215.98 INC.VAT

MODEL	PLANING WIDTH	MAX THICK. CAPACITY	EXC. VAT	INC. VAT
CPT600	6"	120mm	£179.98	£215.98
CPT800	8"	120mm	£219.98	£263.98
CPT1000	10"	120mm	£299.00	£358.80

Clarke OSCILLATING BELT & BOBBIN SANDER

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

£179.98 EXC.VAT £215.98 INC.VAT

COEBS1

29940LH

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Clarke 40" WOODTURNING LATHE

Ideal for woodturning in the workshop

• 1016mm distance between centres allows for turning longer spindles • Inc. tool rest, tail stock, drive centre, face plate & 3 chisel • Large turning capacity of 350mm • 4 turning speeds

BENCH MOUNTED

CWL1000B

ONLY £136.99 EXC.VAT £164.39 INC.VAT

BEST SELLER

LOCKABLE TAILSTOCK

Clarke 40" WOODTURNING LATHE WITH COPY FOLLOWER

Ideal for DIY, furniture or joinery workshops where repeat quantities are required

• Large 980mm distance between centres • Variable speeds 600-2200rpm • Inc. copy follower assembly, tool rest, drive centre tail stock assembly, face plate, eye shield, 2 chisels & stand

INCLUDES COPY FUNCTION

ONLY £359.00 EXC.VAT £430.80 INC.VAT

INCLUDES STAND

CWL1000CF

Clarke BENCH BANDSAWS

• Produces fast, precise mitre & longitudinal cuts • 350W motor • 7.5" throat size • Cuts in all types of wood

£129.98 EXC.VAT £155.98 INC.VAT

CBS190B

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

£189.98 EXC.VAT £227.98 INC.VAT

REMOVABLE DUST TRAY

CBS225

Clarke PROFESSIONAL BANDSAWS

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

• Table tilts 45° • Adjustable blade guide • Supplied with stand, 4TPI wood cutting blade, rip fence, mitre guide, mitre gauge and push stick • Induction motors • Includes stand

MAGNIFIED MITRE GUIDE

QUICK RELEASE FENCE

DRIVE-BELT TENSIONING

SOLID GROUND CAST IRON TABLE

CBS300

FROM ONLY £219.98 EXC.VAT £263.98 INC.VAT

MODELS ALSO FEATURE:

MULTI-STEP DUST EXTRACTION OUTLET

FLEXIBLE LED WORKLIGHT

REMOVABLE DUST TRAY

BLADE TENSIONING CONTROL

MODEL	THROAT DEPTH	MAX CUT 90°	MAX CUT 45°	EXC. VAT	INC. VAT
CBS250B	250mm/10"	100mm	75mm	£219.98	£263.98
CBS300	305mm/12"	165mm	115mm	£398.00	£477.60
CBS350	340mm/14"	225mm	160mm	£498.00	£597.60

TURBO AIR COMPRESSORS

airmaster 8/260 NEW

• Superb range ideal for DIY, hobby & semi -professional use

FROM ONLY £89.98 EXC.VAT £107.98 INC.VAT

* 'V' Twin Pump
# Oil free

MODEL	MOTOR	CFM	TANK	EXC.VAT	INC.VAT
8/260 NEW	2HP	7.5	24ltr	£89.98	£107.98
7/250	2 HP	7	24ltr	£94.99	£113.99
11/260 NEW	2.5HP	9.5	24ltr	£109.98	£131.98
8/550 NEW	2HP	7.5	50ltr	£119.98	£143.98
7/510#	2HP	7	50ltr	£119.98	£143.98
11/550 NEW	2.5HP	9.5	50ltr	£139.98	£167.98
16/550* NEW	3HP	14.5	50ltr	£199.98	£239.98
16/1050* NEW	3HP	14.5	100ltr	£249.98	£299.98

Clarke 13" MINI WOOD LATHE

£159.98 EXC.VAT £191.52 INC.VAT

CWL325V

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

Clarke STATIC PHASE CONVERTERS

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

ROTARY PHASE CONVERTERS ALSO IN STOCK

PC60

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

CONVERT 230V 1PH TO 400V 3PH

MODEL	MAX. MOTOR HP	FUSE	EXC.VAT	INC.VAT
PC20	2HP	10Amps	£229.00	£274.80
PC40	3.5HP	20Amps	£269.00	£322.80
PC60	5.5HP	32Amps	£319.00	£382.80

Clarke ROUTERS

Clarke CONTRACTOR BOSCH

• Powerful heavy duty machines ideal for trade and DIY use

CR4

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

*was £107.98 inc. VAT

MODEL	MOTOR (W)	PLUNGE (mm)	EXC.VAT	INC.VAT
CR1200	1200	0-55	£44.99	£53.99
POF1400ACE*	1400	0-55	£84.99	£101.99
CR4	2000	0-66	£99.98	£119.98

Clarke GRINDERS & STANDS

• Stands come complete with bolt mountings and feet anchor holes

6" & 8" AVAILABLE WITH LIGHT

STANDS FROM ONLY £47.98 INC.VAT

FROM ONLY £35.99 EXC.VAT £43.19 INC.VAT

With sanding belt
*8" whetstone & 6" drystone

MODEL	DUTY	WHEEL DIA.	EXC.VAT	INC.VAT
CBG6RP	DIY	150mm	£35.99	£43.19
CBG6250	HD	150mm	£37.99	£45.59
CBG6RZ	PRO	150mm	£42.99	£51.59
CBG6RSC	HD	150mm	£56.99	£68.39
CBG6SB#	PRO	150mm	£58.99	£70.79
CBG6RWC	HD	150mm	£59.98	£71.98
CBG8W* (wet)	HD	150/200mm	£59.98	£71.98

Clarke ROUTER TABLE

CRT-1

Router not included

BEST SELLER

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

£69.98 EXC.VAT £83.98 INC.VAT

Clarke JIGSAWS

CON750

FROM ONLY £15.99 EXC.VAT £19.19 INC.VAT

^was £33.59 inc. VAT

*DIY #Professional

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EXC. VAT	INC VAT
CJS380*	420W	55/6mm	£15.99	£19.19
CON750#^	750W	80/10mm	£24.99	£29.99
Bosch PST700E*	500W	70/4mm	£44.99	£53.99

Clarke 12" DOVETAIL JIG

• 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

£54.99 EXC.VAT £65.99 INC.VAT

CDTJ12

Clarke WOODWORKING VICES

Record

FROM ONLY £14.99 EXC.VAT £17.99 INC.VAT

WV7

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
Clarke CHT152	Bolted	150/152/61	£14.99	£17.99
Record TV75B	Clamped	75/50/32	£22.99	£27.59
Clarke WV7	Bolted	180/205/78	£29.98	£35.98
Record T52PD	Bolted	175/205/75	£46.99	£56.39

Clarke SCROLL SAWS

FROM ONLY £79.98 EXC.VAT £95.98 INC.VAT

CSS400C

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

BEST SELLER

MODEL	MOTOR	SPEED RPM	EXC. VAT	INC. VAT
CSS400D	120W	400-1600	£79.98	£95.98
CSS16VB	90W	550-1600	£94.99	£113.99
CSS400C	90W	550-1600	£119.98	£143.98

Clarke MITRE SAWS

• For fast, accurate cross, bevel & mitre cutting in most hard & soft woods • 1800W motor • Laser guide

FROM ONLY £114.99 EXC.VAT £137.99 INC.VAT

CMS250S

‡ was £226.80 inc.VAT

MODEL	BLADE DIA/BORE (mm)	MAX CUT DEPTH/ CROSS	EXC.VAT	INC.VAT
CMS2250S	250/30	85/250	£114.99	£137.99
C2MS210MP	216/30	65/305	£139.98	£167.98
C2MS250MP‡	255/30	90/305	£179.00	£214.80

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The secret joint

Colin Sullivan shows how he resolved a delivery problem by designing his own knock-down fixing

John Hartnett has been deeply involved in the world of fine furniture since opening up his first antique shop and restoration business in 1962. The family business can be traced back to the 1880s when his great-grandfather was a cabinetmaker in Paris. Today the company A & J Hartnett & Sons exports a range of exquisitely made cherry and maple music stands from its workshop in Brighton to discerning customers around the world.

The stands themselves are complicated enough to produce but the transportation and packaging of these delicate pieces is another story. John's friend and colleague Colin Sullivan was helping to make these music stands, and exporting them in great numbers to the US among other places, where they were proving very popular. One problem was constantly presenting itself when shipping them, however. Not only do international couriers charge by weight, they also charge by volume, and a music stand's tripod legs splay wide enough to increase the overall package size, making delivery costs prohibitive.

Presented with the challenge of being able to deliver these music stands to the US while decreasing the volume size, Colin set to work. After discovering this ingenious piece of equipment and with John's blessing, we asked Colin Sullivan, the mastermind behind it, to show us how it's done...

PHOTOGRAPHS BY COLIN SULLIVAN

A novel solution

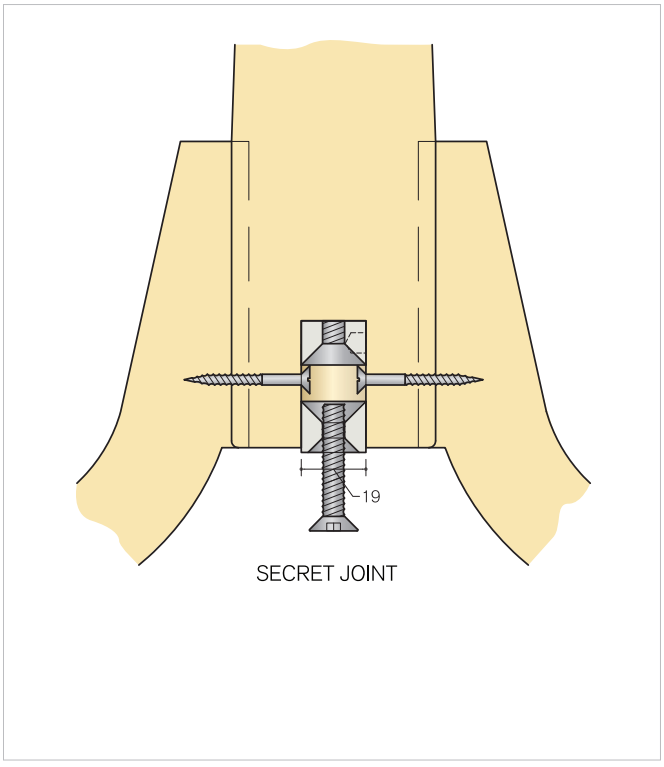
Simplicity was essential so someone unskilled could easily fit the legs on. The fitting proved to be a novel solution to a difficult problem.

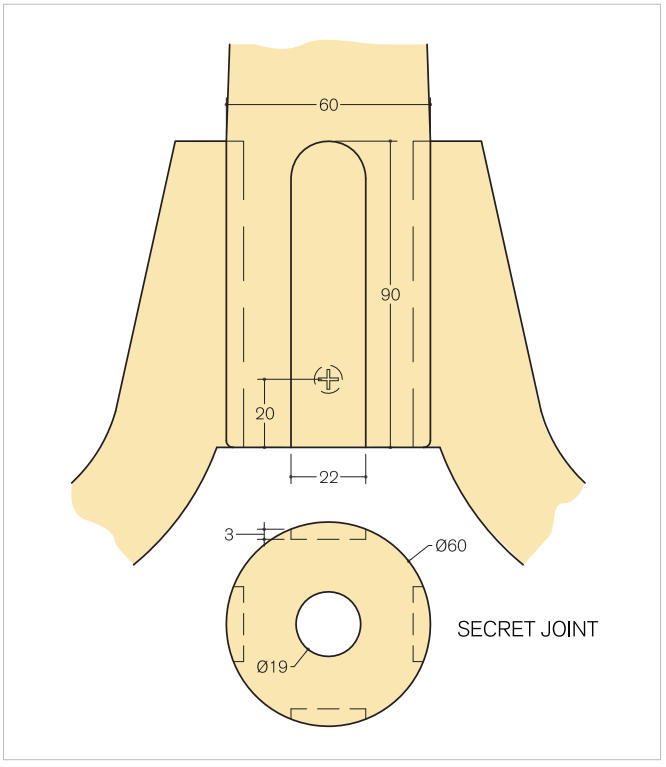
It was also used on small three-legged tables like the Shaker Lamp Table shown here and a larger four-legged table. I got the inspiration from the Stanley bedrock system where a tapered screw is used to lock the frog to the sole of the plane. The beauty of my fitting is that it can be made in any workshop, on an ordinary pillar drill or simple metal-turning lathe.

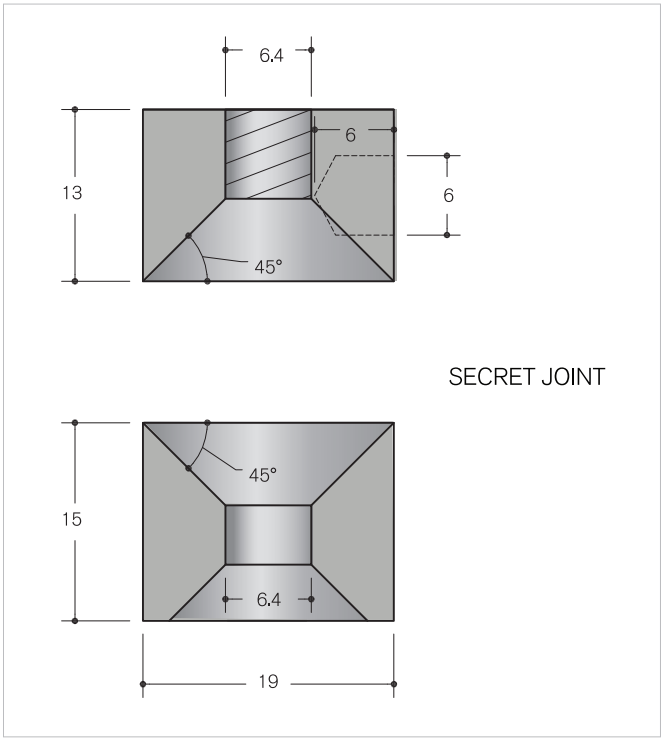
It can be used as a knock-down fitting or simply as a clamp for gluing the legs on. It then serves to hold everything together even if the glue breaks down.

Much of the success lies in the secret joint used to attach the legs to the column for assembly by the end user. Many years down the line and 555 music stands later (each one is numbered) there have been no complaints or reports of damage due to joint fatigue.

The following details are intended to show in principle how this fitting can be used. The sizes can be adapted for your application.







Making the fitting

1 I used ¾in diameter mild steel rod, cut into two 15mm long billets. Drill a 6.5mm diameter hole in the centre of one piece and countersink one side to the full ¾in width. Create a similar countersink on the reverse side to fit an M6 bolt head. On the second billet, drill through the centre and tap to accept an M6 thread with a countersink on one side to the full width of the billet.

Columns and legs

2 I began by turning the column between centres on the lathe, leaving a stub end 28mm in diameter at the top. This was left for gripping in the three-jaw chuck of the lathe and would be used later for fixing the table top. I then made a simple jig to rout three slots on the column using a ¾in cutter to produce a ⅞in wide slot 3mm deep. This jig fits onto the lathe bed under the column – with the column held between the chuck and the tailstock. It must be central with the column.

3 I worked out the shape of the legs by making a template of them to hold up against the column. I find three-leg tables are not very stable and the legs need to protrude beyond the diameter of the table top. Plane the wood for the legs to ⅞in to fit the slots allowing enough for cleaning up.

4 After bandsawing the legs to shape I drum sanded the inside of the curves and disc sanded the outside of the curves. The three chuck jaws were then used as a register to position the column for routing. It's essential to hold the column from turning and this was done with a simple jig that fitted tight on one chuck jaw and is cramped to the bed. The top section is released for the chuck to turn the column one third.

The drilling jig

5 To drill the ¾in hole in the base of the column I made a jig to fit on the pillar drill.

6 It was cramped onto the table and hung down vertically to support the column.

7 The ¾in drill could then be lined up with the centre that was used by the tailstock. I used a flat drill bit that was ⅞in wide ground down to 19mm and cut short to allow as much height as possible for getting the column onto the drill press.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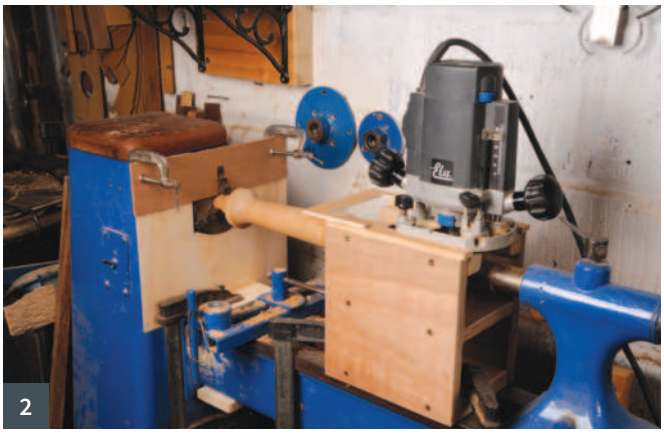
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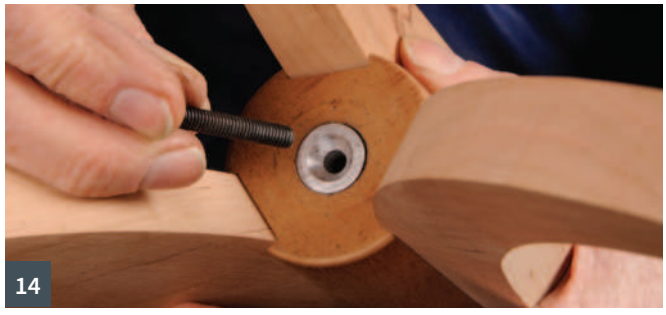
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8 The same jig can be used for drilling the holes through the slots where the three screws will go. This hole needs to be just big enough for a No. 6 screw head to pass through it.

Assembly

9 The No.6 x 50mm screw position on the legs is exactly adjacent to the holes in the slots on the column. The anchoring screws need to be square so a pilot hole is a must. I drilled the pilot holes for these screws on the pillar drill using an ordinary drilling vice, to ensure they are square to the face of the leg. Take care with putting in the screws because the leg can easily crack, so grip it in the vice or place a clamp just where the screw goes in.

10 Adjust the depth of the anchoring screws so the head just shows in the hole in the column where the fitting is. Make sure the anchoring screws in each of the legs is the same depth.

11 Begin the final stage of assembly by inserting the top end of the draw bolt mechanism with the full width countersink facing down.

12 Check that the housing for each leg will not prevent the joint from closing. Accurate drilling is the key to success.

13 The screw heads need to extend just beyond the hole into the draw bolt chamber.

14 Finally, place the bottom end of the mechanism with the full width countersink against the screw heads and insert the M6 bolt.

Conclusion

I was surprised by how rigid the legs were the first time I put this fitting together. It has the advantage of drawing the legs to the centre of the column and not relying on the strength of the column alone. This fitting can be used with a metal column by making a wooden bush to fit inside the tube and scribing the legs to fit the diameter of the tube.

Carved salad servers

Peter Benson carves a simple spoon shape that can be adapted to make a salad server set

For this project, I'll start by making a simple spoon and then look at how this design can be used as a basic shape from which a pair of salad servers or a kitchen spatula can be made. You could also personalise any of these with added carved decoration.

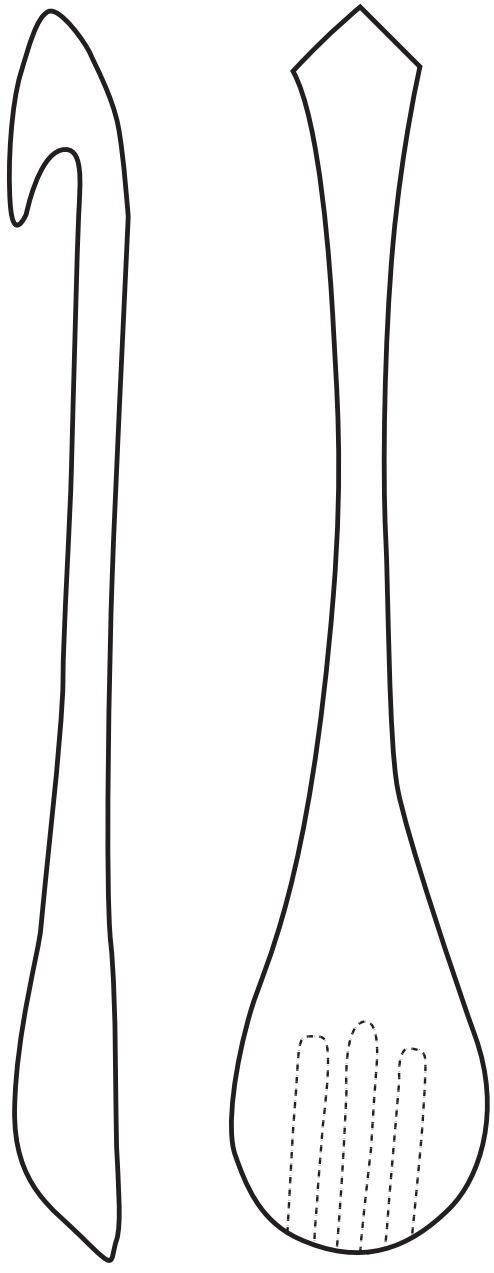
YOU WILL NEED

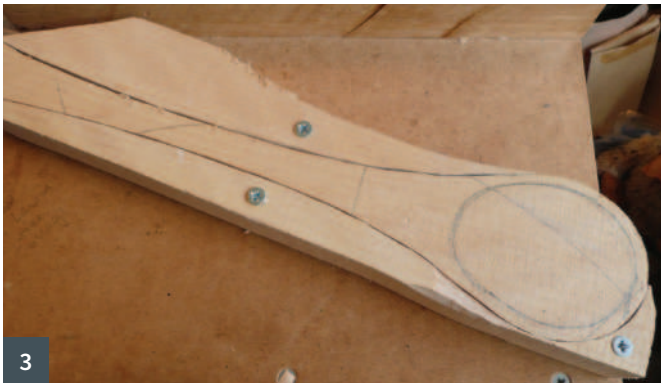
- Knife
- Fairly wide block cutter gouge, Nos. 5, 6 or 7 sweep
- Coping saw or bandsaw
- Abrasive

PHOTOGRAPHS BY PETER BENSON

Templates

Enlarge template to required size





Timber consideration

The timber you use must be quite hard and it must be non-toxic. A surprising number of timbers are not recommended for culinary or general kitchen use as they can have unhealthy consequences. Also the dust from many of these is actually very harmful so they should be avoided.

Good timber choices are lime, sycamore, beech and the fruitwoods – apple, pear, cherry, etc. The wood doesn't even need to be dry – it can be cut from green logs if necessary and often it is better to carve it this way.

Carving tips

Work across the direction of the grain to avoid splitting out and undercutting what you have already carved. With any hollow shapes or difficult grain patterns, it is always better to work across the grain. Don't try to carve too deeply on this first spoon; it is not really necessary and can only cause problems.

When using a coping saw, the blade needs to be fitted so that the teeth point towards the handle. This means that the cutting stroke is a pull stroke either towards you if the spoon is vertical, or downwards if the spoon is held flat. If the blade is pointing the other way there is a danger of it springing out of the saw because you will be cutting with a push stroke.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Making the basic spoon shape

1 Sketch out a rough shape, draw a centreline along its full length, then carefully draw half of your design and cut it out from a piece of card. Transfer this pattern onto your block of wood, fold it over – keeping the centreline in the same place – and draw the other side to give the whole symmetrical outline of the spoon.

2 Using your bandsaw or coping saw, cut round the outline, keeping as close to the line as you can to maintain the symmetry.

3 Use the waste material to make a jig in which to hold the spoon while you carve it. There are many other ways that you can stop the spoon from moving but this is probably the easiest.

4 Carve out the bowl hollow first, using a ½in gouge with a fairly deep sweep, say a 5, 6 or 7. Carving the bowl first keeps the block flat on the supporting board. If you carve the back first this is not the case and you could have problems.

5 Once you're happy with the bowl shape, start to carve the outside using gouges or a knife.

6 I tend to rough out with a gouge and then do the bulk of the shaping with my knife. Don't try to make the bowl too thin – it can always be refined later.

7 Next, draw the line of the spoon handle onto the underneath in a flowing shape, then saw off the waste from underneath.


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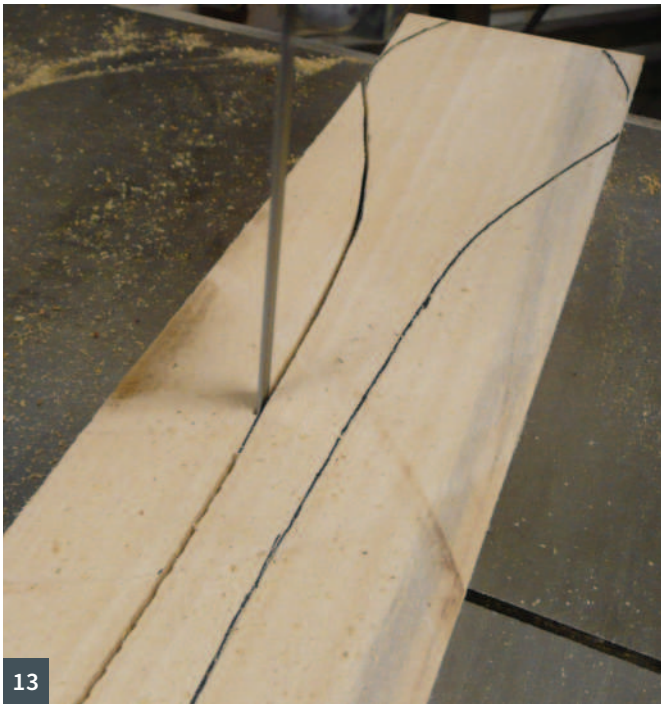
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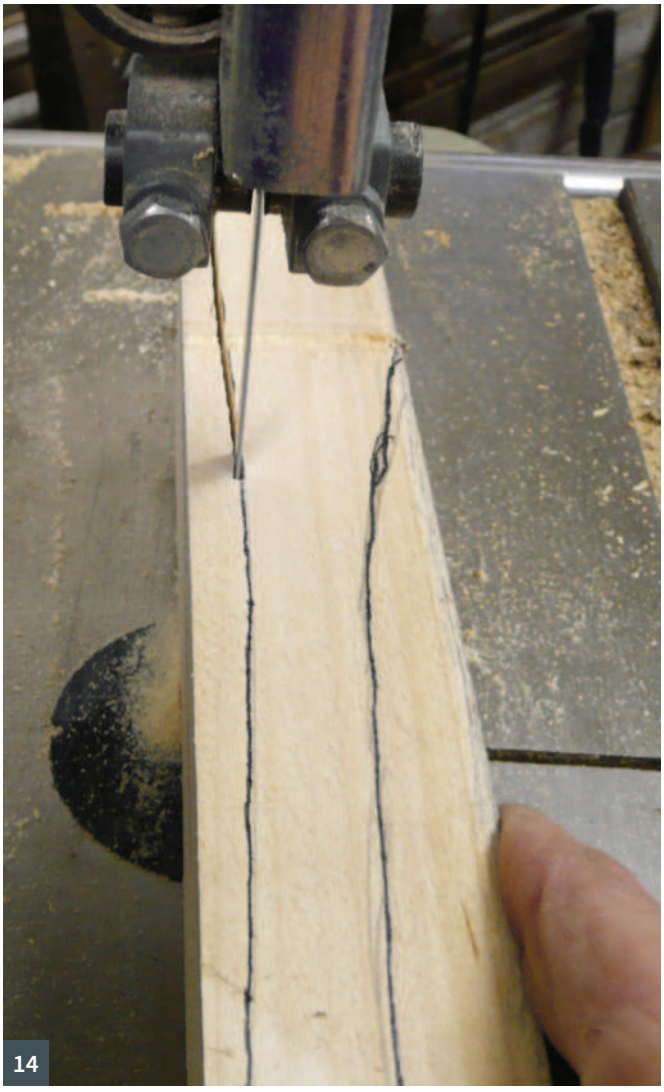
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8 When you're happy with the line, shape the underside of the handle.

9 Now shape the hook end.

10 When the desired lines are achieved mark in the top profile and shape this with your knife.

11 Then sand and refine the surface of the hook as necessary.

12 Sand the whole spoon and treat it with three coats of olive oil.

Making the fork

13 This time cut out the front and side views from a square-edged piece of wood.

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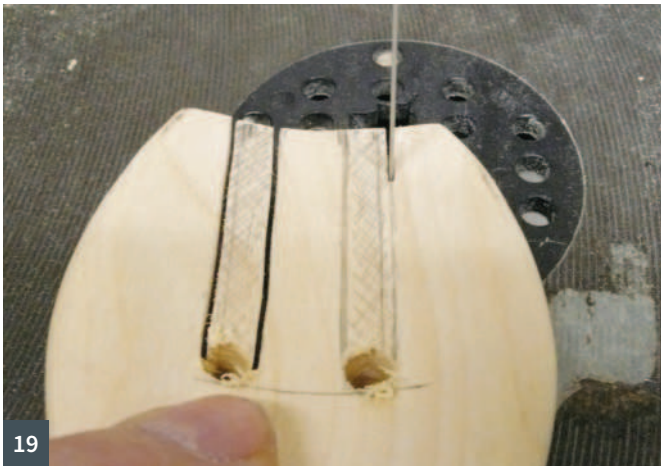

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14 Leave a short length of each side uncut so the waste remains attached until all the cutting is complete.

15 Here is the cutout shape with the waste removed. If you intend to use a bandsaw to remove the waste you might want to tape the waste that you cut off at the beginning of the project back onto the blank to support it while cutting. This amount of waste, however, could easily be removed with a coping saw.

16 When you've finished cutting out the basic spoon shape, mark the end for the fork prongs. Don't add too many prongs or make them too close together. These measures will ensure strength and avoid food being trapped between them. What's more, narrow gaps are much more difficult to clean up and finish smoothly.

17 Drill the bottom of the prongs.

18 When the holes have been drilled, you can cut out the prongs.

19 Carefully cut out the waste with your bandsaw or coping saw and trim with a knife, before sanding smooth.

20 Sand and finish the salad server fork to match the spoon.

21 If you wish to carve different patterns to match the original, suitable patterns can be made from the finished spoon.

PHOTOGRAPHS BY LOUISE BIGGS

Single-leaf oak table

Louise Biggs carries out a sympathetic restoration on this antique table

This table had travelled a long way to my workshop. It had been kept in a dry, very hot climate and the conditions had taken their toll. The table was constructed with traditional non-glued, pegged mortise-and-tenon joints. There were additional holes and cut-outs on the long rails, which possibly indicated the positions of the original bearers.

Assessment

- One long stretcher had a break towards one end, which had been previously repaired.
- Areas around the pegs at the top and bottom of the leg were damaged.
- Pegs that held the top to the frame had pulled through the top or had broken off.
- The bearers (not original) needed to be re-fixed and a stop added to prevent them pulling out too far.
- A pull/handle of some description needed to be added/formed on the bearer.
- Cleats (breadboard ends) across the ends of the tops needed re-fitting.

There were cracks and splits all over the table, and any repairs would have to be functional but not perfect – to make the repairs perfect would ultimately detract from the age of the piece and this is not what the customer wanted. Traditional animal/hide glue would be used throughout the restoration as requested.

Tools used

- Long metal punch
- Hammers – various weights
- Dovetail saw
- Chisels – various sizes
- Carving gouges – various radii
- Homemade dowel plate
- Japanese cat's paw
- Sash and 'F' clamps
- Drill
- Drill bits – various sizes
- Bandsaw
- Rasp – round

1 Existing break in the long stretcher rail and damage around the pegged tenon
2 One of the existing bearers and holes indicating some previous form of bearer
3 The loose framework prior to being knocked apart to remove the broken stretcher, with damage to the legs around the joints
4 Re-gluing the break in the stretcher **5** The extent of the damaged timber around the break **6** Cutting the stretcher to fit an infill of old oak

Stages of restoration

The existing bearers were loose so they were removed in order that the repairs to the framework could be carried out. Some of the pegs going through the tenons had slightly worked their way out or were broken. Repairing the damage to the legs around the pegs was quite straightforward: using a long punch and knocking from the inside out, I removed the pegs until the frame parted enough to remove the broken stretcher rail. I retained the undamaged pegs so they could be reused once the stretcher was repaired.

The break in the stretcher had been previously glued, probably while in position, so the rail was badly bowed at that end. After prising the break apart, the old glue was removed using hot water and an old chisel. Once dry and while supported on a stout piece of board, the break was re-aligned and glued using animal/hide glue.

With the rail glued back together the extent of the remaining damage could be assessed. Usually I would cut a long joint as these are much easier to disguise during the staining and polishing process but in this instance a long joint would further reduce the strength of the stretcher. I decided to cut in a wedge over the damage on the front face and then a secondary piece on the top of the rail.

Using a dovetail saw the joint lines were cut into the stretcher rail, the depth of the infill had to fall below the lowest point of the moulded detail in order for the detail to be replicated. Because of this factor I aimed to align the surface cuts within the area of repair on the top of the rail so as to disguise the joints as much as possible.

Having searched my supply of old oak, I found a suitable wedge-shaped piece with similar grain to the table. I planed and aligned the piece to a tight fit before gluing it in place.

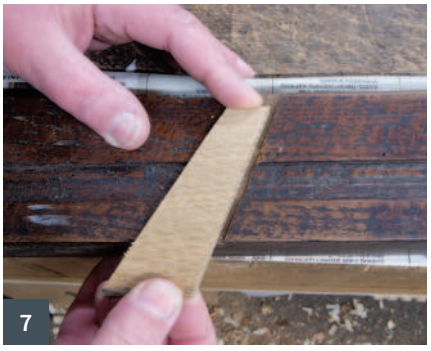
I used a flat-bottomed spokeshave to cut the infill flush with the surface of the rail before using several carving tools of different radii to carve in the moulded profile. As the table is old there are knocks and dents on the stretcher rails and these were echoed while carving the infill.

While waiting for the various drying stages in repairing the stretcher rail, I turned to the mortise area on the leg. The damage was mainly on the outside face where areas had split and been forced to jut out due to the position of the stretcher. The various pieces were removed, cleaned up and then glued back into position. Blocks and clamps held the pieces in line with the leg and the joints closed as much as possible. Once glued, small oak dowels were inserted at various angles to strengthen the repairs but for the most part these would not be obvious.

With the joint areas on the other legs repaired in a similar way, the stretcher rail was ready to be fitted back in place. I assessed the oak pegs that I'd removed at the start as to which could sensibly be reused to pull the joints up tight. The pegs all had a square-ish end and were tapered down their length. I prepared some old oak to slightly larger than the square and cut it to length. Tapering one end with a chisel, the pegs were hammered through a homemade dowel plate.

Once round, the pegs were tapered using a chisel until they were a similar shape and diameter to the original ones. The originals were not perfectly round, all had flats from the chisel's cuts and these were replicated in the ones I made.

With the stretcher fitted in place the various tapered pegs were hammered back into the legs, pulling the joints up tight. The other pegs around the frame were also hammered in tight. The new pegs were cut



7 The new infill being fitted to the stretcher **8** Carving in the moulded profile **9** Strengthening dowels through the broken joint area on the leg
10 The first stage of forming the new tapered pegs **11** Tapering the pegs to match the existing ones and the holes
12 The stretcher and pegs fitted and the pegs squared off just proud of the frame **13** One of the cleats being removed from the leaf
14 Drilling the cleat for the replacement pegs **15** The bearer rails fitted in position

proud of the leg with a flush cut saw and then, working from four sides, a chisel was used to square off the ends of the pegs.

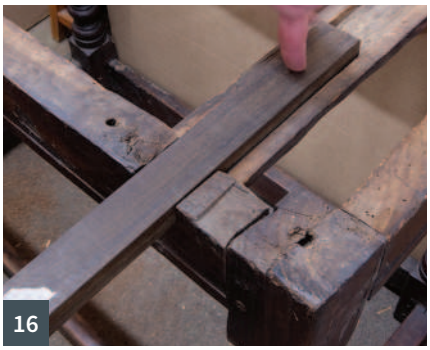
Moving to the table top and single leaf, the cleats (or breadboard ends) were held in position with an array of wooden pegs and old cut nails. I prised off the loose ones using a Japanese cat's paw, and where necessary the pegs were cut through to release the cleat and the collection of debris was cleaned from the two surfaces using an old chisel.

The cleats were then re-positioned and held in place using sash clamps with 'F' clamps and blocks holding the cleat level with the top surfaces. The old pegs were drilled out using a succession of drill sizes to form a tapered hole to the required depth. The pegs were formed, inserted and finished in the same way as those for the table frame.

The rails that support the bearers for the leaf were re-positioned and fixed in place using small dowels drilled through at various angles to prevent any movement.

The length of the bearers, when fully retracted, finished against the back rail therefore no stop would be required to prevent them pushing in too far but there was nothing to prevent them being pulled out completely when supporting the leaf. Having established how far they needed to be pulled out, between two-thirds and three-quarters of the leaf width, the inside edge of the rail was marked on both bearers. This allows the remainder of the bearer under the top to act as a counter-lever against the weight of the leaf and the pressure/weight put on it.

I decided a narrow, removable wedge would form the stop to prevent the bearers being pulled out too far. The bearers would pass through and protrude on either side of it in order to keep the stop square to the rail. The bearers are also removable so that they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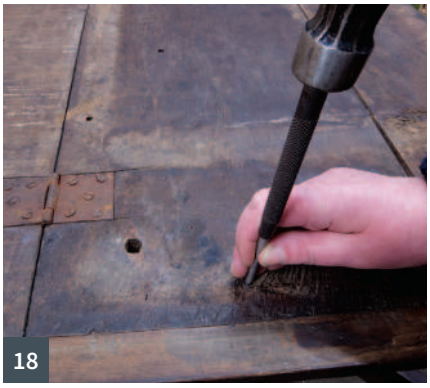
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16 Working out the position of the wedged stop on the bearer **17** The removable wedge stop in place against the rail
18 Long punch removing the pegs from the underside of the top **19** The new pegs holding the top to the frame prior to squaring the pegs
20 Forming a finger pull on the end of the bearer **21** The completed table

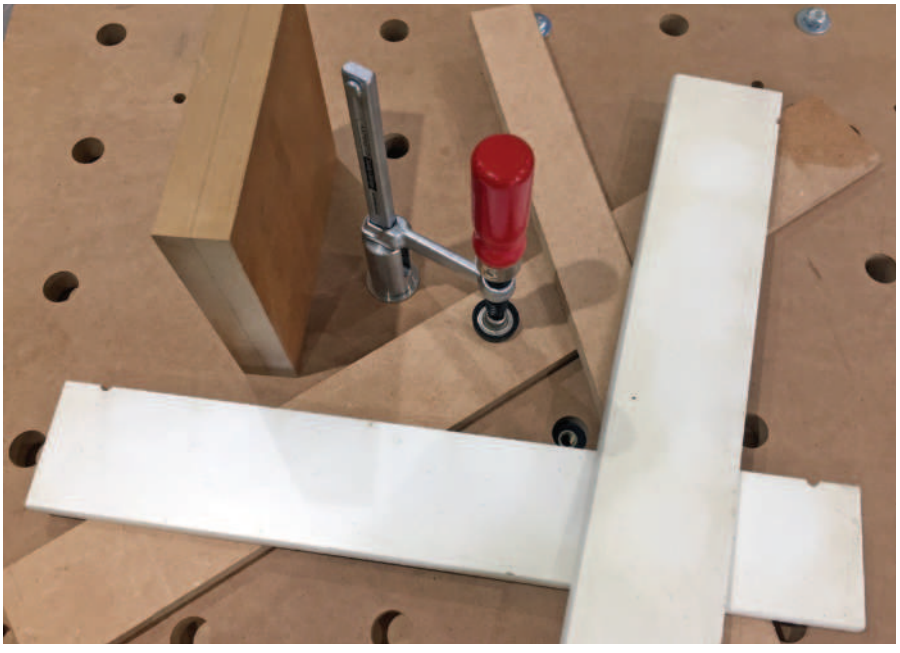
can be taken out, should the need arise. As the bearers were not original this seemed the best solution, without causing any further changes to the original table structure.

The top and frame were now ready to be re-connected. From the underside of the top, the tapered pegs that held the top to the frame were knocked out using a large metal punch (the same type used for knocking the pegs out of the frame). These longer punches have a larger diameter, just right for the diameter of the pegs.

New pegs were made, as before. The original pegs were all broken, due probably to the table being lifted by the top, although the part left in the top was again very slightly proud. When the new pegs were inserted they were cut and squared off as before.

My client had asked, if possible, that a small turned knob could be fitted to the end of the bearers to give a finger grip to them when they pulled them out. Due to the closeness of the leaf to the frame when it was down there was no room for a knob. As the bearer finished flush to the outside face of the rail, I formed a finger pull on the end of each bearer cutting the bulk of the waste away on the bandsaw and finishing the shaping with a rasp and abrasives.

With all the repairs completed the ends of the new pegs and the repair to the stretcher rail were stained to the required colour. The ends were then sealed and any further colour adjustment was done using earth pigments in shellac sealer. A final thin coat of polish was applied over the sealed areas, this prevented too high a gloss being built up by the polish. Several heavy coats of coloured wax were applied to the table, and allowed to dry before being buffed up. Once the table had a satisfactory finish, it was ready for its long journey home.



Is all MDF, MDF?

Geoffrey Laycock looks at using a commonly available fibre board

There are a few wrong facts about medium-density fibreboard (MDF) that are often seen in print so maybe in this article we can look at the material in a straightforward way. The first myth to get out of the way: MDF is banned in some countries because of the health risk – not true.

MDF is an engineered board made by bonding small wood fibres together with adhesive, usually synthetic resin. Moisture-resistant and LDF – usually called light medium density fibreboard (don't blame me, I didn't name it) – are available as well as a rather different product, HDF, or high-density fibreboard, also called hardboard. HDF product is typically only manufactured in thin sheets, often 3–8mm, and predominantly used in laminate flooring and for backing panels in furniture. Just to confuse all us unwitting buyers further, there is ultra-light MDF, which I have seen described as MDF but 30% lighter. And then not all 'standard' MDF is created equal, as different manufacturers have different products which claim superior performance in some way. One example is Caberwood MDF Pro, described as 'a premium grade ideal for most high-quality paint and surface finishes, superior screw and fastener holding'. And you thought MDF was just MDF.

Health risks

Whichever one we may use, there are potential health risks, but they are not significantly different to those encountered working with solid timbers. The main component is softwood but there can be a percentage of hardwood added, depending on the country of origin and what timber is available. Exposure to both soft and hardwood categories of dust is a health risk and exposure limits are identical at 5mg/m^3 – and MDF is exactly the same as dust from solid timbers.

The binder/adhesive used is typically urea-formaldehyde, but in moisture-resistant board may be phenolic resins or polymeric diphenylmethane diisocyanate (PMDI), which does not contain or emit formaldehyde during machining. Machining standard board can release free formaldehyde, dust particles on to which formaldehyde is absorbed, and the binder itself, all a potential risk as formaldehyde is described as 'suspected of causing cancer'. Free formaldehyde levels should not be of concern where MDF is sourced within the EU due to the standards that apply. Using moisture-resistant MDF can, in my experience, produce better machined finishes and if it is a PMDI board you should only have the wood dust to consider as a risk.

Working with MDF

Working with MDF, of whichever description, can produce very fine dust with the above potential risks. Specifying 'low emissions' or 'no added formaldehyde' board will help reduce that particular risk and using suitable local dust extraction will reduce the wood dust risk. It is very likely if turning or sanding on a lathe that significant levels of dust will result and respiratory protection is highly recommended. This should really be FFP3, which is 20x protection, meaning in theory that whatever the dust level outside the mask, the level inside should be 20x lower – in perfect conditions. Selecting a mask or filter which is also rated as an organic vapour filter would provide protection against any formaldehyde present if you are working with a form of MDF that may release that component.

As the dust that would be released during sanding or scraping would consist of very fine particle sizes, this may test your extraction/vacuum system to its limit and you should not assume all dust would be contained within those systems by their filters. Hence the recommendation to wear RPE. Remember also that cleaning up your machines, workshop and clothing can easily result in airborne dust, so RPE would be appropriate then. Very small dust particle sizes are also a greater explosion risk when mixed in air, so you should never use compressed air for workpiece, machine or other cleaning – ever.

Essentially, all the above precautions are ones you should aim to use with any timber type as they would protect you against the obvious hazards (dust inhalation, etc.) and the not-so obvious additional complications from some of the timbers that have toxic properties – for example yew. So if you do want to use MDF as part of a project, do so, but of course you may have to sharpen tools more frequently as you do.

Further information on working with MDF is available from:

elcosh.org: search MDF safety for carpenters

hse.gov.uk: search MDF FAQs on the HSE website for simple answers to common questions.

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Low Japanese-style coffee table

Mattia Migliorati makes a living room table using natural edge boards with a contemporary underframe

For some time now I've been thinking about creating a low coffee table for the living room, with very simple clean lines. As soon as the right opportunity presented itself, I got to work and thought through the solutions to key design problems.

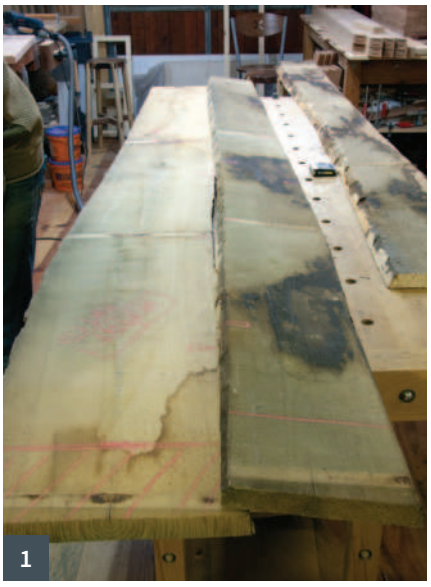
The starting design was for a very low table, ideal for reading, eating or drinking tea sitting on the carpet at home. Its shape is elongated and the construction elements are reduced to a minimum, there are no visible joints and only a few small aesthetic touches on the top. The goal was to enhance the appearance of the material as much as possible while taking care with every construction detail.

Material, measures and proportions

I decided to use French chestnut, available at the sawmill in boards 30mm thick and 2.5m long. Since the width of the boards varied with a usable width between 150mm and 200mm I thought it best to buy three boards.

The upper surface of the table measures 1,400mm in length and is made up of two boards joined together, leaving the irregular outer natural edge to accentuate the grain pattern and give a sense of movement to the whole table. The maximum width of the top measures 500mm in the central area and decreases towards the ends up to about 420mm with an average width of 460mm.

The lower support structure is composed of two rectangular shaped frames 25 x 350mm, made with 25 x 40mm sections jointed together. It gives cleanliness and linearity to the lower part of the table, contrasting with the uneveness of the top. A 1m-long crossbar is fitted into the lower of the two frame rails for stability.



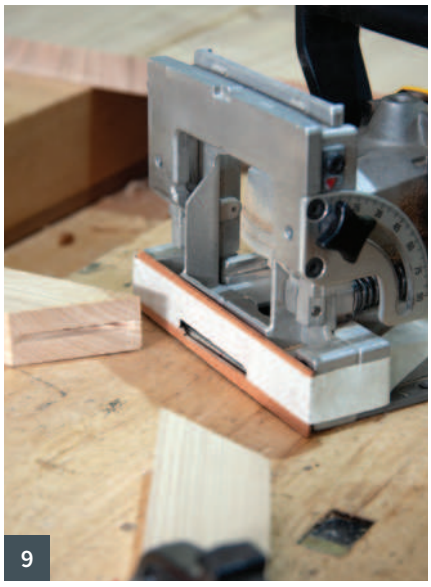
PHOTOGRAPHS BY MATTIA MIGLIORATI

1 In their raw sawn state these boards don't look much like the beautiful end result **2** Marking out to remove some but not all of the natural edge **3** Guiding a board through the bandsaw while cutting to the marked line **4** Planing the inner board edges using a jack plane and special fence for a perpendicular edge **5** Note how the fence must be pressed against a board face for an accurate cut **6** Applying an aliphatic resin glue before placing it against the other board

The top

With no reference points, I used an aluminium straightedge to mark the inner cut lines although a straight piece of plywood or a bricklayer's chalk line would do just as well. A bandsaw was used to remove the waste material. It is not always easy to visualise the final result and during the course of the work there may be the need for some adjustments, so leaving some margin to play with can help the desired effect. Note that only a minimum of material has been removed so some of the uneven natural edge would deliberately remain in the centre of the joint line, for visual effect butterfly keys are used to bridge the gap. Next the boards needed planing with the surface-thickness planer removing as little material as possible in this case from about 30mm down to 24mm in thickness.

The long meeting edges needed careful preparation to achieve a tight, level joint from end to end. I happen to have a hand plane fitted with a right-angle fence, which helps with straightening and levelling the edges. The two boards were clamped in the vice to create a wide surface area for the plane to run on. By standing one board on top of the other the tightness of the joint could be checked, also that the two boards were level across their width when lying together. Once a good result was achieved they were then glued and clamped using rubber to protect the natural edges from damage when clamping up.



7 The prepared material for the leg frames and crossbar **8** After cutting on the mitre saw this planing jig allows very smooth joint faces **9** The reshaped biscuits fit into reduced size slots created by adding a false facing on the jointer **10** A head recess to allow for movement. The fixing bolts will screw into threaded inserts underneath the table top **11** One frame ready for glue-up and assembly, the other pulled close using a band clamp

The underframe

The specific design of the underframe is essential, although its preparation does not require great technical skill. Using prepared 25 x 40mm sections, the eight pieces that make up the two load-bearing frames were cut to size. For accuracy the cuts were done on a well set-up mitre saw.

The joints were strengthened with beech biscuits and bobbin sanded down to fit in the size of the joints. The jointer was adjusted to create slots smaller than would be required by '0' size biscuits as the slots could have otherwise been visible externally.

Based on the lateral projection of the top, I calculated the length of the lower crossbar that connects the frames. In this case the top overhangs by roughly 200mm per side but increasing or decreasing this amount considerably changes the appearance of the table. A 15mm-deep tenon on each end of the crossbar fits a blind mortise in the frames at each end leaving no visible joints. The raised position of the crossbar eliminates any problem resting on uneven floors.

Respect the movement of wood

The holes for fixing the frame to the top are 4mm wider than the diameter of the screws which, resting on washers, can allow the top to contract or expand without any damage. The washers and screw heads are recessed to conceal the fixings.

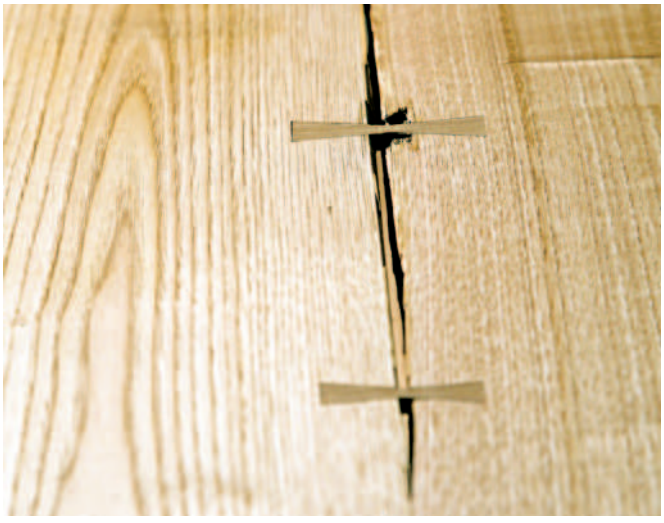
12 Creating a crossbar tenon on the bandsaw working to pencil lines **13** Making the shoulder cuts with a wide bladed chisel and mallet **14** Two bandsaw templates which the pieces are double-taped on to, for sawing the correct angles **15** Knifing around a butterfly key to give accurate lines for cutting out wood **16** Using a small diameter drill, a Forstner for the larger key recesses **17** Final shaping is done with a sharp chisel and the fit of the keys is checked

Butterfly keys

The remaining natural edge in the middle of the top is emphasised by adding butterfly splines of different sizes. These elements have the visual effect of holding the two surfaces close together and adding strength to the board joint. The keys are cut on the bandsaw after drawing out the desired dimensions on paper. Although they vary in size the same proportion is kept for each one. The edges are finished neatly with a sharp wide chisel.

A knife was used to precisely mark around each key so the recesses could then be cut out. A Forstner bit was used to remove the bulk of the waste in each key recess followed by a router plane to level the bottom of the holes and finally a chisel was used to finish the sides.

The butterfly keys had glue added and were then tapped into place in their respective holes. Once the glue had dried the keys were planed flush with the table top.

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18 Applying aliphatic resin glue prior to fitting into the recess **19** Using a block plane to trim the butterfly keys flush with the boards **20** Trimming the table top to length using the crosscut teeth on a Japanese saw **21** Planing the top at an angle for cleaner, slicing cuts **22** Sanding the finished surface using foam-backed abrasive **23** The threaded inserts that hold the top on are hammered into drilled holes **24** Screwing the top down leaving a slight gap to allow timber movement **25** Applying the first coat of finishing oil before de-nibbing

Finishing

It pays to sand all meeting or internal surfaces before they are glued up, such as the underside of the top and the internal surfaces of the leg frames.

The table top was flattened with an electric planer and then machine sanded with 240–320 grit abrasive papers. The overall flatness was then checked with a straightedge, having levelled any glue squeeze-out and other surface imperfections.

Several protective coats of an oil finish were added to improve the appearance of the wood and seal against coffee and wine spillages. A nice looking result, and you can now create your own version in any wood and any size you choose!


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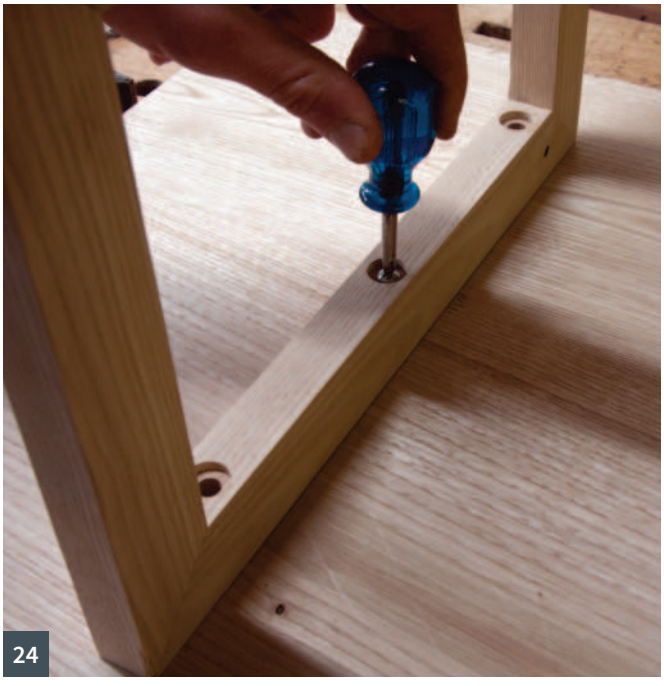
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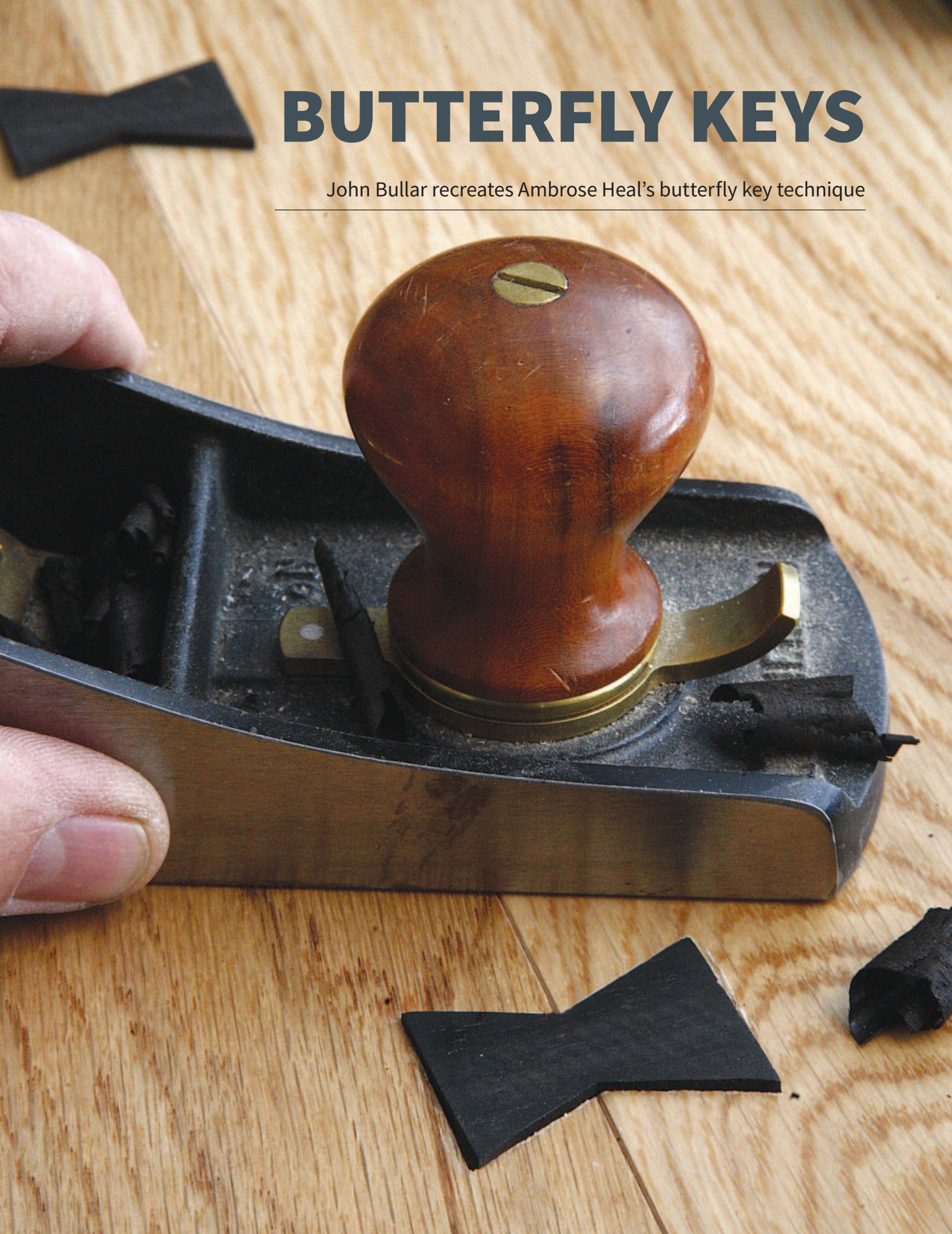
BUTTERFLY KEYS

John Bullar recreates Ambrose Heal's butterfly key technique



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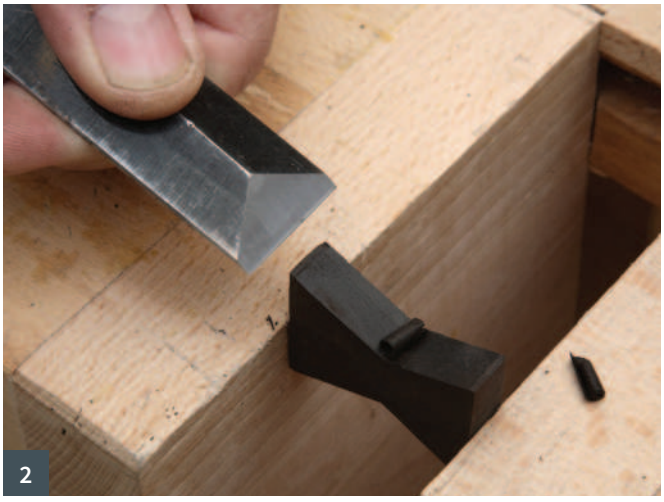
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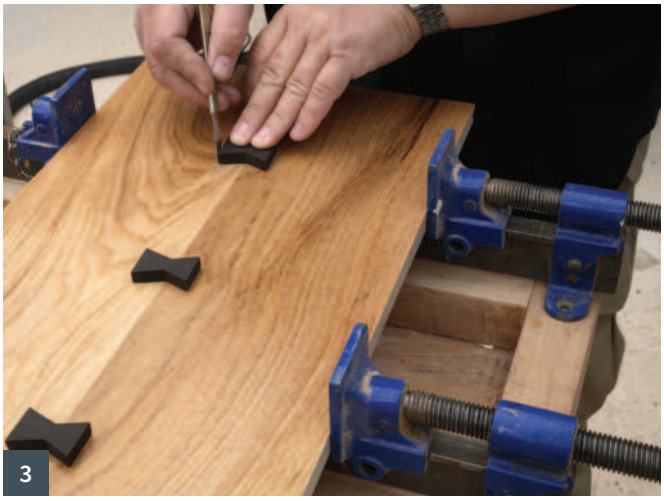
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PHOTOGRAPHS BY JOHN BULLAR

Ambrose Heal was an influential designer born into a family that owned a successful furniture business. In the early 1900s he used his position to develop the Arts & Crafts style from its rather exclusive bespoke origins into batch-produced high street furniture, accessible to the comfortably-off in the growing suburbs of London.

In this article I will look at the method he used to make butterfly keys. I hope you will be able to use this technique directly or adapt and develop it to suit your own new designs just as Ambrose Heal borrowed and adapted styles and techniques from centuries before the Arts & Crafts movement.

Butterfly keys

Butterfly keys are loose-fitted components designed to lock boards together edge-to-edge. They would typically be spaced along table tops every few hundred millimetres in rows following each edge joint. The keys are usually made from tropical hardwoods chosen both aesthetically, to contrast with the table top, and practically, for strength.

Ideally we can make solid wood table tops using boards with carefully planed edges, butted together and glued without any mechanical joints, as indeed could Victorian makers. Why then was there a need for butterfly joints? For one reason, visible joinery was an essential part of Arts & Crafts furniture and the butterfly certainly fulfils a visual function clearly showing how the boards are locked together. However, the use of butterfly keys also permits the employment of unstable woods of massive proportions without the risk of joints failing catastrophically.

The butterfly joint is normally laid into a socket on the upper face of the timber where it forms a decorative feature. For balance, butterflies can be fitted on both the upper and lower faces of a table top, particularly if the timber is thick.

Butterfly joints can be used to restrain the checking of large slabs of bookmatched waney-edged wildwood or flitch-cut timber as used extensively in the work of George Nakashima.

Cutting keys

1 In this case, I'm making a key out of ebony. First, the shape is marked out.

2 The edges of a butterfly key are normally pared at right angles to the face or can be very slightly tapered to facilitate a tight fit.

3 Butterfly keys are cut and then the sockets are individually marked around them using a knife and numbering each one to ensure a tight fit.

4 The sockets are chopped out using a bevel-edged chisel and then the sides and base are pared. The key is fitted with glue and tapped securely into place so it protrudes by a fraction of a millimetre above the surface. The key is then planed flush with the face of the surrounding timber.

PHOTOGRAPH BY NATALIA RAMIREZ ROMAN/SHUTTERSTOCK.COM

The mother of machine tools

The lathe stands out in many ways in the workshop: it is sturdy, powerful, precise – but most of all, it is the only machine that is versatile enough to make all other tools

A slow evolution

This incredible machine was first used as early as 1300 BC. The Ancient Egyptians created a two-person lathe where one person would turn the workpiece with a rope while the other would use a sharpened tool to cut the wood into a desired shape. With time, the design was improved with the addition of a turning bow so it could be operated by a single person, and later in the Middle Ages, with the use of a pedal to replace the hand-operated turning.

Da Vinci's influence

The first known depiction of a lathe was found in the tomb of Egyptian pharaoh Petosiris (300 BC). It shows a rather rudimentary tool, but a much more sophisticated version would be sketched by Leonardo da Vinci in the late 15th century. His design of the foot wheel lathe, also known as the treadle lathe, represented colossal technological advances, notably allowing constant rotation… but the machine's full potential wouldn't be discovered for another three centuries, during the Industrial Age.

The first of them all

All machine parts were made by hand until the late 18th century, however, as industrialisation took hold, higher productivity, better quality and lower production costs all became necessary. It is in this context that the modern lathe was born: British engineer Henry Maudslay invented a highly effective lathe adapted for metal cutting that would be key to the Industrial Revolution. It led to the invention of other machine tools, and as such, would become known as the 'mother of machine tools'.

On the road to mass production

The copying lathe not only played a significant part in the Industrial Revolution, it also influenced modern machinery. Originally invented for a military application by American engineer Thomas Blanchard in the 1820s, it allowed the exact duplication of irregular shapes. Being able to create identical components was an essential step in the development of mass-production techniques, and it only took a few more decades until the first automatic lathes were developed.

Machining automation

The Machine Age started a new era of performance and precision, but the biggest change happened in the 1950s with the invention of CNC technology. Forget the traditional manual lathe, it could now be controlled using a programmable computer! CNC lathes have become a major part of today's manufacturing industry; because they are so efficient, using minimum time and human labour, they are suitable for a wide range of industries, from electronics and aerospace to automotive and construction.

An extensive versatility

There don't seem to be any limits to the lathe: it can produce work unlike any other tool, from turning, cutting, drilling, threading or sanding, and can cope with a wide variety of materials, from wood, metal, plastic and glass, to the more challenging composite or superalloys. Its capacity is such that it is the only machine that can replicate itself – or at least create the parts for another lathe!

It's all in the detail

It is not always used to make practical objects, however, but can also be employed for decorative purposes. Ornamental lathes were developed in the late 18th century by London-based Holtzapffel, one of the finest specialist toolmakers. The hobby was popular with the elite of society in the 19th century but declined rapidly following WWI and more specifically after the rise of the motorcar in the 1920s, until it was revived by the Society of Ornamental Turners, founded in 1948.

An imperial collection

In the 19th century a Russian goldsmith took ornamental turning to another level thanks to his signature enamelling technique. The great jeweller wasn't only famous for his magnificent pieces of jewellery and lavish cigarette cases, but for his... eggs. Peter Carl Fabergé used a rose engine lathe to create intricate patterns on the iconic Easter eggs for tsars Alexander III and Nicholas II every year. Fabergé made an estimated 69 eggs, of which 57 still survive today.

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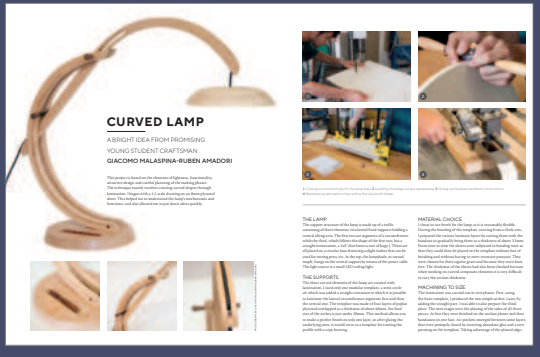

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