Issue 32 October 2017

Woodworking CRAFTS

HAND, POWER & GREEN WOODWORKING • TURNING • RESTORATION • DIY

From bed to bench
make a recycled seat

Powermatic chisel mortiser on test

TECHNIQUES
Painting MDF
Glue tech part II

Feature
Classical order
What have the Greeks and Romans given us?

NOTCHED STACKING CHAIRS • GLUE TECHNIQUE • KITCHEN CUTTING BOARD

Huge Capacities

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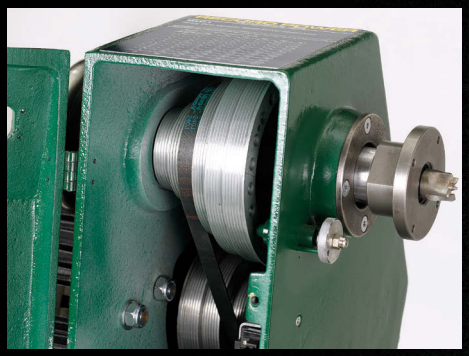
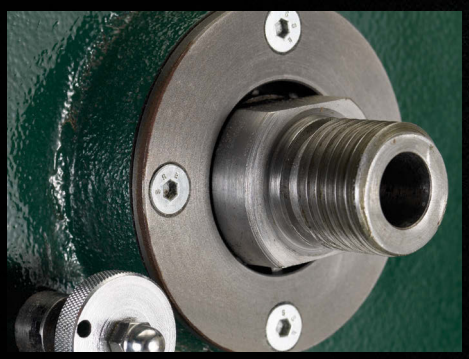


Swivel Head

Packed with features, the heavy-duty swivel head features reverse-speed function, 6-speed pulley change, cam lock swivel, safety micro switch and indexing.



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The M33 spindle is ideal for the heaviest work and features a machined register for secure mounting.

"This machine punches well above its weight and performs very well. Having already tested various large capacity lathes within the £2,000 - £3,500 bracket, I believe that the MAXI-1 is exemplary in terms of the versatility, capacity, solidity, control and the power it offers. Go and try one out I guarantee that you will not be disappointed.

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★★★★★

Woodturning, Mark Sanger
(Professional Woodturner)

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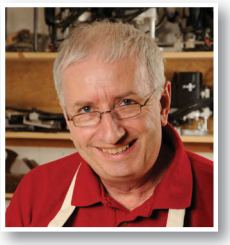


Welcome

to the October issue of *Woodworking Crafts*

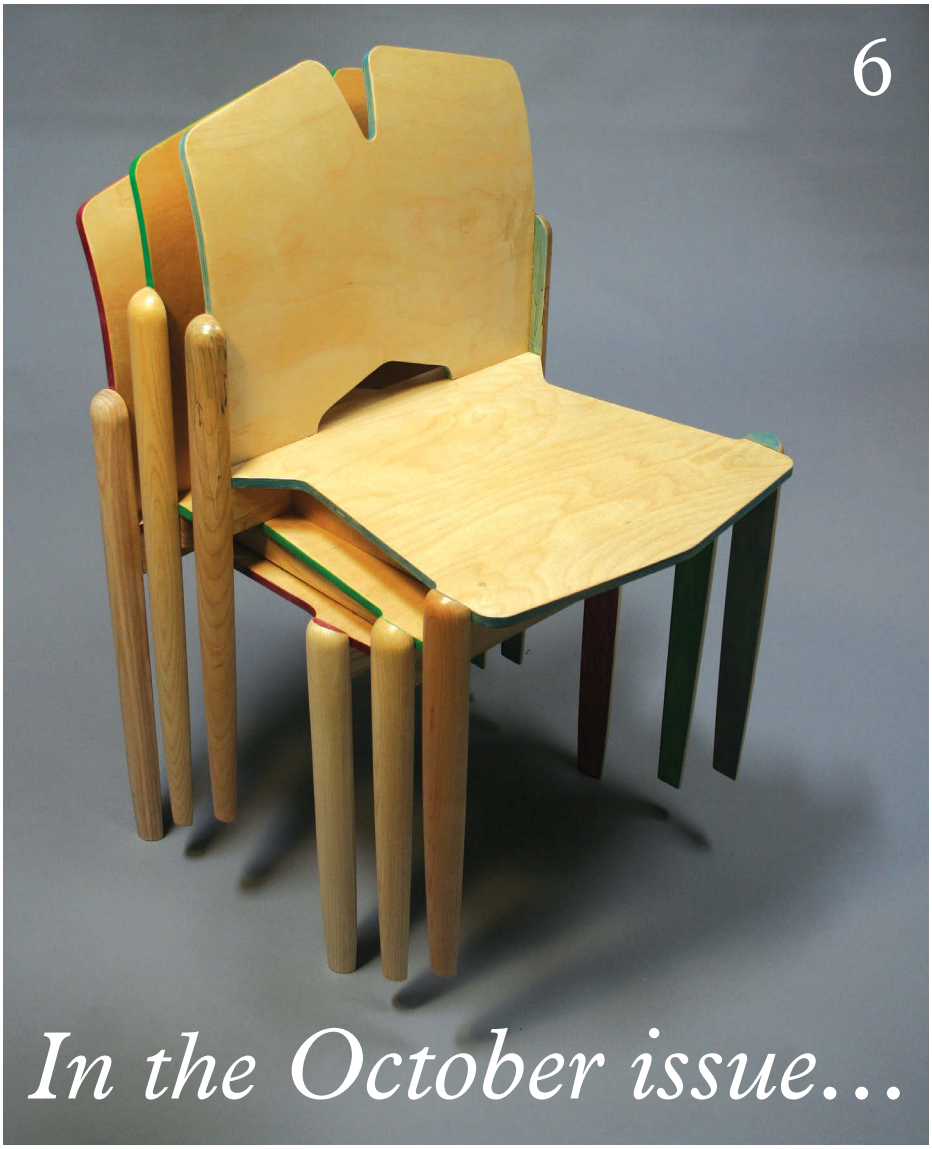
Here we are, beginning the slippery slide into the winter period – who knows what the weather may bring? Anyway it's a good time to sit back and read your favourite woodworking magazine, bringing you plenty of diverse and hopefully interesting content. Don't forget you can also access our wonderful website and all its FREE content at **www.woodworkersinstitute.com**.

An incomplete history

This month's feature was sparked by a conversation with fellow editor Mark Baker, of *Woodcarving* magazine. Mark is very well travelled and also a mine of information, especially about classical forms and their derivations. So it was that I felt inspired to write on the subject as it is also close to my heart, buildings and furniture having much in common.

The feature is only a primer, something hopefully to whet your appetite. I make no apologies for missing out whole eras in architectural and furniture development – Regency, which continued the classical theme but added occasional oddities such as the Indian-themed Brighton Pavilion; Art Deco, which was a particularly expressive period, modern, echoing cubism, and mixed with bright colours and influences from the Middle East, Far East and Central America. Although Modernism is mentioned in passing, it has produced some stunning examples of 20th century architecture and design. Arts & Crafts were also culturally significant. I was brought up in a typical 'Tudorbethan' semi, so please don't run away with the idea that I don't love these periods in our history, at least as much as classical architecture. It just happens to be a key point that we are still living and working with designs and decorative features that go back 2,000 years and more – I think that's pretty significant, don't you?

Anthony Bailey, Editor
Email: anthonyb@thegmcgroup.com



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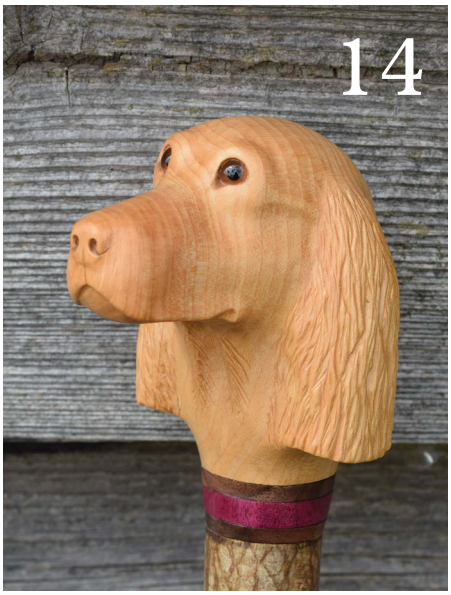
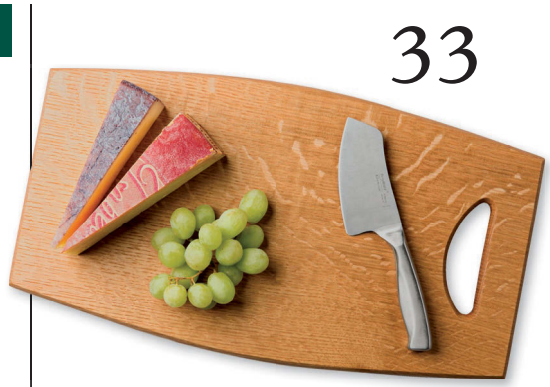


COMMUNITY

PROJECTS

TECHNIQUES



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is more

Prototype pine dining chair by Mark Ripley

Oak dining chair with dovetails and dovetail keys by Andrew Preston

Cross frame dining chair

PHOTOGRAPHS BY GMC/ANTHONY BAILEY UNLESS OTHERWISE STATED

INSPIRATION

Chairs come in many shapes and sizes, as this selection shows

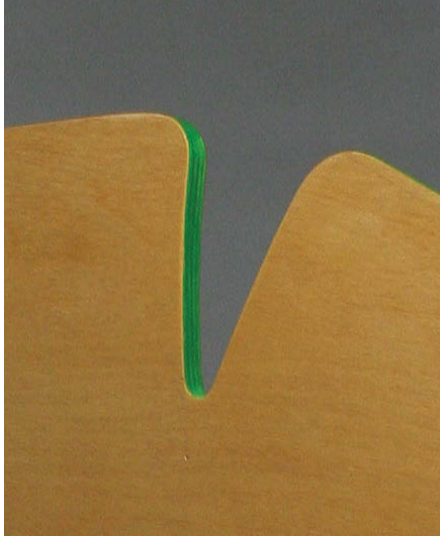
PHOTOGRAPH BY CHRIS TRIBE

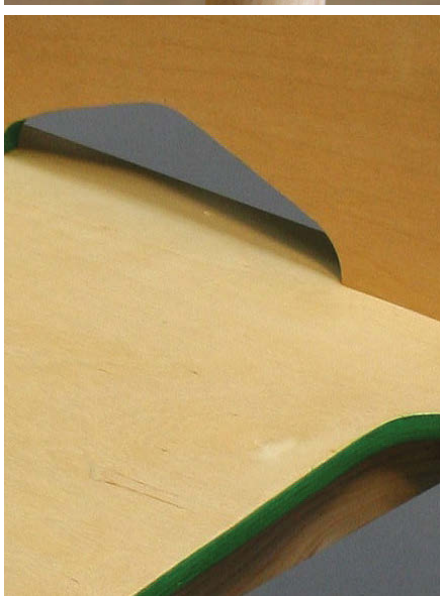
Oak dining chair with peg detail by Chris Tribe

PHOTOGRAPH BY EMMA NOREN

Standard chairs given a paint makeover

Dining table and chairs – note corner bridle joint on front leg – by Martin Humphreys





Top Notch stacking chair

Being able to put all your chairs in a neat pile really does stack up, as **Stephen Hogbin** artfully demonstrates

A DESIGN STATEMENT

Chair in a day

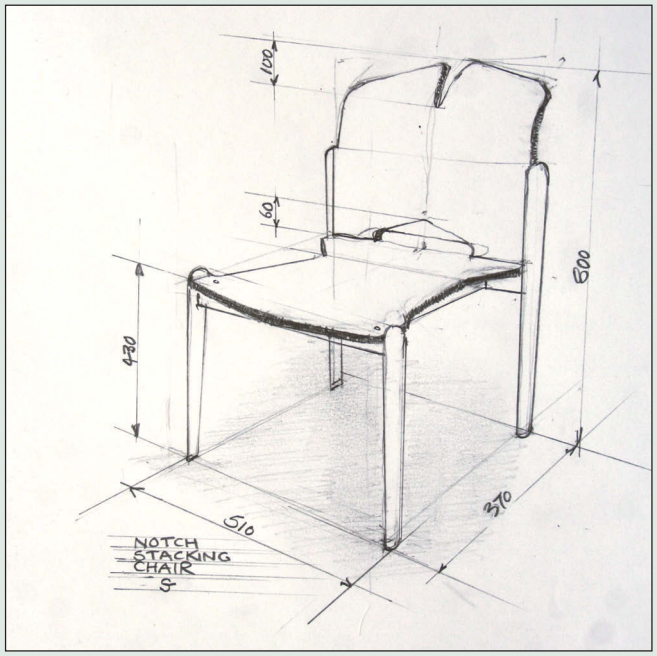
Many of my chairs have been too expensive. A high quality chair tends to be a bit heavier, take up more room, require a high skill set and cost more. I set the challenge to make a chair in a day that is lightweight, uses inexpensive materials and is easy to construct. These are two different approaches, but both are appropriate in the right circumstances. It's a bit like champagne and beer – each is right for certain occasions. It is important to understand what the differences are. It's about making the right choices and the economics of aesthetics – the right chair in the right context.

Aspiring values

The Top Notch Stacking Chair does, by its title, aspire to a certain set of values. Not so much for a palace, rather a community hall or my kitchen. The chair is a tool for conviviality when set around the dining table for guests. An uncomfortable chair is a horror for the guests and they will be reluctant to return if they didn't like the food or felt uncomfortable throughout the meal. So there are three things to consider – good food, good conversation and a top notch chair to enhance conviviality.

Comfort zone

Comfort is often associated with masses of upholstery. However, a hard surface can work if the angles are just right. At the computer I use a chair that has a 90° seat and back angle. It forces me to have good posture. Also perhaps I am just lucky. If I relax the posture, it's a bloody uncomfortable chair. The inexpensive chair is likely to not have soft upholstery and the angles of seat and back become critical.



Design difficulties

When I developed the Top Notch Chair, I received a grant from the Ontario Arts Council. It took a few tries to get the chair right. I recalled an industrial designer taking seven years to perfect a stacking chair and it did become a classic. The chair is thought to be one of the most difficult objects to design and still get a variation to call one's own. The features of the Top Notch Chair would include, of course, the notch, the legs that come from two turnings cut in half and the plywood construction. I don't remember seeing it before but it's highly likely someone had a similar idea.

THE CONSTRUCTION PROCESS

Materials

To make the chairs I used white ash (*Fraxinus americana*) or sugar maple (*Acer saccharum*) for the legs. The legs need wood with long fibres and a bit of flexibility. They are made from 25 x 51mm. The rails are made from the same wood for visual consistency. In the end I settled on 22 x 48mm rails throughout. In an earlier version a thicker rail was used for the front rail. However, it's convenient when machining to use a consistent thickness for all the rails.

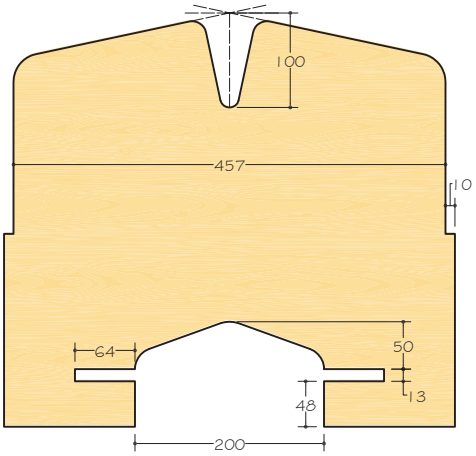
The seat is made from 13mm plywood. Use the veneer of your choice. I have used birch, oak and maple. The back uses 3mm plywood laminated with four layers to develop a curve for comfort supporting the lumbar region. The back could be a flat piece of plywood but the chair will be considerably less comfortable.

There are 10mm diameter hardwood dowels. I usually use maple to go with the birch plywood. Using the same wood creates less contrast. However, on occasion a contrasting wood works well.

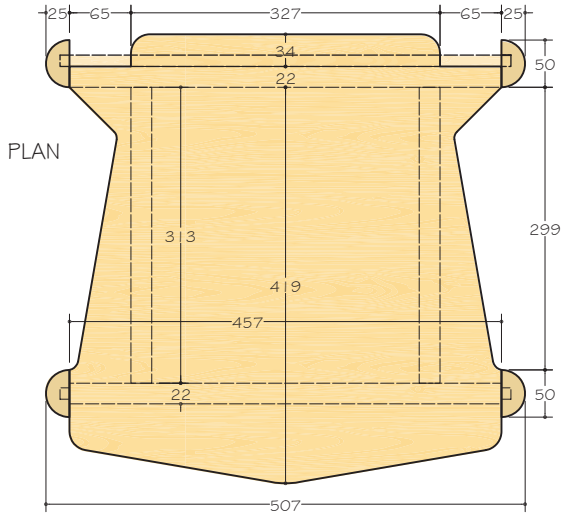
Modern glues are miraculous and I still use lashings of the good quality, water-resistant PVA. Occasionally I will use an epoxy of the kind that retains some flexibility and when the joint is stressed it yawns rather than cracks.

Seat back pattern and mould

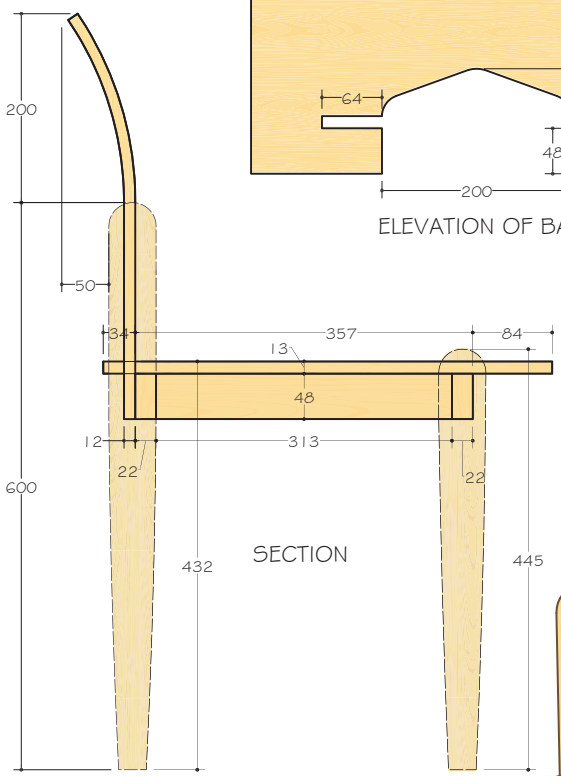
1 Start with the chair back as it takes time to dry after the lamination. The pattern in the photograph on to which the chair back is formed has been used many times for different chairs. The pattern was modified for this chair to make the lower part of the back flat. The 16mm tongue on either side of the 457mm wide chair back will slot into the back leg. The notch at the top gives the chair its name. The lower shape makes for a handle to move the chair around. To make the pattern from which to mould the chair back, make a series of ribs shaped to the back profile. Glue and screw fix each rib on to a 19mm sheet of plywood – one rib every 152mm should work. Then stretch over the ribs thin plywood or hardboard 3mm. It needs to be thick enough to avoid depressions between the ribs. The plywood is glued on to the curve and nailed or screwed down. Wax the surface thoroughly so any glue that spills or oozes cannot adhere to it. ➤



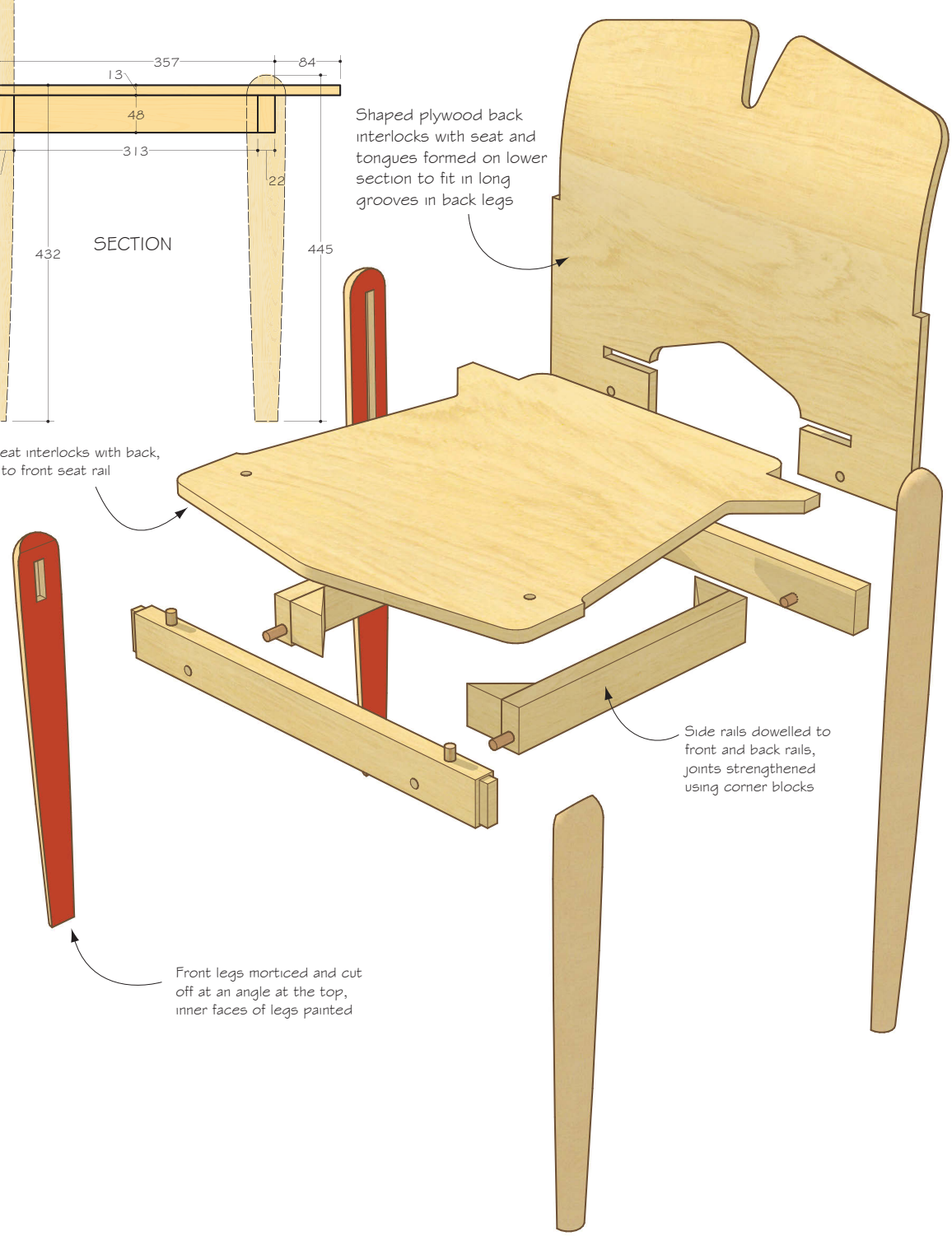
ELEVATION OF BACK



PLAN



SECTION



2 The plywood to be glued is coated both sides using a slotted spatula. Lay a sheet of plastic over the lamination and add one more plywood sheet without glue. Then, using finishing nails, pin down two corners so the plywood does not skid around on the glue when pressure of the clamps is applied. Use stout cauls (a wooden press) close together and as many clamps as possible. Start at one end where the nails hold things together and begin the clamping. Work across the surface to the end. Leave it in the clamps overnight. Remove the clamps, cauls, dry plywood, sheet of plastic and then replace clamps strategically to keep the back in the curved place. All that damp glue will slowly wick out. If epoxy glues are used the wait time is 24 hours, compared to a few days, depending on humidity levels.


2

Turning the legs

3 Cut the legs 21 x 51mm for the back and front. Height of the back leg is 610mm and the front leg is 445mm. To be safe, add 100mm to both front and back legs. Finish the inside to be glued to 180 grit. The two faces will be put together inside the turning. A tiny bead of glue is applied to each end and placed together. This will prevent movement when the turning chisel catches.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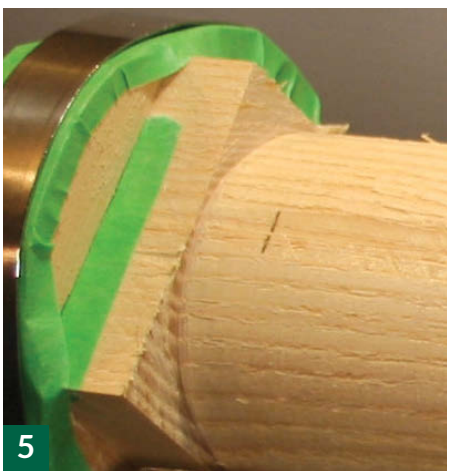
4 The crescent-shaped blanks turn the square into a circle. Hold these on with painter's tape. With a stainless steel band clamp, tighten it together first one end then the other. Wipe up any glue and set aside to dry.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5 Mark out the centres for mounting on the lathe. Place between centres and mark out the length of the leg. The extra length needed is becoming self evident. Turning up to the clamps is not ideal and there will be other uses for the square ends later.

6 If the legs are long they will need to be clamped in the middle. While the two strips of wood are held firmly at the ends they will expand apart when the lathe is turned on at speed. Wrap the clamp with painter's tape to protect yourself as the screw head whips around.

7 Rough out the square to a cylinder, first one end, then the other. The clamp in the middle also helps prevent too much breakout of the inside edge. ➤


7

8 Profile the leg over its length. Shape the ends and don't go too deep and have it dangerously break apart while spinning on the lathe. Also keeping the relationship of the square ends to the turned leg is vital later in the process.

9 The legs are turned and finished with abrasives to 220 grit. To separate the legs, use a broad chisel and give a gentle tap to divide the two halves.

Constructing the chair

10 One of the separated legs is placed in a jig ready for cutting a slot for the 13mm thick plywood. The square ends hold the semicircular leg in place. The block at the end snugs it all tight.

11 The square strip at the back is the fence against which the router will follow. In the foreground the packing strip comes up to the same height so the router has a larger surface on which to rest.

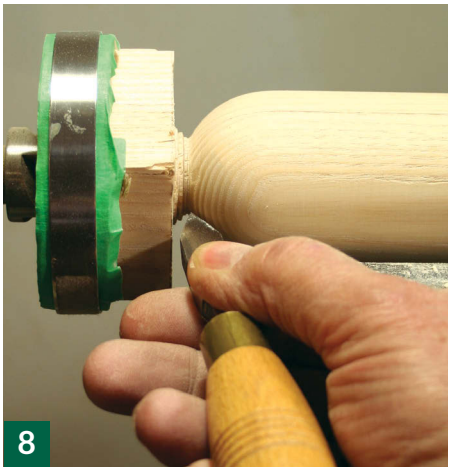
12 The slot or mortise for the front leg is much shorter. For both front and back legs the end of the mortise is squared off with a chisel. It is also possible to round over the plywood tongue or tenon to fit the rounded finish from the router. It is a little stronger to round over the tenon than square out the mortise.

13 Keep the jig and label what it was used for – easy to forget among a rack full of jigs.

Seat and back

14 Mark out the back shape on cardboard and keep for future reference. The moulded plywood was cut longer than the cardboard. The notch at the top may well make the chair more comfortable for people with protruding spines. The other shape at the bottom becomes the handhold for moving the chair around.

15 The shape was cut out on the bandsaw, the edges smoothed with a belt sander and drum sander. Keep the edges square at this point. Just release the edge rather than round over the edge with abrasives. The final rounding is done after the edge is painted.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16 The seat and back are shown with the final shape. Determining the final seat shape is easier later. The seat at this point just needs the tongue to go through the back slot.

Assembling the chair

17 Clamp up dry first to make sure all the parts fit together. Critical at this point is to make sure the joinery works. At this stage it's possible to mark out the shape for the seat and then finish the edge. When the chair is taken apart the blocks on the top of the legs may be removed and the legs finished.

18 The legs may be glued to the plywood back and the front rail of the seat. It is easier to glue two pieces of wood together than all the parts of the chair at once. Procedure is everything to maintain control. Also, cleaning off squeezed-out glue is easier at this point.

19 Glue the seat into the back making sure all surfaces that touch are brushed evenly with glue. Ply blocks are then clamped into position to help support the seat.

20 In this design the seat and back are square at 90°. There is an illusion created by the shadow of the bar clamp that there is a rake to the back. While it would be slightly more comfortable, it's not how this design works.

21 Clamp on the front legs dry and cut the separator strips of wood at the feet of the chair.

22 Turn the chair over and glue on the rails and front legs. Fix the side rails first then the front leg assembly. This is the easy way, the dowel joinery is added later. Add a corner block on the inside after the clamps are removed. With no lower rails the joints will be stressed from the live load of a person sitting down.

23 The under structure on the chair with dowel added and then the glue cleaned off. Two dowels are better than one and corner blocks should be added. The plywood back is slightly short of the rail by 3-6mm. It saves having to flush the surface but there is still the glue to clean off. ➤


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24 The front rail has two dowels and the seat has one on either side of the chair.

25 The top of the front leg is cut at an angle. It does protrude above the seat but it's hardly noticeable when sitting down. Furniture is all about connections, transitions and relationships. Make them as interesting as possible.

Finishing details

26 Each seat of the two stacked chairs has a different shape. I preferred the shape of the chair on top. Visually it worked better. Also, when the chair is stacked the back leg is less likely to dent, scuff or abrade the seat below. The waist of the seat looks lighter and more elegant and functions well for stacking.

27 The edge of the plywood and the inside of the leg are coloured. I often introduce colour to contrast the wood and bring visual interest. Apply the colour and allow to dry, then sand the edge to give the round-over you prefer. The edge of the paint becomes sharp and clear and all loose brush marks are lost.

28 Brightly coloured surfaces make each chair different. When they are stacked it makes a new arrangement each time. In a chair that needs to be identical the colour allows for random patterns that appear in use. It also makes the difference between a commercially-produced consistent chair and a handmade chair where variation is easy, and desirable aesthetics. It places the chair in the category of inexpensive, but it is after all Top Notch. ■


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Roughing out

1 Create side and top templates from the drawing. Draw both on your piece of cedar of Lebanon. The sides of the block of wood need to be square to carry out the next three steps.

2 Use a bandsaw to cut out the side view. Replace the pieces of wood that you have cut away and secure with masking tape. Ensure that the pieces are secure and everything lines up. Now use the bandsaw to cut the top view. Hold the block firmly. You will end up with a jigsaw of pieces.

3 Remove the tape and you will end up with a blank like this.

4 Draw a centre line around the head. This drawing is for a 26mm diameter shank plus a 2mm safety margin. If your shank differs, adjust accordingly. Find the centre point of the bottom of the head. Mark a 28mm square around that point.


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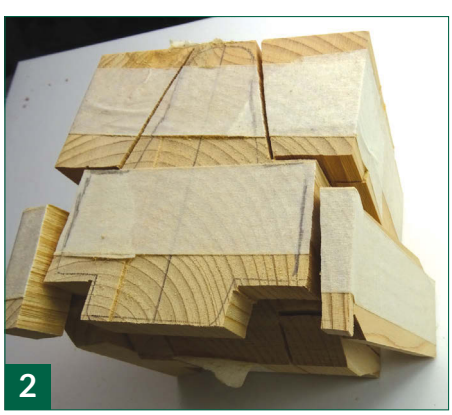
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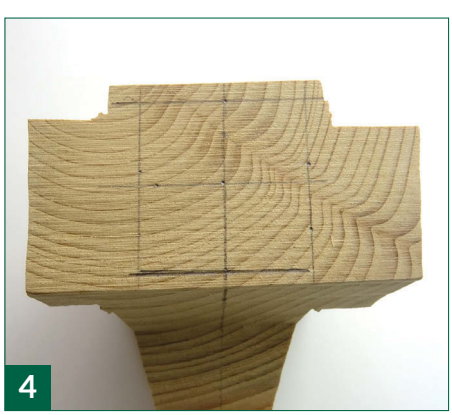
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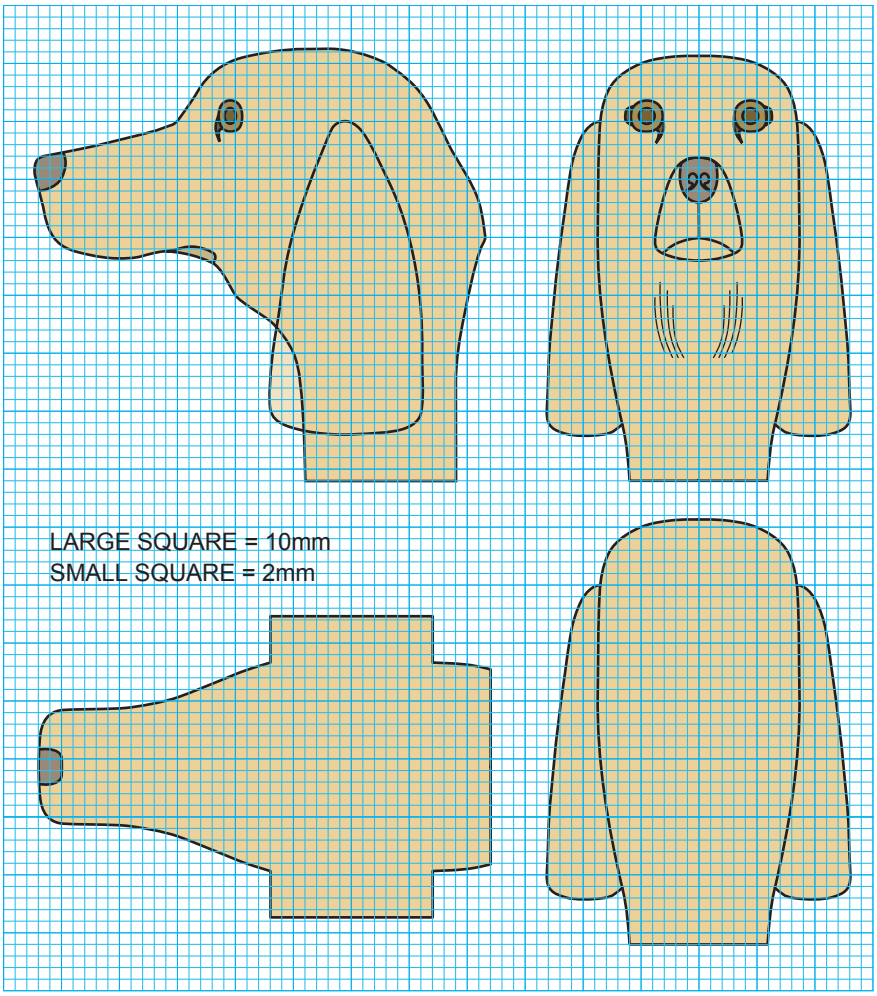
EQUIPMENT

Tools

- Rotary carver
- Bandsaw
- Truncated-cone diamond burrs 2mm and 4mm
- Coarse, cylinder burr
- Medium, flamed burr
- Cylinder carbide burr
- Diamond ball 4mm
- Wood drills 2mm and 13mm
- Cushioned-drum sander
- Split-mandrel sander
- Scalpel

Materials

- Piece of cedar of Lebanon (*cedrus libani*) 80mm high, with grain running vertically, by 90mm wide – back of head to nose – by 60mm measuring from ear to ear
- Cloth sandpaper 120 to 800 grit
- Hazel shank
- Brass ferrule
- Epoxy glue
- Epoxy putty
- Finishing oil



5 Secure the head in your workbench or vice. Use a two-way spirit level to check for levelness in both planes. Drill a 2mm pilot hole to a depth of 45mm at this centrepoint. Now enlarge the hole with a 13mm wood drill. Use a sharp drill to prevent any wander.

6 Cut the spacers. For this project, I have used three spacers: 2 x 3mm walnut and 1 x 6mm purple heart. You can substitute different woods or use just one to a depth of 12mm.

Drill 13mm holes in the centre of the spacers. The purple heart is brittle and the walnut is thin, and both are liable to crack. Clamp them down with a backing board to prevent this happening.

7 Depending on the width of the blade you used on the bandsaw, you may have to clean up the side profile. Place the side template on to the head and, if necessary, use a coarse burr to adjust.

8 Redraw the centreline if removed during above step. Use the top template to redraw this view and use the same coarse burr to bring the blank down to the template's dimensions. ➤


5

Tip: *To help drill a straight hole, first drill a short distance, move yourself around 90°, drill a touch more and move again. Keep doing this until you reach the required depth.*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8

9 Carve a dowel from the top of the shank to fit the head and spacers. Mark all pieces where you achieve the best alignment. (See *Woodworking Crafts* issue 21 for the full process.)

10 Put a couple of wraps of masking tape around the top of the shank beneath the spacers for protection. Use a coarse burr to reduce the size of the spacers. Carve the bottom to match the profile of the shank. Next, carve the spacers to match the square bottom of the head. Then round over the corners at the bottom of the neck. This is only the initial shaping and you will come back later to refine. Redraw the alignment marks any time they are erased.

11 Further define the shape of the ears with the coarse burr. Thin the ears from the top to the middle.

12 Check the height of the muzzle. It is 25mm at its maximum. If you need to remove any wood, do so from beneath. Draw on the nose. It is approximately 14mm wide and 10mm from top to bottom. Using a blunt-ended, truncated-cone diamond burr define the shape of the nose. Lightly round the edges and tip.

13 Use a medium, flamed burr to round over the top of the snout and feather the sides into the nose.

14 Round over the crown and back of the head with the coarse burr.

15 With a cushioned-drum sander and 120 grit paper give the head a rough sand. This is to give a better view of the piece to enable you to check for shape and symmetry and make any adjustment if necessary. Use the same sander with 240 grit paper to remove material from the top of the muzzle to make it a touch narrower.

Fine detailing

16 Identify the location for the eyes. Draw some reference lines at 5mm intervals from each side of the centreline to assist with symmetry. The centre of the eye is approximately 10mm from the centreline. The eyes are approximately 10° from a line drawn from the inside edge of both eyes. Flatten out the plane of the eyes and mark the centre. Taking measurements with a pair of dividers helps to confirm your calculations.


9


10


11


12


13


14

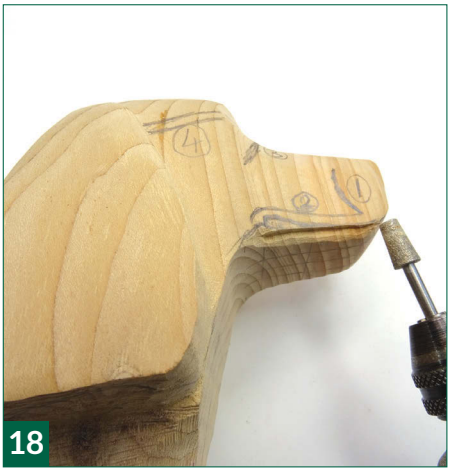

15


16

17 Now to add some definition to the muzzle. First, identify and draw on the following features:
1.The fleshy mound at the front of each side. (The nerve bed for the whiskers.)
2.The flews at the side of the mouth. (The orbicularis oris muscle.)
3.The concave area in front of the eyes.
4.The bone of the zygomatic arch.

17

18 Before starting on these features, use the truncated-cone burr to take up the sides of the mouth from the bottom jaw by 3mm, as shown.

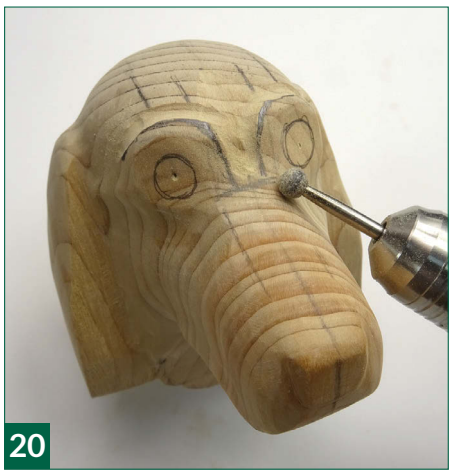


18

19 Use a 4mm diamond ball to outline the features 1-4. Blend them into the surrounding area. Sand with the split-mandrel sander and 240 grit paper.


19

20 Use the diamond ball to outline the arch over the eyes (the orbicularis oculi muscle) and the depression between the eyes up on to the forehead. Sand with 240 grit paper.


20

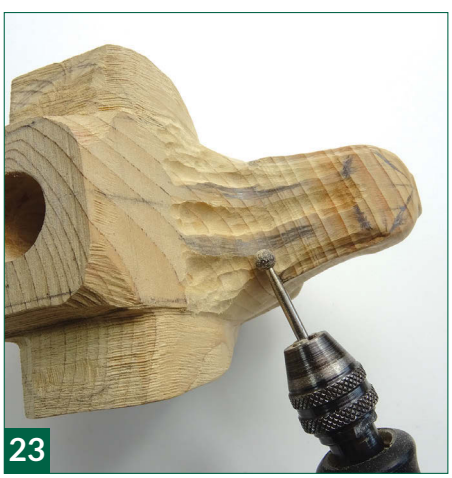
21 The eyes are 6mm. I have used hazel to complement the wood. Draw on the almond shape of the eyes. Drill a pilot hole at the centre of each eye with a 2mm drill bit. Drill at least 10mm beyond the back of the socket. Use a combination of a 1, 2 and 3mm ball to shape the eye sockets. To fit the eye into this shape of socket, you need to undercut the top and bottom of the sockets. Check the eye will fit. You will need to put the eye into the bottom recess then push the top into place.


21

22 Add the tear ducts at each side using a scalpel and smooth out the edges. Finish the eyes by rounding over the edges of the sockets with a rolled-up piece of 240 grit paper.


22

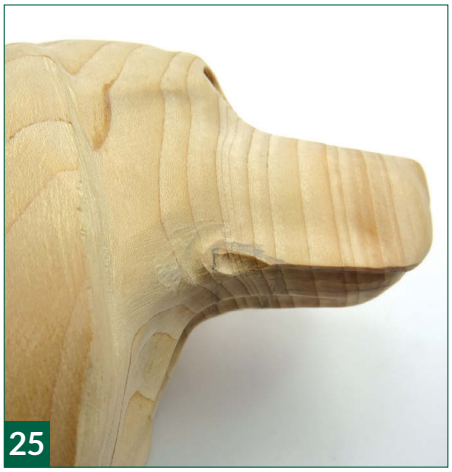
23 Draw on the mouth shape and dewlaps. Using a 4mm diamond ball, carve out the groove that runs through the centre of the bottom of the lower mandible. Then carve the dewlaps. Round over the inside edge of the lower mandible so that it meets the line of the mouth.


23

24 Sand the lower mandible with 120 and 240 grit paper.
Redraw the shape of the lower mandible as shown. Using a 3mm carbide cylinder, carve at an angle into the upper mandible to define the separation of the lips. ➤


24

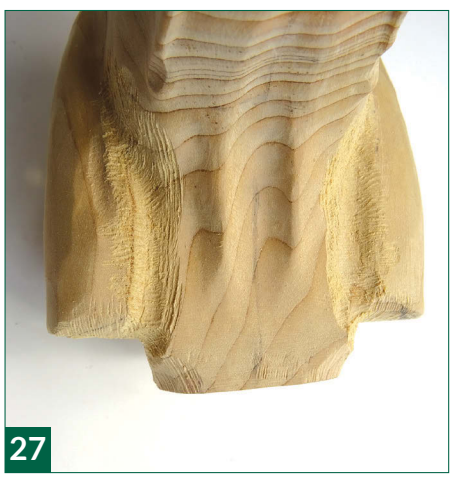
25 Use the 4mm diamond ball to define the dimple at the mouth commissure as shown. Use the ball to define the depression behind the orbicularis oris muscle as it loops around the commissure. With 240 grit paper, sand the dimple, the features carved on the lower mandible and lightly round over the edges of the top lips.


25

26 Make sure you are happy with the shape of the nose before carving the nostrils. Draw on the nostrils – it will help if you draw some reference lines. The nostrils are shaped like a comma. Use a 1mm dental burr to start opening up the cavity. Once you have the main shape, use a scalpel to open up the slit that goes out to the side of the nose and then up along the side. This is the alar fold and opens when the dog is running or scenting to allow more airflow. Use the scalpel to define the philtrum. This is the thin indentation that runs from half way up the middle of the nose down to the top of the mouth.


26

27 With a medium burr, shape the ears by rounding over the edges to meet the head. The ears tuck slightly under the chin. Define the separation of the bottom of the ear from the head by carving an indentation. Sand with 240 grit paper.


27

28 Place the head back on to the shank. With the coarse cylinder burr, shape the bottom of the neck and spacers as shown. Use a medium, flamed burr to remove the deep marks and then sand with 120 and 240 grit sandpaper.


28

29 Remove the head. Draw on the flow of the hair on the ears. Use a cylinder carbide burr to add texture.


29

30 Use an inverted-cone, blue ceramic stone to add a finer texture to the ears and a light touch to the dewlaps. Lightly sand with 240 grit in the split-mandrel sander. Aim to knock off any sharp edges. To finish, use a nylon brush in the rotary tool to remove any tiny particles of wood. Sand the entire head and spacers with 240 to 800 grit sandpaper. Give everything a final brush and wipe clean with white spirit on a lint-free cloth. Apply four coats of your choice of finishing oil to the head, shank and spacers.


30

31 Fit the eyes with epoxy putty. The eyes are set fairly deep, nevertheless, make sure to pack the hole with the right amount to stop the eye being pushed too far back into the socket. Carefully slip the eye into the bottom half of the socket, then push in the top of the eye. Any excess putty will be squeezed into the pilot hole that was drilled in step 21. Any putty showing at the sides of the eye can be coloured with acrylic paint.

Use epoxy glue to join the head to the shank and fit the ferrule. The stick is now finished. ■


31

A woodworking glossary

The letter E

EARLY WOOD The part of a tree's annual growth ring that grows in the spring; characteristically larger than the late wood part to facilitate the high demand for sap flow in the spring.

EAVES The bottom edge of a sloping roof that overhangs the wall and where rain water is collected in the gutter.

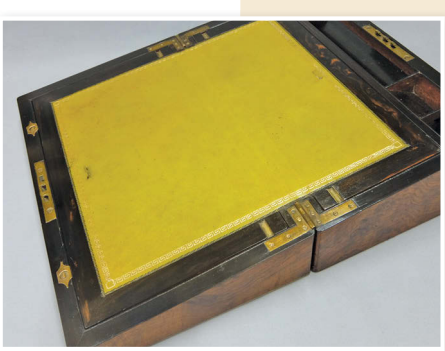
Eaves meeting the gutter

EDGE BANDING A narrow veneer in roll form with heat sensitive adhesive on the back, it is used for veneering manmade board edges.

EDGE-GLUE Gluing together of long-grain edges of solid wood, or any board material and solid lipping.

ELEVATION A drawing showing the front or side view of an object, typically accurate, scaled and dimensioned.

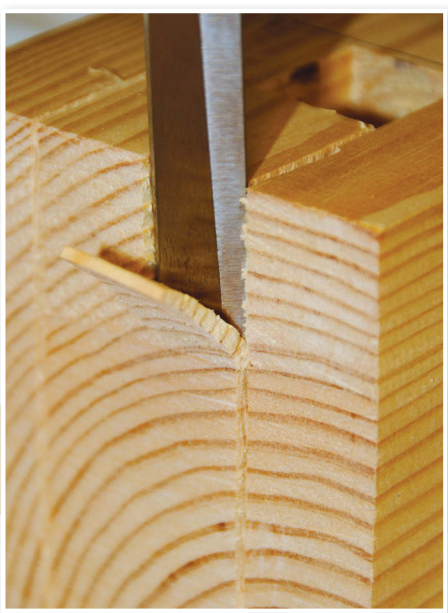
EMBOSS To form designs in raised work so the ornamentation is prominent. Generally applied to metal or leather detail which can accompany wood, but not wood itself as the fibres become crushed.



Embossed leather writing slope

ENAMEL The name given to colour finishes with a high varnish content, similar to varnish in handling and protection.

END GRAIN The end of a board where the pores are exposed, usually by being cut through. It is the weakest gluing surface in a piece of wood as the vessels have been sliced through.



End grain

END MATCHED BOARDING Tongue and grooved or otherwise jointed on the ends.

ENGINEERED TIMBER A generic term covering a wide variety of timber-based products that have been engineered to enhance performance. Includes boards such as: flooring, plywood, MDF, blockboard, chipboard, glulam beams etc.

ENGINEER'S SQUARE A precision metal square with a fixed blade set at 90°, for marking out and checking accuracy. More reliable than a standard try square.

EPOXY A resin adhesive that requires both a compound and a catalyst to create a chemical reaction which allows the adhesive to set hard.

Epoxy resin bonding wood slices to a bowl

ESCUTCHEON A metal plate fixed around a keyhole, often a decorative type which is seen on antique furniture. Also an inset escutcheon which is fitted into the wood to create the keyhole.

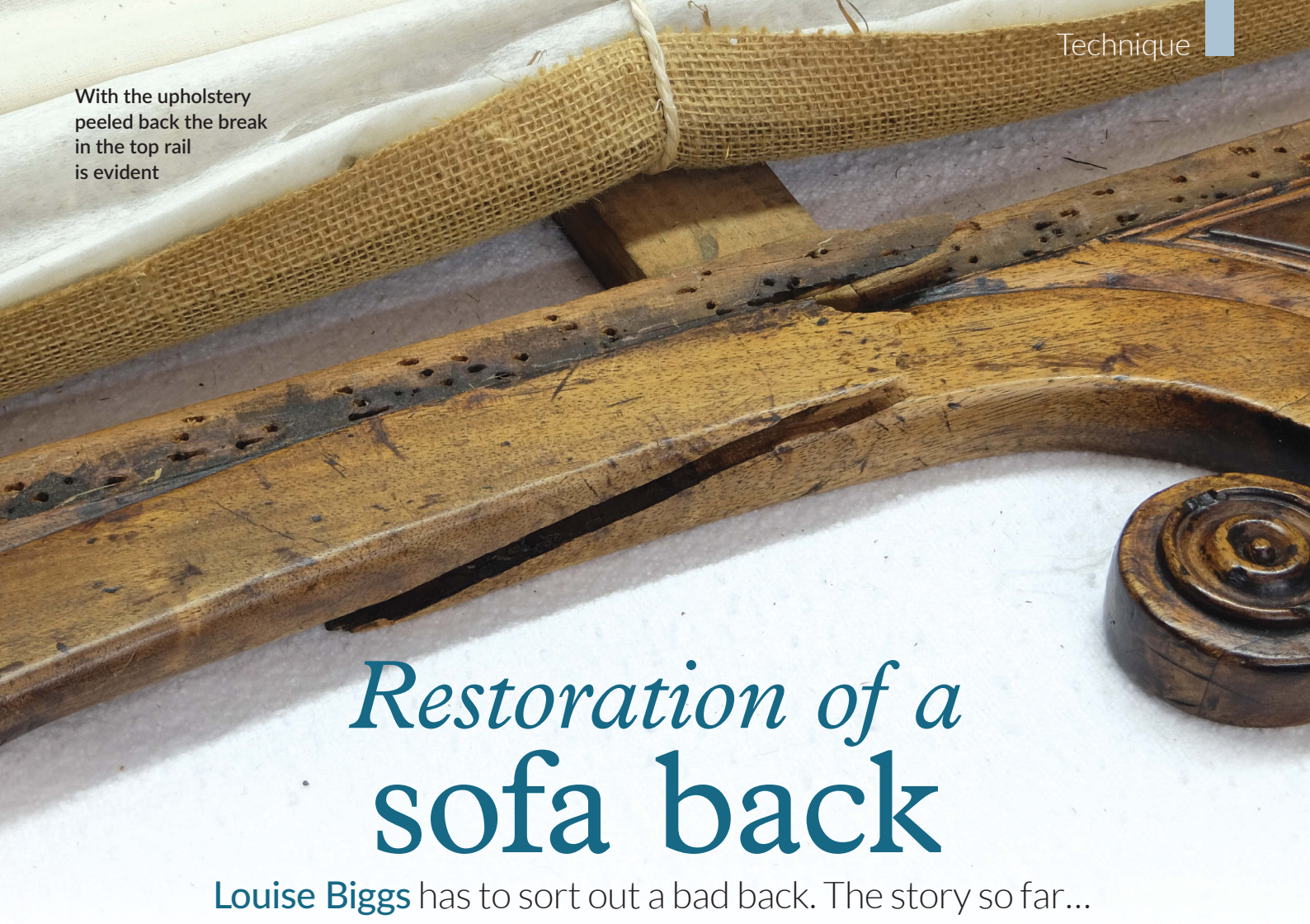
An escutcheon inset

ESPAGNOLETTE BOLT A bolt that fastens in three places in one operation. It can be used on French windows and fastens the window at the bottom, top and at one or more intermediate positions.

ESTIMATING Calculating how much material is required, cost and pricing up work. An estimate is not a final amount and can be subject to change.

ETAGÉRE Free-standing shelves open on all four sides, typically from the Victorian era and allowing decorative objects to be clearly seen.

EX Meaning 'out of' or 'from'. For example, if you were having a pair of garage doors manufactured that were described as EX 50mm thick, then generally they would finish at approx. 45mm thick once the timber had been planed up. Derives from Latin. ■

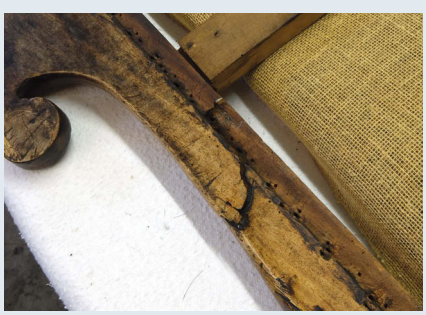


With the upholstery peeled back the break in the top rail is evident

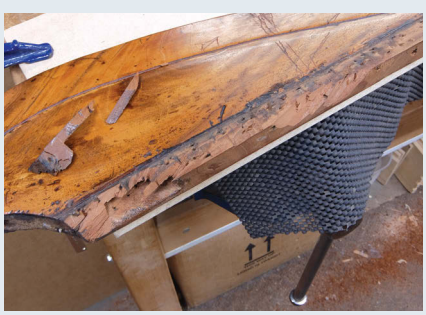
Restoration of a sofa back

Louise Biggs has to sort out a bad back. The story so far…

My clients contacted me with regard to their sofa, which had got a very unstable back. With a visible break in the top rail, there was something more than just that causing the problem. Having released the two screws which held the back in place, the back cover would need to be removed at the very least, to find out what was going on with the joints. Once removed it was evident that to make a strong, effective repair there was no option but to remove the upholstery from the front.



From the back, the tenon for the upright is in the centre of the break



The damage to the front rebate where the upholstery is tacked into place

Assessment

- The top rail had broken at the point where one of the uprights was joined.
- The same side of the top rail had previously suffered an extensive break.
- The four vertical rails were all loose in the top and bottom rails.
- The front bottom edge which forms the rebate to which the upholstery is attached was badly cracked and broken.
- The sofa back was held in place with locating dowels across the bottom edge and two screws through each end into the arms.

PHOTOGRAPHS BY LOUISE BIGGS

Stages of restoration

1 The braid and back cover were carefully removed using an upholstery ripping chisel and mallet. The upholstery on the front was peeled back, releasing what was necessary to reveal the joints. The top rail was knocked off the uprights using a rubber mallet while supporting the break before removing the four uprights. ➤

1

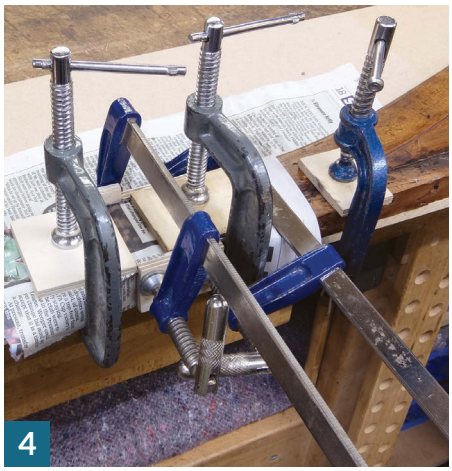
2

Upholstery ripping chisels

2 Specific for removing traditional tacked upholstery, these are designed to get under the tack head to ease the tack out of the timber without damaging the fabric, calico or hessian used in traditional upholstery. They are best used with the grain, which releases the tack from the timber without causing any further damage. Two versions are available – straight or cranked, with two handle shapes, London-style (bulged to help prevent damage to hands) as shown, or the Osborne Amber pattern.

Prices vary but start from £24.95 excluding VAT from upholstery suppliers.

3



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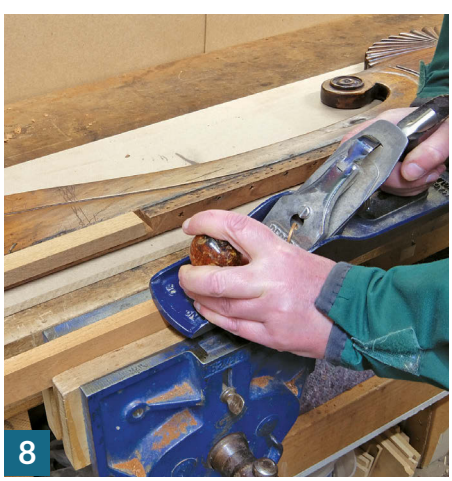

8

3 The old glue was removed from both sections of the top rail using a chisel, being careful not to remove any timber. At the feathered edges of the break the glue was gently warmed with hot water to prevent breaking the thin timber. At the same time the mortise and tenon joints were cleaned up.

4 With the old glue removed the break came tightly together. Using animal/hide glue the break was glued and clamped, making sure to keep the bottom edge straight. To help with keeping the top rail straight, one half was clamped to a waste board and the other section glued and brought into position before being clamped in both directions.

5 On both sides of the bottom edge there was a rebate cut into which the upholstery was tacked. On the front rebate there was extensive breakout either end of the rail and at the point where the break had occurred. On assessing all of the broken areas it was decided to inset sections of timber across the mortise and other areas, which would create a stronger end result.

6 The positions of the mortises were transferred on to the back rebate using a square before a dovetail cutter in a hand-held router was used to cut out a rebate, extending past the damage. The rebate was cut up to the bead on the bottom edge of the show-wood, this created an angle up under the show-wood which would help to lock the inset timber in place. As in stage seven, once these rebates were cut out the top rail was supported on a piece of waste board.

7 With two breaks on the same side, the top rail had been severely weakened, the infill section of timber was therefore cut across both breaks, repairing the rebate and strengthening the rail at the same time. The ends of the rebate, initially cut with the router, were squared up using a chisel while keeping the angle to further lock the new section in place.

8 Pieces of old mahogany were initially cut and planed slightly wider and longer than the required size to allow for the angles to be cut. The angles on the end were cut using a dovetail saw. The top edge was planed to the corresponding angle to achieve a tight fit when installed on the top rail.

9 Once all the pieces were fitted they were glued and clamped in place with the support board still behind to keep the rail straight, with newspaper placed between the rail and board to prevent them sticking together. Once dry the pieces were planed back level to the surrounding timber.

10 On the other end of the rail there was just a small section broken out due to the upholstery tacks. With a mortise so close to the end, this area was also shaped to a curve to match the arm. The small piece of infill timber was cut with two angles using a dovetail saw, which locked the piece in place and would prevent it twisting off. The angles were trimmed using a chisel for a tight fit.

11 Small diameter holes were drilled at opposing angles through the breaks and the new pieces of timber and small dowels glued and inserted. Although glued and repaired, with two breaks so close together the top rail would still be susceptible to further damage and the dowels added just a bit more security.

12 Using a square the positions of the mortises were transferred back from the back rebate and the thickness marked with a mortise gauge. A chisel and mallet were used to re-cut the mortise through the timber infills with the uprights being test fitted.

13 A trial fit was carried out and clamped to check that everything came back together correctly. The uprights and top rail were then glued in place. Before knocking the frame apart, measurements had been taken across the diagonals. Adjusting the cramps as required, the frame was pulled so that the diagonals matched the measurements, ensuring that the back frame would fit back in place.

14 The repairs around the breaks were stained and polished to match before being waxed. The upholstery was then reinstated on the front and the back cover and braids replaced.

15 When returned the sofa back was fitted back into position on the sofa and the screws inserted. The whole assembly was stable and, with the steps taken, should be strong enough to resume daily use of the sofa. ■


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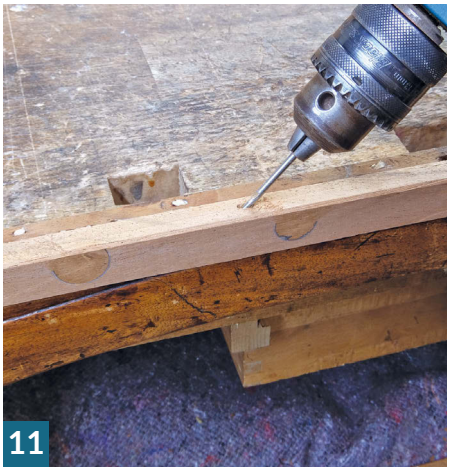
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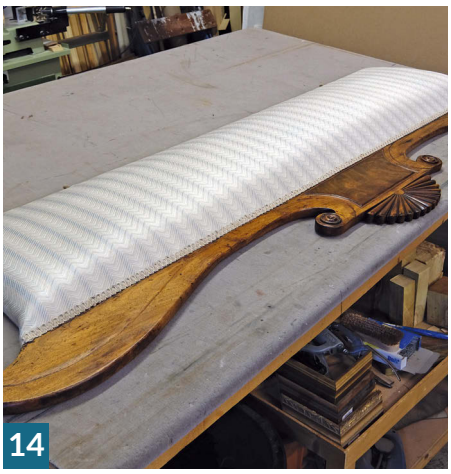
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15

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CPT800	8"	120mm	£209.98	£251.98
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MODEL	BLADE DIA/BORE (mm)	MAX CUT DEPTH/ CROSS	EXC.VAT	INC.VAT
CMS210	210/30	60/120	£59.98	£71.98
CMS10S2	254/30	78/340	£139.98	£167.98

Clarke CONTRACTOR BOSCH JIGSAWS

BEST SELLER

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*DIY #Professional

MODEL	POWER (W)	DEPTH OF CUT (WOOD/STEEL)	EXC. VAT	INC VAT
Clarke CJS380*	420W	55/6mm	£15.99	£19.19
Clarke CON750#‡	750W	80/10mm	£27.99	£33.59
Bosch PST700E*	500W	70/4mm	£44.99	£53.99

‡ was £34.79 inc.VAT

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CBS190B

MODEL	MOTOR	THROAT SIZE	EXC.VAT	INC.VAT
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MODEL	THROAT DEPTH	MAX CUT 90°	MAX CUT 45°	EXC. VAT	INC. VAT
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CBS350	340mm/14"	225mm	160mm	£499.00	£597.60

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‡ Sliding Compound

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Einhell TC-SM2131#	210/30	62/310mm	£129.98	£155.98
Einhell SM2534‡	250/30	75/340mm	£159.98	£191.98

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CBG6RZ	PRO	150mm	£42.99	£51.59
CBG6RSC	HD	150mm	£54.99	£65.99
CBG6SB#	PRO	150mm	£54.99	£65.99
CBG8RWC	HD	150mm	£59.98	£71.98
CBG8W* (wet)	HD	150/200mm	£56.99	£68.39

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MODEL	MOTOR	SPEED RPM	EXC. VAT	INC. VAT
CSS400B	85W	1450	£82.99	£99.59
CSS16VB	90W	550-1600	£94.99	£113.99
CSS400C	90W	550-1600	£114.99	£137.99

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CR1C

*DIY

MODEL	MOTOR (W)	PLUNGE (mm)	EXC.VAT	INC.VAT
CR1C*	1200	0-50	£46.99	£56.39
Bosch POF1400ACE	1400	0-55	£86.99	£104.39
CR2‡	2100	0-60	£119.98	£143.98

‡ was £149.99 inc.VAT

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F = Floor standing

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CDP102B	350 / 5	£79.98	£95.98
CDP152B	450 / 12	£139.98	£167.98
CDP202B	450 / 16	£185.00	£222.00
CDP10B	370 / 12	£198.99	£238.79
CDP352F	550 / 16	£229.00	£274.80
CDP502F	1100 / 12	£499.00	£598.80

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CDS-1V	280W	£29.98	£35.98

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NEWS & EVENTS

All the latest events and news from the world of woodworking

Teaching trees project

Every year thousands of schoolchildren join the Royal Forestry Society for outdoor lessons they will remember for life. Led by highly experienced education officers, the sessions are designed to excite and inform children about their local woodland heritage and the importance woodlands hold today and for the future.

"This is the best school day ever" and "I love this place" – just two of the reactions from pupils of one Herefordshire primary school taking part in a unique project to build links to local woods.

The Teaching Trees project in Herefordshire is led by ecologist Tim Kaye and offers free outdoor sessions to schools to connect children to local woodlands and to help them understand how to look after them.

Among the nine Herefordshire schools to have taken part since February was Whitchurch C of E primary school, whose reception and year one pupils went to Aconbury Woods. Teacher Laura Hackett remarked: "The children loved it. The activities were fantastic and they definitely learnt a lot."

Learning to love local woods – pupils from Whitchurch C of E primary school

Tim said: "I look forward to seeing more schools join in this amazing programme. Woods can be at their best in late summer and autumn, and there is so much that children learn and remember for life.

"All our sessions can be adapted to the projects schools are working on with their classes and are carefully linked to the curriculum, but all the children have a great time as well."

Children can discover how trees grow, calculate the height and age of trees and find out how trees disperse their seeds. They can see seasonal changes at work, learn about the many different uses for timber and identify tree species through their leaves and bark. They can search for creatures which live in the woods, plant trees and learn how we need to look after them. They get to meet foresters, learn about their work, understand the contribution of woods to local history and enjoy team games that build their confidence and communication skills.

Bringing school children and local woodlands together – the Royal Forestry Society's Teaching Trees programme.

Visit: www.rfs.org.uk/learning/teaching-trees/

Shows

Autumn Countryside Show
7-8 October 2017, Weald & Downland Museum, Singleton, West Sussex
www.wealddown.co.uk/whats-on/

Woodworking & Powertool Show
27-28 October 2017, Westpoint, Exeter
www.wptwest.co.uk/

Tweed Valley Forest Festival
21-29 October 2017, Tweed Valley Forest Park, and Peebles, Scotland
forest-festival.com

Northern Woodworking & Powertool Show
17-19 November, Great Yorkshire Showground, Harrogate
www.skpromotions.co.uk

Christmas Market
24-26 November 2017
Weald & Downland Museum, Singleton, West Sussex
www.wealddown.co.uk/whats-on/

Furniture competition

The Furniture Makers' Company, the furnishing industry's charity, is launching a national competition in partnership with Axminster Tools & Machinery for a student to make a piece of furniture to be displayed in Axminster stores across the UK.

The Axminster Design & Make Competition launches in September 2017, in conjunction with the new academic year and will ask students from 20 partnered universities to create a piece of innovative wooden furniture.

Students will be required to submit sketches and CAD illustrations of their proposed designs. Ten shortlisted students will then be given three months to create their concept with the materials sponsored by Axminster.

The finalists will be judged by Dr Tony Smart MBE, Master of The Furniture Makers' Company; Alan Styles, managing director, Axminster Tools & Machinery; Alex Crofts, training and education chairman at The Furniture Makers' Company; Rupert Senior, guild mark chairman at The Furniture Makers' Company; Damilola Bamidele, grants & education manager at The Furniture Makers' Company; and Derek Jones, editor of *Furniture & Cabinetmaking* magazine.

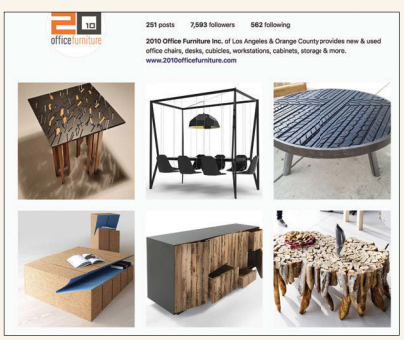
The winner will be announced at a national furnishing industry event and win a £1000 Axminster voucher, a work placement with the company and have their winning piece showcased on rotation in all eight Axminster stores. The second place will receive a £500 voucher. There will also be a £100 voucher each for five runners-up.

Ella Lemaire, Modular Shelving – previous FMC competition joint winner overall School Design Prize (1)

Web links for you

Instagram

www.instagram.com/2010_office_furniture/
Some weird furniture goings on – would you want to make it? But it is food for thought...



Youtube

Scrap Wood End Grain End Table
How To Build – Woodworking
How to empty your scrap box without burning the contents

Reddit

Key in 'woodworking', see what interesting pieces others have made and join in the discussions.

Pinterest

www.pinterest.co.uk/pin/28147566401233149/
Ladders, ladders everywhere, old ladders have multiple uses if you repurpose them as furniture devices.

Reader letter

Changing spaces

So much space, I thought when I moved house a short time back and was blessed with a spacious garage. At last a good-sized workshop for my woodworking endeavours. Alas, by the time my wife had her say, I was restricted to a rather limited area. I managed to secure a good-sized worktop area of 230 x 80cm. I built a strong bench from assorted timbers and pallets with a thick plywood top. Happy days, I thought, until I was given a woodturning lathe by a generous uncle of my wife's. He upgraded and, having known of my interest owing to the fact I passed on my copies of *Woodworking Crafts* and previous publications to him, he kindly let me have his old faithful Draper MLT12. But this welcome addition caused a dilemma – where do I put it? I had no floor space to free-stand the lathe, the only option was the benchtop. This created an awkward area for working on larger projects owing to the length of the bed rail.

I overcame this issue by making an additional worktop, 160 x 75cm to a depth of 8m, giving enough height to cover the bed rail. The new removable top restored a good, sizeable working area.

Once lifted freely on to its back edge, it also acted as a screen for the flying debris from my turning efforts and a storage area for my tools.

John Robb

From bed frame *to* bench seat

Michael T Collins gives us a lesson in upcycling old furniture

There is one constant in my woodworking life and it's not the wood or the tools – it's my wife, Lisa. After a long morning in the woodshop, she'll be at the door saying: 'Thought you might like a cuppa,' with a plate of digestives in hand and: 'Let's go sit for a while on the bench' – no, not the woodworking bench, although I have done that many a time…

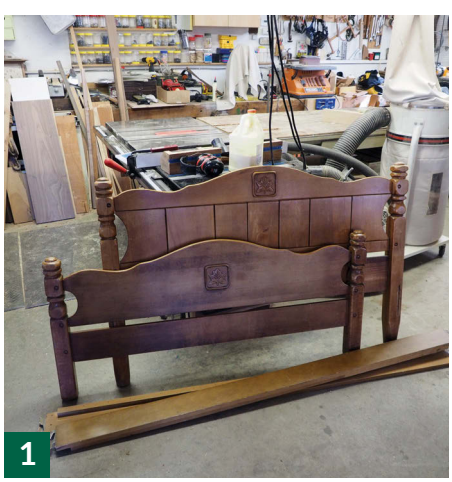
And so we walk into what has lovingly become known as the 'English garden', a small corner in our 'yard' that features a hedgerow and other traditionally English plants. Nestled in among the growth is our garden bench. And what is a garden without a bench?

In this article I'll be showing you how to turn the wooden head and foot boards of an old double bed frame into a charming garden bench. In this part of the world, one can regularly find old wooden headboards and footboards propped against a mailbox at the end of someone's driveway with a big FREE sign taped to the side. These days, people want modern and new furniture, so they're quick to throw away great pieces. You might not have the same ease of access to old bed frames and cast-offs, but with the likes of Gumtree and Freecycle the world over, old furniture in need of a new design spin is easy to come by. If you do happen to have an old bed that you want to remake into something more suited to your lifestyle, this project is perfect.

EQUIPMENT USED

Tools

- Router or use dowels to connect parts
- Selection of chisels
- Crosscut saw



1

Method

At the outset, it is important to understand that because each bed is distinct, the construction techniques will vary for each project, but the basic principles are the same. Therefore, this article has been created as a guide to take you through some of the design

elements you might want to include. The headboard will form the back of the bench and the footboard will make up the arms. Begin with the headboard and footboard, setting the rails aside for the time being. If your frame does not have rails use pine boards. The first step is to determine the height and depth of the finished bench. The length is governed by the width of the original bed, while the depth is somewhat determined by half the length of the footboard. Obviously a queen bed's footboard will need to be shortened considerably. This bench is going to be 480mm deep with a height of 460mm. This is a little deeper than a chair at 380-430mm, but it allows for pillows as back rests. As we are working to upcycle a piece of existing furniture, the height of the bench will be governed by the layout of the head and footboard rails. Most benches or chairs are about 460mm high. You may need to alter the height of either the headboard or the footboard pieces to create the correct height. To achieve this optimal height, cut the legs of the headboard down a few inches so the arms intersect the back at a better location. With a standard single bed 920mm wide you just need to cut the footboard in half so it can become your arm rests at approximately 460mm. If you are going to mortise the parts together remember to add an additional 40mm to parts with tenons.

Dissassembly

2 In my frame all the existing tenons were very loose, so I had to pull them apart and clean them up – the bed had been repaired several times in its history and various nails and screws needed to be removed..

3 I had a standard double bed at 1370mm so I needed to trim the footboard down more from the centre to achieve the desired depth.

Side note: You will be left with two sides as arms for your bench. My bed frame had just the right configuration to allow me to use the headboard's rail as is and the footboard rail as the front skirt of the bench. If that is not the case with your frame, just take one of the side rails and cut that down to size for the front skirt of your bench. Simply measure the distance of your headboard from post to post if using dowels, add 40mm if going the mortise route. If you are using dowels, you might want to add an additional step and make an inner frame from 50 x 100mm studs for increased stability. This frame needs to be able to fit between the front skirt (side rail cut to size) and the back of your bench (the headboard).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Attaching the arms

4 Locate the position of the arms in the headboard posts and use a router to cut mortises that match the configuration of the footboard.

5 I made my mortises 25mm deep, using clamps to act as stops so that the mortises were only as long as needed.

6 Use a rasp to round over the ends of the footboard tenons to match the curved ends of the mortises. ➤


6

PHOTOGRAPHS BY MICHAEL T COLLINS

7 Test fit the joint before machining the others.

8 Repeat the router process for the mortises in the posts for the front skirt. It is important to make sure that the top of the front skirt is level with the headboard's back skirt.

9 Lightly sand all the parts. I did not want to remove the wonderful patina that had developed on the maple over the years, so I took care to give the wood a fresh look without losing the wood's history. The dirt came off with soapy water.

10 Dry fit the sides together to check all is well.

The glue up

11 Start with the arms – I used two-part epoxy, mixing some sawdust in to act as filler for the original loose mortises.

12 Check for squareness when clamping up.

13 Epoxy gives you plenty of time to work, which is perfect for a project such as this. Allow the side to fully dry – clean up any glue ooze out. Next, glue the arms to the headboard and footboard skirt. I used clamps and tie-down straps to support the glue up – check for squareness.

Adding the seat

14 The seat needs to be supported at the back, so I added a piece of 25 x 50mm wood to the headboard skirt at the same height as the front skirt.

15 Due to the width of the bench, the side rails of the bed did not offer enough wood for the seat. To complement the original style of the frame, I used old 250 x 19mm wide pine boards that I ran through a planer.

16 The seat boards were arranged to match, as far as possible, the backrest. The boards were spaced and cut to length, adding an additional 25mm overhang.

17 Cut notches in the boards around the back posts, if required. Here, I wanted to emphasise the fit around the corner of the front posts, and did so by cutting a curve using a coping saw to match the existing profile of the arm rests.


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18 I added a slight chamfer to each of the boards, again to mimic the backrest boards. The boards were nailed in place and a 6.4mm quarter round moulding was added to where the seat met the back.

The finish

19 I gave the whole bench a coat of amber shellac to bring out the natural character in the wood – this matched perfectly with the original colour of the maple. If you are going to be placing your bench in the garden, you may want to add two coats of spar vanish – this will give a weather and UV-resistant finish to the bench.

The beauty of this project is its economy, its simplicity, and its endless variation. No two benches will be alike. So grab a cuppa and head to the garden to enjoy your one-of-a-kind creation. ■


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Build a Cutting board and add some router skills

Cutting boards are great projects at any stage of your journey. You can make them as simple or as fancy as you want, in all sorts of shapes for different tasks. And they are small enough to make in batches as gifts

Most cutting board designs combine strips of different woods into a sort of crazy quilt. But you'll need a tablesaw to create those strips. We are going to go the elegantly simple route – taking a naturally beautiful piece of wood and bringing out its best. We'll do that with gleaming curves and your first real wood finish – a wipe-on oil that lets viewers see deep into the shimmering wood grain.

For this cutting board design you'll need to add a tool to your growing arsenal – a small router, sometimes called a trim router or laminate trimmer. Like your other power tools, the router will pay dividends for decades to come.

Let's start by finding the right piece of wood. You might find it in your bin of scraps. If you are just starting out as a woodie, ask around the timber yard or at the hardwood dealer for 'shorts' or 'cutoffs' with nice 'figure', which refers to the grain pattern. You can usually get these cheap and they make great cutting boards and small boxes. Ask for pieces that are already surfaced smooth, not roughsawn. That's what I did in this case, finding a piece of white oak with beautiful grain. I actually bought a whole board, planning to make a series of cutting boards from it.

A lot of people spend a lot of time talking about the safest woods and finishes for cutting boards, but it's really not that scary or complicated. Avoid woods known for causing allergic reactions. Rosewood, cocobolo, sassafras, yew and olivewood are a few to watch out for, but those are rare anyway and almost any other hardwood is okay. Avoid softwoods such as pine, alder, fir and poplar, which won't stand up well to sharp knives.

The king of the cutting-board woods is maple. It is hard as heck, it has super-tight grain (tiny pores) so it is easy to wipe off and clean, and the grain often ripples into curly patterns that look amazing under a coat of oil. But almost any hardwood will do. Cutting boards are pretty simple in design, basically putting the wood on display, so look for a board that is special-looking on its own. ➤

As for wood finishes, they are all fine. All finishes are non-toxic once dry, despite popular belief. That said, thin oil finishes are better than thick varnishes because oil can be renewed when it gets dull, whereas thick film finishes such as polyurethane will just get scarred and flaky over time and have to be sanded off completely.

Curvy cutting board

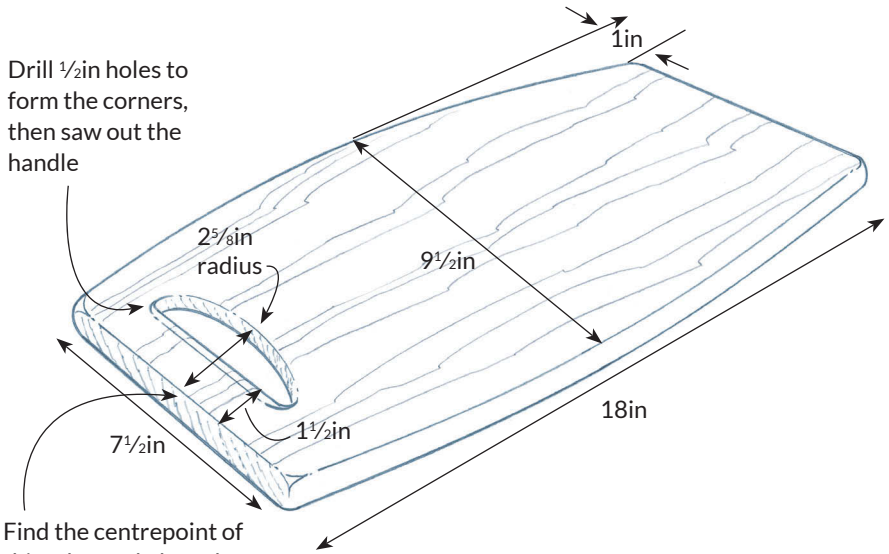
This simple cutting board uses just one short piece of wood, but it will teach you about curves, routers and how to apply a gorgeous finish. It will also make you the envy of your guests.

Good woods for cutting boards

The harder the wood, the better it will stand up to sharp knives. Be sure to get a board that has been planed smooth on both sides. This is white oak, with almost perfectly vertical grain (look at the end of the board) that creates cool stripes on the face of the board, called 'ray fleck.'

Key dimensions

This cutting board has curves in all directions. Its sides and handle are curved and all of the edges are also rounded top to bottom, using a standard router bit, so they are even more friendly to the eye and hand.

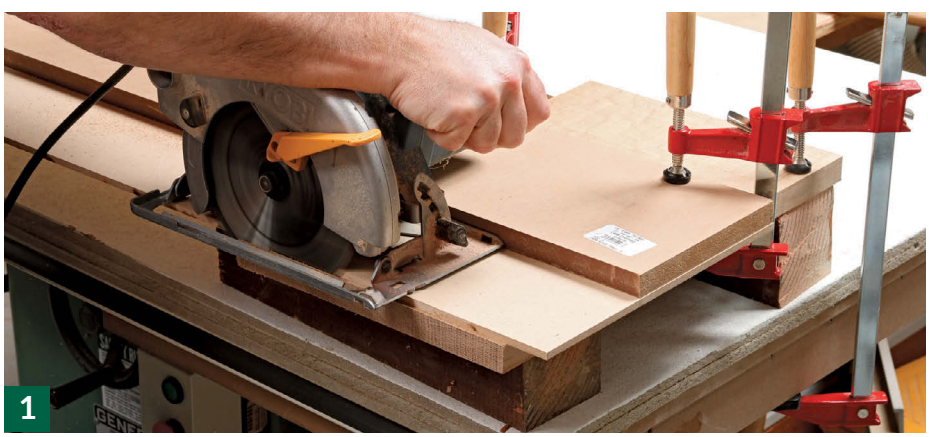


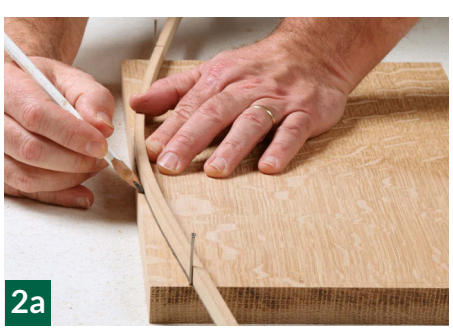
Lay out the cuts

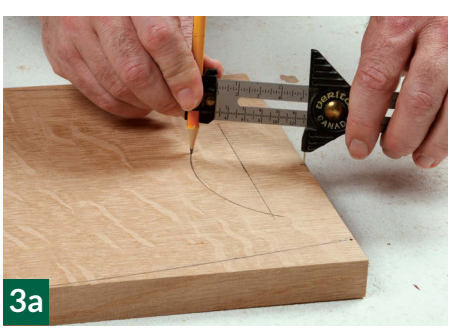
1 Cut to length. If the board is too wide for your mitre saw, use the circular saw guide to get a straight, smooth cut at each end. Make sure the guide is square to the board and elevate both of them in order to clamp everything down so it doesn't move.

2 Bend a stick to draw a curve. Any consistently thin ruler or strip of wood or metal will do. Tap in a couple of nails at the ends of the curve, just inside the waste area. Then mark the centre point of the curve with a stick and push the stick to that point to draw a beautiful arc.

3 Lay out the handle. Use your combo square to draw a line 1½in. from one end. Then set a compass to 2⅝in. and put the point near the outside edge, right at the centrepoint, and mark the curved part of the handle.







Saw out the handle

A jigsaw is perfect for this job. You just need a hole to get it started. In this case, we'll drill two, forming the round ends of the handle.

1 Mark the hole locations. Because these ½in holes will serve as the ends of the handle opening, we want to drill them in just the right spot. Measure across the ends of the opening to centre the drill bit so it will just touch both lines. Mark that spot, and then dimple it with a nail.

2 Drill in stages. This is a big hole in a hard wood, so start with a small drill bit and work your way up to the full ½in. Normal drill bits will follow each other, centring themselves in the smaller holes. However, if you have a ½in. brad-point or Forstner bit you should do the hole in one shot. Notice the piece of waste wood below the cutting board. That will prevent splintering on the bottom of the holes.

3 Saw hole to hole. Start at the outside edge of the hole so there is no bump between the hole and the jigsaw cut. Saw along the inside edge of the lines and try to cut smoothly into the outside edge of the opposite hole so you have less sanding to do later.

4 Now cut the outside curve. If your board is wider than the 9½in needed, you'll have more wood to rest on as you cut. In my case I used the whole width of my board, so I was careful to keep the jigsaw flat on the wood so the cut would be square.

5 Sand the outside edges. The round bearing on the router bit (see next page) will follow any bumps, so you want to eliminate them now. Use your sanding block with rough 80 grit paper to smooth out your jigsaw cuts. To find bumps, feel with your fingers. They are an excellent guide. Do the straight ends of the board too.

6 A sanding trick for the handle. Use some thick but flexible rubber to back your sandpaper. I use an old rubber mat, which makes the curves smoother and also fits inside small spaces. Note that I clamped the board in a nice vertical position for this step. ➤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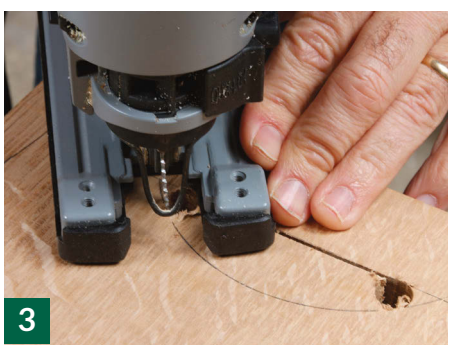
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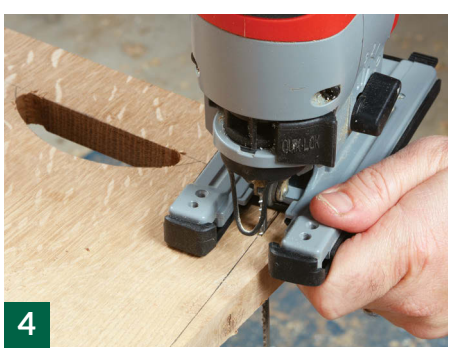
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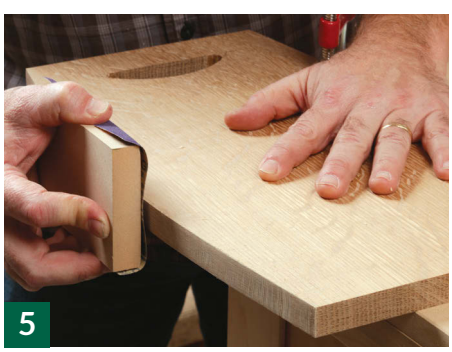
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Routing the edges

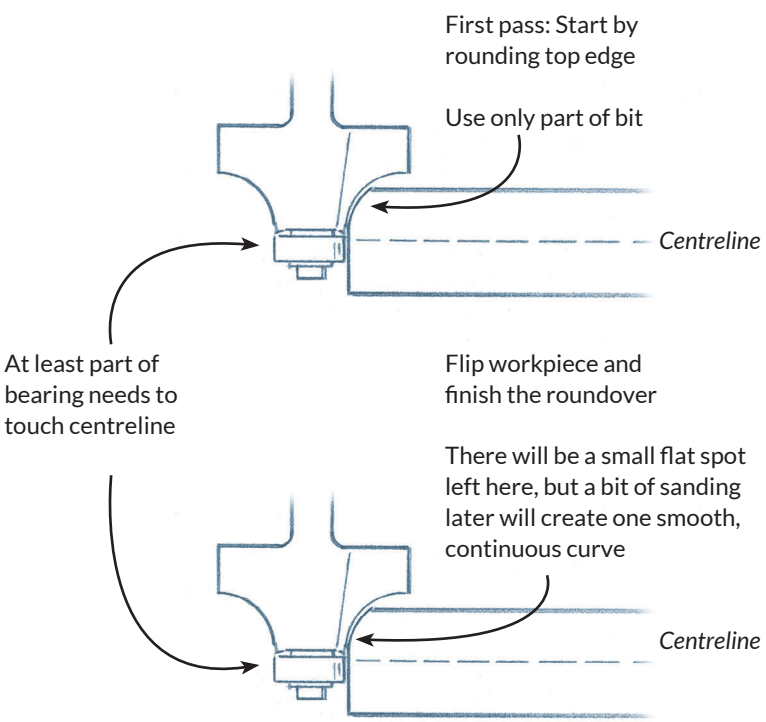
This is a good project for learning basic routing. Hold the router firmly as you turn it on and make sure the bit is free and clear when you do. Then place the base on the wood and move the bit and bearing toward the edge you are working on. Now you can start routing that edge.

1 Set the depth first. Mark a centreline and set the depth of the router bearing so at least its top edge touches the line.

2 Clamp and rout. Clamp down the cutting board and rout in a counter-clockwise direction around the board, against the rotation of the bit. That will make the router easy to control. Use one hand to hold the router and the other to keep its base flat on the wood. Start in the middle of an edge, not at a corner, and then feel the bearing on the router bit wrap around each corner as you go from edge to edge. You'll need to reposition the board and clamps to complete the job. ➤

Partial roundover

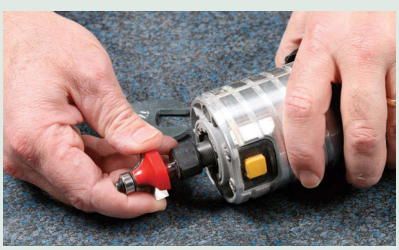
Most people use this router bit to make a full roundover along an edge, but we'll set it a little high and use only part of the curved edge on both sides of our cutting board. That will leave a sharp line along the top and bottom edge, which looks better than a full roundover.

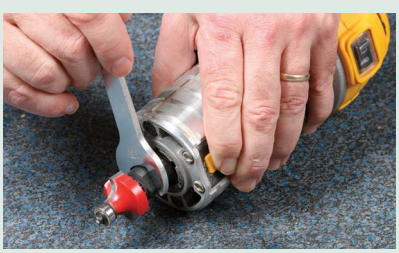


Router 101

A compact router such as this DeWalt 611 is a great one to start with. It's strong enough for most jobs yet very easy to control.

BEARING-GUIDED BITS The bearing rides the edge, controlling the cut. This is a ⅜in roundover bit, but all sorts of shapes are available. Shanks come in ¼in and ½in diameter sizes. Make sure you get the size that fits your router.





HOW TO INSERT A ROUTER BIT Take off the router base if you can and push in the bit as far as it will go. Then, to be sure it will tighten properly, pull it out about ¼in or so (top) before tightening the chuck, called a collet (above). Most of today's routers have a button that locks the spindle as you tighten the collet with a wrench. Others require two wrenches.

SLIDE ON THE BASE AND SET THE DEPTH Read the manual to find out how to attach the base and adjust it up and down to change the depth of the router bit.

3 Rout inside the handle, too. This time, move clockwise around the shape. Keep the router moving steadily to avoid burn marks and make an extra pass to remove any bumps from the first one.

4 Now the flip side. After moving your clamps to rout all of the edges on one side, flip over the cutting board to rout the edges on the opposite side. Notice that there is just enough of a flat spot left on the edge for the bearing to ride on. Use your sanding tools to turn the router cuts and that little flat into one smooth curve along the edges and inside the handle area.

5 Add feet if you like. I found these non-skid plastic feet at my local DIY shop. They'll raise the board off the worktop so it dries more easily after being rinsed off.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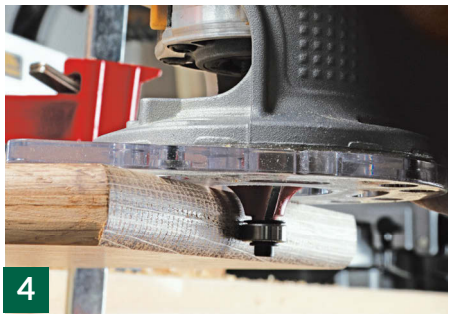
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HOW TO APPLY A BEAUTIFUL OIL FINISH

A beautiful finish is all about preparation. If you sand the right way, you'll get an amazing finish on any wood. Be sure to back up your paper with a block for all the flat surfaces.

1 Work through the grits. When sanding the edges and faces of this cutting board, or any project, work progressively from rougher grits such as 120 up through the finer grits: 150, 220 and 320. Each successive grit makes finer scratches, removing the rough scratches from the previous one, ending with scratches so fine they will just look like a smooth sheen under an oil finish.

2 Vacuum away the dust. This is the best way to get sanding dust out of the pores in the wood so the grain looks its best. Compressed air also works, or a wipe with a T-shirt if nothing else.

3 The magic moment. When you wipe on that first coat of oil finish, you finally see the grain in all its glory. Buy any clear (not tinted or coloured) oil finish designed for wiping and you should be fine. Don't stain the wood. Nice woods are beautiful on their own, and a great stain or dye job is difficult to pull off successfully.

4 Wipe on, wipe off. Wait five or 10 minutes after wiping on a generous coat of oil, then buff it off with clean cloth or paper towels. Disposable vinyl gloves are awesome for finishing, saving you a lot of hand-washing.

5 Sand between coats. Wait at least six hours then sand lightly with 320 grit. You don't need a block this time. Just fold over the paper and sand lightly to smooth away the little dust nibs and wood whiskers that tend to rise after the first coat.

6 Just two coats for a cutting board. Apply one more coat of oil, wiping it on and buffing it off. Let it dry for 24 hours and then enjoy the buttery smoothness of your first real wood finish. ■


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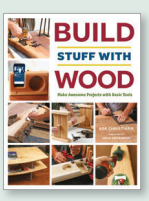


READER GROUP TEST

Welcome to our reader group test by members of our very own Woodworker's Institute Forum

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Rider bevel edge chisels

Rider bevel edge chisels are claimed to have fine grain, chrome manganese steel blades hardened and tempered to 59 HRC, and lightly oiled hornbeam handles. The larger chisels have deliberately larger handles to suit their sizes. There is a leather shock-absorbing washer between the handle and the bolster. The blades are slimmer than standard chisels and ground with a narrow edge on each side so the blade can get into confined joint spaces, such as dovetailing.

Six-piece bevel edge chisel set 6, 10, 12, 16, 20, 25mm £96.32
Contact: www.axminster.co.uk

What the testers had to say

Chris Roberts

I currently have a set of Irwin chisels. I can get a reasonable edge on them, but not brilliant. I want a chisel that is easy to sharpen and keeps a good edge while being comfortable to use.

The chisels are beautifully presented in a stained and varnished plywood box with a discreet Rider logo towards one corner of the lid.

They come with a primary bevel, so they need to be given a secondary bevel before use. Fortunately, I already had an Axminster Rider Sharpening Station. A little bit of work flattened the back of the blade at the sharp end of the chisel. Then I fitted the chisel into the honing guide.

A few strokes created a secondary bevel, then a few more on the strop and it was the sharpest I have ever been able to get a chisel. I was delighted.

In use the chisels were very comfortable, the hardwood handles smooth with a light oil finish. They felt secure and cut extremely well. It is an excellent set but I might have to add a 3mm chisel to it. I would highly recommend them.

Chris Roberts managed to get his sharpest edge yet

PHOTOGRAPH COURTESY OF CHRIS ROBERTS

Nick Pike

I currently own a set of Stanley chisels and am pleased with them. I was fortunate enough to buy them in a sale just before attending a beginner's woodwork course with Chris Tribe and I was shown how to prepare and sharpen them. I don't use them every day but I find the edges last a reasonable time. I am in the habit of sharpening them before I do anything critical.

I want a chisel that does not require a lot of preparation to get a good edge, i.e. the back is flat and there aren't too many grinding marks to polish out. Another rather obvious requirement is that chisels should hold a sharp edge for a reasonable time.

The backs were reasonably flat and the manufacturing grind marks did not take too much effort to remove. One chisel took a little longer but nothing serious. The handles are not treated at all – well made and comfortable. In hindsight, I would give them some form of protection before I started using them.

They are expensive – you can get a set of six Narex chisels, same sizes in a wooden box, for £75. I mention these because I go to a woodwork evening class and the tutor uses Narex.

PHOTOGRAPH COURTESY OF NICK PIKE

Nick Pike found blade preparation was quick

Below and right: Steve Dunning enjoyed using the chisels

PHOTOGRAPHS COURTESY OF STEVE DUNNING

Steve Dunning

I currently own a set of branded bevel edged chisels. They keep a reasonable cutting edge but it really depends on the timber I am using at the time. I look first for build quality and comfort when using, and then cost. I thought the product was nicely presented, the build quality was impressive and the chisels were comfy to use and felt robust.

I followed standard advice and did the final sharpening at 30°, which gave a very good edge. These chisels seemed to keep the edge for a considerable time. I would certainly recommend these chisels to anyone looking for a very good quality set of chisels at what I consider a very fair price.

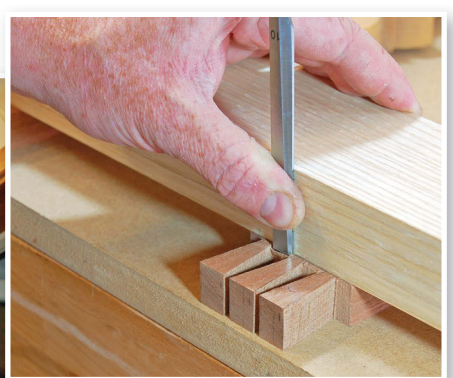
Paul Ward

I own a set of Narex cabinetmakers' chisels, which keep a good cutting edge. I look for a well-balanced chisel with quality steel that holds a good edge and a wooden handle that is comfortable to use in the hand.

The chisels were easy to use and I easily polished up the backs to get a razor sharp edge. The balance is good although I would have preferred a slightly chunkier handle and thought the handles should all be the same size. The 6, 10 and 12mm have less girth than the 25, 20 and 16mm chisels.

These chisels performed well on the ash and sapele half-blind dovetails, easily getting in to those hard-to-reach corners. The Rider chisels represent good value for money and are worth considering if your budget is limited while still looking for quality.

PHOTOGRAPHS COURTESY OF PAUL WARD



Paul Ward used his set for clean dovetailing

Editor's comment:

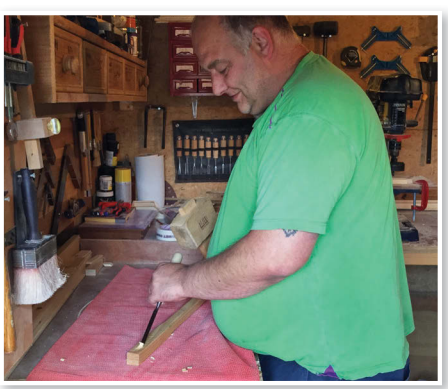
Rider is Axminster's own premium brand and it has sourced what it believes are good quality, good value tools. I found these chisels performed well after some initial preparation, which I would expect with any new blades. I can let you into a secret – once a chisel manufacturer has developed the right steel alloy it will stay the same for all of its blade manufacturing. It is the handles and the presentation that may be changed. So you can be assured these are made of very good steel and the hornbeam handles are a nice European touch.

Anthony Bailey

Barry Edge

I currently own a set of Faithfull chisels but they don't really keep a good cutting edge, so I'm looking for a set that keeps a good, clean cutting edge and stay sharp for longer.

There was no problem with the Rider chisels. They where nice and light to handle and they kept a nice cutting edge. I would recommend these chisels – very good value for money and a very professional finish. ■



PHOTOGRAPH COURTESY OF BARRY EDGE

Barry Edge found the Rider chisels to be superior quality

How our testers rated the product

How would you rate the product performance?	8.2/10
How would you rate the product ease of use?	9/10
How would you rate the product overall?	8.8/10

If you would like to be part of our panel of product testers, please go to our website www.woodworkersinsitute.com – and **SIGN UP NOW!**

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Meet the contributors...

We put all of this month's professional and reader contributors here, so you know exactly who they are and what they do

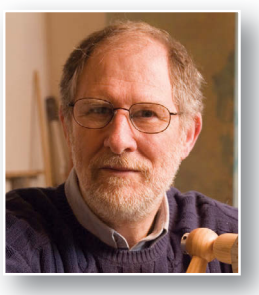
Louise Biggs

Having completed her City & Guilds, Louise trained for a further four years at the London College of Furniture. She joined a London firm working for top antique dealers and interior designers in London before starting her own business designing and making bespoke furniture and restoring furniture.
Web: **www.anthemion-furniture.co.uk**

Michael T Collins

British-born Michael has been working with wood off and on for 40 years. He moved to New York in 1996 and, over the years, has made bespoke furniture, including clocks, inlay work, Adam fireplaces, book cases and reproduction furniture.
Web: **www.sawdustandwoodchips.com**

Stephen Hogbin



Stephen lives in Ontario and is a world-renowned woodturner who is known for his groundbreaking techniques. He exhibits his work in Canada, the US and beyond. Primarily a studio artist with an inclusive and multidiscipline approach, he is also an occasional curator and author. In 2012 he received the Queen Elizabeth II Diamond Jubilee Medal and more recently has released a new book: *Hogbin on Woodturning*.
Web: www.stephenhogbin.com

Mark Palma

Mark is a self-taught turner who began turning more than nine years ago for fun. He is a tax lawyer with a national law firm who also has a CPA and MBA. When he is not working in his professional life, being a spouse, parent or volunteer, he can often be found in his workshop. Mark is a member of AAW and the Chippewa Valley Woodturners Guild AAW Chapter.
Web: marksworkshop@gmail.com

Simon Rodway

Simon also runs LineMine, a website with articles and online courses on drawing software. A new course, SketchUp for Woodworkers, is proving really popular.
Web: **www.linemine.com/courses**

Gary Marshall

Gary has had a life-long interest in woodlands and the countryside. He trained in countryside management and subsequently ran a company working with the local County Councils and Unitary Authority and their Countryside and Rights of Way Teams, as well as a wide range of conservation organisations.

Your face and details could appear here in our 'rogues' gallery' if you write an article for the magazine, and you could be rewarded for your efforts too.

Editor **Anthony Bailey** Email: anthonyb@thegmcgroup.com, **Designer Jan Morgan,** Head of Woodworking Design **Oliver Prentice,** Senior Editorial Administrator **Karen Scott,** Illustrator **Simon Rodway** (www.linemine.com), **Chief Photographer Anthony Bailey,** Group Editor, Woodworking **Mark Baker,** Production Manager **Jim Bulley,** Production Controller **Amanda Allsopp** Email: repro@thegmcgroup.com, **Publisher Jonathan Grogan,** Advertising Sales Executive **Russell Higgins** Email: russellh@thegmcgroup.com,
Marketing **Anne Guillot,** Subscriptions **Helen Johnson** Tel: 01273 402 873 Fax: 01273 478 606 Email: helenj@thegmcgroup.com
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CLASSICAL ORDER

Some things definitely stand the test of time better than others

There are many examples of past influences – names, language, laws, diet, mathematics, philosophy, astronomy and astrology – which still affect or influence us today. One such example is ancient architecture – the Egyptians, Greeks, Romans and other civilisations have all affected the way we have designed and built buildings and furniture. Indeed, there is strong link between buildings and furniture, architects having been known to design both.

Columnar architecture – the five orders of column

The title 'classical order' refers to the early design of columns that held up great buildings such as the Parthenon in Greece, for example. It wasn't just the columns and their decoration but also the other attributes of a typical grand building of the period. For example, the level above the columns under the roof line is referred to as the 'attic' – you can see where our use of the word comes from. There were five orders of supporting Greek column which had different designs and the apparently straight-sided columns were, in fact, bowed. This is referred to as 'entasis' and it appears on structures in other civilisations too. The proportions of a building with a formal function such as a temple were very carefully worked out. There was nothing haphazard about the architecture. It involved complex mathematics, surveying skills and the underlying philosophy and beliefs that sparked their elaborate and painstaking construction. Then, of course, there were the countless craftsmen and labourers who executed the skills we have largely lost.

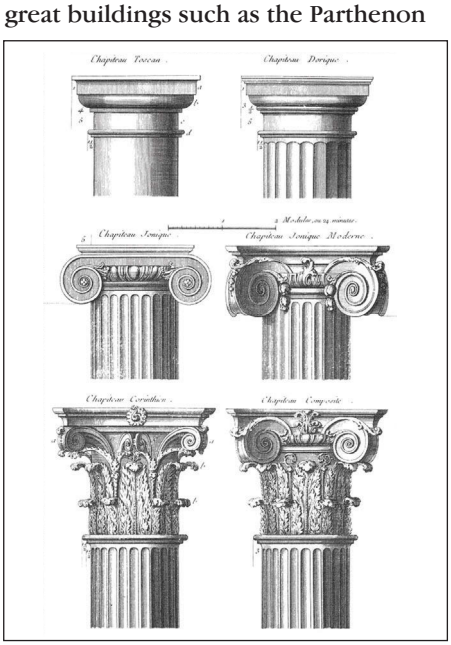
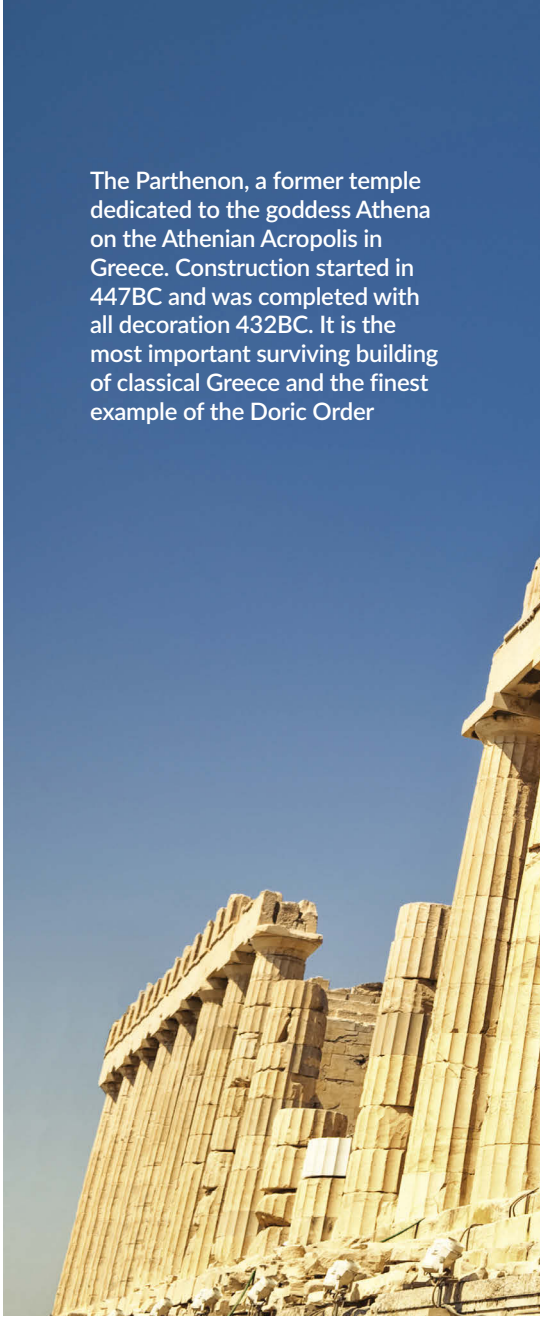


IMAGE COURTESY OF WIKIPEDIA COMMONS

The five classical orders of column – Doric, Ionic, Corinthian, Tuscan and Composite, also Ionic Moderne

The Grand Tour – a European custom dating from 1660–1840s

With such a rich tapestry of earlier civilisation at places such as Athens and Pompeii, it is little wonder that western explorers and traders and, in more recent times, visitors enjoying the Grand Tour were inspired by what they saw, often plundered and certainly wanted to reinvent what they had seen back home. Great Britain is littered with examples of stately homes and other structures which bear testament to this fascination with a bygone era and its undeniable grandiosity. ➤



PHOTOGRAPH COURTESY OF SHUTTERSTOCK

The Parthenon, a former temple dedicated to the goddess Athena on the Athenian Acropolis in Greece. Construction started in 447BC and was completed with all decoration 432BC. It is the most important surviving building of classical Greece and the finest example of the Doric Order

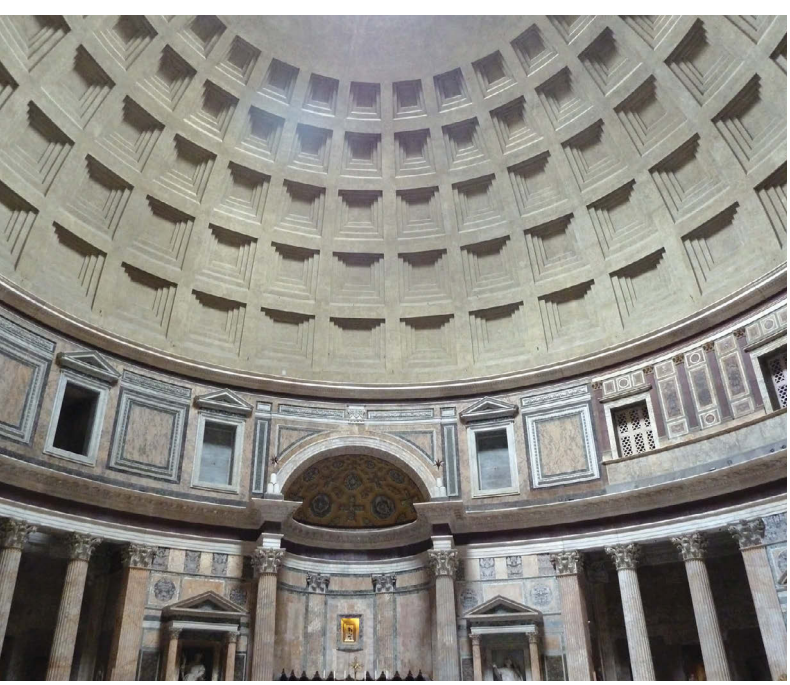
PHOTOGRAPH BY MARK BAKER

PHOTOGRAPH BY MARK BAKER

A Palladian style building in Rome with ornate detail, such as acanthus leaves, egg and dart and dentil mouldings

PHOTOGRAPH BY MARK BAKER

Surviving columns in Pompeii, Italy, showing more recent repairs



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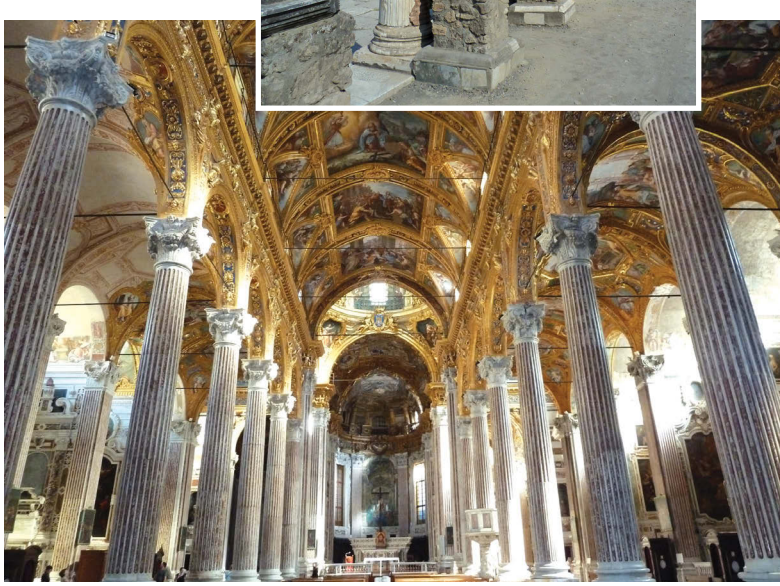
The dome of the Pantheon in Rome. The largest unreinforced concrete dome in the world thanks to unique Roman cement which incorporated volcanic ash



The Basilica della Santissima Annunziata del Vastato, a Catholic cathedral in Genoa

Finely rendered Roman arches and columns above a courtyard in Barcelona

PHOTOGRAPH BY MARK BAKER

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

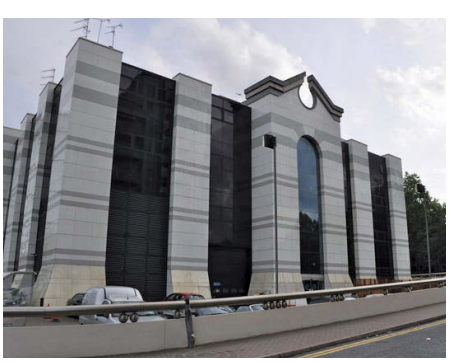
Above: The famous Bank of England building in Threadneedle Street, City of London. Built in the Palladian style in 1734 by George Sampson with later additions by various architects

Below: A section of the long frontage of Petworth House, West Sussex, which dates from the late 17th century. It contains various intricate woodcarvings by Grinling Gibbons and paintings by Turner

PHOTOGRAPH BY GMC/ ANTHONY BAILEY

Neoclassical

However, it was one Andrea Palladio (1508-1580), an Italian architect from the Republic of Venice, who came up with the 'modern formula' for how buildings should be created in the classic mode. You don't need to look far – your nearest stately home or the government buildings in Whitehall, London, or sightseeing in any European city – to see this gentleman got his sums and his proportions exactly right. But he translated down, not into open, breezy temples on high, rocky outcrops that were close to the home of the gods, but instead essentially into well-grounded, substantial enclosed boxes for living and working in that would be a grand residence or a seat of civil service or banking. It was a design style that continued until the dawn of the 20th century as empires began to fade and a brave new world of revolution and global wars did not accept such monuments to might.



PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

The now-demolished Marco Polo building in Battersea, South London – an example of Post-Modernist architecture

Modernism

Then Modernism, with its clean-cut square structures and use of mass construction techniques took over early in the 20th century, although, on a domestic scale, suburban 'Tudor-bethan' was much more accepted. The modernist approach lasted right up until the 1970s when it began to look tired and wrong – a socialist experiment that didn't favour ordinary people and was misappropriated by the gods of commerce in cities around the world, just as the earlier 19th-century classical style had also become dated and inappropriate for its then modern times.

Post-Modernism

In the 1980s the once-revered classical style reared a much uglier head in the form of Post-Modernism, which sought to ditch the square box approach. But architects seemed unable to break the bonds properly and instead came up with a largely nonsensical, rather than intended, whimsical style, which appeared on examples such as the original QVC building in London with its sad attempt at a 'broken pediment' atop the structure. This much-unloved building has been demolished in the past few years to make way for something more relevant. Thankfully, architecture now is much more flexible and imaginative in its approach, partly due to new construction methods and materials and, for the time being at least, attempts to recreate past classical glories have been put aside.

Classical furniture design

The design influence on furniture does linger on. Every time you see a cornice on top of a bookcase, every time fluted columns are added to furniture to make it more imposing, every time moulded architraves and skirting are fitted around a room – it is a nod to the ancients, particularly the Greeks and Romans whose descriptive names and designs are still present in cutter and moulding descriptions and in carved detail – Grecian ogee, roman ogee, cyma recta, cyma reversa, 'classical' moulding, dentil, acanthus leaf, 'egg and dart' and more. Their powerful influence still echoes down the aeons… ■

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Top: A broken pediment with cavetto and dentil mould details on top of a large mahogany bookcase
Above: Another view of the same breakfront bookcase designed and built by the late Paul Richardson

PHOTOGRAPH BY GMC/ANTHONY BAILEY

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Top left: A Georgian frontage in Lewes, East Sussex, the columns, pediment and linings made from wood and featuring classical elements.
Right: Ionic Order inspired scroll capital on top of a plain column in wood, outside the Gideon Mantell building in Lewes, East Sussex
Above: A fine town house near the Castle barbican in Lewes, East Sussex, with a roman arch and flat columns

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Typical moulding terms with a classical reference

(not all current usage)

Fillet or listel
Astragal or **bead**
Listel and **fascia**
Cavetto or hollow
Ovolo or quarto round
Cyma recta
Cyma reversa
Scotia or trochilus
Torus – **standard** or **Victorian**
Ogee – **Roman** or **Greek**

Brief historical notes

Classical architecture came from somewhere – it was born out of a mixture of the nomadic invading Dorians' belief in male sky deities and the 'invaded' agrarian Ionians who saw the world in mysterious, emotional and sensual terms. Combined with the more pragmatic approach of the Dorians, in time various philosophies developed which enquired into the nature of the natural world. The Pythagoreans and other philosopher-mathematicians believed the soul's release depended on the knowledge of truth. This inevitably linked to the harmony of numbers, which translated into carefully calculated temple forms, where shapes and proportions were precisely calculated.

Early structures were made of wood, which of course inevitably degraded but were quickly replaced with larger, more long-lasting stone edifices. Their aim was not to keep changing design but to improve it to the point of perfection. One change in design which stuck was the introduction of clay tiles, which necessitated peaked roofs and much stronger supporting structures underneath. Today, most buildings have peaked or pitched roofs to carry weight and shed water.

Roman buildings relied heavily on Greek architecture while incorporating numerous improvements such as the arch, roof trusses and cement – all devices and materials still in use in modern construction. All these building techniques truly are – empirical.

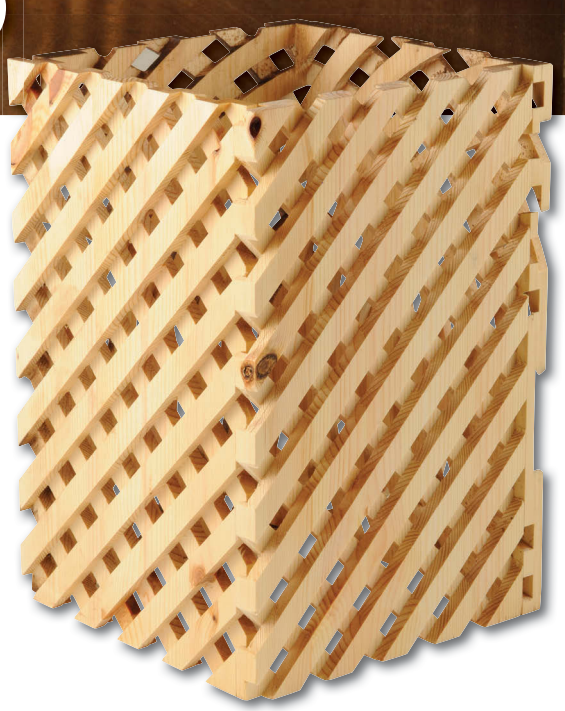
This article can only scratch the surface of a vast subject which has perpetually fascinated scholars and has affected our attitudes to design and construction in wood and stone right up until today…

If you want to learn more about how the ancients shaped the world around us today, there are two books that are of interest, both by Frederick Wilbur and published by GMC Publications:

Carving Architectural Detail In Wood – the classical tradition
Carving Classical Styles In Wood
Special offer price £5 for each edition
Visit: www.gmcbooks.com

Table lamp

Anthony Bailey has a really bright idea for his router



Here's a table lamp with a difference. The lamp is the base as well as the lamp itself. It seems improbable, but machining through wood allows enough light out to create a source of atmospheric lighting. It has various possibilities that, with adaptation, can produce different styles too. Yet again the router shows it can be made to do more than straightforward mouldings and joints.

This simple diagonal design lends itself to a lampshade, or could be adapted to be a wastebin or discreet panel screen or fireguard.

THE JIG

1 The basic jig consists of two parts – the slide for the router to move over the top, and the baseboard underneath for the workpiece. The router slide can be positioned at any suitable angle, depending on what pattern you want to use. Here, I positioned it at 45° to the baseboard.

2 To make the jig, choose a workpiece width, perhaps between 200-250mm, and make up the baseboard with two battens, one at each side, to trap the workpiece so it can't move around.

3 Now, make a router slide that is overlength, so no matter what angle – or whether the router works right to the edges of the workpiece – it still has plenty of support.

4 Sit the router slide at 45° to the baseboard, then drill and screw it in place.

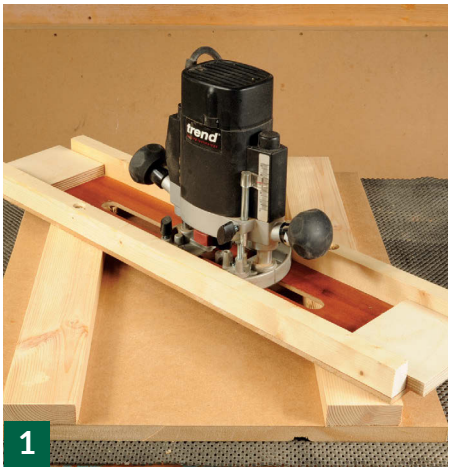
5 Do an initial plunge and push along cut through the router slide base so it overruns into the baseboard battens. Fit stop blocks in place so the router cannot overrun beyond these points.

6 Lubricate the base of the slide using a hardening wax such as the carnauba wax used here. It allows the router to move easily with each pass.

7 A hold-down clamp is absolutely essential to prevent the workpiece from moving during cutting, as the force of the cutter will move the workpiece very easily. ➤

THE CUTTERS

After some unsuccessful experimentation with a large corebox cutter which created very fluffy breakthrough cuts, I settled on a single 16mm straight TCT cutter. You need the sharp squared edge profile to make neat through cuts that admit the most light and look neat. So this time you will need just one cutter.



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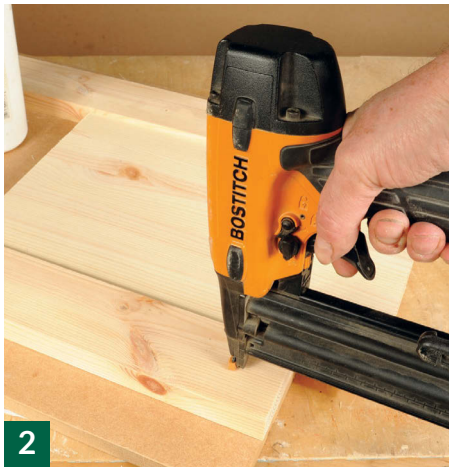

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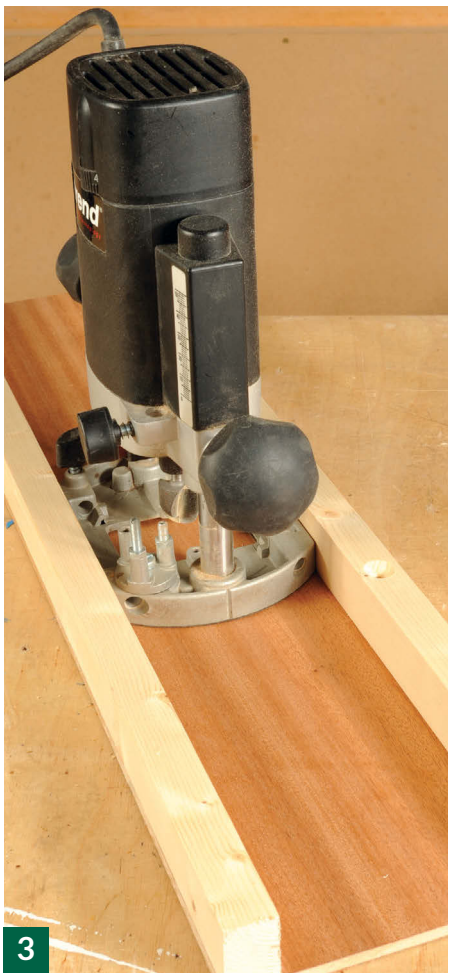

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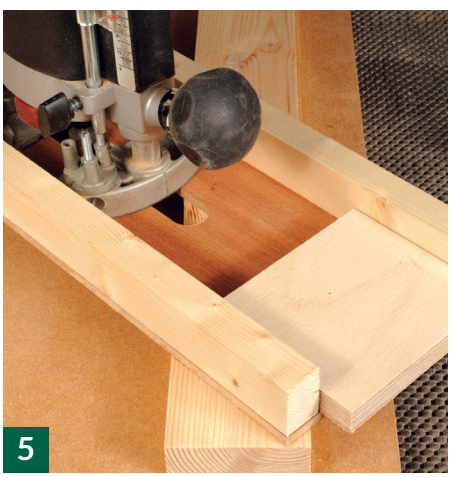
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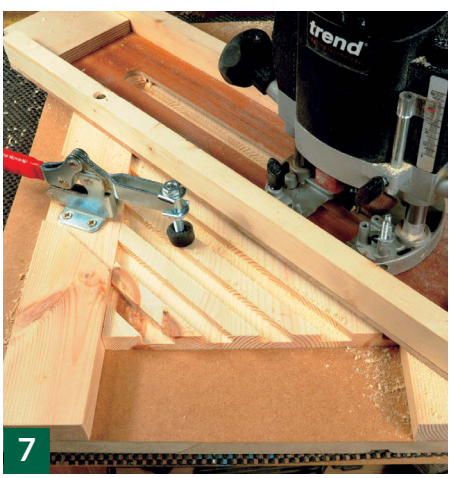

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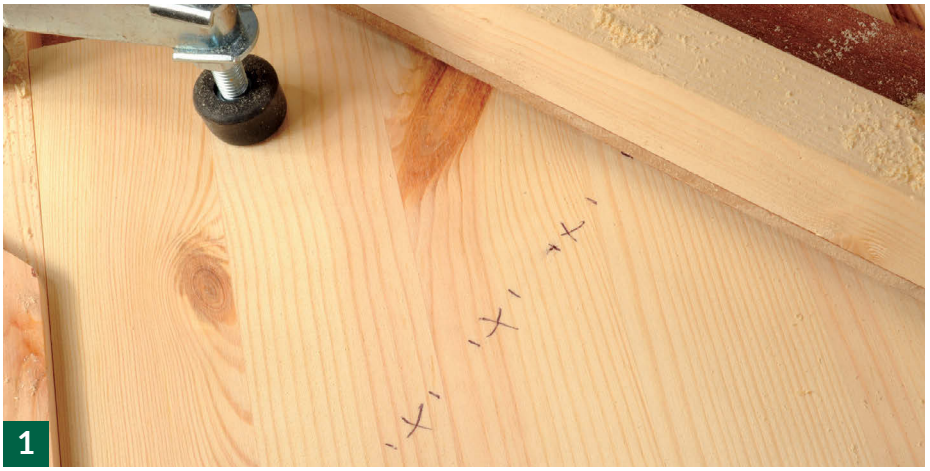
MAKING IT

1 The first thing to do is to prepare the boards you intend using, sizing them to fit the jig without slipping around. Mark the slot spacing across the board at 45° and mark a cross on each alternate space to indicate where the cutter must run, as you can see I did in the picture.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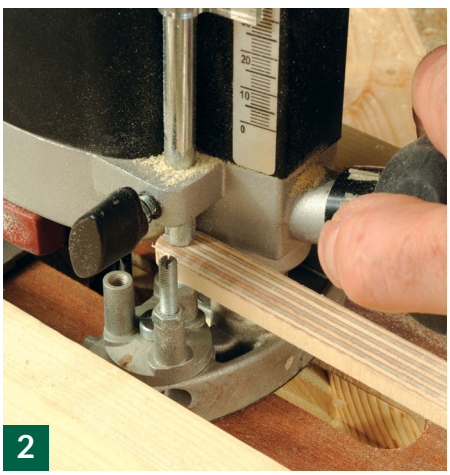
2 The plunge depth will need to be slightly more than half the material thickness, because one set of slots will crisscross the second set on the other side, and we need to create a clean, open lattice pattern. You need to do two passes to reach full depth – a quick way to achieve this without turning the depth turret is to use a strip of wood under the depth stop for the first pass, and remove it to plunge for the second pass.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3 Place the workpiece blank at one end of the jig, ready for the first cut. Ensure the workpiece is securely clamped – the clamp must be positioned so it presses on the middle of each strip that remains after machining. Plunge to depth and machine the cut. Move the workpiece along so the slot marks are centred under the router slide. Repeat the slotting *ad infinitum*, until the whole of one board face has been completed.


3

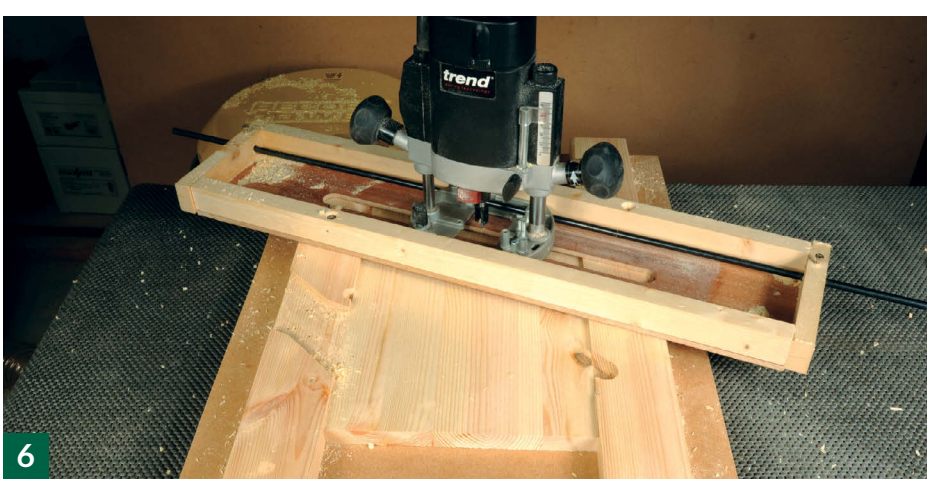
4 Next, turn the board over so the slots will run perpendicular to the first set. The first breakthrough cut is exciting, as you realise this technique is going to work.


4

5 You should end up with a series of correctly spaced slots across the entire board on both sides – here we can see that the second side has been three-quarters done. Light use of folded abrasive paper will defluff the edges quite easily.


5

6 The same jig can be adapted to do radius slots. Remove one screw holding the routerslide so it can rotate. You will need to round over the edges of the batten holding the workpiece so the routerslide won't catch as you swing it round. Use a steel rod or extension fence rod, as in this picture, to allow the router to move along. But then it can be fixed in position for each slot by tightening the lock knob on the router's base.



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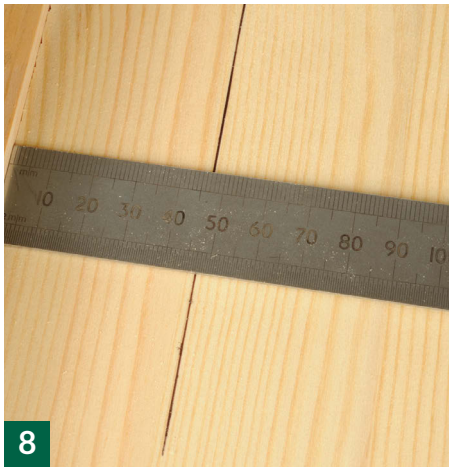
7 Fit the rod by screwing a piece of wood to each end of the router slide after drilling a hole for the fence rod. A screw is tightened down on to the rod so it cannot move.

8 The workpiece needs to be held at each end with a stop, then the first radius needs to be about 50mm in from the edge. Mark a line and set the router so the cutter touches the line when swung to the furthest position of its arc. Note that the routerslide is rotating from an offset position, not from the centre of the workpiece.

9 Making the radius is a one-handed operation and easy to do. After the first small radius, mark the slot marks with it as a starting point. For simplicity, both here and for the diagonal pattern, I made all the spaces 16mm. Move the router along the rod and relock it at the next position.

10 When one side is finished, lift the board out, turn it over and repeat as before. The result looks pleasing and needs less defluffing than the diagonal version. ■

7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Did you know?

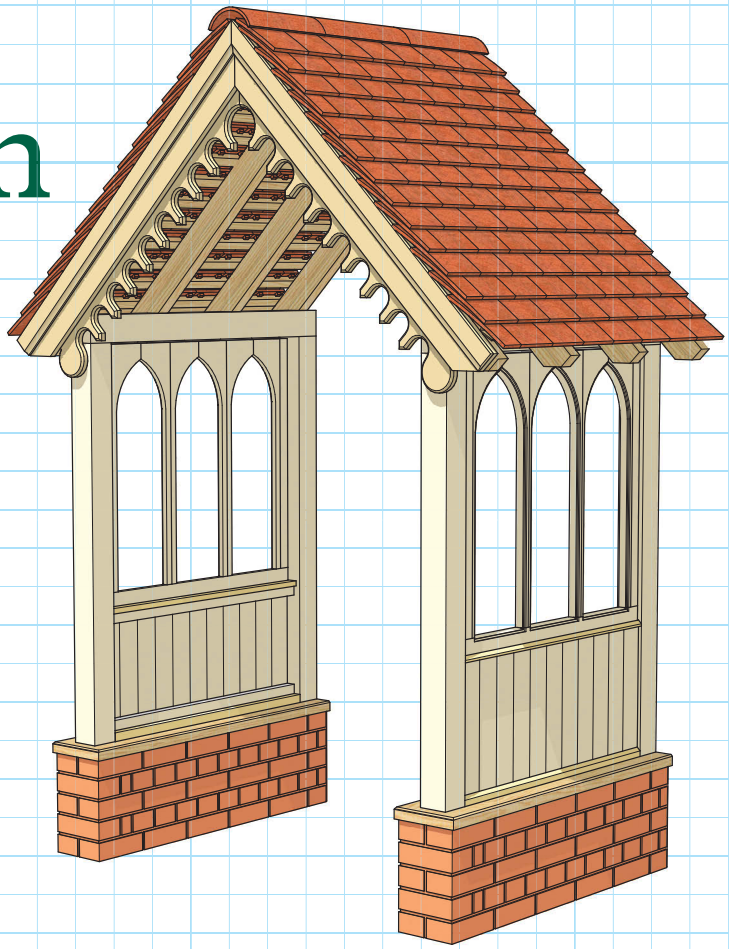
Legislation is in force requiring the marking of cutters, which have to show a variety of information, normally laser etched on the cutter shank. This includes the manufacturer's name, the cutter part number and, where space permits, the maximum running speed. Also, very helpfully, the collet depth mark showing the minimum depth of shank to be inserted in the collet. This last marking is the most important, as many users try to extend cut depth by having too little a shank in the collet, which is dangerous.

Router cutters have important information etched into them

PLANS 4 YOU

Gothic porch

Simon Rodway adds a hint of Gothic drama to his Victorian lodge cottage



Cutting list

Frame top	2 @ 1200 X 100 X 100
Brick capping piece	2 @ 1262 X 258 X 38
Rafters	8 @ 1453 X 100 X 50
Ridge board	1 @ 1250 X 150 X 32
Vertical board	1 @ Ex 10000 X 90 X 22
Board bottom pieces	2 @ 1000 X 75 X 32
Board top pieces	2 @ 1000 X 75 X 22
Window pieces	12 @ 900 X 150 X 34
Window bottom pieces	2 @ 986 X 50 X 34
Window side pieces	4 @ 900 X 44 X 34
Barge boards	2 @ 1500 X 150 X 28
Capping pieces	2 @ 1500 X 75 X 22
Decorative pieces	2 @ 1350 X 150 X 22

One of the most popular styles of building in the UK in the 19th century was borrowed from the medieval period, so widespread that it became known as Victorian Gothic. It is a tricky look to copy, for the simple reason that it often involved lots of intricate carving and elaborate joinery, but I have tried to capture the spirit of the style while keeping the technical side fairly simple.

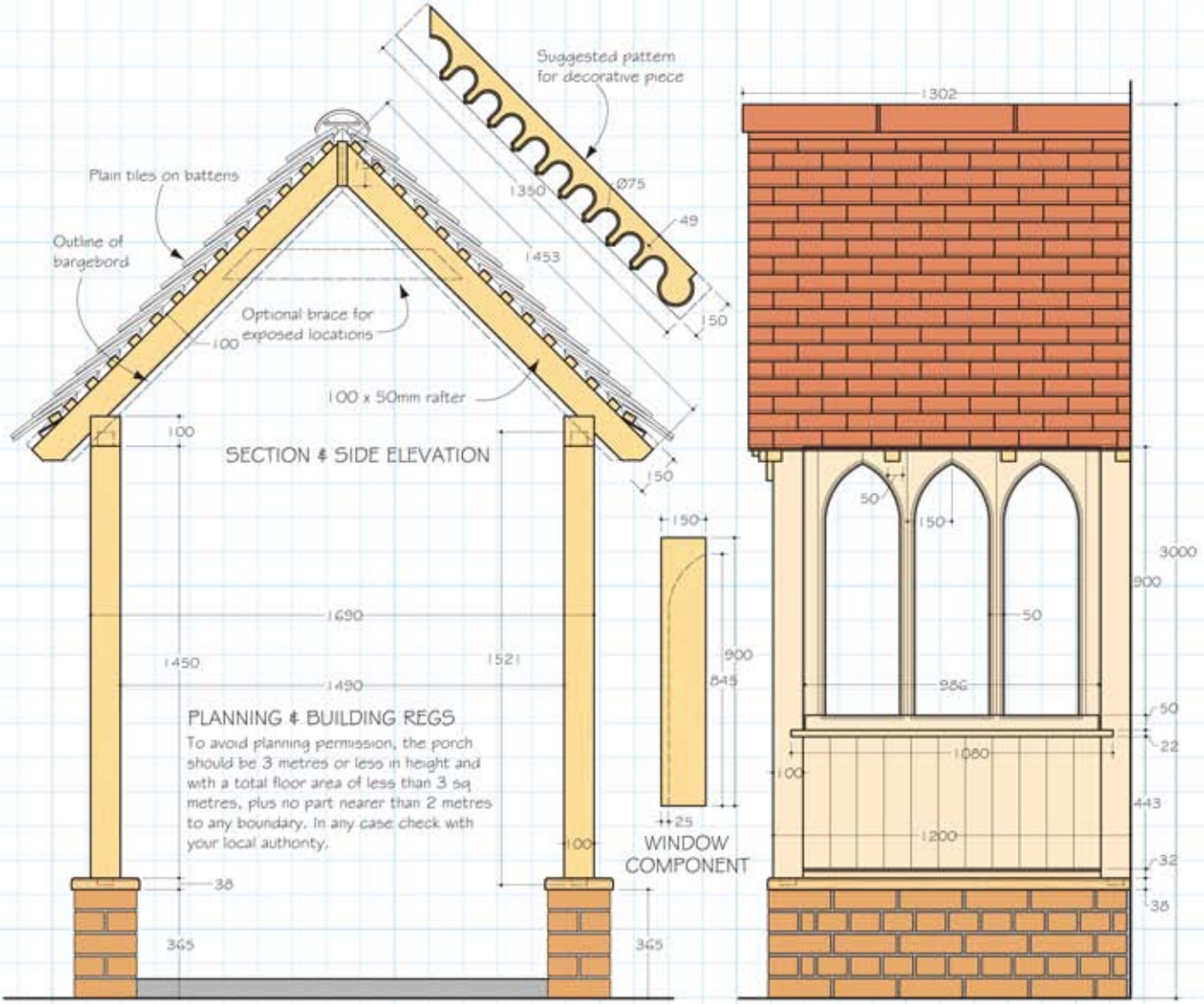
I tackled some of the building process involved in constructing a porch in an earlier article, so I will just touch on the most important aspects here. First you need to consider whether you will need planning and/or building regulations approval, so check with your local authority before starting work. I have shown the porch open, but it can be glazed at the sides and enclosed at the front, in which case different regulations can apply.

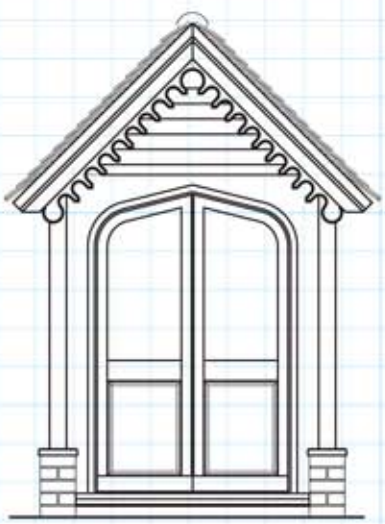
The basic structure is fairly simple – a timber framework fixed down to a brick plinth, which uses English garden wall bond. The 100 x 50mm rafters sit on this frame at a 45° angle, making cutting a bit easier, and meet at the top against a ridge board. This board, the back rafters and back posts should be fixed securely to the house wall to give the porch a good anchorage, and flashing added along the perimeter of the roof junction with the house. I haven't shown it, but stopped chamfers on the outer edges of the corner posts are an authentic Victorian detail, so add these before you put the frame together if you are going to include them.

The Gothic character of the porch is really created by the decorative woodwork on the sides and at the gable or front, under the bargeboards. On the sides, you can begin by adding the bottom infill panels of vertical boards sitting between horizontal pieces, which are heavily chamfered on the front edges to help shed moisture. The boards are fixed back to battens top and bottom, the whole lot painted inside and out. Optionally, make the top horizontal pieces deeper at the front and cut around the post on either side to form a kind of sill for the windows. I have only shown this option on the 2D drawing.

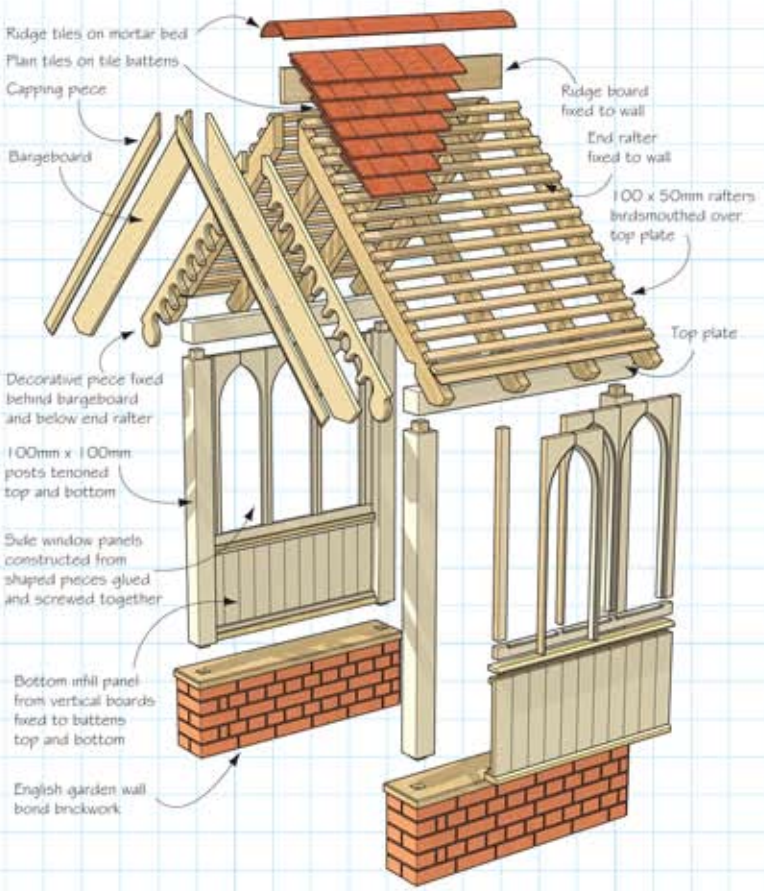
On top of this I have suggested using a 150mm-wide board as a component to create the series of Gothic windows, cutting six boards identically, or three mirrored pairs, and then adding side and bottom pieces and gluing together to create a complete panel. Adding rebates and chamfers or roundovers to the openings using a router is an essential part of the job as well. Leave at least a 6mm gap either side and at the top between the main timber frame and the panel in order to fit and fix it, a gap which can be disguised with beading once the panel is wedged and screwed into place.

Deep bargeboards with feature pieces planted on the front and a pair of decorative pieces sitting behind and below the bargeboards complete the look. I would suggest moving the front rafters forward of the front posts enough to allow the decorative pieces to be fixed to the bottom faces of the rafters as well as the inner faces of the two bargeboards. Shaping these is a fiddly job, marking out the repeated shape along the bottom edge of the 150mm-wide board with a template and cutting the basic outline with a jigsaw, before ideally adding a chamfer to the decorative edge. The bargeboards themselves cover the roof structure, battens, rafters and ridge board, and are mitred at the top joint. Again, all these front components should be well painted to protect from the worst of the weather. ■





DOOR & BOARD INFILL OPTION



Woodland ways

Tree ID part II

Woodland expert **Gary Marshall** is definitely going to stop you barking up the wrong tree

Tree identification by bark

In *Woodworking Crafts, issue 30*, I gave some hopefully useful advice on tackling tree identification by leaf. I alluded to the fact that this can often be tricky. Another method is bark identification.

Well just wait – sorting trees by bark alone is not a task I recommend. Why? Because many species have similar bark, varying depending on age and location. Bark can differ on the same tree, depending on how high up the trunk it is. Bark is often obscured by algae, mosses, liverworts, lichens and ferns.

Teachers and children love to take bark rubbings – and I wouldn't discourage this fun activity. It would be foolish to assume that the patterns made by this method relate in any way to the definitive 'norm' by which various tree species can be judged. Bark is like skin – each tree's bark is unique, changing as does its shape, size and age.

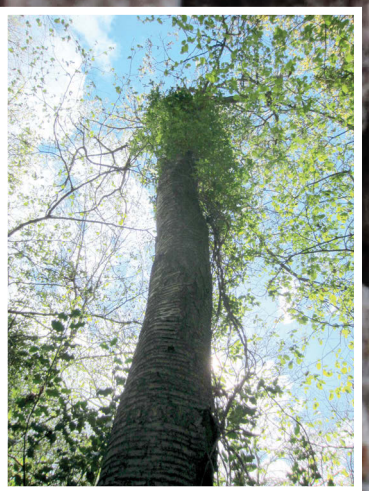
So why write an article? Simply because some bark is relatively easy to recognise. Let's start with just four easy native species.

Silver birch developing a crusty base

White poplar

Silver birch (*Betula pendula*)
Difficult to confuse with any other native tree, except its close relative downy birch *(B. pubescens)*. This also has a silver trunk, though often less white or even brown. It's more common in wet, moorland or upland districts. *B. pendula* eventually grows a black, crusty, corky basal area below its distinctive papery, horizontally marked, thin outer layers. There is just the outside chance that an inexperienced ID-er in a hurry could mistake white or grey poplars for birches – but the bark is not pure white and paleness only occurs relatively high up the trunk. There are many planted specimen birches from as far afield as the Himalayas – they all have slightly different bark habits. So get to know your native birch.

Shiny cherry with horizontal markings



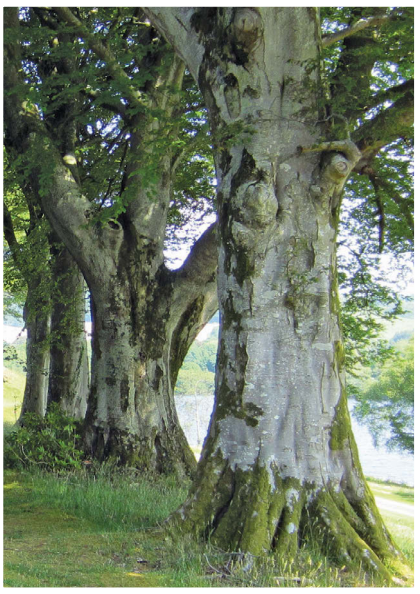
Cherry horizontals get stronger as the tree gets larger

Wild (and other) cherries (*Prunus avium* spp.)
Take a look at the photos. See those horizontal markings and the curled back rougher areas? They are pretty definitive. Go and spot some cherry bark. Even larger trees can be identified this way – some as big as mature beeches.

Beech (*Fagus sylvatica*)
Everyone knows beech bark – it's smooth, muscular looking, abused by graffiti and remains much the same from teenage years to 100 years-plus.

Some teachers have been known to mistake other smooth barked species, e.g. lime, hornbeam, immature sweet chestnut, for beech. So observe the colour, general lack of vertical fissures or ridges, small bobbles or ripples. Beech is usually more upright than hornbeam and has a bulkier girth than woodland lime compared to height. Such subtleties will help you, but practice your tree ID in mixed woodlands to make sure.

Beech with graffiti

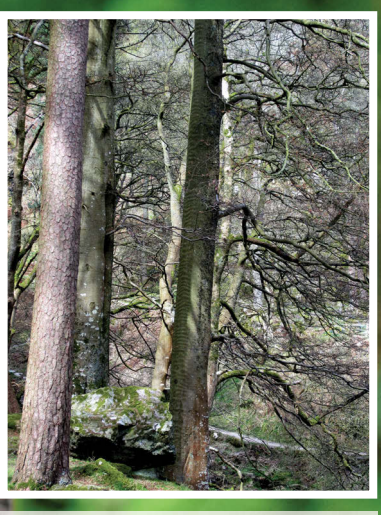


Typical beeches

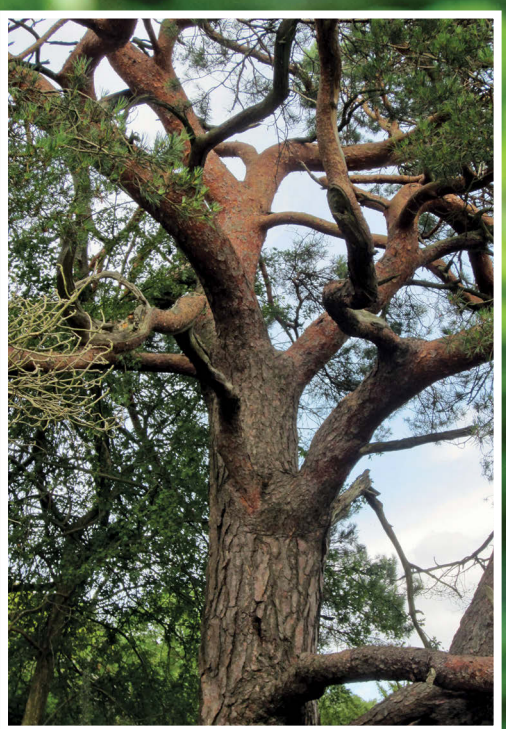
Hornbeam have diagonal and vertical running markings

'Look at the whole tree before naming it'

Scots pine (*Pinus sylvestris*)
Yes, I've included our native Scottish conifer here as they are really quite common across the British Isles – either in plantations, or planted or naturalised on heathland. Note the lovely pale, scaly, reptilian bark that (and this is the definitive bit) turns a ferrous shade of orange high up the trunk. See, remember and learn. ➤



Scots pine on left showing lower bark rippled. Beech bark right



Scots pine showing transition to orangey bark ➤

Burred oak bark

Youthful ash bark

Mature ash bark

Shaggy bark of alder

Whitebeam

Intermediate level

Here I'd include our favourite and most useful native trees, such as **ash** (*Fraxinus excelsior*) and **oak** (*Quercus robur or petrea*) that, when mature, can look remarkably similar. If anything the ash bark is usually paler in colour than oak and the raised ridges a little more cohesive.

Mature elms (*Ulnus* spp.) have scaly, shaggy bark, but then so do **wild service trees** (*Sorbus torminalis*), old apples (*Malus domestica*) and alders (*Alnus glutinosa*).

Youngish elms soon develop corky ridges on trunks, but so do **field maples** (*Acer campestre*). I haven't even touched on willows (*Salix* spp.), whitebeams (*Sorbus aria*), rowans (*S. Aucuparia*) and our smaller understorey species – oh, well, I said it was difficult and the Editor says I've run out of space.

Editor's Note – Gary's article is invaluable if you want to discover the true source of the wood you use in a project. If you make a positive tree ID by leaf and/or bark, record it in photographs and add written comments, so you can always refer back to it. ■

An easy non-native:

We all know the **London plane** – its bark really is definitive. Have fun.

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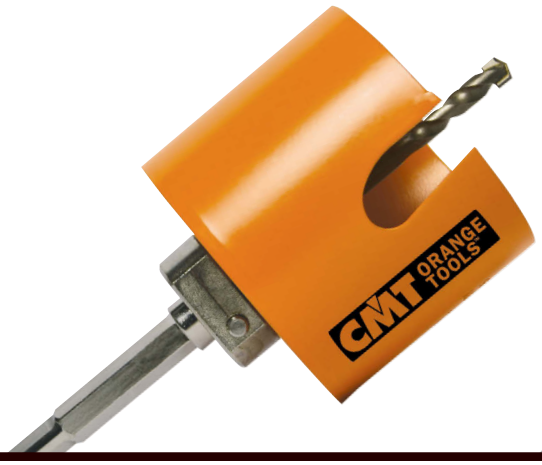
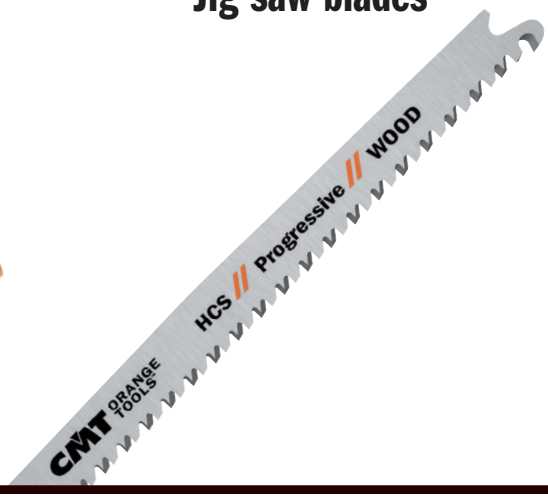


Jig saw blades



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Turning plywood bowls

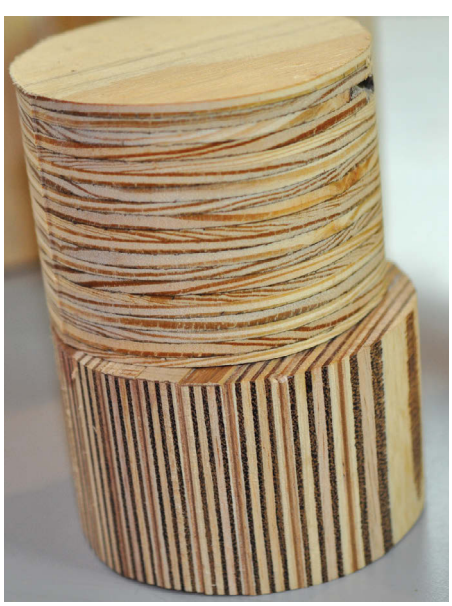
Mark Palma goes against the grain by using plywood offcuts to make bowls

Bowls can sometimes look boring. Plywood bowls can create a new and unique look. By combining plywood with other materials, orienting the 'grain' in different ways or using your imagination, you can go a long way with this simple form of wood.

Material choice

You can make bowls from veneer core, ApplePly (US), or Baltic birch plywood. A-B fir plywood with tight plies and few voids also works. Avoid particle board, flake board, MDF, OSB and cheap grades of plywood, along with anything with noticeable voids, warped boards, or any board exhibiting having been wet. You cannot fix bad materials and it is very dangerous to

Choose your plywood with care



Look for interesting patterns

use any plywood that is in any way questionable. Even good plywood has hidden defects – don't take a chance with your safety.

WORKING METHODS

Vertical lined bowls

(I use the term vertical to refer to plies that run from the foot of the bowl to the rim)

Rip the plywood scraps to the rough height (plus 1in) of the blank you want to end up with (normally 74-150mm) on a tablesaw or bandsaw. What primarily determines blank height is the dimensions of the offcuts available and common sense. Assemble enough plies to make a square.

For example, suppose you cut 19mm plywood cut 150mm wide on the tablesaw then cross cut in 200mm wide. Eleven pieces will yield a bowl blank 150mm high by 200 x 215mm. Put your compass exactly in the middle of either a glue seam or plywood ply (depending on whether you used an even or odd number of pieces) so you have exactly the same number of plies on either side of centre. Take your time to find centre, it will give your finished bowl 'grain' balance and make the overall end result far more attractive.

Horizontal lined bowls

Cut your pieces square for simpler glue-ups. Stack your pieces until you reach the overall height of your intended blank. The two advantages to horizontal lined bowls is that you will always have a flat surface to go against the screw chuck and you do not have to worry about centring plies. Since the plies run parallel to the lathe axis, slight variations between plies will not matter.

TIP: Try alternating between horizontal and vertical glue-ups. You can turn the same shape bowl from both a horizontal blank and a vertical blank and the two bowls will look completely different. Personally, I prefer horizontal plies for tall, thin pieces such as vases and vertical plies for squatty objects such as bowls. But, remember, the choice is yours.

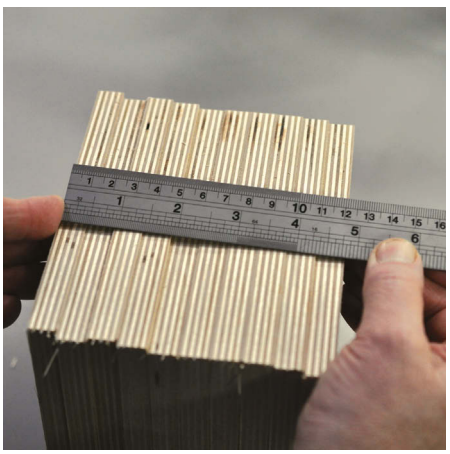
Glue and glue-up techniques

Stack your strips together and make sure again that none are warped or have any ply separation. You cannot fill a gap between boards with glue, so a dry fit is imperative to a good end result. Use fresh glue. If in doubt, throw away your glue and buy some from a retailer that sells a lot of glue so there should be good stock turnover. Many manufactures give out how to 'decode' the date code on their glue bottle – learn the code for your brand of glue.

Spread a generous coating of glue on each surface. Squeeze-out, although messy, has no real outcome on the finished blank, the bandsaw cuts it off.

You need good clamping force equally distributed over the piece. Use three to four clamps to achieve good clamping pressure. Let the assembly sit overnight.

Good clamping pressure is essential



Measure the plies to find the centre point

Design considerations

Plywood bowls prefer simple shapes. Plywood does not take fine detail so limit sharp transitions, grooves or fine features. Plywood bowls are busy in appearance, with 10 to 20 plies per inch (25mm) you have extraordinary grain in every piece. With all that grain going on, simple designs are normally the best.

Plywood is lighter than wood so thicker wall thicknesses still result in a lightweight bowl. Consider a bowl that seems a little 'chunky'.

Plan ahead for adequate chucking area. Strong tenons/spigots are important.

Design your rim so it can be reverse chucked and turn a smaller foot. With vertical grain bowls be aware that internal chucking can pull the bowl apart, particularly as it gets thinner. ➤

Plywood turning safety tips

- Have good dust extraction and wear a dust mask when sanding plywood.
- Use fresh glue, adequate clamping pressure and allow the glue to properly dry.
- Do not try to turn unsound plywood. Use only material without voids and defects.
- Watch out for flying pieces of plywood. If it is coming off in chunks, throw the blank away and use different material and possibly a new glue supply.
- NEVER feel your spinning work – plywood slivers are particularly nasty.
- Recognise you are essentially turning glue, so be careful of instant catches and the cutting action of the material.
- Hold your work with a strong work-holding method. Plywood can sheer off and create a hazard.

Turning techniques

This is a great project for carbide insert tools. All that glue dulls conventional tools quickly. Plywood likes faster turning speeds, very sharp tools and slower cutter feed rates in order to reduce tear-out. Please note I have tear-out in every piece I make.

Examine the bowl as you go, looking for voids and cracks. If you encounter substantial voids evaluate if the piece is salvageable. You may find an internal defect that is either too large or too dangerous to repair, or ply separation. If any of those circumstances occur take the piece off the lathe and throw it away. Better to cut your losses early than invest time -n something that will inherently fail.

Stop the lathe from time to time to observe your surface finish, look for tear-out, whether voids are appearing or disappearing and to get a general feel for if he blank is 'behaving' or 'acting up'. Now is also a good time to survey the blank for cracks or areas that indicate there are any flaws that wood putty will not repair. If you see problems at this stage recognise they will not get better.

Mount the blank securely before starting

Sanding the outside

When the outside shape is complete, power sand with 80 grit paper. Wear a decent dust mask, and use a good dust extractor, as any wood dust is not good for the lungs. The sanding also acts as a way to refine shapes and address the tear out. Do not be embarrassed to sand. There is no dishonour in using power sanding to refine a shape in plywood.

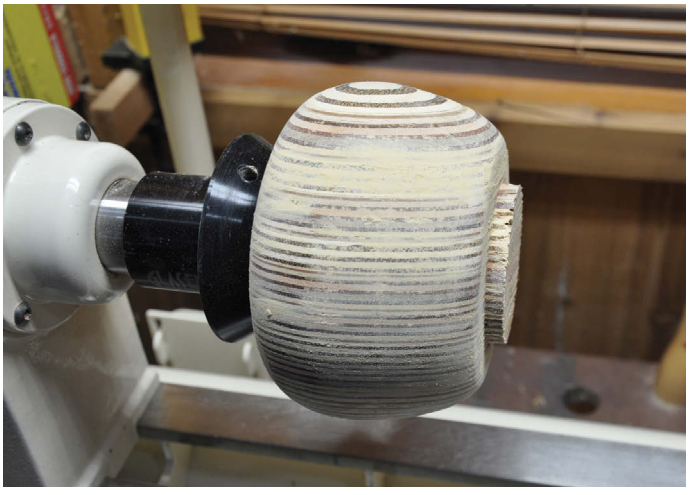
Unlike other bowl turning where good techniques can let you avoid coarse grits, plywood is, well, plywood. It is not a sophisticated material, so it takes somewhat unsophisticated techniques.

After you are satisfied with the shape of the outside, turn off the lathe – it remains off for this stage – leave the piece on the lathe and start filling voids. The first filling is designed to fill voids in plies, small cracks that do not impact structural integrity and torn grain. Liberally smear wood filler over the entire piece. Let it sit several hours, sometimes overnight, until the wood filler is completely dry, if not it will instantly clog your sandpaper – don't ask how I know this. For most plywood, lighter coloured fillers tend to blend in and disappear better at the end. You can use multiple fillers on the same piece matching the filler to the colour of the wood surrounding the void. The best 'tool' I have found for applying filler is my fingers. This lets me press the filler into small voids and feel for them in the ply.

After the filler is thoroughly dry after eight to10 hours, power sand again with 120 grit. Now you need to inspect the piece thoroughly. Normally it takes more than one coat of filler to completely fill all voids. Do not rush this step. If it takes two to three coats, then give it that number of coats and allow eight to 10 hours of drying between each coat. Your goal is to achieve a smooth finish, not to be expedient, so exercise patience. When the outside is smooth and filled, sand through 180-220 grits.

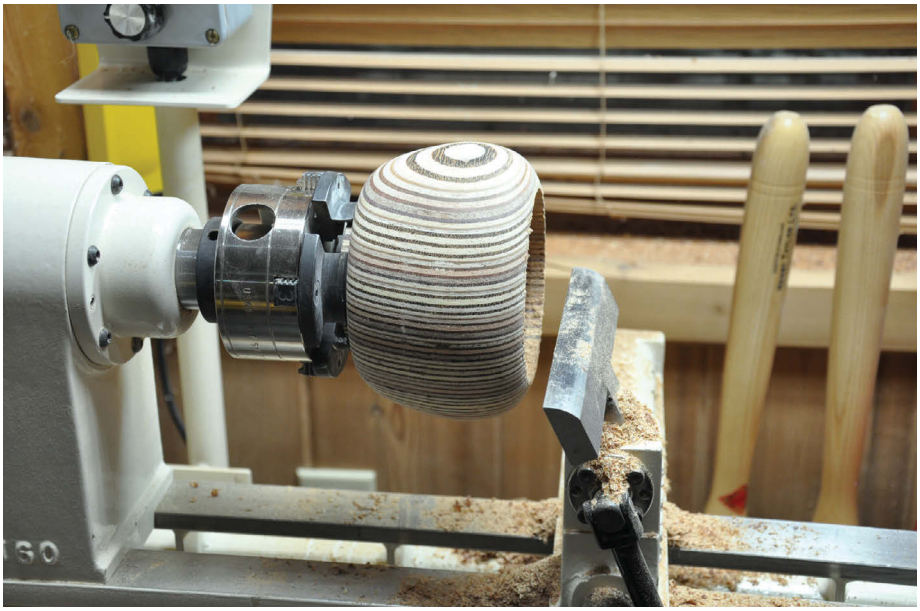
Hollowing the inside

Proceed with hollowing the inside of the bowl and take tear-out that will need to be sanded away into account in determining your initial wall thickness. Round over the rim of the bowl to avoid a sharp edge. Power sanding this area may help avoid excessive tear-out. Fill any small voids



Rough turn the outside then use coarse abrasive

Turn a stout tenon for secure mounting



Mount to hollow inside once the outside is completed

Finish cut the inside nicely and clean up the rim

and go through whole filling ritual on the inside of the bowl and the rim as many times as you need to achieve a smooth surface. Again, sand through 180-220 grits.

If you need to finish the bottom, re-chuck the piece gently. Again, be careful not to exert too much pressure. A very light touch is in order when refining the foot of the bowl.

Finishing the piece

I have tried a variety of finishes with good success. Plywood is not material for an oil finish. I use finishes that build up on the surface of the bowl. For example, a coat of sanding sealer, followed by a wipe-on poly finish works well. Consider a matte or semi-gloss finish as high-gloss seems to accentuate the waviness of the plies as well as any voids and ridges. Sand between coats to level out any low areas. Be patient – plywood absorbs finish unevenly and may need more coats than would be typical for solid wood projects.

Your last step should be a coat of wax because everyone will be trying to touch it.

Conclusion

With a few scraps of plywood, lots of glue, more wood filler and hours of sanding you can create a remarkable project that will be a conversation piece to the owner. You will learn to master a light touch, how to keep a sharp edge and use power sanding to efficiently refine your turning skills. ■

Finish with plenty of coats for an even build

Tips for success with plywood bowls

• Use good veneer plywood. Avoid pieces with large voids, cracks, or ply separations. Only use plywood that is dry and not warped.

• Glue your blanks carefully. Use good glue techniques. Only use fresh glue, throw away any glue that is in doubt. If anything, err on heavier glue-up and avoid glue starvation. Clamp your blanks with adequate clamps and even clamping pressure. Plywood is basically clamped wood and lots of glue.

• Plywood is a dangerous medium to turn. Full face shields are a must. Splinters, chip-out and exploding bowls happen. Keep yourself safe. Never run your hands over spinning wood to check your progress. A piece that may look smooth can instantly drive a sliver into your hands.

• Plywood is dusty, it is wood veneer and glue. Wear a dust mask for all sanding operations and use a dust extraction system on your lathe.

• Take your time and have fun. This is not a project for when you are in a hurry. I find plywood projects take several sessions to bring to completion. However, if you are willing to take the time, you will have a unique and rewarding finished piece.

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GLUE TECH Part II

We have already told you quite a lot about adhesives, just stick with us to the end...

Last month we looked at the adhesives that are available. This time we major on gluing technique. Sometimes this isn't so much about the adhesive, more about the wood or other material that you're trying to fix. Then again, glue cannot always stand alone but invariably needs to be used in concert with fixings or clamps. What about the times when you shouldn't even use glue at all? Hopefully we have the answers you are looking for.

To glue or not to glue?

Let's start with glue philosophy. Glue, like breakfast cereal, is sold to us as if we need it. So we just gobble it up. Not the glue obviously, but a manufactured wheat-based food with added sugar, salt and vitamins plus processed milk might not be suitable or sensible for a number of dietary reasons. So it is with adhesives – the wrong glue for a job can ruin it and there are situations where glue isn't even the best solution.

TYPICALLY GLUELESS
Exterior work

Anything that belongs outdoors or is exposed to weathering is hardly the ideal candidate for glue. There are plenty of exterior grade glues, including PVA, urea formaldehyde, epoxy resin and polyurethane. These may all be fine, but without reinforcement any of them could fail early because wood is not inert in the same way that adhesives are. The vessels in the wood can absorb moisture and let it out again as weather conditions vary and eventually fungal attack will begin. Wood is an example of a dead material that still lives on. ➤

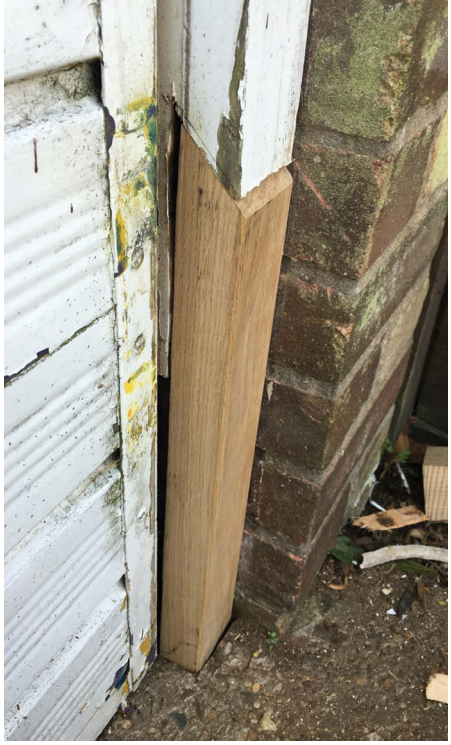
For some outdoor tasks, such as decking assembly, exterior adhesive is completely unnecessary, especially if using dedicated timber screws

If this garden trolley needs to be altered it only needs a few screws to be removed first, without the interference of glue

2 The Plans 4 You garden trolley project in the last issue is based on an actual version which is fixed together by twinfast screws alone. This is for two reasons – one, there is no glue to fail except in the exterior ply used for some of the components, and two, the design can be altered very easily to adapt it for other tasks.

So, if most projects are effectively prototypes, i.e. never to be repeated, it can pay to go glueless by careful pre-drilling and screwing so it can then be altered or adjusted as experience or circumstances change.

3 If you do use glue for exterior work make doubly sure that meeting surfaces are tight and wood that is



Partway through a wet rot repair, the lower replacement section fits neatly with a run-off bevel at the top

repaired is in sound condition after cutting out defective material. Joinery such as window frames needs any let-in pieces to be cut with a down-facing angle so water is shed off the joints. Good finishing is important, using undercoats as well as a top coat to protect the wood.

Interior work

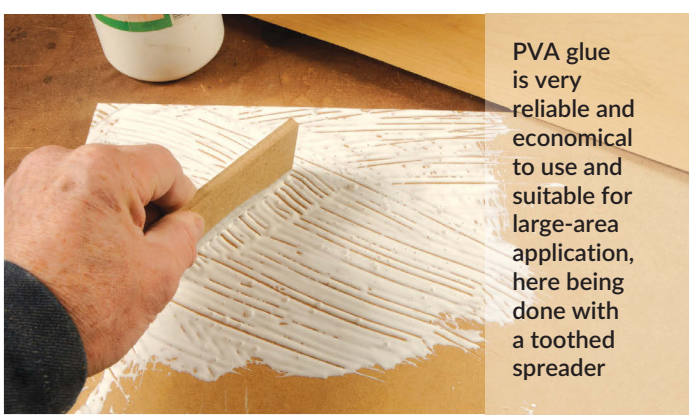
4 The same comment about not gluing applies here –

'Dry' fixings have the benefit of quick assembly and disassembly. Pocket hole jigs and screws are a good example

if the construction of something is likely to change. A property inhabited by a growing family with changing needs and interests will mean that any fixtures and fittings will change over time, so fitted wardrobes and cupboards may get outmoded and be replaced with something more suitable. If glue is omitted the structures can be taken apart relatively easily and reused, or the boards put back into stock for the future.

CHOOSE YOUR GLUE – PVA or aliphatic resin?

Aliphatic resin is reliable and has a quick 'grab', so complex glue-ups need careful pre-planning first



PVA glue is very reliable and economical to use and suitable for large-area application, here being done with a toothed spreader

5 Aliphatic resin glue, which is a yellow-coloured, modified PVA, has many adherents, especially for good quality work. It has a fast 'grab' which is useful, but you could argue that clamps are probably needed anyway. The dried glue colour can be a mite irritating if you don't wipe it all away cleanly while still wet. It is good if used next to finished surfaces such as lacquer or French polish or wax as the dried drip runs can be 'thumbnailed' off quite easily, better than straight PVA. It does dry too quickly in warm conditions, especially summertime, making complex assemblies problematic.

6 Good quality PVA white glue, on the other hand, is cheaper, dries fairly quickly, is runnier – allowing more joint 'open time' when assembling – easy to wipe away and dries clear. The Germans have a special DIN test for PVA because of its elasticity but, to be honest, with tightly held joints I haven't noticed any tendency for them to come apart under stress. Maybe the chemical formulations have just got better over time. In winter it will denature due to freezing so keep it in warm non-freezing conditions – in other words, in your house…

Ordinary luggage straps pressing newly glued corner pieces on to a carcass prior to an overall paint treatment

Biscuits give positive location during glue-up as well as creating strong joints

Glue strategy

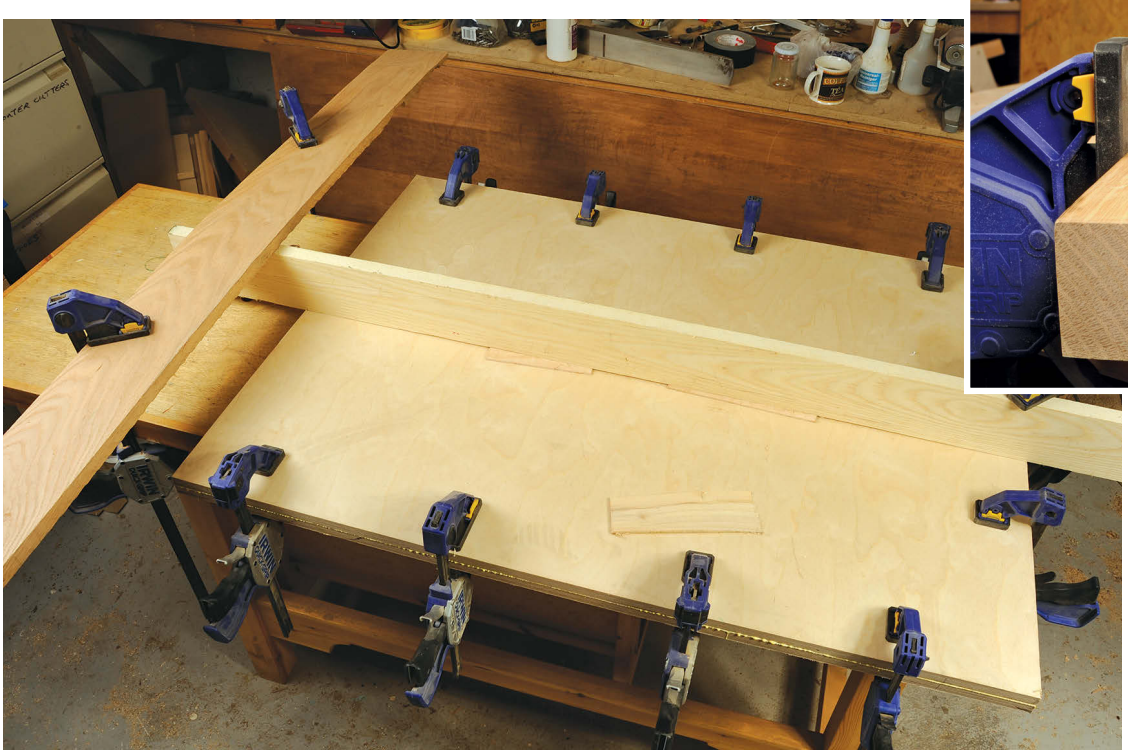
7 Make sure you have a plan about how you will glue components together. For instance, flat boards meeting face to face will slip around once glued, so prepare for this. Using a line of biscuits in biscuit joint slots will ensure accurate alignment along one edge. Once they engage and you start clamping the boards together, it's game over – you should have perfectly matching board edges.

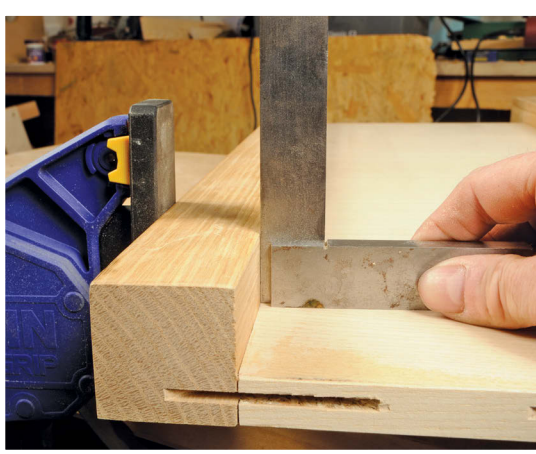
Clamping by design

8 It is one of those workshop maxims: 'You can never have too many clamps.' In fact you may be well provided for clamps, they just aren't all the same type – very annoying. So think about how you will clamp a job so all meeting faces do just that, straight and square. The centre of large boards won't have much pressure applied, there aren't clamps capable of reaching so far over. The old-fashioned way of pressing veneer is to use a 'caul', which has wooden members lying on edge. These are deeper towards the middle, so clamping them together at the edges causes extra pressure to be applied there. You can do the same thing with a bit of ingenuity.

9 Some jobs don't need 'proper' clamps. Spring clamps for smaller jobs are powerful, the rubber-booted ones are less damaging to the wood. Simple luggage straps are great for carcass assembly, but corner protection is essential and those cardboard packing corners from domestic appliance packaging are very handy.

10 Adjusting clamp pad positioning will alter the tightness and squareness of an assembly and, used in conjunction with a try square and corner-to-corner measuring, will affect how accurate the finished job really is. ➤





Above: Clamps can wrongly apply pressure so components are no longer perpendicular to each other

Left: An edge-on board with pads under it is shown here creating downward pressure mid-panel

Even patterns of glue help to ensure even bonding and reduce wasteful 'squeeze-out'

Glue patterns

11 The way you lay your glue out matters. Too much and most of it gets wasted and the joint components slip around, making assembly difficult. Too little and a joint could fail if glue hasn't reached all meeting areas. Liquid glue needs correct application and you have a choice. Straight out of the bottle is good, but don't snip off too much of the nozzle end or you will just be dumping large quantities of sticky stuff. If there is a twist-to-open nozzle, it will block up as the glue dries after use. An adjustment with a utility knife takes care of the offending plastic web under the twisty bit and helps maintain the flow. Lay glue out in a pattern – I use repeat zigzag shapes covering the entire area of a board with a line of glue all round, set back from the edges.

12 Finger joints only need minimal glue added or they won't close, even under great pressure. A glue brush is best for this task. Large-area gluing may be more evenly done with a special roller fitted with a glue hopper if you do a lot of it. Inserting small amounts of glue into a joint socket can be done with a lolly stick or a small strip of veneer. In other words, use ingenuity to get glue where it needs to be, because it can otherwise get pushed out.

Wiping away wet glue is important but no traces can be left, although water can cause grain raising

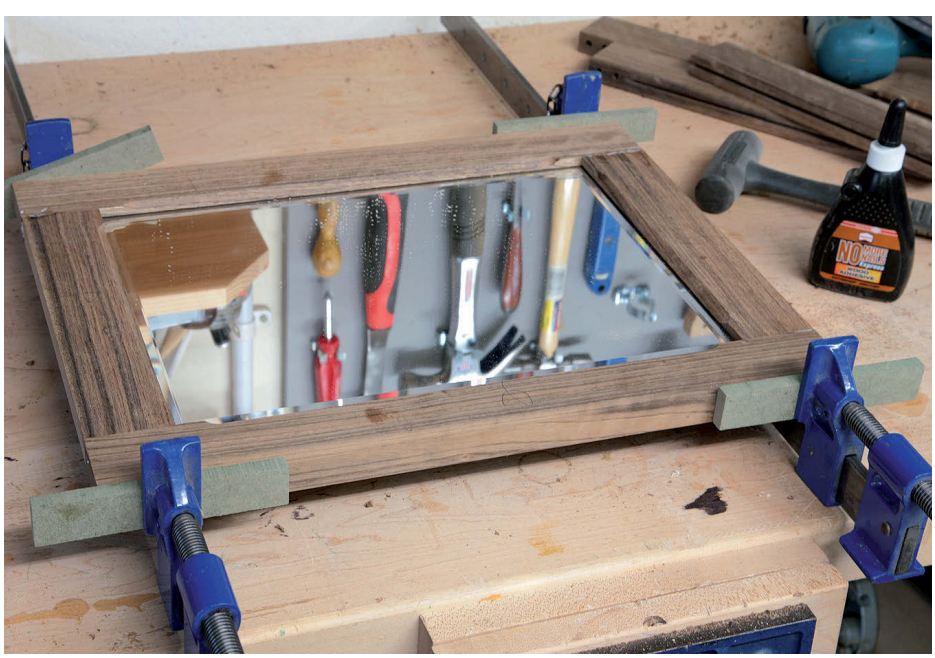
Clean up

13 Water-based glues clean up fairly easily and this is usually best done as soon as everything is clamped up with the glue still wet. However, thin glue squeeze-outs can be done by trimming off with a second-best chisel once it has gone plasticky. Either way, you need to be sure it has gone completely from all 'seen' faces or it will show through when subsequent stains and finishes are applied.

For repeated large-area gluing a special roller and hopper ensure even coating

Other choices

14 You will note that I haven't covered all the glues mentioned in the last issue. In truth, most of your work will be done with the two types discussed here. There are times when you will need to reach for another sort of adhesive – just make sure you match it to the job in hand. One that I didn't add in part one is silicone mastic. If you need to stick something to wood, silicone can grip like a limpet once cured. If you want to install a mirror, you use must use a special mirror-fixing mastic that won't damage the silvered backing. ■

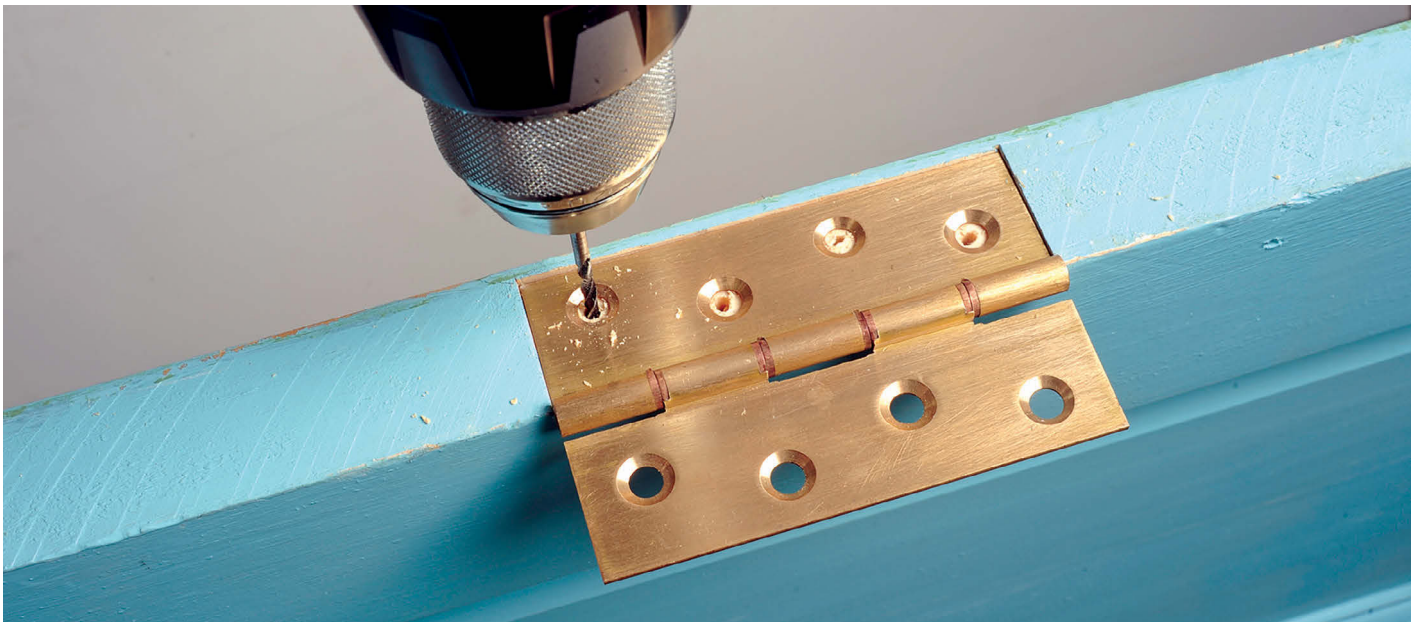


This mirror is bedded on a special mirror-mounting mastic that leaves the silvered coating intact

#@*&!%?! happens!

Hinge troubles

It's easy to become unhinged – but don't worry, the answer is here



PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Drill straight and centred on each screw position

There is a trick to hinging successfully. Creating a recess of the right depth so a door fits nicely within a frame with even gapping all round is not easy. Too deep and the hinge won't close. Hinges often have shallow countersinks so screw heads won't seat flush in the hinge leaves. Too shallow a recess and the gap will be too great and the hinge may not want to stay neatly in the recess under door loading.

It is probably safer to make it slightly deep and then pack it at the front with thin strips of cardboard or abrasive paper. This has the effect of tilting the hinge, which is the way traditional taper-leaf hinges and slotted screws would be fitted, with a hand chisel-pared, slanting recess.

Another point is that modern twinfast screw heads often won't sit neatly in the hinge countersinks. The self-seating type with ridges under the head certainly can't. Check the fit before installing the hinges. In brass you can use a 'snail' countersink to increase the hinge recesses. For smaller hinges you can buy special hinge screws which have undersized heads.

A final point is the importance of drilling and driving screws in, perpendicular to the hinge leaf. Any deviation can leave the screw head projecting slightly at an angle, preventing the hinge leaves from closing properly and the door to spring open when trying to press it closed. ■

Check the recess depth and set gauge accordingly

Packing hinge to get enough gapping with the frame

Misaligned drillings may prevent door closure

KITTED OUT

Take a look at the tools, gadgets and gizmos that we think you will enjoy using in your workshop

Record Power Coronet Herald heavy-duty lathe

RRP £899 inc VAT

The cast iron Coronet Herald features a state-of-the-art electronic variable speed drive system, swivel head, reverse facility and 24 point indexing. This innovative machine offers capacities, features and performance that far exceed anything a lathe of this size has been capable of before. It brings top-end professional performance but delivers it at a much more compact and workshop-friendly size at a fraction of the cost of comparable heavy-duty machines

Many of the professionals who tested the prototype machines commented that it would be their ideal lathe, manageable enough in size to take to demonstrations and shows, yet with similar and often greater performance than the larger machines in their permanent workshops and training schools. The Herald is not only a beautifully designed and engineered lathe, it is made with unsurpassed accuracy and quality, ensuring the whole experience of turning – from setting up the machine, using it and producing work you can be proud of – is as enjoyable and trouble-free as possible. The sleek, modern curves of the design ensure the lathe has an attractive and contemporary style while at the same time making reference to the vintage Coronet series of woodworking machines which provide the heritage and starting point of Record Power's involvement with woodturning.

Max bowl diameter: 533mm
Max swing over bed: 355mm
Max between centres: 508mm
Spindle speeds: 95-3980rpm
Threaded M33/2 Morse taper

Optional accessories also available – bed extension, tubular leg stand, outrigger, bench feet.

Contact: www.recordpower.co.uk

Axminster 1500 workbench

The new Axminster 1500 workbench is suitable for professionals, the home-based workshop or hobby woodworkers.

It has many attractive features and is manufactured from kiln-dried beech wood, chosen for its toughness and resilience. Its laminated construction ensures the top is stable and rigid and will remain flat throughout all its working life. The benchtop is 30mm thick with a 90mm deep apron and includes two vices. The vices have 360mm-wide jaws opening to a maximum of 130mm. They feature a strong central screw with steel guide bars on each side. The benchtop has a lacquered finish giving maximum protection.

Two double rows of bench dog holes, one from each vice, are positioned on the benchtop. Used with the dog holes in the vice, they allow you to hold workpieces with a wide variation in size or shape. The bench includes four bench dogs. Dog holes in the legs allow you to clamp items vertically. The underframe is solid beech. A full-length shelf in the base offers storage for larger tools or materials. The bench comes flat-packed with full instructions for self assembly.

Price: £299.96 inc VAT

(May be subject to change without notice)

Contact:
www. axminster.co.uk

Dremel EZ Speedclic

The Dremel EZ Speedclic wood cutting wheel makes light work of hard and soft wood and materials such as laminate. Using a patented mandrel and wheel design, Dremel has found a way to enable you to change your accessory in three simple steps – pull, click, twist – without using any tools.

Contact:
https://shop.dremeleurope.com/gb/en/

RRP £18.92 inc VAT

Powermatic chisel mortiser test

The **Editor** decided to drill down and find out whether this pro machine really does cut it

One of the Powermatic professional machine range, this chisel mortiser certainly looks the part and it has all the features you might expect. My concern was whether this thorough execution of a mortising machine had got everything covered or whether they might be any design flaws, despite good build quality.

It comes on its own base with a relatively small footprint. There is a storage cupboard under, which is useful for bushes, bits and tools. The motor and sliding cast head are heavy but, as is standard on modern chisel mortisers, it has a gas strut to give return lift.

The slideway, depth stop etc. are all good and the up-down action works fine. But my beef is with the pull-down lever – this is often a contentious item on this type of machine. You can adjust it to any convenient start position but, in order to get a full sweep when mortising smaller height components, it needs to be set quite high up, as seen in the photo. If it isn't, the lever clashes on the mortising bed at the end of the stroke. The way to get around this at the manufacturing stage is to crank the arm so the last grip-section is closer to the operator and thus easier to get hold of.

Access to the chuck when changing bits

The mortising bed is the next most crucial thing. It is well machined and equipped with all the necessary forward, back and lateral movements, flipover lever stops and length stop to set the mortise parameters. The fun bit is using the angled bed feature. For this you need muscles and a spanner ➤

Tech spec

Powermatic 719-T chisel mortiser and stand

Power input: 1,300watts
Maximum workpiece: 140 x 190mm
Centre of chisel to back fence: 100mm
Chisel stroke: 270mm
Lateral table movement: 295mm
Longitudinal table movement: 100mm
Table tilt: 0-35°
Max chisel size hardwood: 19mm (¾in)
Max chisel size softwood: 25mm (1in)
Overall L x W x H: 700 x 580 x 950mm (1,550mm inc stand)
Supplied with bushes for ¾in, 13/16in and 1 13/16in shank chisels.

Price: £1429.96 inc VAT – price subject to change
Contact: www.axminster.co.uk

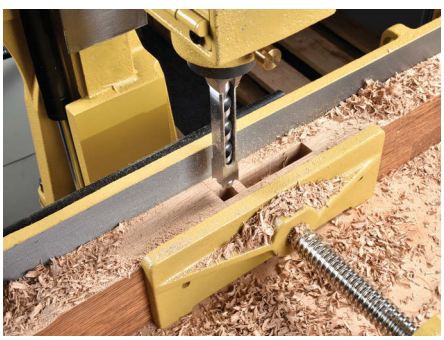
to raise and lock in place. Interesting to be able to use this facility, but I would observe that, normally, any sensible operator would just block up a level mortising bed to achieve the same result. In this case the bed at full tilt comes perilously close to the tip of a standard length chisel mortising bit. Unless you can find and use a short series bit for the highest angle setting it may be of less use to you.

Verdict

A couple of negative points I felt compelled to make, but to put it in perspective, this is a powerful, well-built mortiser designed for heavy usage, and I'm sure it will do just that. Plenty of controls with quick adjustment, standard access for installing the chisel and auger and very solid build.

An additional feature is being able to rotate the column for door construction – very useful in the joinery shop. Regarding the need to reach the pull-down lever to achieve a full stroke for the average height individual – build yourself a 150mm high work platform to stand on… ■

The pull-down lever can clash with the mortiser bed



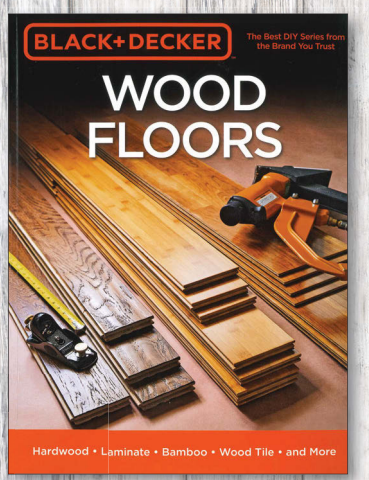
Producing a standard mortise slot in hardwood

The tilted bed allows for angled mortising

BOOK REVIEWS

The Editor discovers whether these two books really do float his boat

Black + Decker – Wood Floors

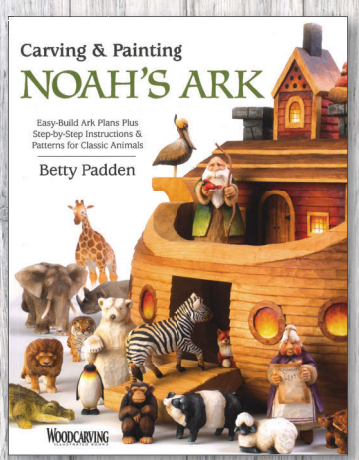


ISBN: 978-1-59186-680-0
Price: £12.99
Published by Cool Springs Press

It has become standard for well-known brands to have books produced in their name, bolstered by their reputation. So it is with *Wood Floors*, which covers hardwood, laminate, bamboo, wood tile and more, as it announces on the cover. Being a US production there is inevitably a different style, tone and content to home-grown books, but on careful reading it is very much in tune with practice here. A difference is the slightly greater variety of designs and types of flooring, although if you do some research you will find much more to choose from in the UK than just by visiting DIY superstores. The step-by-step photography is very clear in explaining the different processes and alerts the readers to potential safety hazards along the way. Whether you want to level a surface, lay a new surface ready to cover, lay carpet, laminate or engineered flooring, it is all here. It even shows you how to make and lay your own end-grain flooring. If you are considering re-flooring you do need a reasonable amount of DIY skill before starting, I have reservations about novices cutting through existing flooring without understanding what lies beneath and industrial grade floor sanding which requires some skill to avoid causing damage. Aside from that it is a worthy and very informative book that should inform your requirements for improving the home.

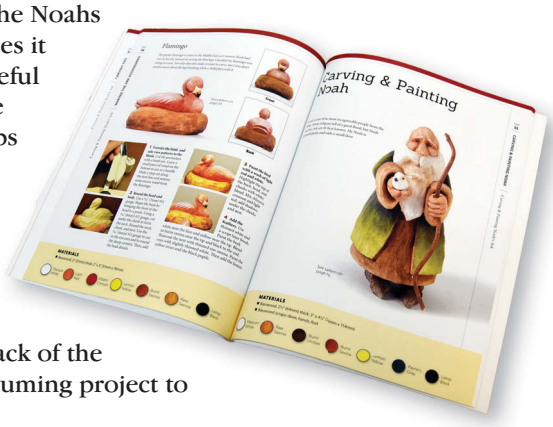
Carving & Painting Noah's Ark

By Betty Padden



ISBN: 978-1-56523-895-4
Price: £9.99
Published by Fox Chapel Publishing

The story of Noah's Ark places in our minds a powerful image of a cataclysmic event, the ultimate animal rescue. However, the author's delightfully, rather eccentric carving style renders the ark, Mr and Mrs Noah and all of the animals in a charming, rather cartooned style that makes all the characters look as if they could come alive at any moment. It's quite a trick and one which Betty Padden pulls off most successfully. The faceting of the carving almost looks like the animals have fur or scales while the Noahs look quite homely. What completes it is the skilful use of paint with careful blending and shading helping the 3D carving come alive. Various tips and advice are included to help you. There are 20 animals and some ark accessories, such as a lantern and a series of patterns to work from, including full-sized plans for the ark itself, to be found in an envelope in the back of the book. An enchanting and all-consuming project to keep the keen carver busy.



Both books are available from:
GMC Publications
www.thegmcgroup.com
01273 488005

Achieving a good finish on MDF

Anthony Bailey on making the much-maligned fibre board look good

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

To many woodworkers MDF is neither proper wood nor very pleasant to use, but on grounds of cost and consistency, it is very much a fact of life.

So with that in mind it's better to know how to get the best out of it. We show you how it's done.

Safety

The first thing is safety – the dust from MDF is harmful and bare MDF in situ can emit small amounts of formaldehyde vapour. MDF is also heavy, so handling whole boards needs care. Always wear proper dust protection even when doing light finish sanding, use extraction when machining, and seal all MDF used in domestic situations.

Machining the board

It is well worth finding a good board supplier with a vertical panel saw. They should be happy to accurately pre-cut boards to the sizes you want for a small charge. It is not only safer for you but will give very clean-cut edges, which helps the finish.

A final but crucial point is that DIY superstores tend to sell a poorer quality grade of MDF with a more porous construction. You cannot expect to get a good finish, especially on machined edges. Ask for a known brand such as Medite or Caberwood.

When routing moulded edges, ensure the router has good support as any slight 'dinks' in the edge are hard to fill evenly before painting, and tend to show in the finished surface.

Sanding bare board

Use conventional abrasive papers on edges but shape it to follow the moulding profile – if necessary, make a shaped wooden block to stick the abrasive on to. You can use medium grades such as 150 or 180 grit. On the flat faces, however, use an orbital sander with finer grades, such as 220 or 240 grit, to avoid scoring the MDF which, in any case, is very smooth and shouldn't need a lot of sanding.

Sealing

Oil-based paints won't work if used directly on MDF as it absorbs them very easily and will remain sticky as well. The exceptions are undercoat or primer undercoat, which is intended to dry matt and contains a high proportion of solids. However, it is also possible to colour MDF with wood finishes, thus making the MDF look more like wood in colour, once several coats have been applied. To do this, you need to apply a clear MDF sealer first. This is a good idea before

painting as well because it seals the surfaces and hardens the raw edges ready to sand, thus giving cleaner, sharper edges to the board. Emulsion paint can be used as an undercoat but it can raise the fibres on the edges and be hard to sand smooth. Only use matt, not silk, as the latter is full of plasticising compounds that make any sort of sanding well nigh impossible.

Flatting between coats

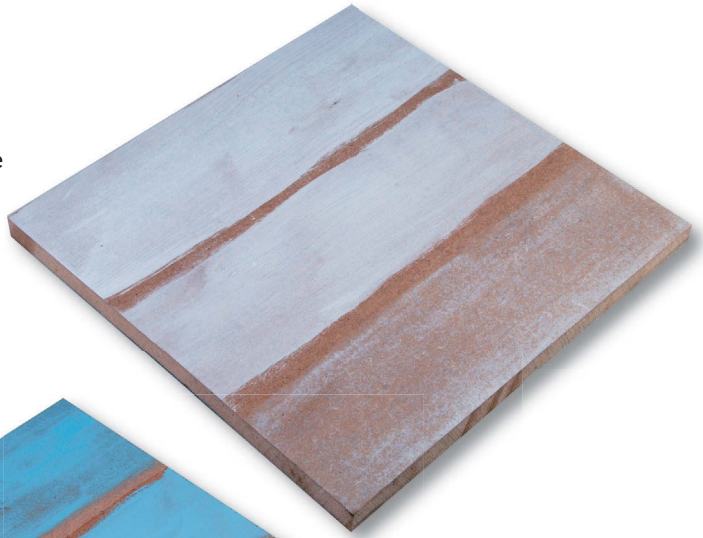
Once a good seal coat is achieved, you need to flat the surface using a medium to fine finishing paper – there are several different types, although I tend to use Lubrisil, which is coated with stearate wax to make the applied coat sand off without clogging the paper.

Use a cork sanding block on flat areas for an even result and to avoid rub-through. Wipe off the dust – tack cloths are good for this.

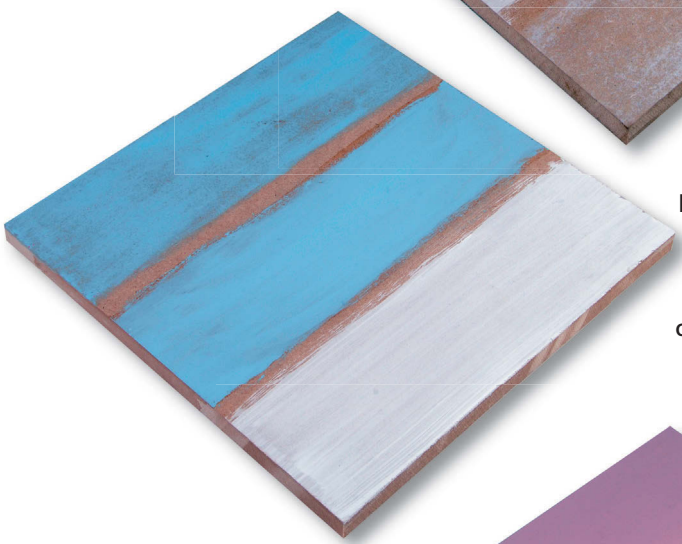
Whatever finish you are applying always use good quality brushes. There are now better quality synthetic bristle brushes where the ends look very silky and translucent. They can give a very good finish without losing bristles. Apply strokes evenly in one direction and ensure you brush out any runs.

Finishing coat

Flat off as before, apply the top coat with great care in a dust-free environment, then give plenty of time for the finish to dry. ■



From top to bottom: white emulsion; white primer undercoat; white gloss on its own – note how it sinks into the surface



From top to bottom: pastel blue oil-based satin finish – note how this undercoat-free paint sinks into the MDF; the same paint over clear MDF sealer sits better on the surface; a white MDF primer

Top to bottom: aqueous-based satin finish sits on the surface far better than the oil-based finish; 'difficult surface' finish – it is more expensive but it can be applied as a basecoat to almost any material, including wall tiles; clear MDF sealer used for sealing and hardening faces and cut edges

Raw machined MDF has a very fibrous and coarse texture on the edges

After sanding, it is still very furry but the edge is much more defined and under control

As a result of using sealer, undercoat and gloss paint and rubbing down between coats, a satisfactory smooth finish is achieved

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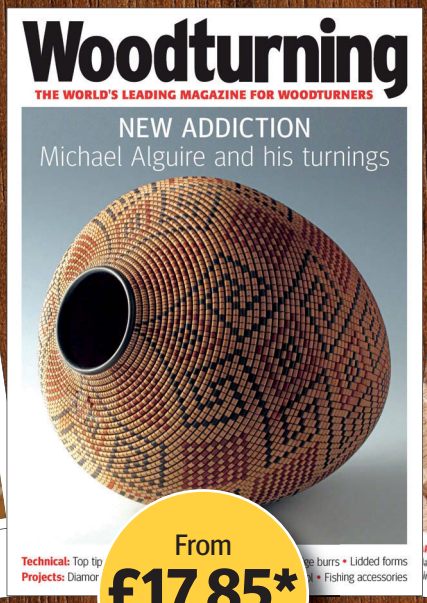

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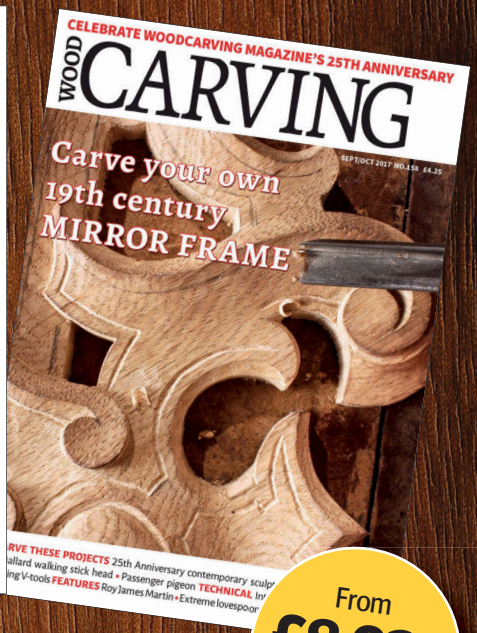

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A sunflower carving in its early stages

An exquisitely carved cravat

A close-up of finely carved floral detail

Zurjole Craft Skills Academy

So you want to learn a new craft skill? Why not make it a complete holiday break in Northern Spain? Yes, you certainly can!

The Zurjole Craft Skills Academy is a recently set-up craft teaching institution in the small northern coastal city of San Sebastián in the Basque region of Spain, close to the French border. The picturesque shoreline makes it a popular resort, while it also hosts its own international film festival as well as being joint European Capital of Culture with Wroclaw, Poland in 2016.

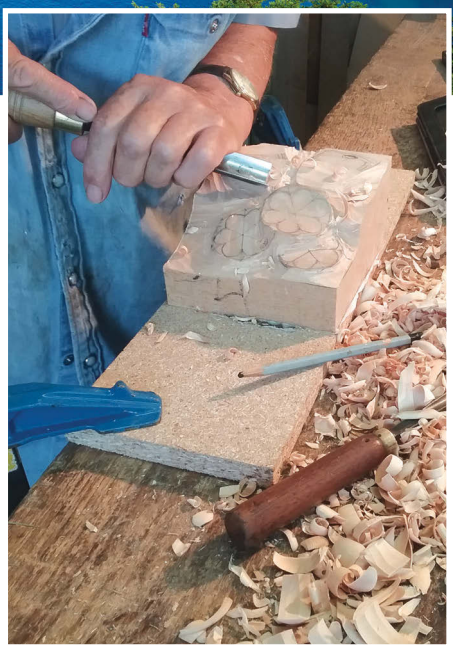
Zurjole is run by Daniel Lizarralde (wood and cane), Amaia Larrea (artist and basketry) and Mari Mar Rodriguez (contemporary materials). Between them they cover a wide range of craft activities with an underlying artistic theme. The workshop is well equipped and in convivial surroundings, making it perfect for anyone looking for a different and more productive holiday, while still being able to enjoy the delights of the city and the beach.

They are determined to continue craft traditions such as woodcarving and seat caning, while embracing new hand skills, such as working with EVA foam to create solid objects. There are regular courses throughout the year in furniture-making, woodcarving, basket weaving, chair caning, seat weaving, basket making, furniture restoration, diverse materials – wood, glass, textiles and EVA foam – and upcycled pallet furniture.

Zurjole also runs week-long summer schools, which are perfect for anyone who also wants to enjoy the beauty of the Gipuzkoa province.

For anyone thinking about trying a

The city of San Sebastián, northern Spain



Student carving flowers

Furniture carcass building in progress

A child having a go at carving under Daniel's watchful eye

A selection of baskets woven from dried palm leaves

The Zurjole team during an academy open day

break with a difference, it is good to know that English, French and Basque are spoken, tools and materials are provided and the academy can run children's birthday events or special one-off courses.

On getting in touch with Daniel, his excitement and enthusiasm for the Zurjole project, with its emphasis on social responsibility, was quite evident. We wish them well and, frankly, are very tempted to sign up for next year's summer school and enjoy the hospitality, good food and stunning surroundings while learning new craft skills.

For more information visit: zurjole.com/inicio_en.html (English version) Facebook – Zurjole Craft Skills Academy (click translation – for English). ■

The well-equipped woodwork shop

Ask the experts

ANTHONY BAILEY
Editor,
Woodworking Crafts magazine

MARK BAKER
Group Editor,
GMC woodworking magazines

Another selection of awkward questions for our experts to answer

SLIPPERY CUSTOMER

A friend of mine asked me if I would refinish a small table top which was apparently covered in a modern lacquer. I cleaned it off first but my efforts with a spray can lacquer didn't work. It was uneven and it sort of blobbed or moved apart. I understand it could be silicone wax causing it. Help. What do I do now?

Nivan Dunlop

Anthony replies: Your friend is at least partially right. Refinishing can easily turn into a nightmare for a variety of reasons. One of the most common is silicone contamination. It is a kind of very slippery oil which clings to any surface and causes rejection – the roll-back effect you saw happening before your eyes. We always tell people to forget using spray polishes – a non-silicone paste wax is better and easier to remove if you need to.

The table in question is now at a precarious stage. If you try to remove the new flawed lacquer it could damage the underlying finish. If you want to have a go I would suggest trying some cellulose thinners on a piece of coarse towelling or something similar, working on a small edge area, and see if you can remove your lacquer. You need to wear a carbon filter facemask and work in an open, ventilated area, outdoors basically and with no naked lights as it is highly flammable. Since your finish is quite new it will probably scrub off, but may damage the old finish underneath. It depends how important it is to keep that earlier layer intact.

Alternatively you could use a chemical stripper to take it all back to bare wood. Whatever you do there is a risk to the table finish and a safety risk working with any chemical compound, so care is needed and use of the correct PPE (Personal Protection Equipment).

Cellulose thinners will also probably remove the contamination, but a better bet is applying an oil free coating of French polish, which will act as a shielding coat, then spraying lacquer in light coatings over the top so it doesn't damage the French polish in the process. A last tip – you may find it easier to spray evenly if the table surface is vertical, facing you. The alternative to this is to take it to professional refinisher who will obviously charge you the going rate for the work.

Refinishing with lacquer requires good preparation

A half-mask to which organic compound filters can be attached

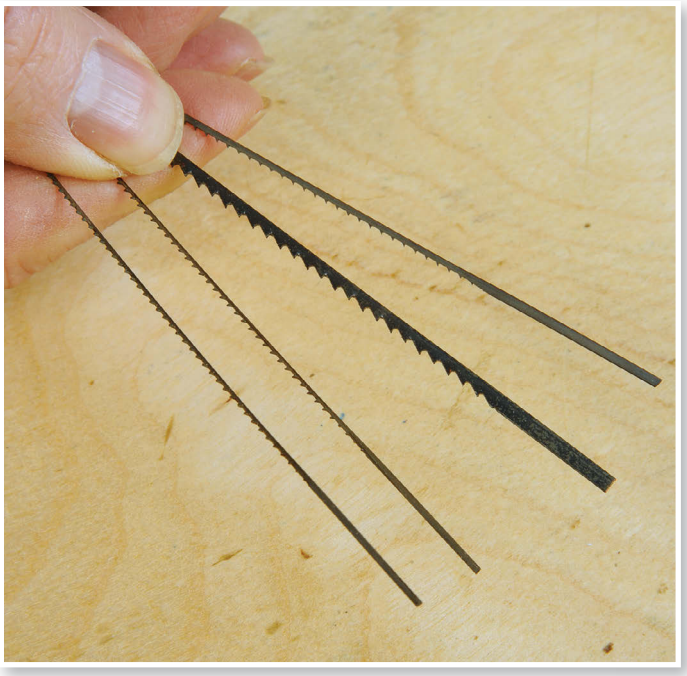
BURNING SENSATION

I want to put a woodburning stove in my workshop in time for winter. I produce lots of odds and ends of timber that can burn but there are shavings and sawdust too. Is there any way I can burn those without making them into pellets, which I believe is the usual way? I couldn't justify the expense or produce enough waste to do that.

Ben Anthony

Anthony replies: There is certainly one range of stoves that I am aware of which accepts sawdust safely and efficiently, but not shavings because they burn too quickly. You can Google stoves that burn sawdust. Obviously you need to ensure you have a safe installation so you need to check the manufacturer's requirements and install a flue correctly. Provided it is done in a safe manner and you have enough space around the stove then nothing beats the warmth in the winter and being able to brew up whenever you need refreshment.

Wood waste can be burnt on a woodburning stove but wood dust needs the correct type of stove



Scrollsaw blades come in a confusing variety of types and sizes

FRETTING A BIT

I've had a go at using a friend's scrollsaw and I'd like to do more but I'm not sure which machine I should buy or what kind of blades are best – there seem to be many different types and tooth sizes. Any help would be appreciated.

Nell Archbold

Anthony replies: Scrollsawing is as easy or as complicated as you want to make it really. There are various books available, including those from GMC (www.gmcbooks.com) which have techniques and patterns you can follow. Regarding what machine and which blades, it's the old business – the more you spend, the better the kit. The most well regarded brand is Hegner. There is also a wide range of scrollsaws from Axminster Tools. Regarding blades I have used Pegas, again from Axminster. In truth there isn't much you can't do with a scrollsaw if you put your mind to it, a most versatile tool.

P.S. I will send you a PDF of an article from several years ago in which scrollsaw expert Roger Buse explains how to choose the correct blade. If any other readers want a copy just get in touch with me – Ed.

GETTING HAMMERED

I think I must be getting old, everyone around me is using cordless drills and fancy screws and here am I still attached, but not literally, to my hammer and nails. Am I out of touch and do I really need to spend £150 on a tool that needs constant recharging? I think it must be a generational thing as I'm well past retirement – or maybe I'm just mean with the money! It's just a lighthearted question really, but I'd like to know your thoughts.

Len Doughty

Anthony replies: Thanks for your letter Len. As an editor of a modern-day woodworking magazine I have to show a variety of means and methods, both traditional and the latest kit. However, I have a sneaking respect for hammer and nails and I still use them with regularity. My home workshop, which is a substantial wooden building, required me to buy a hefty 26oz claw hammer to slug all the big wire nails home, which hold all the structural members together. At the other end of the scale, I find a lightweight pin hammer is perfect for putting in panel pins or veneer pins.

Where cordless drills and twinfast screws win is in being able to assemble things quickly and without much effort and, if necessary, take them apart again. And of course the thread will hold components together better than nails will.

There are some jobs where only pins or nails will do

However, there are still plenty of hammers and nails on the market to buy and they won't go out of fashion any time soon, although I must say the quality of modern 'cut nails', used for fixing into masonry, makes them pretty useless. Just keep on hammering Len.

STAR QUESTION PRIZE

The Tool Marketing Company, or TOMACO, as it is known, which sells a variety of tool brands including COLT Sharp Edge and Narex Tools, is pleased to be sponsoring the Ask the Experts section in collaboration with GMC Publications. Each issue's Star Question winner will receive a Narex six-piece chisel set worth £79.95 and all other published questions will receive a 20mm half-round fine cut Narex rasp worth £20.95. For more information see www.tomaco.co.uk

TOMACO THE TOOL MARKETING COMPANY

N.B. If you do need help or advice you can email me: anthonyb@thegmcgroup.com or visit: www.woodworkersinstitute.com where there are lots of useful articles, either way the service is free!

Trees for life

There are some varieties of tree that almost no one has heard of, yet they are a valuable part of our park and woodland landscape. Enter – the service tree

The service tree is a relative unknown and to compound matters further there are two of them, the wild service (*Sorbus torminalis*) and the true service (*Sorbus domestica*). They seem like quite different members of the sorbus family and indeed are part of a group of 100-200 species, depending how they are categorised, which belong to the rose family (*Rosaceae*). This species group also includes the rowan or mountain ash (*Sorbus aucuparia*).

Fascinating Fact

In 1993 the service tree was voted tree of the year in Germany In many places it is the most expensive timber available.

TRUE SERVICE – *SORBUS DOMESTICA*

This tree has a girth up to 1.2m and is 15-20m high or developed as a shrub reaching 2-3m tall. It has a maximum age of 140 years.

The bark has close, narrow, dark fissures with orange and dark, browny-grey ridges in small rectangle shapes. The leaf buds are green, round and sticky. Though similar, the obvious difference in foliage from the rowan are the pinnate leaves that hang down and whose 13-21 leaflets are sharply and doubly serrated. Flowers are a greyish cream colour and appear in May. The fruit is round or pear-shaped, about 2-3cm long and green tinged with brownish-red.

History

The name 'service' probably comes from the Latin name '*cerevisea*', meaning 'beer', because the berries of a related tree were used to sweeten beer or, in this country, mead. It is sometimes known as chequers or checkers.

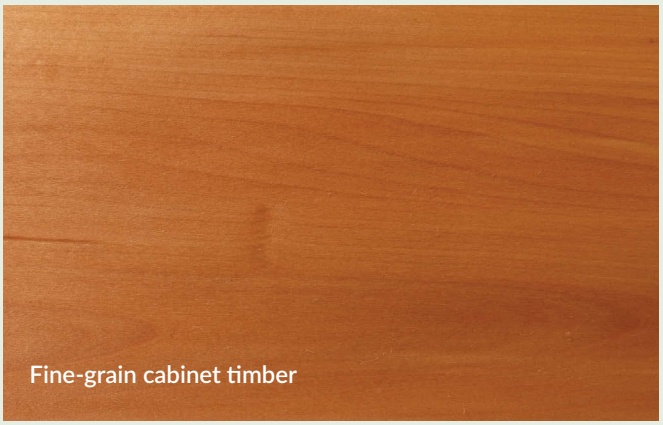
Folklore

Sorbus domestica has superstition associated with it. If a sprig from this tree was hung in the house or worn on a person's clothing, gremlins and other nasties would be kept at bay.

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

TRUE SERVICE – *SORBUS DOMESTICA*



PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Fine-grain cabinet timber

Working characteristics

The timber is white, hard, fine-grained, strong and heavy and takes a high polish.

Typical uses

Its timber was used to make cart and wagon wheel hubs and rims, screws for wine presses, gears and other parts of the machinery in watermills grinding wheat to make flour. In modern times its other use is to make a very thin veneer which at the same time is very hardwearing. These trees are now being grown commercially in France.

Food

A popular dessert fruit in some areas up to the beginning of the 20th century, its berries, which are round or pear-shaped and the size of small cherries, can be eaten. Similar to medlars, they must be kept until decay sets in before they are sweet enough to eat.

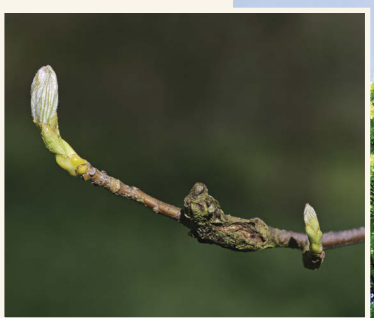
PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Right: The partially decayed fruit ready to eat

WILD SERVICE – *SORBUS TORMINALIS*

A deciduous tree, the wild service is largely confined to ancient woods and hedgerows. It is often associated with oak or ash woodlands, preferring clay and lime soils. A relative of the rowan and whitebeam, knowledge of the history of its fruits has only recently been discovered. Summer temperatures in Britain are too low for the seeds to ripen so its principle method of propagation is by suckers, thus making it very difficult to date accurately.

It grows up to 25m high and young trees have a conical shape, becoming tall-domed and spreading as they get older. It has dark brown bark with red tinges and shallow fissures with pale grey scales, which peel away in squarish platelets to reveal darker brown beneath. The leaves have an alternate, lobed shape rather like a maple, but deeply toothed in pairs. They are usually doubly serrated – no other sorbus has a similar leaf. They turn brilliant red tinged with copper in autumn. The flowers are white in branched clusters present from May to June. The 10-15mm fruit is russet brown and speckled, appearing in September.



PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Early growth

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Typical leaf form

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

WILD SERVICE – *SORBUS TORMINALIS*

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Medicine

Torminalis refers to colic – it was used as a medicine for stomach aches. Remains of the berries have been found on prehistoric sites and must have been a welcome harvest before other sources of sugar were available. A popular dessert fruit in some areas up to the beginning of the 20th century, the berries, which are round or pear-shaped and the size of small cherries, can be eaten once they have softened, or been 'bletted' by frost. They used to be gathered, strung up in clusters around a stick and then hung up indoors, often by the hearth. The fruits were picked off as they ripened and eaten like sweets tasting of dried apricot.

Did you know?

The fruit is well known by the name of 'chequers', as a result of its speckled appearance. There are a large number of Chequers pubs in some areas of England, many with wild service trees in their gardens. Before the introduction of hops, the fruits were used to flavour beer, which may be related to the ancient symbol of a pub being a chequer board.

Folklore

The drink was said to keep away the plague, which of course it would as a fermented alcoholic drink was usually safer than possibly polluted water.

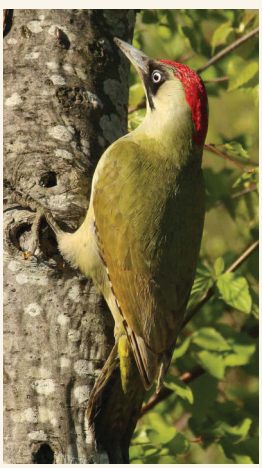
PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Timber conversion

Large diameter trees are highly valued for their timber, but otherwise the wood does not seem to have a particularly widespread use, despite its lovely fine grain and silvery sheen. However, there are some records of it being used by joiners and engravers for a wide variety of items. The wood is apparently similar in characteristics to sycamore (*Acer pseudoplatanus*).

Environment

Service trees are home to the green woodpecker, the redwing and the micromoths *Lyonetia clerkella* on the true service tree and *Stigmella mespilicola* on the wild service tree.



PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Right: The European Green Woodpecker

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Fine flower clusters

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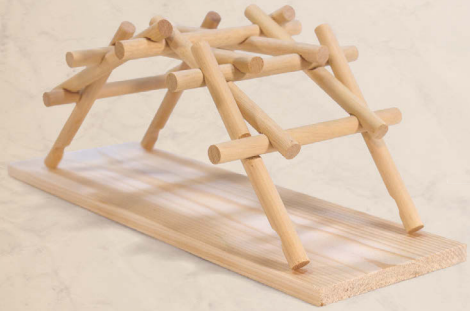

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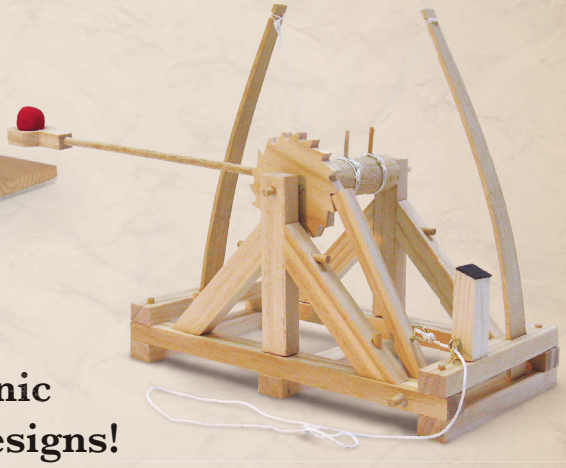

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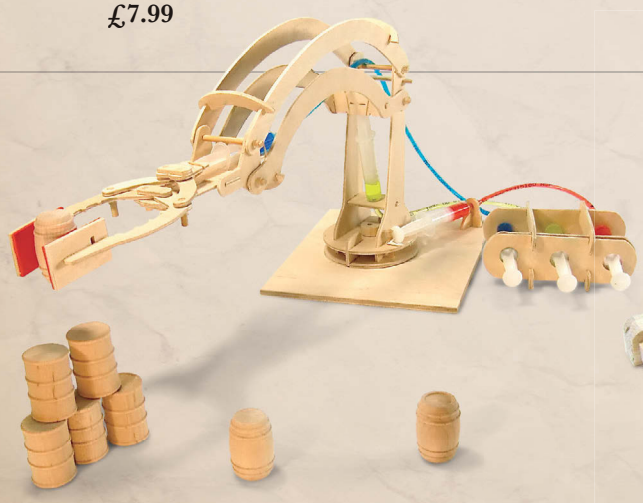

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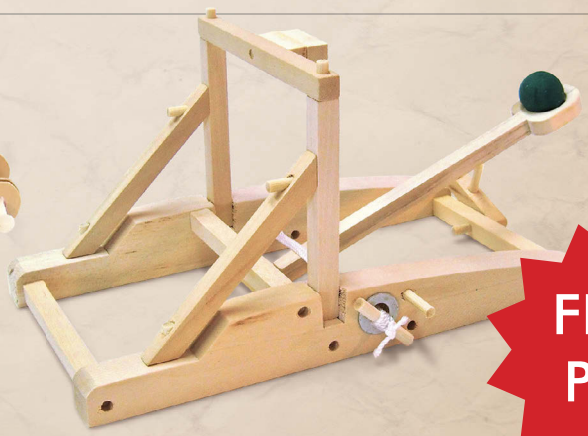

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PHOTOGRAPH BY AMBER BAILEY

An unrestored 3A dining chair in oak

Utility chair in laminated wood

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Utility design panel dressing table – Heal & Son 1947

Focus on… Utility furniture

Where a lack of wood met good design and triumphed while it lasted

Nowadays we think nothing of buying new furniture and taking the old stuff to the recycling centre, but in World War II, when everything was in short supply including timber, homes were being bombed and the aftermath of war caused continuing shortages, this became a real issue.

Introduced in 1942, the Utility Furniture Scheme sought to address this massive problem and it continued into post war austerity until 1952. The Utility Furniture Advisory Committee drew on the considerable experience principally of Gordon Russell and Ernest Clench, also Herman Lebus and John Gloag. Their job was to ensure scarce timber resources were used in a sensible way, new furniture being made available only to those who had been bombed out or were newly wed. A logo often referred to as the 'two cheeses' and previously previously used for utility clothing was also adopted for the furniture scheme. The committee published a catalogue in 1943 featuring a number of approved designs which were mostly in the tradition of the Arts & Crafts Movement, quite simple and unornamented, unlike the popular styles that preceded the war. The committee was reconstituted as the Utility Design Panel also in 1943, with Gordon Russell as the chairman. In time it created three ranges of furniture – Cotswold, Chiltern and Cockaigne – which were carried forward into the postwar period in an important exhibition of post-war design called Britain Can Make It.

While the panel members were firm believers in the aesthetics of their designs, popular taste was for ornamentation and, bizarrely, there were reports of black market utility furniture with carved decoration added to it. When the design rules were relaxed in 1948 and the Diversified range with its Scandinavian influence was announced, the public taste was very much against it. The panel was wound down and the wartime scheme finally ceased in the year that furniture rationing ceased.

It is interesting to reflect that nowadays 'mid-century' furniture, including utility designs, are considered very collectable, examples of good design that was once foisted on a population that soon became war-weary and sought relief from the drabness and austerity of straightened times with more decorative goods.

To find out more visit: **http://www.gordonrusselldesignmuseum.org**

The 'two cheeses' logo used for the furniture scheme

Right: Marcelle Lestrange looks at her permit for Utility furniture which she has just received from Chelsea Borough Council in March 1943

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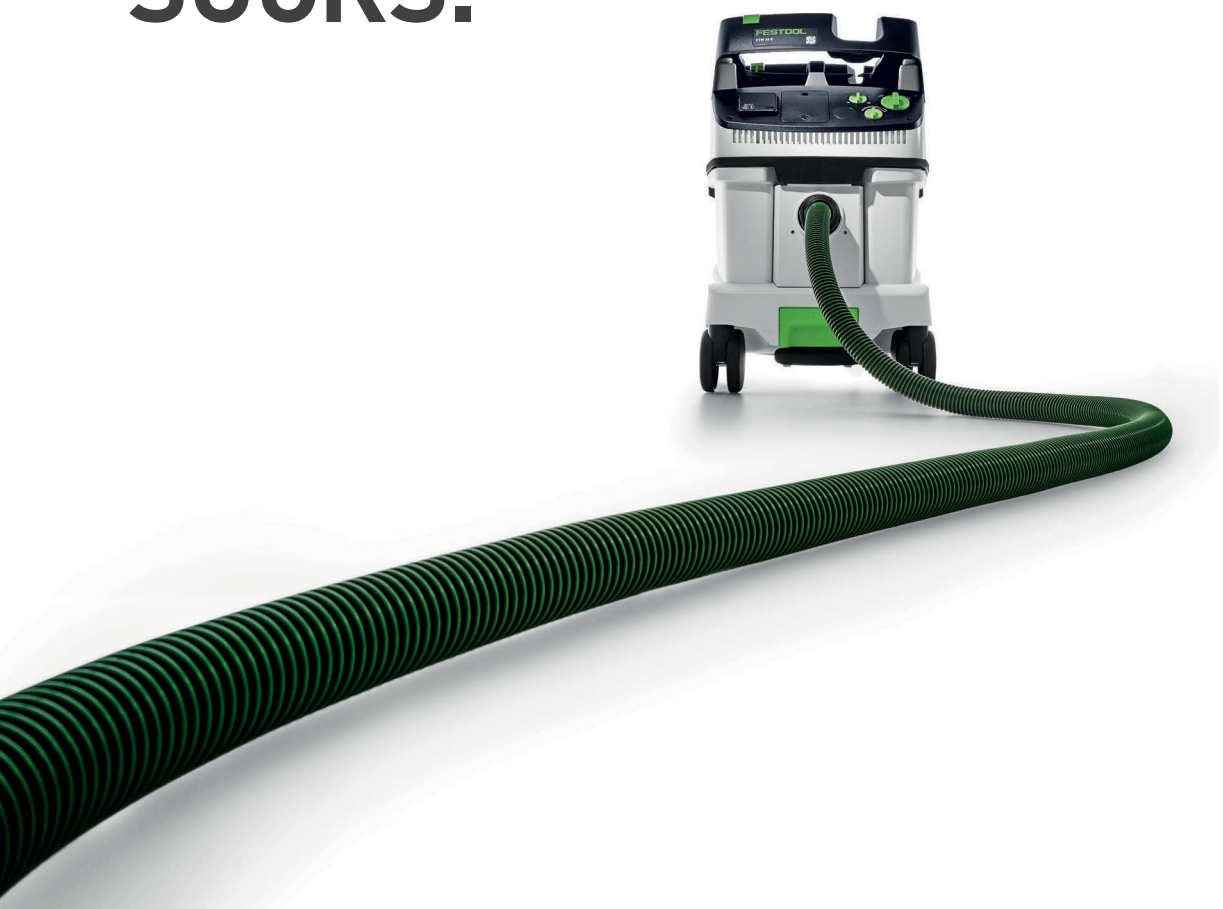

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