Issue 31 Autumn 2017

Woodworking CRAFTS

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

How to use guidebushes

The small, smart, 'swiss army' toolkit

TECHNIQUES

Glue tech
Drilling on the lathe
Picture frame repair
Fitting out box interiors

SEAHORSE LETTER OPENER • RUSTIC TEALIGHT HOLDERS • BLOCK PRINTS

Panel Saws

K4 perform

K3 winner comfort

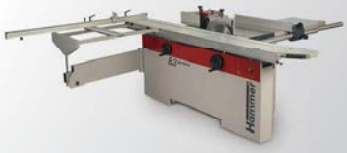
Planer-thicknessers/Planers/Thickn

A3 41

A3 31

A3 41 A

Saw Spindle Moulder



B3 perform

B3 winner

Combination machines

C3 31 perform

C3 31

Bandsaw

Hammer®

The obvious choice!

IF IN DOUBT ...

... USE A HAMMER

HAMMER - A range of over 20 machines for the keen and professional woodworker.

FELDER-GROUP UK

Unit 2, Sovereign Business Park, Joplin Court
Crownhill, MK8 0JP MILTON KEYNES
Tel. 01908 635 000 info@ukfelder.co.uk

www.ukhammer.co.uk

✆ Request your free catalogue now!

essers

Spindle Moulder

A3 41 D

F3

Horizontal Mortiser

N 3800
N 4400

D3

Mobile Dust Extractor

S01

HAMMER,
Quality and precision from **Austria**

Welcome

to the autumn issue of *Woodworking Crafts*

Hello everyone and welcome to the autumn issue of *Woodworking Crafts*. Technique is everything when it comes to woodworking – without it we cannot progress. There is plenty of it in this issue, from guide bush working to carving a block print, drilling on the lathe, glue tech and peening a scythe…

You can't have one without the other

This last item might seem unlikely, but not only is scything a pet interest of mine, more importantly it involves cold forging, or peening. If you are a woodworker it really helps to understand metalworking processes because tools are made of different kinds of steel and we all use metal fixtures and fittings in projects and around the workshop. I was chatting to an acquaintance the other day about his passion for restoring vintage cars. His training is in metalwork but the key skill in rebuilding elderly vehicles is woodwork because they all contain wood, often as structural components with an aluminium skin laid over them.

And so it is, metal creates wood items and metal makes metal. Metallurgy is a complex and fascinating subject on which we all depend in our daily lives without really appreciating it. If every tool in the world suddenly disappeared by magic, civilisation would collapse immediately. But humans, like many animals, are ingenious tool users, fashioning wood and metal to do amazing things that are impossible by bare hands alone. It is this ceaseless ingenuity which fascinates me and yet the simpler, older tools, techniques and traditions still strike a chord with many. We must not let this knowledge die or we will be all the poorer for it.

Anthony Bailey, Editor
Email: anthonyb@thegmcgroup.com

In the autumn issue...

PROJECTS

TECHNIQUES

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

COMMUNITY

KIT & TOOLS

LOVED IN THE INDUSTRY, CHOSEN BY PROFESSIONALS

scm

EVERYTHING YOU NEED TO DELIVER!

SC 3 CLASS
Robust, professional and a precise circular saw

CU 300 c
Universal combined machine that offers the best value for the everyday workshop

S 45 n
A small Band Saw with great capabilities that is perfect for either the joinery workshop, schools, furniture restoration or renovation

FS 41 elite s
Heavy duty, compact and created to meet all planing demands of workshops

T 55 W elite s
A Spindle Moulder with great versatility for many tasks

ECO 300 D
An efficient low cost dust extractor

SCM Group UK
Tel. +44(0)115 9770044 - scmgroupuk@scmgroup.com - www.scmwood.com

scm woodworking technology

is more

Left: Curved, wall-mounted DVD storage cabinet

Left: Art Deco-inspired cabinet by Ross Spark

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

INSPIRATION

Cabinets come in all shapes and sizes as this very varied selection shows

Right: Fabergé cabinet from Silverlining by John Stefanidis

Sommelier drinks cabinet by Declan O'Donoghue

Left: A Matthew Burt vase cabinet made by Berwyn Philips

Art Deco cabinet by Andrew Beaumont

'Nudge' cabinets by Wales & Wales

Contemporary cabinet

Kevin Ley makes an oriental-style cabinet to house his ministry of sound

Paler side panel with matching darker front and back faces

Sound systems should be heard and not seen. Gone are the days when, in order to get decent audio reproduction, it was necessary to have speakers the size of telephone boxes. In our farmhouse in Yorkshire I had managed to hide the electronics in a converted fireplace recess in the wall, but the large speakers dating from the 1970s were on permanent view. The sound was brilliant but the sight less so. We decided to replace the old hi-fi with a modem micro system and house it, with all the CDs and tapes, in an attractive cabinet.

Design

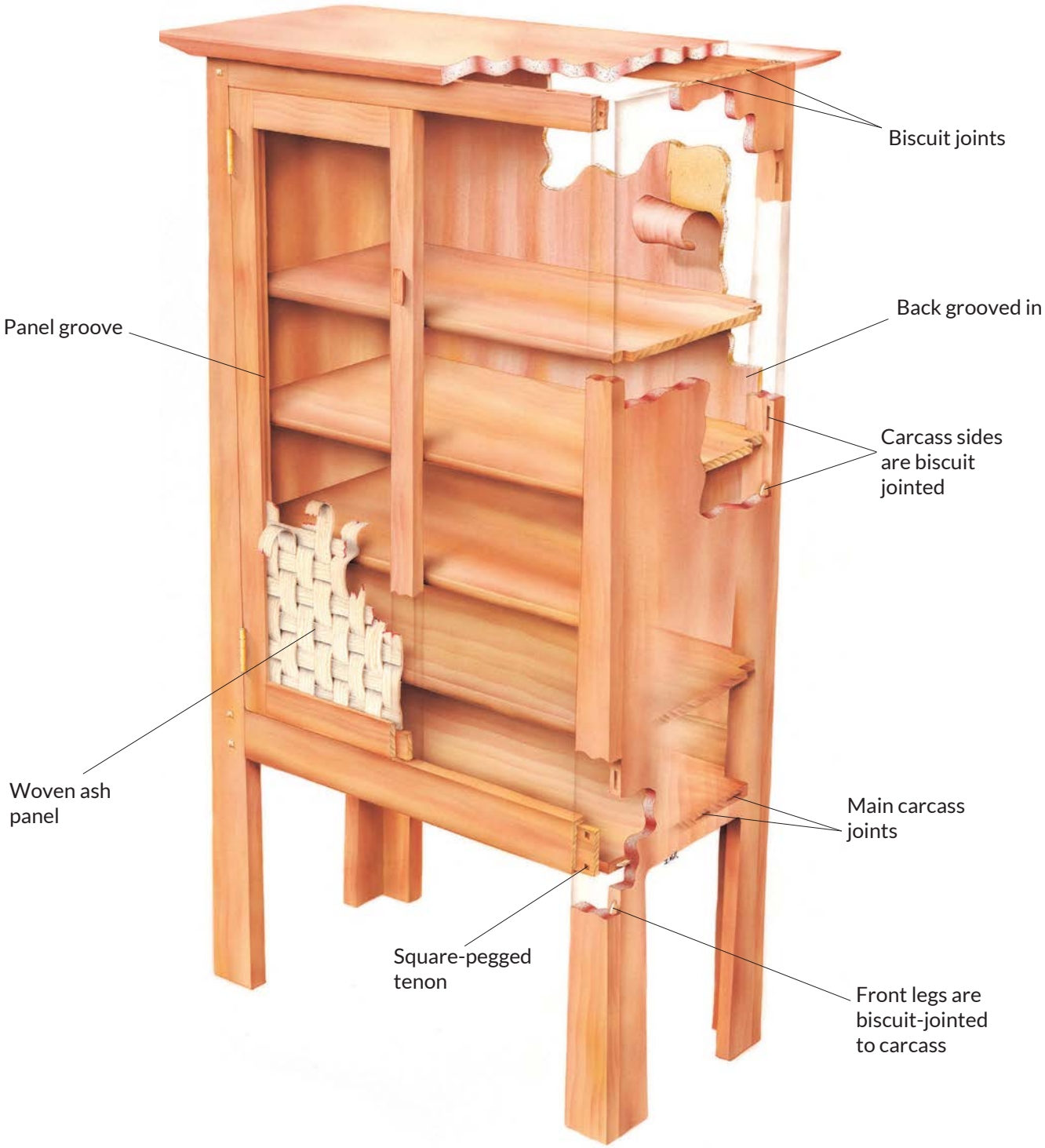
Making furniture for our house gives me the opportunity to experiment and try something new or a bit different, and expand my repertoire. I can also use up any spare timber in the store. We wanted the cabinet to be tall for convenient access to the controls for the music system and the CDs and tapes, and also the speakers would need to be at the 'line of hearing' so the sound would not be blocked by other furniture.

We fancied something with an Arts & Crafts/Shaker look – which we usually do – and I remembered a tapered china cabinet I had seen, which gave me a starting point for some doodling on my CAD (computeraided design) program.

I put it on legs, simplified the lines and replaced the glazing in the doors with woven strips of wood which I had seen used to good effect by Guy Butcher on one of his cabinets.

We had the measurements of the music centre we had chosen and I worked out the shelf runs and spacing required for our extensive collection of tapes and CDs. These measurements and the site space available to house the finished piece determined its dimensions and overall proportions.

I drew up the final draft, submitted it to the design authority (my wife) and she approved it.

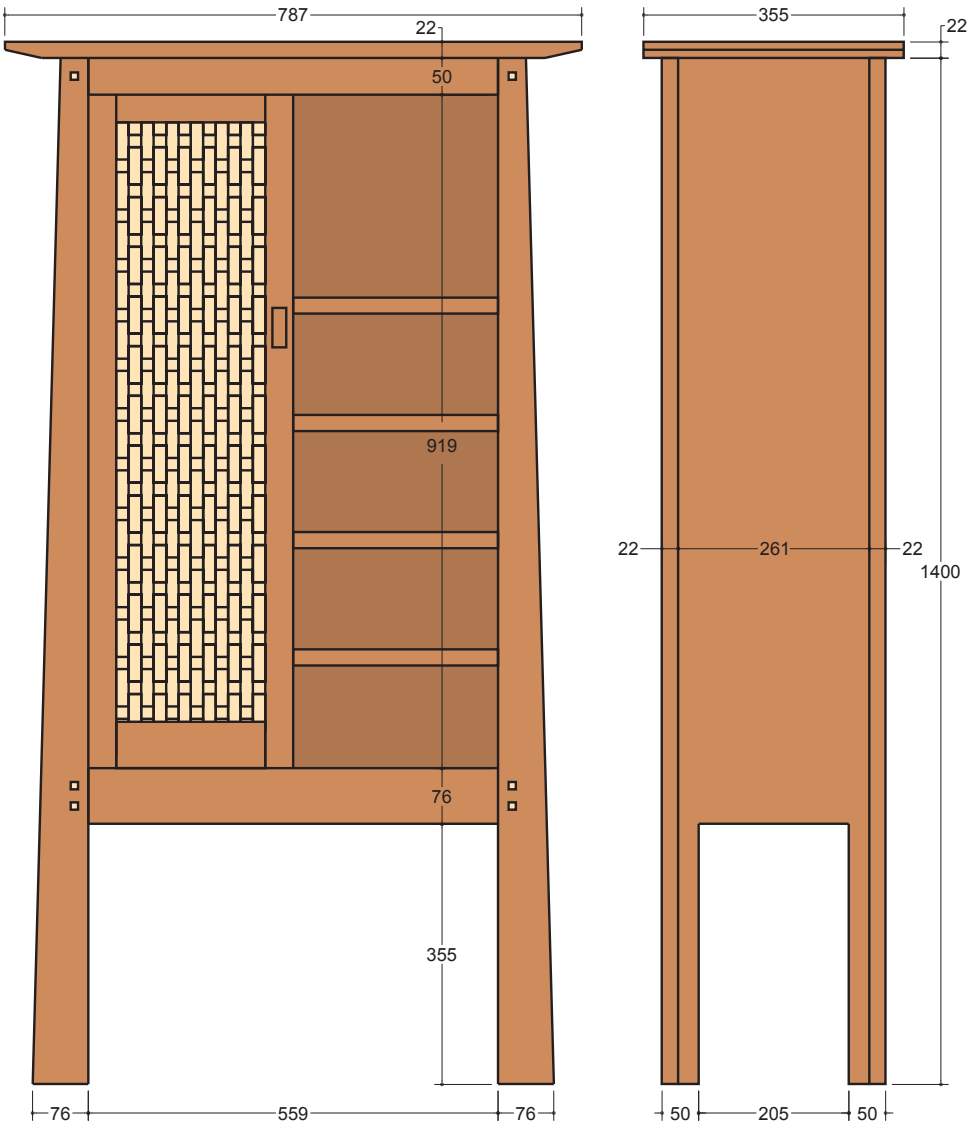


Making the carcass

Draw the front (which is also the back) full size on to a piece of white-faced hardboard. I find that once things are not square, it is wise to do this to check all the measurements. Cut the various components out of the boards of mahogany, dimension them and stack them in the workshop to continue conditioning. ➤

Selecting the timber

The room has furniture in oak, elm, burr elm, maple and walnut and we wanted a nice bold statement in this piece, so we chose fumed, oiled Brazilian mahogany (*Swietenia macrophylla*) for the carcass and English ash (*Fraxinus excelsior*) for the woven door panels to provide a contrast of colour and figure. Fuming the mahogany immediately brings out the deep red colour you usually have to wait for. I had some nice Brazilian mahogany left over from past jobs, and plenty of ash offcuts suitable for the door panels. All this wood had been stored in warm, dry conditions so it was ready for immediate use. The wood store is in a loft over the workshop and benefits from warmth and relatively low humidity, achieved with a sawdust burner and a dehumidifier.



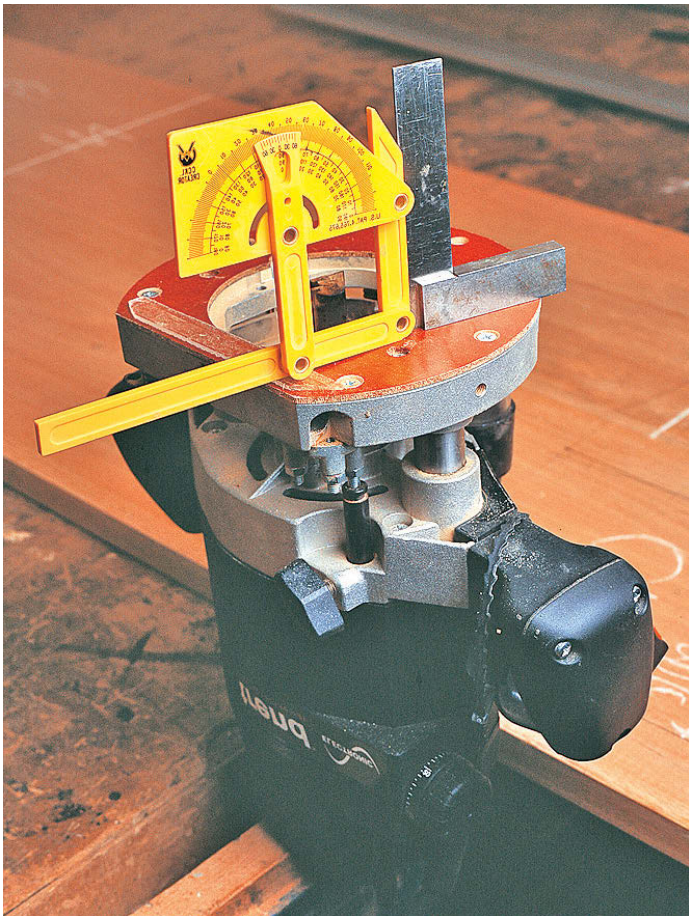
Front and back

Mortise the front and back side uprights (stiles) to take the cross rail tenons. Adjust these to fit on the front pieces, apply Titebond and clamp up. Check for square by measuring the diagonals, and leave to set.

Drill holes and square them off with a 10mm chisel for the contrasting pegs. These are made from offcuts of ash, with the tops finished and chamfered but not fitted at this point because the mahogany will be finished with oil, and the ash pegs and woven panels with acrylic varnish, to keep its pale colour.

Cut a 6mm slot into the inside edges of the back pieces to take the back, which is cut from 6mm MDF. Apply glue to the slots, mortises and tenons, and clamp the back up, check for square and leave to set. Don't use pegs in the back joints because they won't be seen and the joint will be strengthened by the glue.

Kevin uses woven ash as an intriguing form of panelling for his hi-fi cabinet



Setting spacer strip on router base for angled cuts

Routing the angled shelf housings using a clamp guide

Making the sides

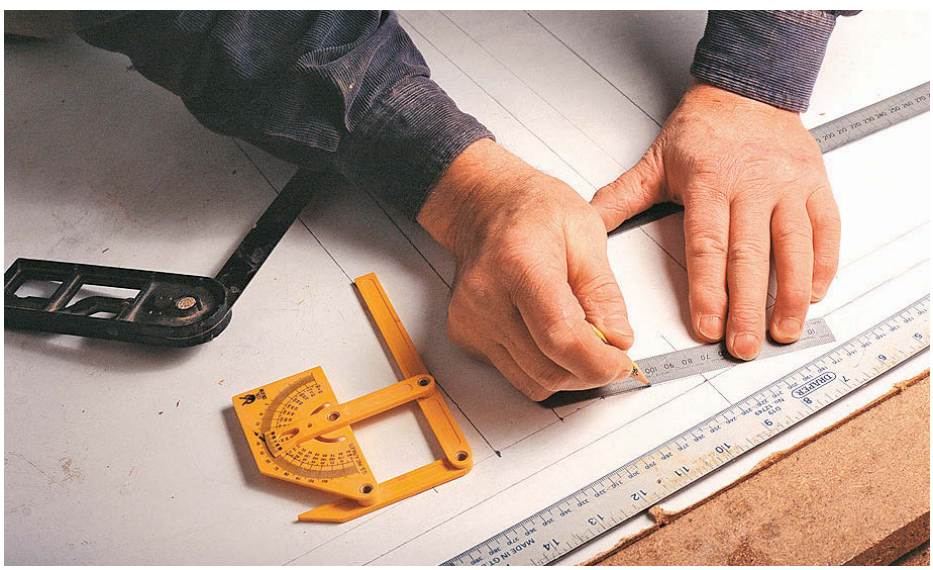
Set the correct angle, taken from the full-sized drawing, on the radial arm saw and crosscut the sides to length. Make the cut-outs on the handsaw to form the legs, and finish with a cabinet scraper and sanding blocks.

To cut the stopped housings to the correct angle for the shelves and base, I fixed a strip to the base of my Trend T9 router. Again, I took the angle from the full-sized drawings. I used a Trend clamp batten to guide the router.

Cut biscuit slots in the edges of the sides and the inside faces of the front and back stiles, and use biscuits to locate and strengthen the butt joint between the sides and the front and back. Machine and hand-sand the inside faces to a finish.

Shelves and base

Cut the shelves and base to length, and round over the front edges of the shelves with a 10mm radius cutter on a router. Then cut the shoulders at the front to overlap the ends of the stopped housings and at the back to let the shelf back edge into the recess between the back frame and its panel.



Marking out on white-faced hardboard

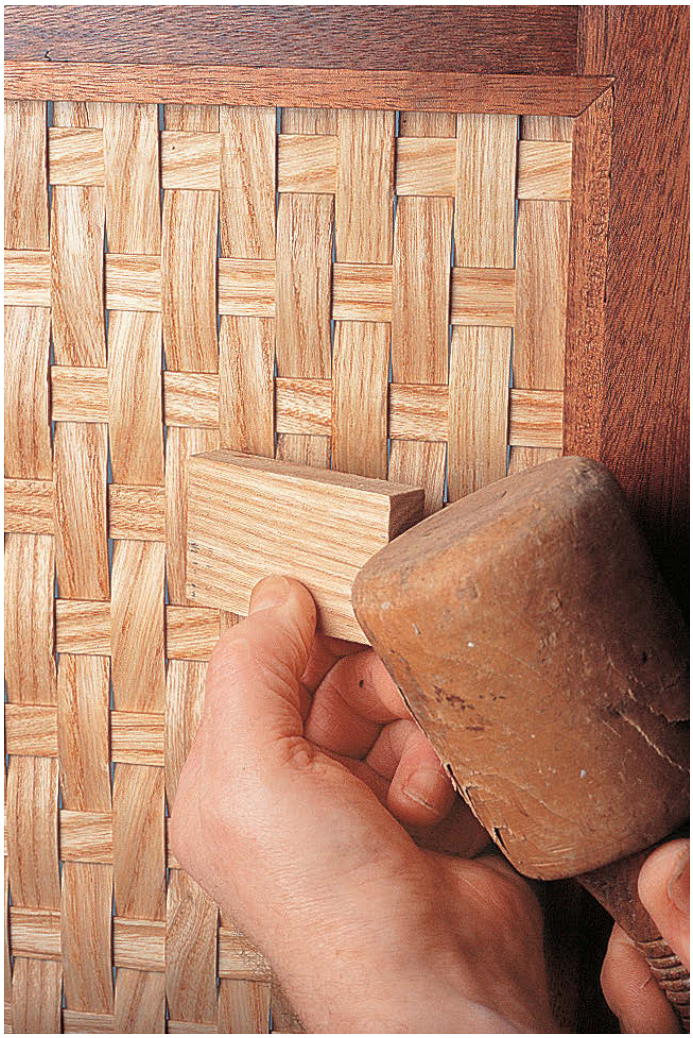
Fit the base flush against the front and back lower cross-rails and cut biscuit slots in the front edges for biscuits to locate and strengthen the joint. Cut corresponding slots in the cross-rails.

Assembly

Machine and hand-sand the shelves and base to a finish. Test fit them dry in the stopped housings in the sides. Fit the front and back with dry biscuits and drop onto the dry-assembled side/shelf unit to check the whole fit.

Make any necessary adjustments and then take it to pieces. Apply PVA to the stopped housings and fit the shelves and base to the sides. Again, dry-fit the front and back with biscuits to pull everything into the correct shape, and apply sash clamps across the front and back to pull up the shelves and base ➤

Sanding ash strips on an inverted belt sander using a homemade pressure block to save the fingers



Adjusting the line-up of woven slats using a block and mallet

into their housings while the glue sets.

Carefully removing the front and back edges of the sides and base, lightly hand-plane it to an exact fit with the front and back stiles. Apply PVA to the joint and the biscuits and fit the front and back to the sides.

Leaving it clamped, stand the assembled carcass upright on a known flat surface. Check for square and wind, and leave to set.

Top

Cut the top to size and form undercut chamfers on the ends. Remove most of the waste on the planer with the top supported at the correct angle by a piece of ply, held in a Workmate alongside the plane, and finished with a jack plane, scraper and sanding blocks. Cut biscuit slots in the tops of the sides and the front and back top rails. Cut corresponding slots in the underside of the top, offer them up and tap them home. Machine and hand-sand the outside of the carcass to a finish, glue the top and clamp it into position.

Door frames

Make the doors with the rails mortised and tenoned to the stiles and leave a rebate to take the woven panel. Make beading strips to hold the woven panel in place. Fit the frames and hang them on 25mm brass butt hinges, with inset brass ball catches on the top and bottom of each door, and fit rectangular undercut pulls to the fronts.

Fuming

Sand the completed carcass by hand down to 320 grit, removing any marks and blemishes, particularly glue runs or ooze. You can use an inspection light at different angles to ensure it is ready for fuming. It is possible to very lightly sand a blemish out after fuming, but I don't recommend it.

Next, erect a polythene tent over the carcass and place saucers of 890 ammonia inside. Wear gloves

Close-up of legs and pegs

'I chose the width of the warp strips so that they fitted exactly into the opening in the door frame without overlapping into the rebates'

and goggles during this process, as ammonia can cause permanent damage to the eyes and stings on the skin, particularly on open cuts or scratches. I left it over a weekend to ensure maximum effect.

Woven panels

I experimented with some thin strips of wood to decide on the pattern and technique of the woven panels. I decided the vertical (warp) strips would butt up against each other without a gap in between, and the horizontal (weft) strips would be separated by their own width above and below to allow for the bend in the warp strips. This arrangement was relatively easy to keep straight and it gave a pleasing texture of rectangles, which reflected the shape of both the doors and the whole carcass.

I chose the width of the warp strips so that they fitted exactly into the opening in the door frame without overlapping into the rebates. The weft strips were the same width. My experiments indicated that, at a thickness of 1.5mm, the strips would be flexible enough to bend but not too fragile to handle.

Cut the strips from some straight-grained ash, previously faced and thicknessed. Cut the weft to exact length and cut the warp to length plus 50mm to allow for the bending and leaving a trim.

Cut the strips on the handsaw, with the edge against the fence hand-planed and sanded to a finish before each cut, so that only the back face of the strip needs to be finished. Cut plenty of spares just in case.

Finish the backs of the strips on an inverted belt sander using 120 grit and a wooden block to hold them down. With practice, this is surprisingly easy – I had relatively few breakages and the strips were pretty even in thickness. Finally, hand-sand them and treat with three coats of Aquacote acrylic varnish. I treated the ash pegs at the same time.

Doors open – fully loaded

Weaving

The weaving is quite simple. Thread a piece of 25mm dowel through the warp to act like a weaver's hurdle so that each weft strip is easy to insert, then tap into place with a block and hammer, using a spare piece of strip to keep the spacing correct.

Give the fumed carcass several coats of Liberon finishing oil. Leave each coat to cure for 24 hours, then cut it back with a Scotchbrite grey pad, and finally buff it to a soft lustre. Glue the finished pegs and tap them home into the prepared holes in the front frame mortise and tenon joints.

Trim the woven panels and fit into the rebates in the doors, holding them in place with the retaining strips. Close the doors and then adjust the weft strips by gently tapping with a block and mallet, on the back face, so that they line up exactly across the doors.

The final result

This reinvented radiogram looks good and works well. We found that the door panels are quite acoustically transparent, minimising the muffling effect when closed – OR MAYBE ITS MY HIGH-TONE HEARING!

The old hi-fi? It's safely installed in my workshop with the big old speakers in the loft, playing through grills in the ceiling, over the bench. Router noise? – no problem. ■

A woodworking glossary

The letter D

DADO A rectangular groove cut across the grain, also referred to as a housing or trench.

DADO HEAD OR CUTTER A system of individual saw blades that are stacked to create dadoes of specific sizes. Used in a tablesaw or radial arm saw.

DANISH OIL A type of penetrating wood finish, generally either clear or with a darker tint containing several different oils and other ingredients.

DEAD-BLOW MALLET Striking tool with loose lead shot contained in the head to concentrate all its energy into a single, non-bounce blow and a soft face to prevent marring the workpiece.

PHOTOGRAPH BY GMC/ANTHONY BAILEY

A dead-blow mallet

DEATHWATCH BEETLE *Xestobium rufovillosum* – a woodboring beetle usually found in quite old oak timbers in cold, humid locations such as beams in churches. The young beetles are fairly small but mature ones are much larger at about 7mm long. The colonies last about 10-11 years and can do significant damage in that time. The name relates to a superstition that their tapping or ticking noise at night accompanies keeping a bedside vigil or watch for the dying.

DECAY The decomposition of wood by fungi. This is an essential component of the renewal process that creates new life in the natural world. However, in man-made wooden structures of any kind it is most unwelcome. There are various types of decay or rot, such as dry rot or wet rot, and different stages of the process. There are various methods of counteracting or delaying this process although once decay has started it will always win.

DECK SCREW A coarse threaded wood fastener, similar to a drywall screw but with a thicker, less brittle shaft.

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Decking screws

DENATURED ALCOHOL Clear, colourless liquid used as a cleaner and solvent, as well as a fast-drying medium for finishes such as shellac.

DETENT A preset adjustment on a tool, set for the most common angles such as 45° or 90°. Also referred to as a positive stop.

DEVIL STONE A hard carborundum stone used for dressing grinding wheels when they become worn out of shape.

DEWAXED SHELLAC A natural wood finish derived from excretions of the lac beetle and further processed to separate out its naturally occurring wax component in order to prevent the cured finish from interfering with the bonding ability of subsequent finish coats.

D-HANDLE Part of a tool, shaped like the capital letter D, that allows the user to firmly grasp it.

DIAL GAUGE An instrument for measuring short distances to very precise tolerances. Useful for critical machine set-ups and adjustments.

PHOTOGRAPH BY JOHN BULLAR

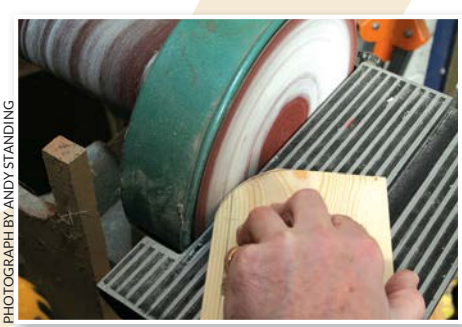
Dial gauge

DIAMOND TIP WHEEL DRESSER A special tool designed to dress grinding wheels, a similar function to the Devil Stone.

DIMENSION The extent of a physical measurement, applicable to anything but used frequently in relation to woodworking where dimensions are vitally important.

DIRECT DRIVE A motor shaft attached directly to a cutter or blade, it relies on the available torque and speed of the motor instead of working through a gearbox or drive belts and pulleys.

DISK SANDER A power tool, or stationary machine, fitted with a spinning disk to which open-coat abrasive disks can be attached for sanding wood and other suitable materials.



PHOTOGRAPH BY ANDY STANDING

Disk sander

DOUBLE-SIDED TAPE Tape with adhesive on both sides, often used to temporarily attach components and jigs. Carpet tape or special jig tape are the correct type for woodworking.

DOVETAIL Attractive and very strong joint formed by mating together one or more fan-shaped 'pins' to correspondingly sized and shaped notches, called 'tails'. The joinery can be visible from both sides, known as 'through' dovetails, or from only one side – 'half blind', or 'blind' hidden.

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Dovetails

DOWEL Wood of cylindrical section, sometimes used to help hold a mortise and tenon joint together.

DOWEL CENTRE A small metal turning that is pushed into a dowel hole to mark drilling position on a mating workpiece.

DOWNDRAFT TABLE A shallow box with a flat perforated surface which is attached to an extractor to remove sanding dust 'at source'.

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Downdraft table

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Drawknife

DOZUKI A thin-bladed Japanese saw that cuts on the pull stroke. It has a stiff metal back and a replaceable blade.

DRAWER RUNNERS A system of track and rollers that is screwed to the outside of a drawer box and the inside of the drawer opening so the drawer will open and close while maintaining its alignment in the carcass. The simplest and cheapest are known as 'easy-on' because they hook easily into the carcass track. There are more expensive and sophisticated variants.

DRAWKNIFE A chair-making tool with a curved or straight blade and perpendicular wooden handles.

DRESSED TIMBER Timber that has been planed to a smooth finish on all faces and edges.

DRILL A power tool for making holes in wood or for driving in screws. Originally it would have been hand-powered.

DRILL BIT A spiral form metal tool which fits in the chuck of a power drill. Available in various types for drilling into wood, plastic, metal, ceramics and masonry. They are available in a wide range of sizes, metric and imperial being the most common.

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Drill bit

DRIVER BIT A screwdriver tip that fits in a power drill often held in a special magnetic or snap-in bit holder which may be part of a larger range of drilling and driving accessories.

DRUM SANDER Sanding machine consisting of a spinning cylinder wrapped in a flexible abrasive sheet. Available as an attachment for a power drill or as a dedicated machine.

DRY FIT The term for test-fitting components without glue or fasteners to ensure they will go together properly during final assembly.

DRYWALL SCREW Coarse-threaded screw designed for fixing plasterboard to wood. The bugle head shape is designed so it goes in flush with the surface and it has a black phosphate coating. Available loose or in 'collated' form (in a strip for special drywall power drivers.

DUST COLLECTION A system of ducts and hoses connected to an extractor for the removal of sawdust and wood chippings generated during woodworking operations.

DUST NIBS Tiny airborne particles that settle on a workpiece before the finish has dried, leaving a rough texture on the surface that must be lightly rubbed down with fine abrasive before the next coat is applied.

DUST PORT An outlet on a power tool or static machine enabling it to be connected to a dust extractor or extraction system.

BASA 3 12" BANDSAW

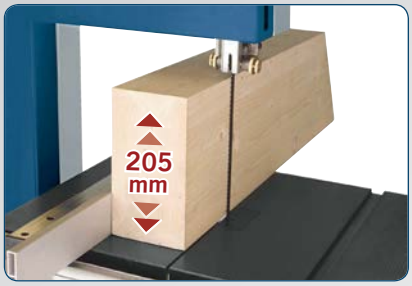
scheppach Germany

306 mm

205 mm

800 W

90 YEARS 1927 – 2017



Impressive cutting height of 205 mm.

Tempered top and bottom heavy duty guides included.

Quick-lock clamping system for minimum down time when changing bandsaw blade.

Mitre guide comes as standard

3 x BANDSAW BLADES PACKAGE

- 1 x 12mm - 4 tpi
- 1 x 6mm - 6 tpi
- 1 x 12mm - 6 tpi

£22.88 INC VAT

BRITISH MADE. BEST QUALITY

50% OFF RRP

(Only when ordered with machine)

2 year Guarantee

Features

- Powerful 800 induction motor
- 3-roller precision guiding above and below the table
- Unique vario drive adjustment from 370 to 750 m/min
- Sturdy cast-iron table tiltable from -8° to +45°
- Balanced and grinded band wheels with rubber facing
- Leg stand with wheel kit included

Specification

Cutting height / width:	205 / 306 mm
Table size:	548 X 400 mm
Table adjustment:	-8° to +45°
Cutting speed:	370 to 750 m/min
Blade length:	2360 mm
Input power:	800 W
Motor:	230 V
Weight:	79 kg

SCHEPPACH 90 YEARS CELEBRATORY PRICE. SAVE £100.00

£399.00 INC VAT

PLUS £30.00 CARRIAGE UK MAINLAND

POA FOR OFFSHORE

OFFER ENDS 31ST DECEMBER 2017

NMA AGENCIES LTD

www.nmatools.co.uk

01484 400 488 | sales@nmauk.com

Unit 1, Brookfoot Biz Park, Brighouse, W Yorks. HD6 2SD

Seahorse letter opener

Beachcomber **Paul Purnell** picks up the perfect wave-washed log to make this delightful seahorse letter opener

With its horse-like head, eyes of a chameleon, a kangaroo-like pouch (males) and the prehensile tail of a monkey, it is little wonder that the hippocampus, or seahorse, has been depicted in art, sculpture and literary works since the 6th century BC.

Hippocampus comes from the Ancient Greek word *hippos* meaning 'horse' and *kampos* meaning 'sea monster'.

The seahorse is a fish, the only one with a neck, and the only species on earth where the male gives birth to the fry.

There are more than 50 species, ranging in size from the pygmy at 2cm to the pot-bellied seahorse from Australia at 35cm.

One of the rarest seahorses is the Cape seahorse, also known as the Knysna seahorse, found off the coast of South Africa.

There are two species around the British coastline: the spiny seahorse (*Hippocampus guttulatus*) and the short-snouted seahorse (*Hippocampus hippocampus*). ➤

EQUIPMENT USED

Tools

- Bandsaw
- Rotary carving tool
- Coarse-toothed burr
- Ruby flame-shaped burr
- Diamond bud-shaped burr
- Diamond cylinder 3mm
- 2mm drill bit
- Cushioned-drum sander
- Split-mandrel sander
- Carving knife

Materials

- Magnolia log (*Magnolia grandiflora*) with sufficient wood for a workable piece measuring 200mm x 50mm x 40mm
- 4mm red glass eyes
- Sandpaper 120 to 400 grit
- Epoxy putty
- Finishing oil

1 This is a stylised carving of a generic seahorse. Nevertheless, gather plenty of reference material to help with the shape and position of the seahorse's features.

Prepare front and side-view templates from the diagram. Prepare the log to obtain a working piece of wood 200mm long, 50mm deep and 40mm wide. Carefully flatten two opposite sides of the log on the bandsaw. These sides are for the side template, therefore must be at least 50mm across. For the first cut, place some wedges beneath the log to stop it rolling. Transfer the side template on to one side and use the bandsaw to cut the blank.


1

2 The side-view blank. The flaw in the middle will be exploited in the finished shape.


2

3 Draw on the profile of the front/back view using the template as a guide.


3

4 Use a coarse-toothed burr to carve this profile.


4

5 Use the same burr to refine the side view.


5

6 Locate the dorsal fin and carve with the coarse burr.


6

7 Reduce the width of the head and nose using the coarse burr.


7

8 Use a 3mm carbide burr to outline the cheeks and the pectoral fin on each side of the head. The gills of a seahorse sit behind the cheeks.


8

Did you know

- *Seahorses have neither teeth nor stomach and have to suck their prey, which they digest as it travels along a tube from one end to the other. Consequently, they need to eat a staggering 3000 pieces of food per day.*

- *The insatiable appetite for using seahorses in Chinese medicine as a cure for asthma, high cholesterol, arteriosclerosis and impotence, is the biggest threat to the survival of the species.*

Did you know

In addition to being able to change colour, the seahorse can grow fleshy filaments, called cirri, adding to their ability to blend in with their habitat.

Amazing fact

Seahorses are among the most successful hunters in the sea and can reach a 90% success rate (three times that of many other fish). Their method is called pivot-feeding. This involves them creeping up on their unsuspecting prey, snapping their heads around and slurping the treat into their mouths.

9 Use a carbide cone to separate the underside of the snout from the chest, round over the head and refine the pectoral fins.

10 Using the coarse burr, start to round over the body.

11 With a ball-shaped carbide burr, outline the three spines on the top of the head: the nose spine sits in front of the eye; the eye spine sits behind the eye and the coronet is at the rear.

The first trunk ridge sits just below the pectoral fins. With the same cutter, define the indentation between this ridge and the next.

12 Continue to carve the indentations between the ridges of the trunk and back of tail.

13 Use a ruby flame to carve the coiled part of the tail.

14 With a carving knife, cut behind the pectoral fins and shape the dorsal fin.

15 Use 120-grit paper on a split-mandrel sander to smooth the indentations.

16 Use your reference material to help you carve the head features. Start with the V-shaped notch where the snout joins the head. Use a ruby flame. ➤

17 Then shape the tip of the snout – note the concave profile.

18 Use a pair of pins to locate the eye positions. Check from the front and above. Drill a 2mm pilot hole at their centres.

19 Shape the blade with the coarse burr. It is approximately 15mm wide at the top.

20 Sand the blade with a cushioned-drum sander with 120 and 240-grit paper. Finish sanding by hand with a block for a crisper finish.

21 Return to the eye. Use a diamond bud to enlarge the eye socket to accommodate the 4mm eyes. Ensure a snug fit. They will be fitted with epoxy putty and if the socket is too large the putty will show through.

Tip: *When drilling the eye sockets for a carving that will be left unpainted, drill a hole through to connect both eyes. A tight fit of the eye is desirable and as you have little leeway an eye can become stuck when test fitting. This method will enable you to push it out from the other side if that happens.*

22 Use a 2mm diamond cylinder to add the waves to the three fins.

23 Give the whole piece its final sand by hand with 320 and 400-grit paper. Wipe clean and apply four coats of your choice of finishing oil.

24 Fit the glass eyes with epoxy putty and this is your finished letter opener.

25 The back view showing the fin and ribbing. ■


17


18


19


20


21


22

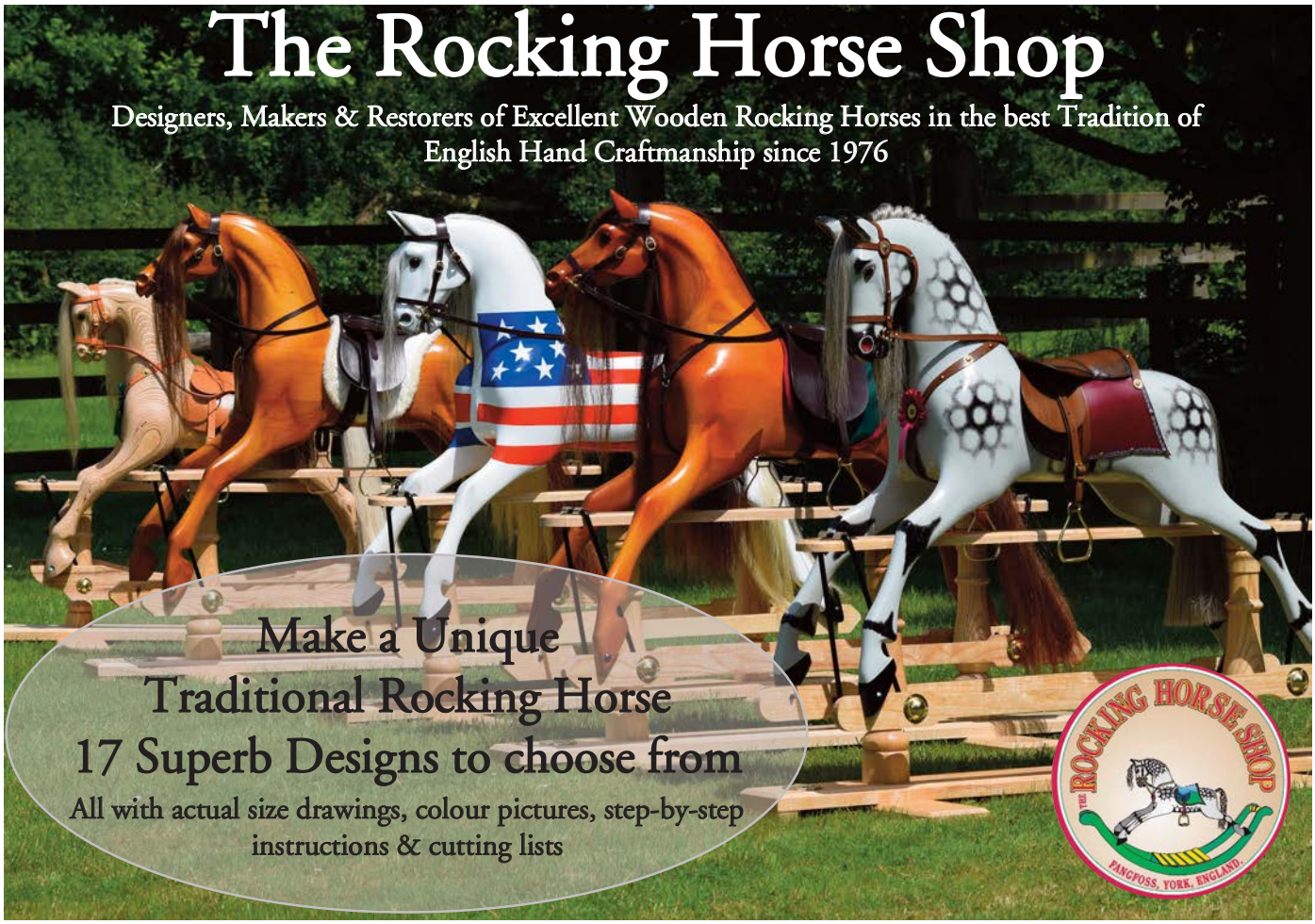

23


24


25

The Rocking Horse Shop

Designers, Makers & Restorers of Excellent Wooden Rocking Horses in the best Tradition of English Hand Craftmanship since 1976



Make a Unique Traditional Rocking Horse

17 Superb Designs to choose from

All with actual size drawings, colour pictures, step-by-step instructions & cutting lists

Call or go online for our FREE full colour catalogue

Also suppliers of top quality timber packs, accessories & fittings all made in our workshops.

Carving Courses

Whether you are an experienced carver or have never carved before, you will benefit enormously from one of our courses.

www.rockinghorse.co.uk **Tel: 0800 7315418**

Fangfoss, YORK YO41 5JH

READ Woodworking CRAFTS ANYWHERE

DOWNLOAD FROM

ONLY £2.15

PER ISSUE

pocketmags.com Discover Read Enjoy

Get it from Microsoft

Download on the App Store

GET IT ON Google Play

Available at amazon

Above: Gentleman's box with top tray removed showing second tray

Fitting out box interiors

The inside is as important as the outside, as Louise Biggs explains

In previous articles I have looked at how boxes were made and veneered. This article will cover what goes on inside the boxes when they are to be more than a memory box, when the internal areas have specific requirements. For this article I have used three examples. The first stage, planning, was using a CAD program, where each required section was made into a 'block'. These 'blocks' could then be inserted into the drawing, lifted and moved around as required. I have sometimes found that the interior controls the overall size of the box so in effect you are working backwards, but the overall size and available space to stand/display the box must be taken into consideration. ➤

A gentleman's box to take cufflinks, tie pins and clips, watches, rings and pocket watches

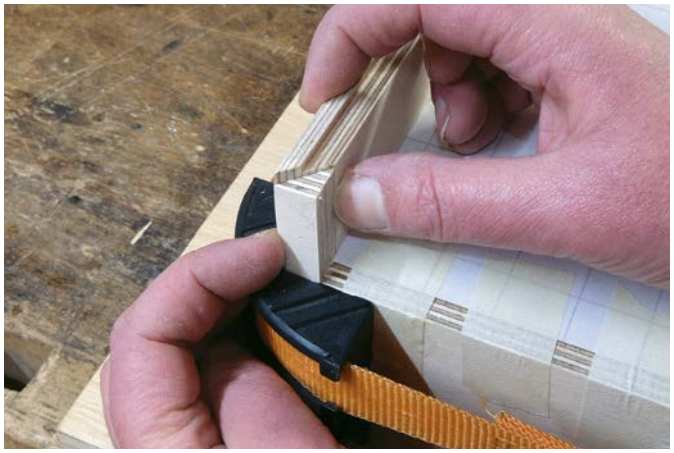
A pen collection box to house a collection of very high-end fountain pens and an ink bottle

A ladies' jewellery box to take earrings, bracelets, necklaces, wrist watches and rings

PHOTOGRAPHS BY LOUISE BIGGS

Below are what I consider the key points for planning an interior.

- What size do the various sections have to be, allowing space for fingers getting hold of the objects?
- Have the clients asked for specific numbers of any sections for e.g. earrings, cufflinks.
- The layout within the box and how it works best.
- Has the client requested a drawer and/or internal trays or is this left to you planning the interior?
- What are the trays going to rest on and how do you lift them out?
- What allowances are required for fabric, partitions, support blocks and any cushioning required?



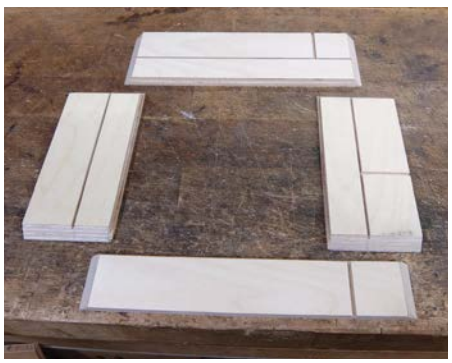
Inner bottom fitted into grooves and a rebate at the front

Inner divisions

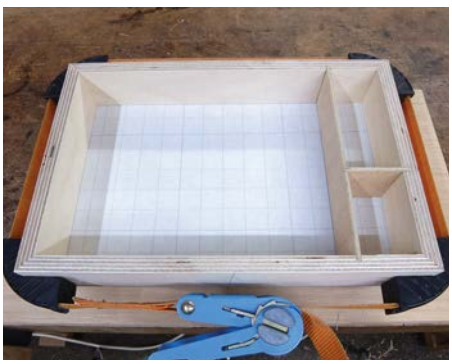
For the pen and ladies' jewellery box some inner divisions were required. Having determined the layout, the outer box was constructed but not glued, the divide between the inner box and the lower drawer was fitted. A small groove was cut on the box sides and back using a router (the safest method is to use a router table but hold the work securely and a hand-held router can be used). On the front a rebate was cut so the ply finished flush with the box front. A thin ply panel was then fitted.

In the case of the pen box this had two further divisions creating two areas, the larger of which would contain the ink bottle. Being very accurate with the marking out and double checking, the vertical grooves were cut in the same way. The outer box was clamped together with the inner bottom fitted. The main partition was then fitted and the position of the small partition marked, cut and fitted in the same way. Once the carcass was glued up and the divisions fitted, they were planed flush with the top of the box using a small block plane.

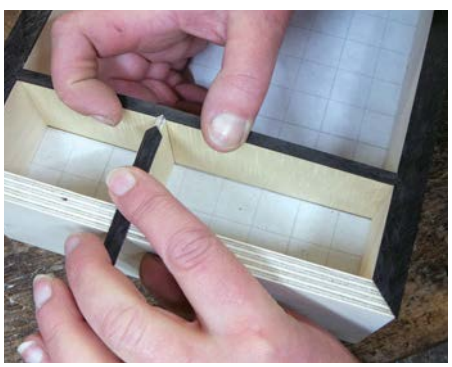
To complete the divisions in the pen box the ebony veneer edge was fitted to the front and back and one side. The veneer edging for the long division was then mitred into place. As this edge was narrower the 45° mitre would only go into the main edging a short way. Once fitted the double mitre was cut for the edging on the small division. This small edge was then mitred and fitted into the long division edge. The other carcass side edging was then fitted, cutting a small double mitre for the division edging and mitres for the corners.



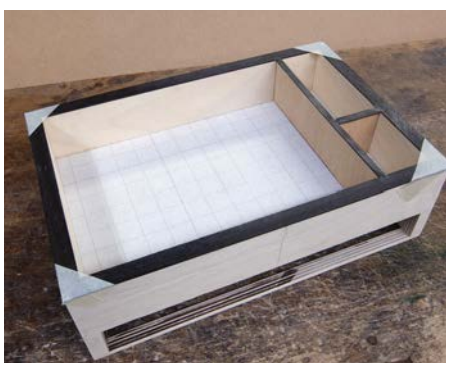
Sides of the pen box with grooves cut for inner base and dividers



The pen box clamped dry to test fit the dividers



Ebony edging being fitted



The completed ebony edging glued into place

Inner trays and compartments

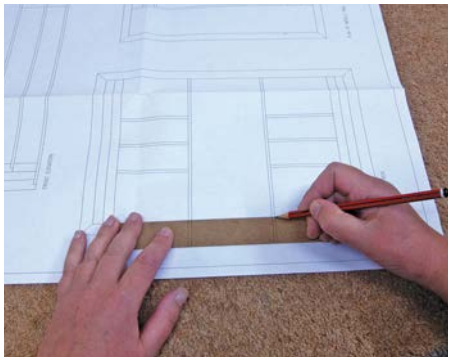
The inner trays were supported by fabric-covered blocks, in the case of these boxes across the ends of the boxes. Test blocks, the required thicknesses, are covered in fabric and kept for this task. When making the trays with mitred corners the sections were tried into the boxes to check the lengths were correct.

Whether the compartments are in the bottom of the box or in the trays they were formed in the same way. The only difference between them was the thicknesses of materials used. In some cases the end pieces also acted as tray supports so needed to be wider. I generally use 2mm hardboard to form the divisions, as in the jewellery and gentleman's boxes, as a lot tend to be latticed but there are times when they need to be less flexible, so a 3mm ply is used as in the pen box where the divisions were strips.

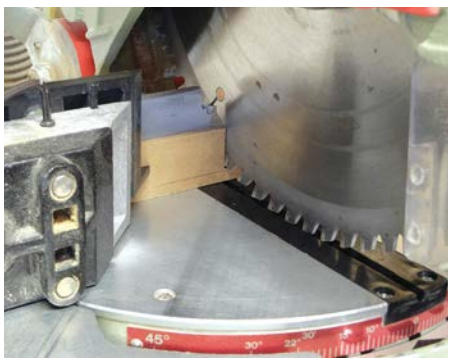
With careful marking out, one division piece of each length was marked from the drawing or workshop rod. These were used to set the fence for all the other pieces throughout the cutting process. It is important to keep everything the right way round – cut one piece the wrong way and any discrepancies between the cuts will stand out.

Using test blocks for tray supports to check the length of the tray components

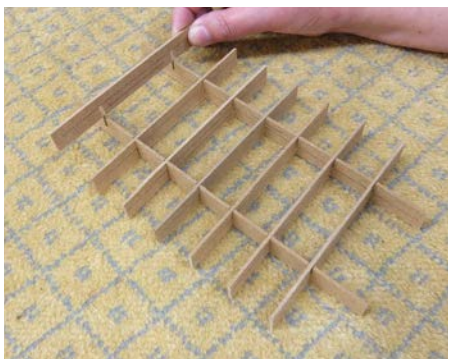
The bottom level of the gentleman's box with tray supports at the end



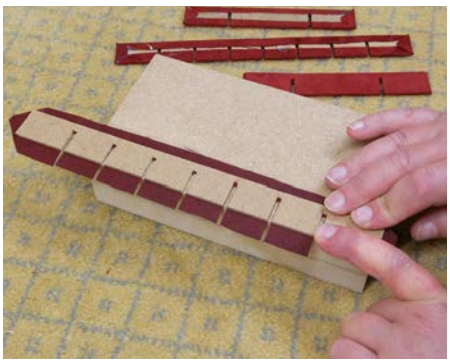
Marking the dividers carefully from the CAD drawing



On the mitre saw cutting the half lap joints to the correct width



Inner tray divisions forming the latticed compartments



Covering the side pieces with fabric while clearing the half lap joint

Each division was covered in fabric on both sides and the top edge, so the half lap joints must allow for this. I have an electric mitre saw in the workshop with a blade which cuts the exact width I require. It belongs to my picture-framing colleague and, by nature of its job, has a clamp on either side of the blade, so when cutting, my hands were nowhere near the blade. The side pieces are kept a little higher to lock the latticed and strip divisions in place.

Once all the cuts were made to the divisions and side pieces using a 3mm wide chisel, the tops of each cut were cut square. The divisions would then join together as shown for the earrings, cufflinks and tie pins/clips.

The long strips to divide the watches, necklaces and pens were constructed in the same way. Using this method you can create compartments any size you require.

Material and installation

The bottoms of the boxes and trays are covered with fabric using a double-sided adhesive film on the flat surfaces. The edges are then cut and turned and adhered to the edges using Copydex, a latex adhesive. These are then glued in using Copydex as it has no water content so will not cause a problem for the box. Each division is then coated with adhesive film and the material fitted. With a very sharp pair of fine scissors the material is cut clear of the half lap joints. The side pieces and support blocks are covered on one side and the material cut and turned so it is glued on the back side. Working from the sides of the boxes inwards the various linings are carefully glued in place. The trays were completed by installing the bottom then laying the lattice divisions in place. In the jewellery and gentleman's boxes the tray handles were formed using plaited silk threads. These were glued and stapled to the sides before the side pieces were carefully glued in place. The handles on the pen box were small metal ones which were recessed into the tray edge with a finger hole underneath.

Each box was created to hold different treasures but the principles of forming the inside trays and compartments were very similar. ■

Tool List

Tablesaw
Mitre saw
Block plane
Chisels – various sizes
Flush cut saw
Strap clamp

Pen collection box with top tray removed

Ladies' jewellery box completed with top tray removed

Machine Mart

NOW 66 SUPERSTORES NATIONWIDE

WHERE QUALITY COSTS LESS

Clarke TABLE SAWS

FROM ONLY £72.99 EXC.VAT £87.59 INC.VAT

LEG STAND KITS FOR CTS10D AND CTS11 ONLY £27.59 INC VAT

INCLUDES LEFT & RIGHT TABLE EXTENSION

CTS10D

MODEL	MOTOR	BLADE	EXC.VAT	INC.VAT
CTS800B	600W	200mm	£72.99	£87.59
CTS11	1500W	254mm	£149.98	£179.98
CTS10D	1500W	254mm	£169.98	£203.98

Clarke 4" BELT/ 6" DISC SANDER

- Dust extraction facility
- 4" x 36" belt tilts & locks 0-90°
- 225mm x 160mm table, tilts 0-90°
- 370W, 230V motor

CS4-6D

£96.99 EX.VAT £116.39 INC.VAT

Clarke 6" BELT/ 9" DISC SANDER

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

CS6-9C

£239.00 EXC.VAT £286.80 INC.VAT

Clarke TABLE SAW WITH EXTENSION TABLES (250mm)

CTS14

- Ideal for cross cutting, ripping, angle and mitre cutting
- Easy release/locking mechanism for table extensions
- 0-45° tilting blade
- Cutting depth: 72mm at 90° / 65mm at 45°

£129.98 EXC.VAT £155.98 INC.VAT

SHOWN WITH OPTIONAL LEG KIT CLK5 £19.98 EXC.VAT £23.98 INC.VAT

EVOLUTION FURY5-S TABLE SAW

NEW

- 1500W motor
- 0-60° mitre gauge
- Cutting depth: Steel 3mm, Wood 85mm at 90° or 58mm at 45°

£149.98 EX.VAT £179.93 INC.VAT

3 YEAR

Clarke WOODWORKING VICES

STANLEY Record

FROM ONLY £13.99 EX.VAT £16.79 INC.VAT

WV7

MODEL	MOUNTING	JAW (WIDTH/OPENING /DEPTH)mm	EXC.VAT	INC.VAT
Clarke CHT152	Bolted	150/152/61	£13.99	£16.79
Stanley Multi Angle	Clamped	72/60/40	£17.99	£21.59
Record TV75B	Clamped	75/50/32	£20.99	£25.19
Clarke WV7	Bolted	180/205/78	£27.99	£33.59

Clarke QUALITY CAST IRON STOVES

NEW

8kW

OVER 23 QUALITY STYLES ON DISPLAY

£219.00 EXC.VAT £262.80 INC.VAT

FLUES, COWLS & ACCESSORIES IN STOCK

BARREL II

Clarke 1" BELT/ 5" DISC SANDER

- Includes 2 tables that tilt & lock
- Quality Induction 300W motor

£69.98 EX.VAT £83.98 INC.VAT

CBS1-5

Clarke DUST EXTRACTOR/ CHIP COLLECTORS

FROM ONLY £139.98 EX.VAT £167.98 INC.VAT

METABO ALSO AVAILABLE

- Powerful 750W motor
- 56 litre bag capacity
- Flow rate of 850M3/h

MODEL	MOTOR	FLOW RATE	BAG CAP.	EXC.VAT	INC.VAT
CDE35B	750W	450 M3/h	56Ltrs	£139.98	£167.98
CDE7B	750W	850 M3/h	114Ltrs	£159.98	£191.98

Clarke CWVE1 DUST EXTRACTOR

- Portable vacuum extractor for keeping work areas clean & free from dust particles, shavings, etc
- Quick release lid
- Air flow 183m³/hr
- 1100W input power
- Inc. filter cartridge, 4x inlet hose reducer adaptors & 4 dust bags

50 LITRE CAPACITY

NEW

£109.98 EX.VAT £131.98 INC.VAT

Clarke STAPLE/ NAIL GUNS

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

FROM ONLY £22.99 EX.VAT £27.59 INC.VAT

CONSN18LiB

SPARE NAILS / STAPLES IN STOCK

ELECTRIC AND CORDLESS MODELS IN STOCK

MODEL	TYPE	STAPLE/NAIL GAUGE	EXC. VAT	INC. VAT
CESNG1	Electric	22/18	£22.99	£27.59
CCT48	Cordless 4.8V Ni-MH	22/18	£29.98	£35.98
CESNG2	Electric	18/18	£39.98	£47.98
CONSN18LiB	Cordless 18V Lithium-Ion	18/18	£119.98	£143.98

Clarke MULTI FUNCTION TOOL WITH ACCESSORY KIT

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

£39.98 EXC.VAT £47.98 INC.VAT

CMFT250

Clarke 4" BELT/ 8" DISC SANDER

- Includes two tables
- 550W 230V motor

£159.98 EXC.VAT £191.98 INC.VAT

CS4-8

Clarke CROS3 450W RANDOM ORBITAL SANDER

£29.98 EX.VAT £35.98 INC.VAT

NEW

- Adjustable front handle improves control
- 7000-14000rpm

INC DUST BAG AND SELECTION OF 125MM DIAMETER SANDING DISCS

TURBO AIR COMPRESSORS

airmaster tiger

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

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

8/250

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

Clarke DISC SANDER (305MM)

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

£129.98 EXC.VAT £155.98 INC.VAT

CDS300B

Clarke POWER PLANERS

CEP1

BLACK & DECKER

- 82mm cutting width

FROM ONLY £28.99 EXC.VAT £34.79 INC.VAT

MODEL	MOTOR	DEPTH OF CUT	EXC.VAT	INC.VAT
Clarke CEP1	650W	2mm	£28.99	£34.79
Einhell TE-PL850	850W	3mm	£52.99	£63.59
B&D KW750K - GB	750W#	2mm	£57.99	£69.99

Clarke ELECTRIC POWER FILE

CPF13

- Variable belt speed
- Tilting head

*Black & Decker

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

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

Clarke BELT SANDERS

Makita

- Ideal for surface removal, sanding and finishing

ABRASIVE SANDING BELTS IN STOCK

BS1

FROM ONLY £36.99 EX.VAT £44.39 INC.VAT

MODEL	MOTOR	M/MIN	EXC.VAT	INC.VAT
Clarke BS1	900W	380	£36.99	£44.39
Clarke CBS2	1200W	480	£79.98	£95.98
Makita 9911	650W	75-270	£94.99	£113.99

Clarke HARDWOOD WORKBENCH

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

CHB1500

£144.99 EXC.VAT £173.99 INC.VAT

Clarke SHEET SANDERS

- Ergonomic design for optimum comfort

CON300

FROM ONLY £16.99 EXC.VAT £20.39 INC.VAT

MODEL	SHEET SIZE	MOTOR	EXC.VAT	INC.VAT
COS200	190X90mm	150W	£16.99	£20.39
CON300	230X115mm	330W	£34.99	£41.99

Clarke STATIC PHASE CONVERTERS

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

PC60

ROTARY PHASE CONVERTERS ALSO IN STOCK

CONVERT 230V 1PH TO 400V 3PH

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

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

Clarke CORDLESS DRILL/ DRIVERS

CONTRACTOR

FROM ONLY £39.98 EXC.VAT £47.98 INC.VAT

powered by Li-Ion

CON18Li

MODEL	VOLTS	BATTS	EXC. VAT	INC.VAT
CCD180	18V	1	£39.98	£47.98
CCD240	24V	1	£47.99	£57.59
CON18Ni	18V	2 x Ni-Cd	£69.98	£83.98
CON18Li	18V	2 x Li-Ion	£89.98	£107.98

Clarke CIRCULAR SAWS

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

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

CON185

*Includes laser guide

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

VAC KING WET & DRY VACUUM CLEANERS

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

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

* SS = Stainless Steel

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

Clarke PORTABLE THICKNESSER

- Max thickness cap. 125mm and 250mm wide
- Planing depths adjustable from 0-2.5mm
- Powerful 1250W motor

£219.00 EXC.VAT £262.80 INC.VAT

CPT250

Clarke OSCILLATING BOBBIN SANDER

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

£139.98 EXC.VAT £167.98 INC.VAT

COBS1

Clarke BOLTLESS SHELVING/BENCHES

- Simple fast assembly in minutes using only a hammer

SAVE 10% WHEN YOU BUY ANY MIX OF 4 FROM THIS RANGE SAVE AT LEAST £23.99 INC.VAT

FROM ONLY £29.98 EX.VAT £35.98 INC.VAT

150 KG PER SHELF (evenly distributed) Strong 9mm fibreboard shelves

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

CHOICE OF 5 COLOURS RED, BLUE, GREY, SILVER & GALVANISED STEEL

MODEL	DIMS WxDxH(mm)	EXC.VAT	INC.VAT
150kg	800x300x1500	£29.98	£35.98
350kg	900x400x1800	£49.98	£59.98

Clarke WHETSTONE SHARPENER (200MM)

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

NEW

ONLY £119.98 EX.VAT £143.98 INC.VAT

Clarke PLANERS & THICKNESSERS

CPT800

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

FROM ONLY £184.99 EX.VAT £221.99 INC.VAT

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

Clarke OSCILLATING BELT & BOBBIN SANDER

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

COEBS1

£179.98 EX.VAT £215.98 INC.VAT

NEW

FAST, EASY FINANCE ONLINE/INSTORE

NEW BUY NOW SPREAD THE COST

- Over 12, 18 or 24 Months
- Purchases over £300
- 12.9% APR, 10% Deposit*

EASY TO USE WEBSITE

NOW OVER 20,000 PRODUCTS ONLINE!

For hard-to-find, specialist items visit the Xtra section on machinemart.co.uk

FREE 516 PAGE CATALOGUE

Over 500 PRICE CUTS & NEW PRODUCTS

GET YOUR FREE COPY NOW!

- IN-STORE
- ONLINE
- PHONE

0844 880 1265

Clarke SLIDING COMPOUND MITRE SAW

BEST SELLER

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

£139.98 EXC.VAT
£167.98 INC.VAT

CMS10S2

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

Clarke CONTRACTOR / BOSCH CON750 JIGSAWS

BEST SELLER

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

*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	£28.99	£34.79
Bosch PST700E*	500W	70/4mm	£44.99	£53.99

Clarke BENCH BANDSAW

NEW

- Produces fast, precise mitre & longitudinal cuts • Cuts in all types of wood

£129.98 EXC.VAT
£155.98 INC.VAT

CBS190B

MODEL	MOTOR	THROAT SIZE	EXC.VAT	INC.VAT
CBS190B	350W	7.5"	£129.98	£155.98

Clarke PROFESSIONAL BANDSAWS

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

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

MAGNIFIED MITRE GUIDE

QUICK RELEASE FENCE

DRIVE-BELT TENSIONING

SOLID GROUND CAST IRON TABLE

CBS300

FROM ONLY £399.00 EXC.VAT £478.80 INC.VAT

MODELS ALSO FEATURE:

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

MODEL	THROAT DEPTH	MAX CUT 90°	MAX CUT 45°	EXC. VAT	INC. VAT
CBS300	305mm/12"	165mm	115mm	£399.00	£478.80
CBS350	340mm/14"	225mm	160mm	£498.00	£597.60

Einhell MITRE SAWS TC-SM2131

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

Laser Guide ‡ Sliding Compound

- Quality Range of Mitre saws and blades in stock

2 YEAR GUARANTEE

MODEL	BLADE DIA/ BORE (mm)	MAX CUT DEPTH/CROSS	EXC. VAT	INC. VAT
Einhell TC-MS 2112 NEW	210/30	55/120mm	£59.98	£71.98
Einhell TC-SM2131#	210/30	62/310mm	£129.98	£155.98
Einhell SM2534‡	250/30	75/340mm	£159.98	£191.98

Einhell BISCUIT JOINTER

NEW

2 YEAR GUARANTEE

£49.98 EXC.VAT £59.98 INC.VAT

TC-BJ900

- 11000rpm Operating Speed • 860W motor • 14mm Cutting Depth • Inc. dust bag, storage case and face spanner for cutter change

Clarke MORTISING MACHINE

£174.99 EXC.VAT £209.99 INC.VAT

CBM1B

- Accurately creates deep square recesses • Table size 150 x 340mm • Max. chisel stroke 76mm
- Robust cast iron base & column ensures stability & accuracy
- 95mm depth of cut

CHISELS AVAILABLE FROM £8.39 INC VAT

"...fast and accurate with a good solid feel...Excellent value for money." See www.machinemart.co.uk

Clarke SCROLL SAWS

BEST SELLER

FROM ONLY £82.99 EXC.VAT £99.59 INC.VAT

CSS400C

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

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

Clarke ROUTER TABLE

CRT-1

Router not included

BEST SELLER

£69.98 EXC.VAT £83.98 INC.VAT

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

Clarke GRINDERS & STANDS

- Stands come complete with bolt mountings and feet anchor holes

6" & 8" AVAILABLE WITH LIGHT

FROM ONLY £32.99 EXC.VAT £39.59 INC.VAT

STANDS FROM ONLY £47.98 INC.VAT

POLISHING KITS 4" TO 8" FROM ONLY £27.59 INC VAT

With sanding belt *8" whetstone & 6" drystone

MODEL	DUTY	WHEEL DIA.	EXC.VAT	INC.VAT
CBG6RP	DIY	150mm	£32.99	£39.59
CBG6RZ	PRO	150mm	£42.99	£51.59
CBG6RSC	HD	150mm	£54.99	£65.99
CBG6SB#	PRO	150mm	£54.99	£65.99
CBG6RWC	HD	150mm	£59.98	£71.98
CBG8W* (wet)	HD	150/200mm	£56.99	£68.39

Clarke FOLDING MITRESAW STAND

CFMSS1

ONLY £66.99 EXC.VAT £80.39 INC.VAT

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

IN STOCK – CONMW1 ONLY £131.98 INC VAT

Clarke WORK TABLE SUPPORTS (PAIR)

- Ideal if you have your own work top or want to build a steel or wood workbench
- Inc. mounting holes for worktop, shelf and floor

CWTS1

SIMPLY ADD YOUR OWN TOP

ONLY £28.99 EXC.VAT £34.79 INC.VAT

BEST SELLER

Clarke CONTRACTOR / BOSCH ROUTERS

- Powerful heavy duty machines ideal for trade and DIY use

CR2 INCLUDES 15 PIECE KIT WORTH OVER £20

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

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	£124.99	£149.99

Clarke 13" MINI WOOD LATHE

£149.98 EXC.VAT £179.98 INC.VAT

CWL325V

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

Clarke DRILL PRESSES

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

FROM ONLY £66.99 EXC.VAT £80.39 INC.VAT

CDP152B

B = Bench mounted F = Floor standing

MODEL	MOTOR (W) SPEEDS	EXC. VAT	INC. VAT
CDP5EB	350 / 5	£66.99	£80.39
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
CDP502F1100	1100 / 12	£499.00	£598.80

Clarke DETAIL SANDERS

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

FROM ONLY £19.98 EXC.VAT £23.98 INC.VAT

CDS-1V

MODEL	WATTS	EXC.VAT	INC.VAT
PS105	105W	£19.98	£23.98
CDS-1V	280W	£28.99	£34.79

ALL MODELS INC. SANDING SHEETS

Clarke 12" DOVETAIL JIG

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

£57.99 EXC.VAT £69.59 INC.VAT

CDTJ12

Machine Mart Xtra

Professional woodworking tools and machinery from Record, Sheppach, SIP and more!

Visit www.machinemart.co.uk for more information

VISIT YOUR LOCAL SUPERSTORE

OPEN MON-FRI 8.30-6.00, SAT 8.30-5.30, SUN 10.00-4.00

BARNSLEY Pontefract Rd, Barnsley, S71 1EZ	01226 732297	**EDINBURGH** 163-171 Piersfield Terrace	0131 659 5919
B'HAM GREAT BARR 4 Birmingham Rd.	0121 358 7977	**EXETER** 16 Trusham Rd. EX2 8QG	01392 256 744
B'HAM HAY MILLS 1152 Coventry Rd, Hay Mills	0121 7713433	**GATESHEAD** 50 Lobley Hill Rd. NE8 4YJ	0191 493 2520
BLACKPOOL NEW STORE	OPENS 6TH JULY 2017!	**GLASGOW** 280 Gt Western Rd. G4 9EJ	0141 332 9231
BOLTON 1 Thynne St. BL3 6BD	01204 365799	**GLOUCESTER** 221A Barton St. GL1 4HY	01452 417 948
BRADFORD 105-107 Manningham Lane. BD1 3BN	01274 390962	**GRIMSBY ELLIS WAY,** DN32 9BD	01472 354435
BRIGHTON 123 Lewes Rd, BN2 3QB	01273 915999	**HULL** 8-10 Holderness Rd. HU9 1EG	01482 223161
BRISTOL 1-3 Church Rd, Lawrence Hill. BS5 9JJ	0117 935 1060	**ILFORD** 746-748 Eastern Ave. IG2 7HU	0208 518 4286
BURTON UPON TRENT 12a Lichfield St. DE14 3QZ	01283 564 708	**IPSWICH** Unit 1 Ipswich Trade Centre, Commercial Road	01473 221253
CAMBRIDGE 181-183 Histon Road, Cambridge. CB4 3HL	01223 322675	**LEEDS** 227-229 Kirkstall Rd. LS4 2AS	0113 231 0400
CARDIFF 44-46 City Rd. CF24 3DN	029 2046 5424	**LEICESTER** 69 Melton Rd. LE4 6PN	0116 261 0688
CARLISLE 85 London Rd. CA1 2LG	01228 591666	**LINCOLN** Unit 5. The Pelham Centre. LN5 8HG	01522 543 036
CHELTENHAM 84 Fairview Road. GL52 2EH	01242 514 402	**LIVERPOOL** 80-88 London Rd. L3 5NF	0151 709 4484
CHESTER 43-45 St. James Street. CH1 3EY	01244 311258	**LONDON CATFORD** 289/291 Southend Lane SE6 3RS	0208 695 5684
COLCHESTER 4 North Station Rd. CO1 1RE	01206 762831	**LONDON** 6 Kendal Parade, Edmonton N18	020 8803 0861
COVENTRY Bishop St. CV1 1HT	024 7622 4227	**LONDON** 503-507 Lea Bridge Rd. Leyton, E10	020 8558 8284
CROYDON 423-427 Brighton Rd, Sth Croydon	020 8763 0640	**LONDON** 100 The Highway, Docklands	020 7488 2129
DARLINGTON 214 Northgate. DL1 1RB	01325 380 841	**LUTON** Unit 1, 326 Dunstable Rd, Luton LU4 8JS	01582 728 063
DEAL (KENT) 182-186 High St. CT14 6BQ	01304 373 434	**MAIDSTONE** 57 Upper Stone St. ME15 6HE	01622 769 572
DERBY Derwent St. DE1 2ED	01332 290 931	**MANCHESTER ALTRINCHAM** 71 Manchester Rd. Altrincham	0161 9412 666
DONCASTER Wheatley Hall Road	01302 245 999	**MANCHESTER CENTRAL** 209 Bury New Road M8 8DU	0161 241 1851
DUNDEE 24-26 Trades Lane. DD1 3ET	01382 225 140	**MANCHESTER OPENSHAW** Unit 5, Tower Mill, Ashton Old Rd	0161 223 8376
MANSFIELD 169 Chesterfield Rd. South	01623 622160		
MIDDLESBROUGH Mandale Triangle, Thornaby	01642 677881		
NORWICH 282a Heigham St. NR2 4LZ	01603 766402		
NOTTINGHAM 211 Lower Parliament St.	0115 956 1811		
PETERBOROUGH 417 Lincoln Rd. Millfield	01733 311770		
PLYMOUTH 58-64 Embankment Rd. PL4 9HY	01752 254050		
POOLE 137-139 Bournemouth Rd. Parkstone	01202 717913		
PORTSMOUTH 277-283 Copnor Rd. Copnor	023 9265 4777		
PRESTON 53 Blackpool Rd. PR2 6BU	01772 703263		
SHEFFIELD 453 London Rd. Heeley. S2 4HJ	0114 258 0831		
SIDCUP 13 Blackfen Parade, Blackfen Rd	0208 3042069		
SOUTHAMPTON 516-518 Portswood Rd.	023 8055 7788		
SOUTHEND 1139-1141 London Rd. Leigh on Sea	01702 483 742		
STOKE-ON-TRENT 382-396 Waterloo Rd. Hanley	01782 287321		
SUNDERLAND 13-15 Ryhope Rd. Grangetown	0191 510 8773		
SWANSEA 7 Samlet Rd. Llansamlet. SA7 9AG	01792 792969		
SWINDON 21 Victoria Rd. SN1 3AW	01793 491717		
TWICKENHAM 83-85 Heath Rd.TW1 4AW	020 8892 9117		
WARRINGTON Unit 3, Hawley's Trade Pk.	01925 630 937		
WIGAN 2 Harrison Street, WN5 9AU	01942 323 785		
WOLVERHAMPTON Parkfield Rd. Bilston	01902 494186		
WORCESTER 48a Upper Tything. WR1 1JZ	01905 723451		

5 EASY WAYS TO BUY...

- SUPERSTORES NATIONWIDE
- ONLINE www.machinemart.co.uk
- MAIL ORDER 0115 956 5555
- CLICK & COLLECT OVER 10,000 LOCATIONS
- NEW CALL & COLLECT AT STORES TODAY

NEWS & EVENTS

All the latest events and news from the world of woodworking

The new Walberswick ferry boat

PHOTOGRAPHS COURTESY OF IBTC

Left: *Boy Charlie* takes to the water for the first time, carrying on a centuries-old tradition with its party of excited passengers

Below: L-R Mike Tupper, joint owner of IBTC, Lewis Philips, boatbuilder, and Seb Scarr, student, who built the new ferry boat

The tradition of a ferry across the River Blyth between Southwold and Walberswick dates back to 1236. Many boats have plied this route over the centuries and a new one has just been commissioned by Dani Church, the current ferrywoman, to replace *Oud Bob* – a clinker-built Suffolk punt which is going into retirement after 60 years of service. *Oud Bob* was her great uncle Bob's boat, named after his father, also called Bob, who was a ferryman too. In fact, Dani's family have been working on the ferry since 1891. At present *Oud Bob* works alongside *Halcyon Days*, which was the boat her father had built in 1996.

The new boat, which has been built by International Boatbuilding Training College, Lowestoft Marine Services, based in Oulton Broad, is a copy of *Halcyon Days*. These boats are slightly wider in the beam than *Oud Bob,* making them more stable, and carry an extra three passengers in addition to the usual cargo of bicycles, dogs, children and buggies. She has been built of larch on oak over the winter and spring at IBTC and is called *Boy Charlie* after Dani's son. She launched on 8 July at Walberswick.

International Boatbuilding Training College, Lowestoft. **www.ibtc.co.uk**

Events

Fangfest – Festival of the Practical Arts, Fangfoss, Nr York, 2-3 September 2017 **Facebook: Fangfest Festival of Practical Arts, Fangfoss, Near York**

Into The Trees 9-10 September 2017, Pippingford Park, Nutley, East Sussex **www.into-the-trees.co.uk**

Self Build and Design Show 9-10 September 2017, Westpoint, Exeter **westpointexeter.co.uk/whats-on/47/self-build-and-design-show**

Bentley Woodfair 15-17 September 2017, Bentley, Halland, East Sussex, BN8 5AF **www.bentley.org.uk/**

European Woodworking Show 16-17 Sept 2017, Cressing Temple Barns, Essex **www.europeanwoodworkingshow.eu**

Apple Day, Stanmer Park, Falmer, Nr Brighton, 24 September, 2017 **www.brightonpermaculture.org.uk/courses/appleday**

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

Web links for you

YouTube

The Viking Way – Woodwork
If you're into beards, rough cloth, bare chests, pine forests and the great outdoors, this is a taster of life as a woodworker in the Viking tradition. A good bit of back to nature stuff. From Hands On History and Trondheim Vikinglag.

Facebook

Woodworking Ideas
Enter this search term for the weird, the wacky and the wonderful. A real Flintstones foot-powered car, a giant carved tree trunk, your own supersized homemade disk sander – you name it, it's all there.

Instagram

Tree House Community Brasil www.instagram.com/treehousecommunitybrasil/
Here are a bunch of guys and gals working in Brazil's extensive forests making treehouses for a living and all in an eco-friendly way.

Twitter

WoodSupport_NO @woodsupport
Nick Offerman, better known as the gruff Ron Swanson of TV's *Parks and Recreation*, is also a fully fledged woodworker. So much so that you can tweet him with your woodworking problems and get his gruff, blunt but humorous responses. He has an answer for even the most 'off the wall' questions

PHOTOGRAPHS COURTESY OF WIKIPEDIA COMMONS

Breathe easy

Redesigning 'trees of life' – helping cities breathe, by **Gary Marshall**

I was lucky enough to be in the fine old city of Palma recently. Much of the city is narrow, with steps and cobbles, thus unsuitable for normal road traffic. Those areas that are suitable consequently have heavy traffic. These areas are frequently heavily polluted, being traversed by fuming, air-conditioned traffic. However, there is some offset from magnificent, ancient street trees and newly planted green spaces (see *Woodworking Crafts*, Issue 29, p52). So I was particularly interested, while relaxing at our hotel, to catch a programme on the BBC's World TV Service about a team of Germany-based designers who are 'reinventing' street trees.

Some areas in cities are just not suitable for large or even decorative tree planting and these new 'trees' aren't even planted. Although living entities, they are assembled and installed in just six hours, require minimal aftercare, monitor various vital atmospheric levels and can clean the equivalent amount of polluted city air as 275 trees. Certainly over the screen's lives they work out far more cost-effective than planting and maintaining a similar number of city trees.

So what are they?

Moss. What? Yes, that's right – moss. In Issue 1 of *Woodworking Crafts*, I implored readers to 'Remember the humble moss and liverwort – as these can be excellent indicators of air quality'… I never expected to see amazing modernistic moss screens acting as effective city clean air filters.

In Hamburg and more than 20 other locations around the world, including Paris, Oslo, Hong Kong and Brussels, the screens are busy 'eating up' harmful air pollutants. Specially selected mosses that will thrive in their chosen locations deal with emitted particulates by bio-digesting them within 24 hours. They can also reduce excess heat, in some instances by up to 17°C. Such hot air, from exhausts, air-conditioning and heating, distorts many a city climate and adds to global warming. Highly polluted cities such as Hong Kong are particularly keen on the moss screens, since the effects of pollution there cost the economy billions of dollars every year.

New technology

The Dresden-based company has taken off from a start-up position. It is being backed not just by big city councils but by major motor industry and venture capital players too. The technology was developed over 10 years at the Dresden University of Technology and Humboldt Universitat Berlin. 'Moss cultures have a much larger leaf surface area than any other plant. That means we can capture more pollutants', said Zhengliang Wu, co-founder of Green City Solutions – the maker of CityTree – in an interview with CNN.

The screens aren't cheap at the equivalent of more than £20,000 each, so it's unlikely many individuals will be buying them, but those responsible and concerned for city health and functioning should be adding them to their shopping lists. Don't be surprised to see the 4m moss screens integrated into a city near you in the near future. Take note town and city planners, architects, airport designers, environmentalists and, yes, even accountants. ■

Woodcut-inspired block print

In this extract from his new book, **Andrew Hibberd** explains how to create a block print

An exhibition of chiaroscuro woodcuts produced during the Italian Renaissance was the inspiration for this project. During the 1500s, artists such as Ugo da Carpi produced exquisite works more akin to paintings than prints. They were able to incorporate tones and highlights into their works by using a series of woodblocks to build up the layers.

This enabled them to model figurative forms – for example, by the application of more or less ink applied to the tonal blocks. They also experimented with colour to produce works displaying differing moods and intensities.

This woodcut design was produced using two blocks. Technically it should have been made using three but I decided to dispense with the third block to save time. With careful inking, the small red areas were incorporated into the second block instead. For this project, structure of the letter forms is of secondary importance. I was more concerned with the letters being revealed due to the removal of simple but structured negative spaces.

Jig

You need to purchase or make a framework that can be used to carve the blocks and to contain the block while printing. Each block needs to be in the same position for the print run so that everything lines up on the finished print. The frame should be lower than the height of the block residing in it so that during the printing process the paper only comes in contact with the printing block, not the frame.

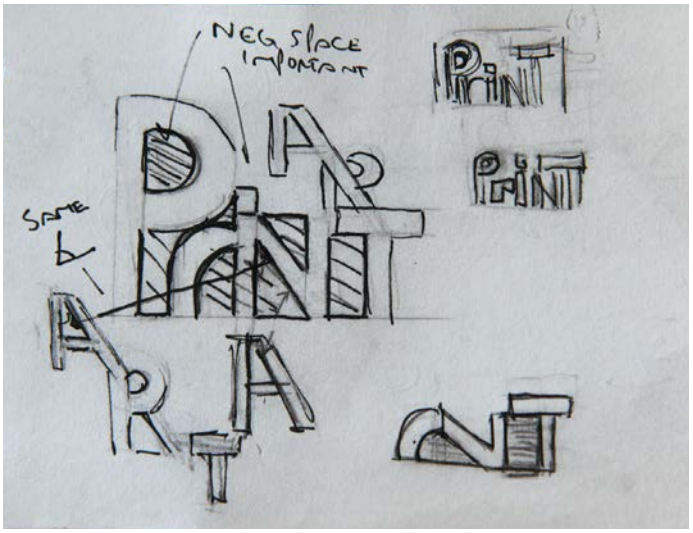
Things you will need...

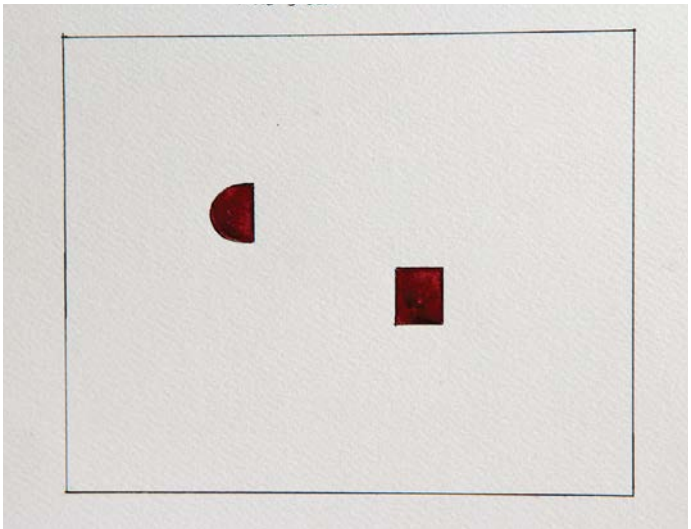
Tools:

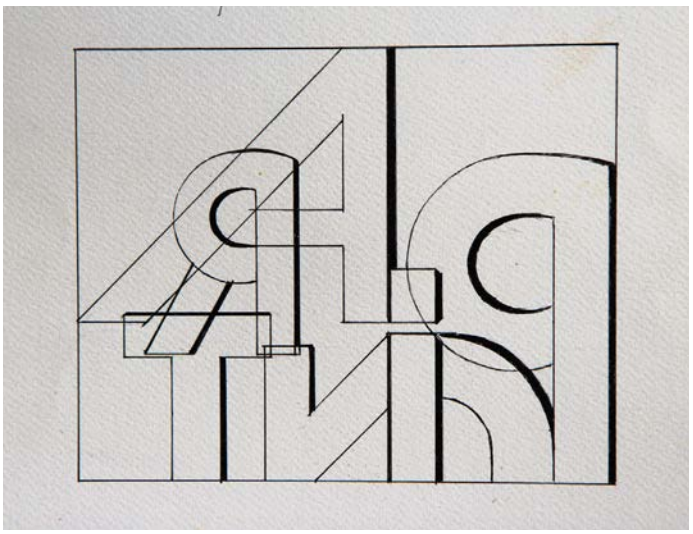
- V parting tool: 17/6
- Flat skew chisel: D1S/12
- Gouges: D5/12, D8/10, D5/8, 3/22, 5F/8
- Dummy/mallet
- Multi-slope or carving stand
- Printing ink: black, red and blue
- Printing or watercolour paper
- Watercolours: black, red and blue
- Chisel-ended paintbrushes: 10mm & 6mm
- Paint rollers
- Plate glass or Perspex
- White tracing paper made using C300 detail paper with white chalk rubbed over one side
- Drawing board and geometrical equipment
- 6H/HB pencils
- Baren, wooden spoon or piece of timber, for burnishing
- Pigment liner pen (0.5mm)

Wood:

- 2 × tulipwood (*Liriodendron tulipifera*) blocks: 180 × 230 × 25mm





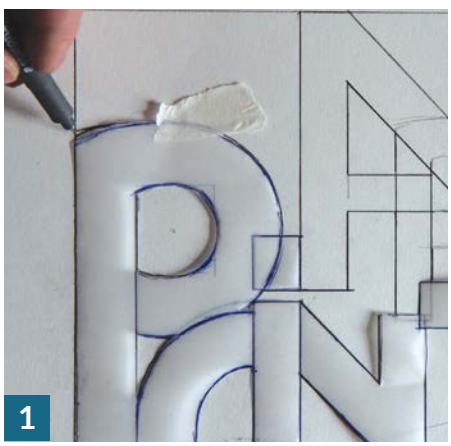


Design

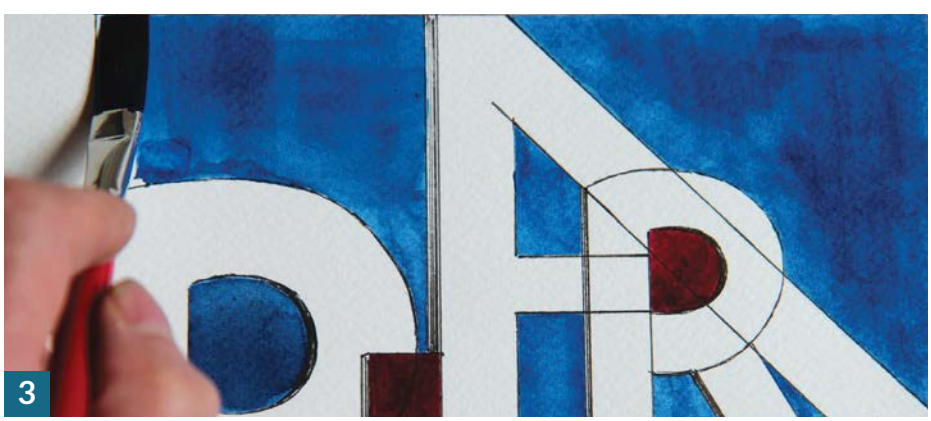
1 The first step is to sketch out some ideas for your design. I chose the words 'print' and 'art'. I then painted two more versions of the design based on the same theme. To speed things up, I traced over parts of the original design with the pigment pen, and cut them into sections to cut-and-paste into the next two.

2 Choose which design you want to print. I chose my original painting because it felt the most balanced and interesting out of the three designs.

3 Painting several versions of any design can be useful. It allowed me to experiment with colour and shapes, firming up ideas and helping with decision making. Design time is never wasted, particularly when things are not working out. I will often ask other people for their opinions and ideas, because once the carving starts any changes become costly in both time and money. ➤


1


2


3

Key block

4 Produce a reverse image of your design. I produced these for all three blocks, although I combined the red and blue stages to save time. Ensure that the image you use is of the same quality as the original drawing.

5 Squeeze some black ink on to the Perspex or plate glass and distribute using the roller. When you get an even consistency, cover one of the wooden blocks with the black ink. When dry, position your homemade tracing paper under the design, with the chalk side face down. Use a pencil to go over the lines on the design to transfer it on to the key block.

6 If the chalk lines are very fine, use either a V-tool, skew chisel or a gouge to cut them. The angle of the tool and the angle of the cut allow you to produce a very thin top surface and a much thicker base. In cross-section, think of a pyramid with a flattened top.

7 Either chisel around the whole design with the D8/10 gouge, thus producing a protective barrier for the vulnerable lines, or chisel away all the waste material that is easily accessible and fine-tune the lines at the end. I often use a combination of both methods.

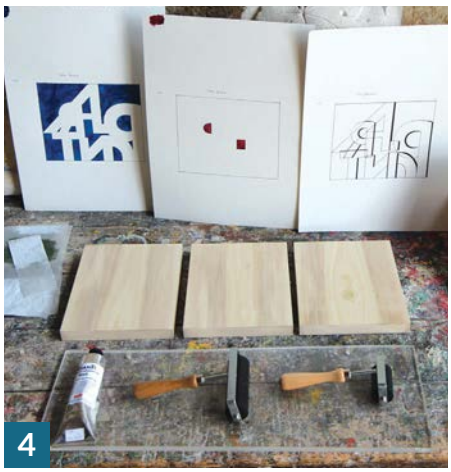
8 When you are satisfied with the results, your key block is complete. Use a roller to apply an even covering of black ink on the raised lines.

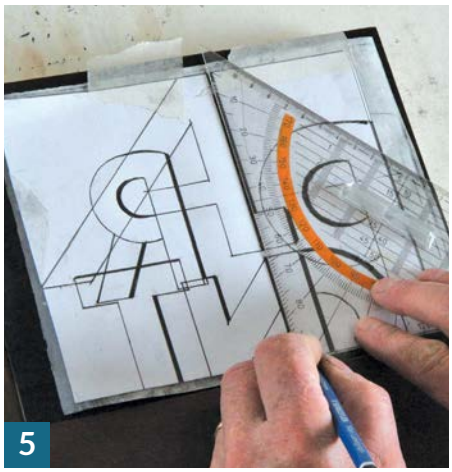
9 While the ink is still wet, pin a piece of clean paper to the frame surrounding the block. Firmly rub the burnishing tool over the paper to produce a print and peel it off.

Tone block

10 Place the next block into the same position in the jig. Place the key block print face down and use the baren or stick to rub the image on to the wood.

11 If using an additional tone block, you should still have enough ink on the paper print to produce the design on to that block of wood. It probably won't stretch to another one so you may need another print. Using the key block print, paint in the sections you wish to keep and remove anything you don't want using scissors. Place this next to the carving to check


4


5


6


7


8


9


10


11

you are only removing the required areas.

12 Make sure that the lines and angles produced at intersections are correct. A tri-square and geometrical equipment are useful for checking for inconsistencies. You can also use a skew chisel, gouge or a scalpel if required.

13 Crispness of line is very important so it is worth spending extra time to get this right. The bulk of the carving can be done with the V tool 17/6 and the D8/10 gouge. Additional tools can be used when required: for example, I used the D5/8 for the internal curve of the 'R' and the 3/22 for the external curve of the 'P'.

Printing

14 Use a clamp to secure the paper. Once the paper has been clamped, it is not removed for the whole of the printing process so that all of the blocks are printed on to it in the same position.

15 Carefully ink the blue sections of the block using a roller. Then, avoiding the inked sections, add the red ink using a smaller roller or a paintbrush. The end result should mean a fully covered and consistently textured block.

16 Carefully position the paper on to the inked block and, using the baren or other appropriate tool, burnish the surface until you can see the design embossed on to the paper. Refer to the reverse image 'design sketch' to help you visualise the areas to focus on during this process. When you are happy that all the ink has been transferred, carefully lift the paper. Attaching a bulldog clip to an un-inked part of the paper will prevent it from springing back on to the block again. If you wish, allow this to dry before proceeding to the next step.

17 Place the key block back into position in the jig, re-ink it and, again, lay the paper carefully on top and re-burnish.

18 The print is now complete and should look something like this.

Tip: Why not try using a variety of textured papers and different coloured inks for this project? ■


12


13

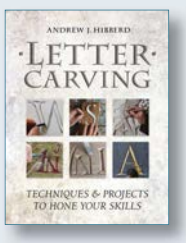

14


15


16


17


18



Letter Carving – Techniques & Projects to Hone your Skills
by Andrew J. Hibberd

ISBN: 9781861089526
RRP: £16.99 (plus P&P)
Contact: GMC Publications
Tel: 01273 488 005
Web: www.thegmcgroup.com

READER GROUP TEST

Welcome to our Reader Group Test by members of our very own Woodworkers Institute Forum

PHOTOGRAPHS BY PETER FRANKLIN

A very gummed-up blade comes up almost like new

CMT Formula 2050 blade & bit cleaner

CMT Orange Tools based in Italy makes a wide range of router cutters, spindle tooling and associated products. Its Formula 2050 blade & bit cleaner fits naturally into the product range. It claims to be safe, non-flammable and certified as biodegradable. It is capable of removing pitch, resin and adhesive residue from all woodwork machine cutting tools. The 500ml hand spray dispenser is marked 'industrial strength' and priced at £18.12, also available in a one gallon size at £58.86, both inc VAT.

Visit: www.tomaco.co.uk

What our testers had to say

Peter Franklin: I clean my cutters and tooling regularly, but I still get a build-up of deposits on my router cutters and saw blades, so currently I'm using white spirit and steel wool followed by wax protector. I was impressed with the ease of use and the rapid removal of the majority of build-up using the Formula 2050. I would recommend it to other people.

Walter Hall: I found the instructions easy to follow. I do get a build-up of deposits on router cutters and sawblades. I clean my cutters with cellulose thinners or methylated spirit but I don't clean my cutters and tooling as often as I should. However, the CMT cleaner was very effective with no problems experienced at all.

Tom Ryan: I currently use Trend tool & bit cleaner but I don't clean cutters and tooling regularly enough. After I sprayed CMT 2050 cleaner on my Festool saw blade, my Felder euro block cutters and router bits, I then waited 10 minutes and used an old toothbrush to get into all the tight corners. Every woodworker should realise that clean and sharp tools make for safe and clean work. This product does not have a strong odour, unlike other tool cleaners.

Robert Ball: Generally I use mechanical cleaning with a rag and a thumbnail or an old toothbrush. I clean cutters and tooling infrequently. The spray is a bit too aggressive, spreading the cleaner in large quantities over the item to be cleaned and anything behind it. I tried it out on a circular saw blade, a couple of router bits and a plane blade. On the circular saw blade, with five minutes waiting time, the effect was to definitely make it easier to remove the deposits, but it didn't help me clean the blade fully first time.

Radek Sosnowski: I sometimes get a build-up of deposits on router cutters and saw blades so I use a cloth and WD40 for cleaning. I experienced no problems whatsoever – however, the product needs soaking in. I would definitely recommend it to other people. ■

How our testers rated the product

Product performance 8/10

Ease of use.....9/10

How would you rate the product overall.....8.8/10

Editor's comment:

You can download a data sheet on the internet, but you won't be much further forward unless you happen to be an industrial chemist. The chemical composition is safe if used correctly. To use the Formula 2050 correctly, it does need to be left on long enough to soak in and loosen deposits. Regular cleaning of cutting edges is a must as overheating and degraded cutting performance result from a lack of maintenance.

PHOTOGRAPHS BY ROBERT BALL

Router cutters get hot and the deposits stick on, but here the muck has come off

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!**

PHOTOGRAPHS BY SAM MCCARTHY-FOX/LATE RON FOX UNLESS OTHERWISE STATED

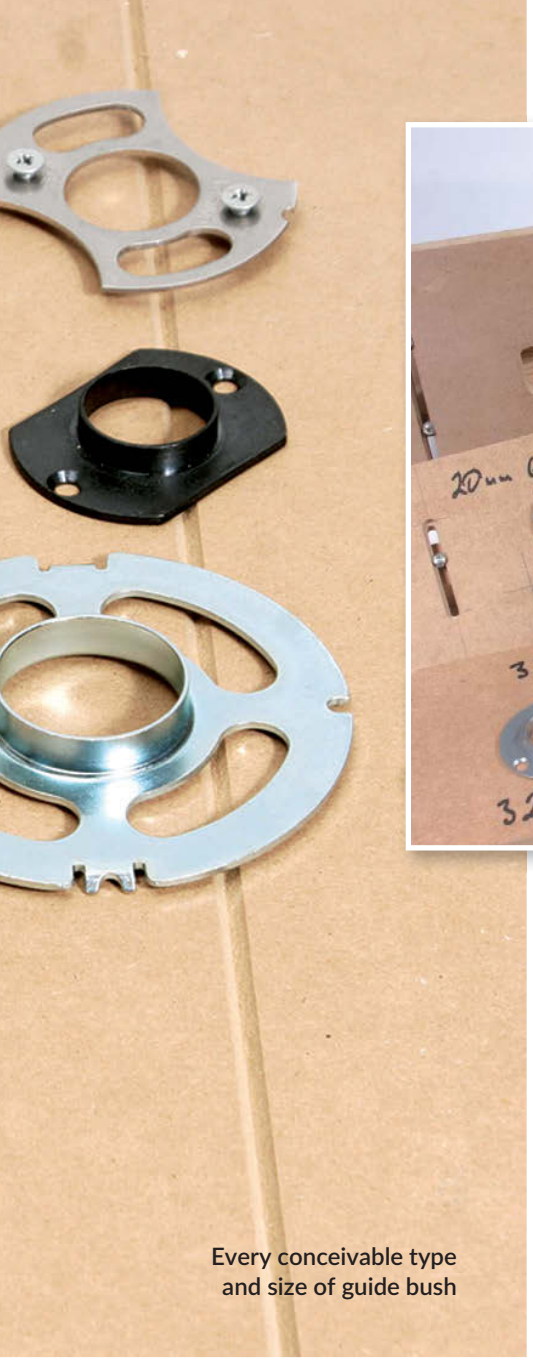
More guide bush work

When it comes to routing let the **Editor** be your guide

We looked at guide bush working before, but this time we can go into a bit more detail. Using guide bushes isn't the only means of controlling the behaviour of a router but it is one of the most common and also commonly overlooked. That odd bit of pressed steel and a couple of small machine screws seems a bit pointless, especially if the screws get lost. However, those screws are almost certainly standard coarse metric sizes and can be replaced and your router may be able to take different diameter guide bushes that are better suited to specific tasks. If you bought a cheapo router from a discount store it will be made in the Far East and not have any system or support to go with it. All is not necessarily lost, if you need more diversity of guide bushes you may be able to attach a device such as the Trend Unibase. So what can you do with a guide bush setup?

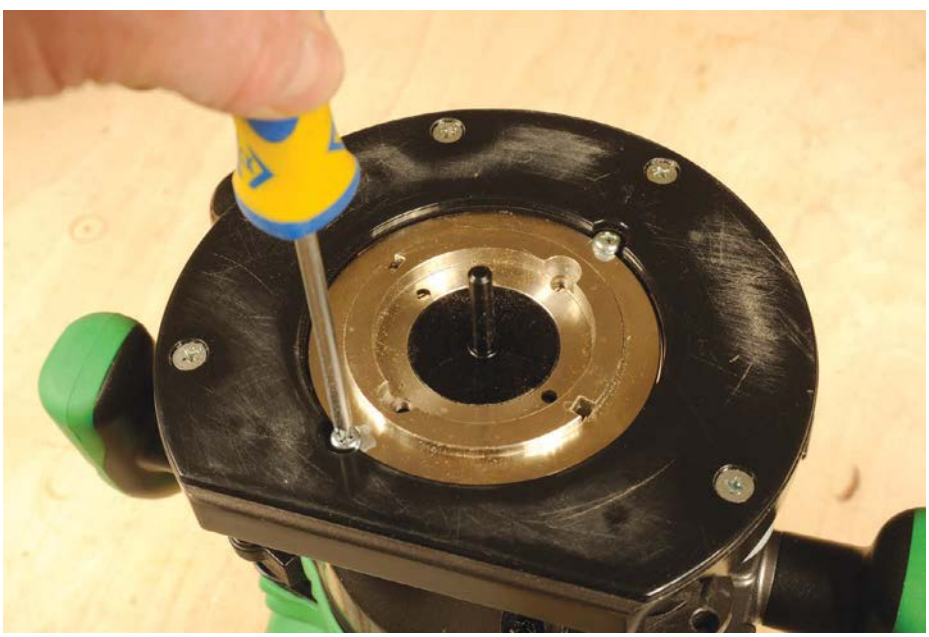
How accurate is it?

The answer is, pretty good but – not perfect. Just using a guide bush and a jig or template will give you a massive advantage in terms of control, repetition working and avoiding errors and damage. It allows you to do things that aren't possible by other means. Accuracy-wise it is plenty good enough for most purposes but it used to be the case that some better-quality routers came with a centring device to ensure the guide bush was exactly centred on the cutter. This lack of centration on modern routers means that alignment isn't up to engineering standards,



Every conceivable type and size of guide bush

Each jig or template and router will tend to need a different cutter and guide bush combination



A centring device will help ensure the guide bush is centred on the cutter accurately

but perfectly adequate for most woodworking tasks. The Unibase does come with a centring device because there are so many hole alignment options you need to be sure it is matched up to your own router.

Do I need jigs and templates?

We have covered this before, but I cannot stress enough the need for control of the router by one means or another. A typical task such as machining hinge recess is a very hit and miss affair without a jig and a matching guide bush and cutter. There are many other examples where a router can perform tasks that would otherwise be done by hand, but – and this is the big but – you do need a jig to do it. This means investing some time and effort in creating the required jig but it is worth it and it can be used again and again.

How do I work out the jig or template?

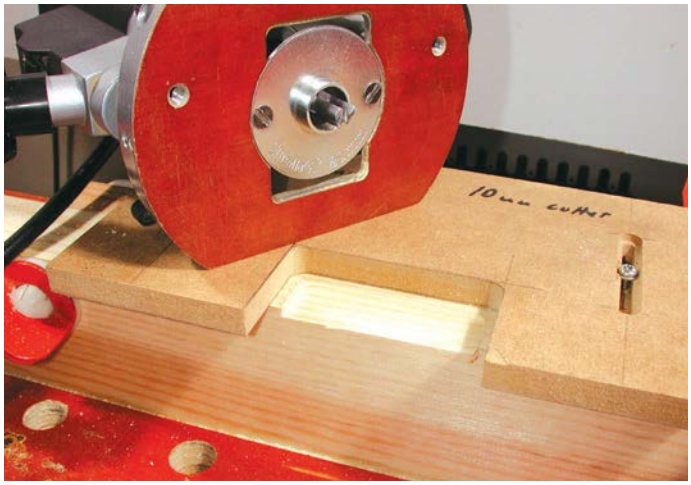
First of all you have to identify a need. This might be possible at the start of a project or it may be when you are faced with a challenge during the build. It can seem hard to justify creating something just for one job, but if it is going to make the work easier and a more predictable outcome, then I would suggest it is worth it. In fact, most jigs aren't very complicated – it is just the mental confusion around how to create them that is the problem.

What is the difference between a jig and a template?

An interesting question. In a nutshell, a jig is a device for specific operation, such as machining a mortise. A template is for creating a shape such as alphabet letters, for example. Very occasionally a jig and template could effectively be combined, such as a template for the curved back leg of a chair which also has a cutout for machining a back rail mortise. Jigs and templates are used for all sorts of ➤

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Vernier callipers are an essential method of checking respective diameters when calculating the offset



Using a hinge jig with guide bush that allows the cutter to almost reach the corners, a chisel will be used to square them to take the hinge

manufacturing and craft activity but the ones used for routing are mostly designed to work with a guide bush and cutter.

Tell me how to make a typical jig

The one thing you must always bear in mind is the size relationship between the cutter diameter, the guide bush diameter and the actual line or shape you want to machine to. It isn't that confusing but it can seem so as they are different sizes. Added to that is the fact that guide bushes are normally made to whole millimetre diameters but are frequently not correct due to mass manufacturing techniques and compounded by cutter diameters that are sometimes not whole millimetres because they are based on traditional imperial sizes. I could write a treatise on measurements, their accuracy or not and the significance of that – but I won't, you'll be glad to hear. Instead, buy yourself a Vernier calliper – the modern digital ones are easy to read but battery hungry. You will find using them most instructive as almost everything you try to measure won't be quite the size it claims to be...

Setting out a jig

Suppose you want to machine a mortise 75mm long x 25mm wide. A standard diameter long straight cutter chosen could be 12.7mm (old ½in) this cutter might just pass through a 16mm O/D (outside diameter) guide bush but more likely it would need to be a 19mm size which didn't come with the router. So if you are lucky and can get a larger guide bush to fit, because it is larger the radius means the cutter won't go as far into the corners. This is not a problem with a single run cut but if the cutter needs to 'run around' a larger opening it means the corners are more rounded and may need squaring out with a chisel, which can defeat part of the reason for a guide bush.

So the diameter of the cutter – 12.7mm – has to be subtracted from the 19mm guide bush diameter = 6.3mm, this is divided in half = 3.15mm. This is the amount your jig or template would need to be larger, so you end up with the right size of mortise. For convenience, round the size down to 3mm – compromise is necessary for sanity here – 3mm would therefore be your guide bush offset in this instance.

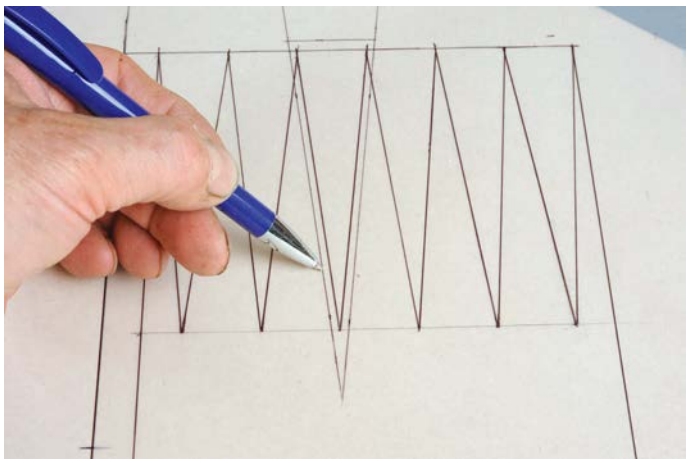
The difference in size between cutter and guide bush is greater than normal, but in this case the hand hole shape has rounded ends so it doesn't matter. A larger cutter will make the hole bigger

Jig fencing or fixing

The jig or template needs to be accurately cut out and shaped as the guide bush will follow any deviations. Primary cuts can be done with a router and fence and possibly a jigsaw, but tidying up will need a fine rasp or wood file. It needs to be fixed in place and this could be a batten screwed underneath in the correct position so it can be clamped against the side of the workpiece or, in the case of a template, it might be pinned or held with thick carpet double-sided tape. Test cuts are essential to making sure you have the fencing or fixing in the correct position. By measuring the component to be machined you should be able to work out where this is to be.

Some woodworkers enjoy creating jigs and templates at least as much as the actual project. This is no bad thing, if you can conquer your jigmaking blues you too can have some fun making the impossible – possible. ■

Backgammon board– the guide bush sequence



Marking out the guide bush offset

PHOTOGRAPHS ON THIS PAGE BY GMC/ANTHONY BAILEY

Machining the outline shape with a very small cutter and guide bush

Once all outlines are machined, swap to a larger cutter and guide bush to remove the waste areas

Cut and shaped fingers of contrast wood glued in place

After trimming and casing the result is a fine backgammon board

TOMACO

THE TOOL MARKETING COMPANY

DISTRIBUTORS OF QUALITY PRODUCTS

SHARP EDGE

Chisel and plane iron sharpener - take anywhere and sharpen in seconds.

narex®

Quality range of woodworking hand tools made in Europe.

COLT® PROFESSIONAL TOOLS

A quality range of professional Drill bits and accessories from Germany.

TOMAHAWK TOOLS

A quality range of professional tools and accessories.

VETO PRO PAC® TOOL BAGS THAT WORK

Range of the toughest tool bags with a 5 year downtime warranty.

CMT ORANGE TOOLS™

Quality cutting tool range which includes Router cutters, Spindle Moulding, saw blades, holesaws and many more from Italy.

FOR YOUR NEAREST STOCKIST VISIT

www.tomaco.co.uk

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Proxxon polishing machine PM100 test

The **Editor** is used to big power tools and machines. Would a baby polisher go down well?

Proxxon is a German-built make, designed mainly for smaller-scale work – craft, model-making, detailing, etc. Although you can buy bigger polishing machines, this one doesn't look too weeny and suggests it should be good for action. It can be either screwed to a bench or board or the sturdy clamp will fix it firmly to the edge of a work surface – handy if you are at a table, jeweller's bench or doing demonstrations. It has two mop mandrels, both threaded for forward running. The right-hand one can be removed to fit other accessories. It has a variable-speed knob and on-off switch in the non-logical but most practical siting on the back slope of the machine. The shield around the mops can easily be adjusted using a supplied Allen key and needs to be removed if you do a mandrel change in order to access the spanner flats at both ends. Again there are two spanners supplied.

In use

Setting up is easy but you need to familiarise yourself with the shield adjustment and, of course, you need to fit the mops. The yellow muslin one is coarser so I put it on the left-hand mandrel and the softer one on the right. The instructions don't mention mounting fully, for safety reasons I imagine. I switched the unit on at slow speed and, avoiding touching either of the blunt mandrel points, simply pressed the mops on one at a time so the thread carried them on. I let go and, instantly, voila – done.

Modern drawn brass hinges are dull but with some polishing they have a real chance to shine. So I added some compound on the left-hand wheel and proceeded to buff up, holding the hinge downwards for safety, working with the rotation. A couple of minutes' work did the trick but there was dirty compound evident and unevenness of finish. The soft fabric right-hand wheel dealt with it instantly and you can see the contrast between raw, drawn brass and the polished result.

Verdict

Several observations. This machine has plenty of power and you can max this out by turning up the speed although be wary with small fragile objects where slow running and a light touch are best. Keep spare mops handy, a cleanish soft one is needed for removing traces of compound and, of course, you can buy different brand compounds if you so choose. Create an enclosed setting to catch all the polishing spatter and wear old clothes. The siting of the controls at the rear is apparently a consequence of a redesign that allows long, awkward workpieces to lie close to the axis of the shaft. Overall though, I was very impressed although price-wise it isn't cheap. The only letdown was the instructions, which aren't easy to understand. ■

Tech spec

Proxxon PM100 polishing machine

DC motor with electronic speed control 1,000-3,100 rpm
Twin mandrels for 100mm dia. polishing wheels
Optional accessories – additional muslin wheels, microfibre wheel, felt cloth wheel, universal paste polishing stick suitable for all materials

Price: £233.38 inc VAT
Visit: www.brimarc.com

Power, Performance, Perfection.

TREND T5 1000W ROUTER

Compact powerful, variable speed router for light and medium duty applications.

OFFER PRICE
List Price ~~£267.94~~
£149 INC VAT

INCLUDES

Precision 1/4" Collet

Micro Adjustable Side Fence

300mm Fence Rods

Beam Trammel Attachment

Clip-in Dust Spout


20mm Guide Bush

AD/17/10

trend®
routing technology

Available from over 350 Trend Routing Centres & Stockists in the UK & Ireland.

www.trend-uk.com

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 the 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

Andy Hibberd

Andy trained as a woodcarver at City & Guilds. He was mentored by David Holgate, a leading figure in lettering and figurative carving. His workshop is in Norfolk and he can be found demonstrating at shows up and down the country. To see more of Andy's work, visit his website at:
Web: www.andyhibberd.co.uk

Amber Bailey

Amber Bailey is a marquetarian and surface design artist with a background in furniture restoration. She has trained in prestigious decorative art schools both sides of the English Channel and is now based in North Wales, working for a furniture company using laser cut marquetry.
Web: www.abmarquetry.com
Email: ab.marquetry@gmail.com

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, Adams fireplaces, book cases and reproduction furniture.
Web: www.sawdustandwoodchips.com

Simon Rodway

Simon Rodway 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.

Kevin Ley

On leaving the RAF in 1987 Kevin Ley set to turning his hobby into a commercial proposition. The former squadron leader designs and makes bespoke furniture from his cottage and workshop in the wilds of Shropshire, England.

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
Printed in the UK by Stephens and George Print Group, Distributed by **Seymour Distribution Ltd** Tel: 020 7429 4000 **WOODWORKING CRAFTS (ISSN 2057-3456) is published every four weeks by GMC Publications Ltd, 86 High Street, Lewes, East Sussex, BN7 1XN**

SUBSCRIPTION RATES **(includes postage & packing)**

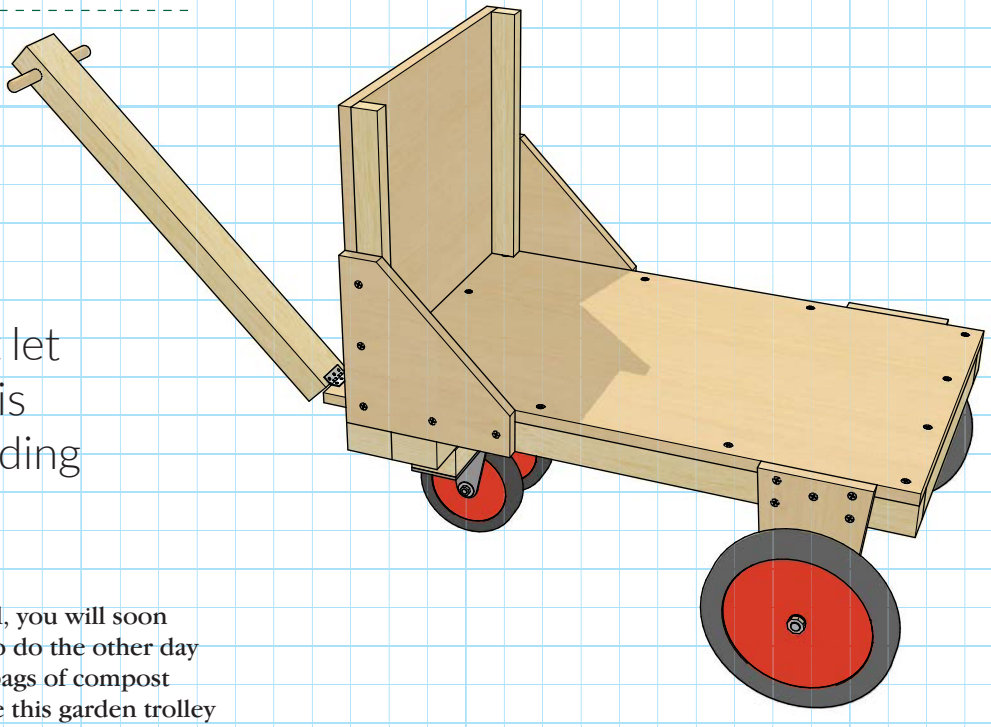
	UK	Europe	Rest of World
12 issues:	£51.00	£63.75	£71.40
24 issues:	£102.00	£127.50	£142.80

US customers should call the Subscription Department for subscription rates in USD ($).

Cheques made payable to: GMC Publications Ltd.
Current subscribers will automatically receive a renewal notice (excludes direct debit subscribers). Post your order to: The Subscription Department, GMC Publications Ltd, 166 High Street, Lewes, East Sussex, BN7 1XU, UK. Tel: +44 (0)1273 488 005 Fax: +44 (0) 1273 402866 Email: pubs@thegmcgroup.com Web: www.thegmcgroup.com

PLANS 4 YOU

Garden trolley

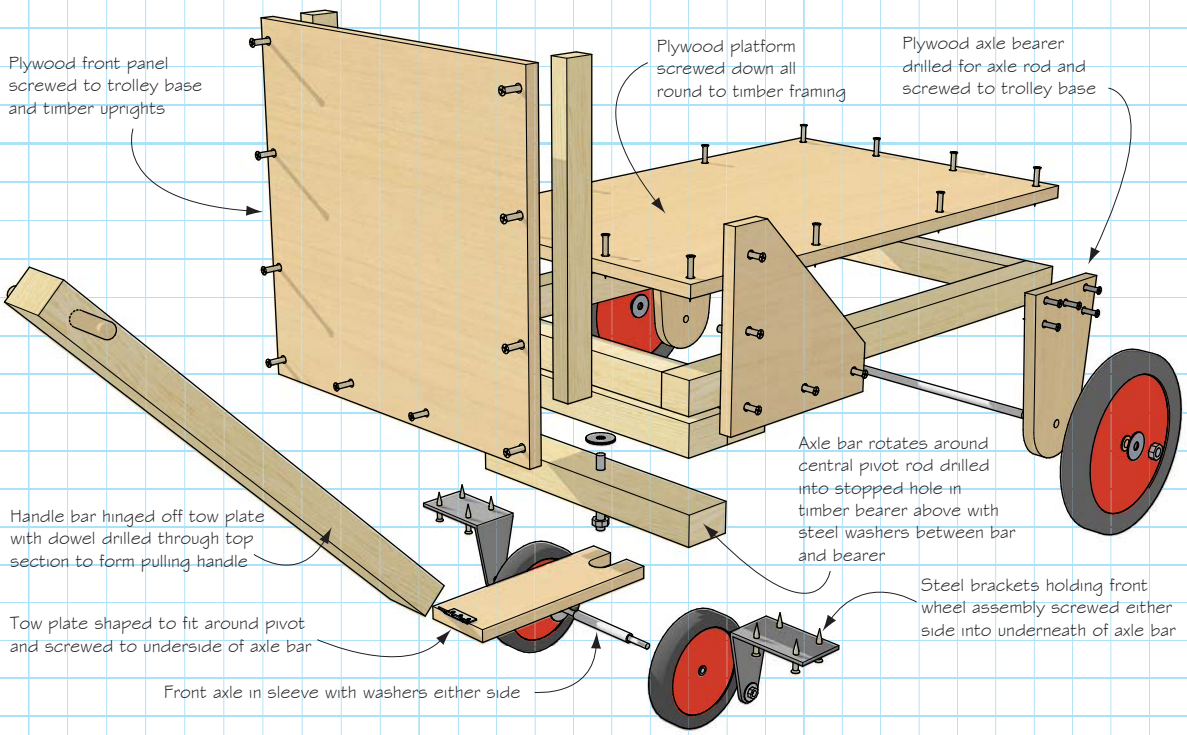


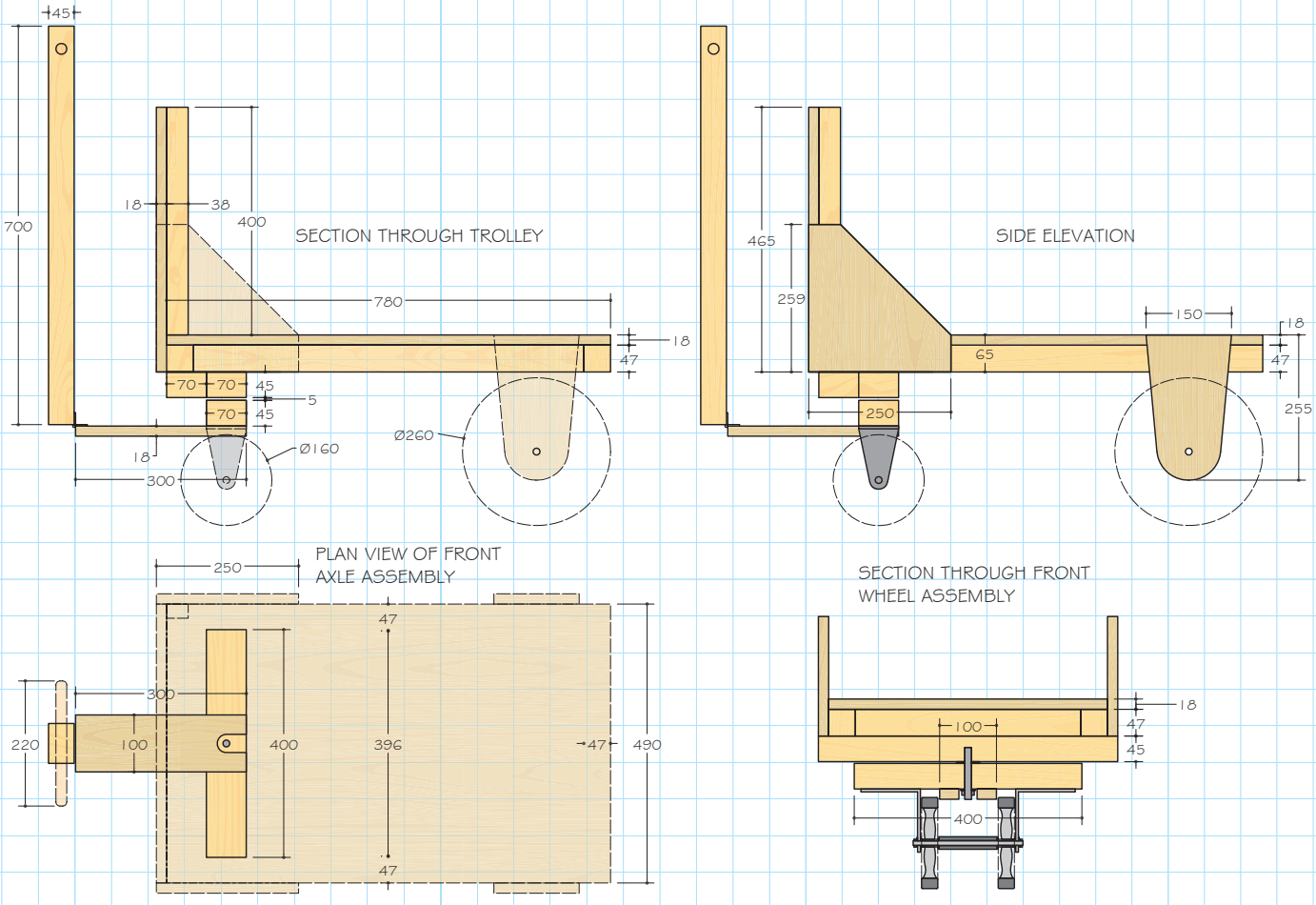
Simon Rodway doesn't let the grass grow under his feet – he's too busy tending his garden

If you do any kind of gardening at all, you will soon encounter the type of lifting I had to do the other day for elderly parents – namely, large bags of compost from car boot to potting location. While this garden trolley won't spare you some of that lifting, it can certainly ease the transporting of heavy or bulky objects around the garden, which is an integral part of life for all gardeners.

One of the great things about making something like this is you can choose just how big your trolley is going to be. Varying the overall size from the dimensions shown should be quite simple, with one cautionary note – the tow plate which is screwed to the underside of the axle bar, fitting round the pivot rod and securing nut, is designed to clear the side of the trolley even when the towing handle is at right angles, so that the hinge between the two can still allow the handle to rotate freely. If you make your trolley wider than shown, you will have to lengthen the tow plate accordingly.

As usual, I have tried to stick to standard timber sections to minimise work and waste and, additionally, to source these as pre-treated, given the fact that your trolley is likely to experience a bit of weather. This obviously must include the 18mm plywood, which is used for the main platform, the tow plate, the angled brackets at the front on the sides and the axle bearers at the back.





The construction of the main part of the trolley is very simple – a rectangular platform screwed down on to a treated softwood frame or base which runs around the perimeter, with a front panel added using timber uprights to reinforce the panel and help to join it to the side plywood brackets. Everything is held together using plenty of twinfast screws, but not glued. Additionally, the base of the trolley is reinforced at the front using a couple of larger section bearers running side to side. These will help to transfer the load from the front axle bar, a shorter section of timber that has a hole drilled through centrally to take the vertical steel pivot. The bearer above the axle bar has a stopped hole drilled for the same steel pivot. Steel washers between the axle bar and the bearer above help to prevent the two binding together, and the pivot rod should be secured at the bottom using a locknut and more washers.

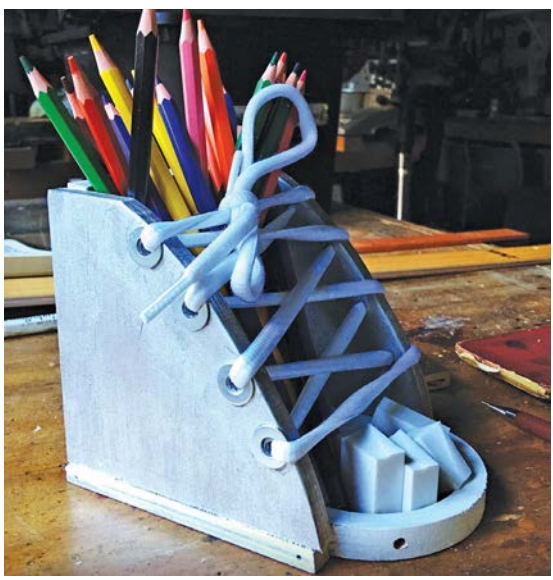
The axle bar is designed to carry the smaller diameter front wheels, with the larger back wheels held by plywood axle bearers or brackets, screwed into the sides of the trolley, and drilled through to take a steel axle rod. It is really essential to source the front and back wheels and the front steel brackets before buying the rest of the components, as the diameter of the front wheels and the size of the steel brackets will affect the height of the front assembly. You should then be able to adjust the height of the back axle, taking into account the diameter of your back wheels, to make sure your trolley is fairly level when it is all put together.

The two front wheels are shown separated by a steel sleeve with washers at both ends, but there are other potential solutions to this – your wheels may be fixed in some way to the brackets, for example. In any case, you need to ensure that the tow plate, screwed up into the axle bar, will fit snugly between the wheels without binding the movement at all. The handle bar, once it has been drilled and a piece of dowel with rounded ends inserted near the top, can then be joined to the tow plate using a strong hinge. The length of this bar can of course be adjusted, like the rest of the trolley, to suit you. All that remains is to add a couple of coats of weatherproofing of your choice, and your trolley is ready for work. ■

Cutting list

Platform	1	@	780 X 490 X 18
Side frame	2	@	780 X 47 X 47
End frame	2	@	396 X 47 X 47
Front panel	1	@	490 X 400 X 18
Uprights	2	@	400 X 38 X 25
Front brackets	2	@	250 X 259 X 18
Back wheel brackets	2	@	255 X 150 X 18
Bearers	2	@	526 X 70 X 45
Axle bar	1	@	400 X 47 X 47
Tow plate	1	@	300 X 100 X 18
Handle bar	1	@	700 X 70 X 45
Handle	1	@	Ex 220 x 25 diameter

Cutting list includes timber components only. Please source wheels, steel brackets and fixings for wheels first.



Clockwise from top left: Kerryn in her workshop; Steampunk watches; pencil boot; New Guinea rosewood mallet with acanthus carving; angel wings

KERRYN CARTER TOOLSCHOOL

Mention Sydney, Australia and the first things that spring to mind are the Bridge, the Harbour or the Opera House – but then there is Toolschool...

A while ago I was trawling through Instagram and stumbled across Toolschool and lots of interesting stuff created by the name of Kerryn Carter. My fellow editor Derek Jones had certainly heard of her and so had my daughter Amber, so a little shamefacedly I felt I needed to catch up rather quickly on her life and work in the shoreside, sunkissed suburb of Darling Point, Sydney. A few attempts at Skype and Facetime later we were happily chatting, albeit at different ends of our respective working days. Fascinating it was too, learning about her progression from law to that of a full-time professional woodworker.

Learning for life

Becoming a woodworker and already being a mum concerned about her children's education and life experiences, it occurred to Kerryn that there was something missing. In 2014 she let her kids 'help' in the workshop. Kerryn realised they could safely use simple tools and they loved doing it, hammering nails or driving screws into offcuts of wood and they had lots of ideas and enthusiasm. Then a local school asked her to teach the students woodworking. They enjoyed the activities too and thus Toolschool came about.

Teaching methods

To start with Kerryn found all the teaching literature she could, but it was completely out of date so she developed her own teaching methods and programme plus a series of projects which will eventually be published as a teaching resource for other teachers to use. One source of inspiration has been the American scouting organisation as she is keen on survival techniques.

Class action

The name Toolschool requires no explanation, but how it works in practice does. Kids aged from six to 12 years old are taught all about tools and woodworking. They get to learn all the basics – plan drawing, sawing a board, drilling, hammering nails, screwdriving, sanding, gluing and painting, etc. They get to make exciting projects such as miniature rafts, cars and 'bagbot' robot keyrings to name a few. ➤

DIY growing up

Kerryn's dad John Dixon was a boilermaker by trade but when that industry declined he went on to teach industrial arts in a high school. She grew up in a 'DIY household' as she puts it. Even at the tender age of five she would follow him into that magical place – 'the workshop', while her brother showed no great interest at all, but like any keen son or daughter she used to watch Dad tackle all sorts of home repairs and also building beautiful furniture and antique restoration. She realised even then, that her dad must have vast practical knowledge and skill with tools.

Working by degrees

Dad told her she must get a white collar job so she could 'do better than him'. So at 17 years old she went to the University of Arizona to study accountancy and while there she ran as a track and field athlete. Her first job after graduation was in San Francisco and then in a diamond mine in the Arctic! After a stint volunteering for charities in Malaysia, Kerryn returned to Australia and took a law degree. Settling in Sydney, she got married and worked in a top tier law firm. When two sons came along Kerryn decided that a real change in her life was due, stepping away from the corporate world she had known so well.

Realising that dream

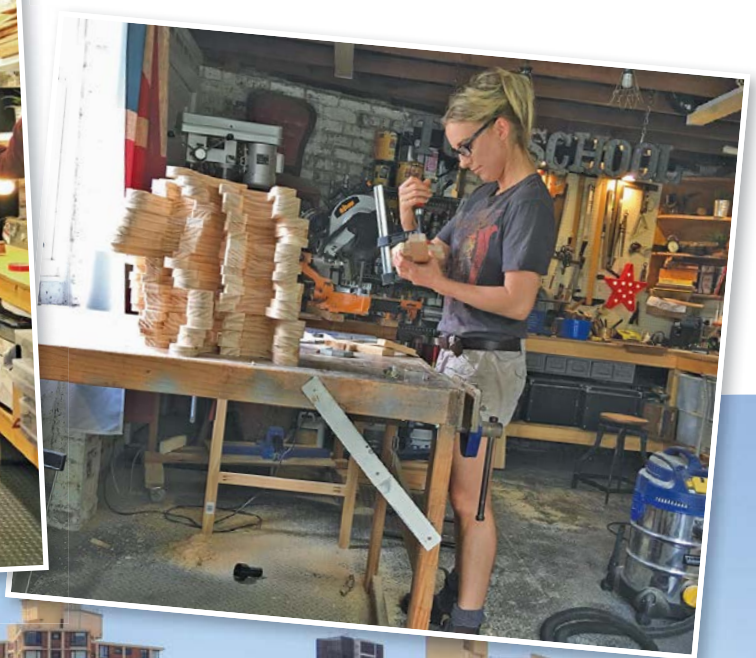
Kerryn had always dreamed of being a woodworker so it was only natural that as a very practical person she would gravitate to her first interest, woodworking. Her father died while she was still in law practice (Kerryn is still a qualified lawyer) so she took a difficult decision at that time, to learn woodworking and signed up at Heartwood Creative Woodworking in Sydney under the tutelage of Stuart Faulkner for the next four years. Kerryn moved all of her father's workshop into her garage and conservatory and has added more to it over the years. So it is now the home of Toolschool!

PHOTOGRAPHS COURTESY OF KERRYN CARTER

However, all the projects have to gain the approval of her two sons (Stirling, 9 and Austin, 6) before classes get the chance to try them for themselves. The classes are held on Saturdays in several small groups of five kids at a time, who are given safetywear and work under constant careful guidance. Unfortunately anyone suffering with asthma cannot take part because of the dust hazard, but it is otherwise a safe, well-run environment for kids.

Making it fun

Trying to maintain children's interest in woodworking when there are so many other distractions, such as computer games, is a real challenge. A typical project could take weeks, not the short time it takes to play a game on your phone. Kerryn says it is the level of detail that makes it interesting. One project is a Steampunk watch, which the kids love to add their own detail to and then wear to school to impress everyone because it looks cool.



Top: Kerryn using her Powermatic bandsaw
Above left: Toolschool kids taking part in *Better Homes and Gardens* TV show
Above right: Preparing for The Lost Trades Fair

Darling Point, Sydney, NSW

Cars, camera and 'bagbot'

Top: iPhone TV. Above: blasters!

Tool technique

It is interesting that Kerryn regards the Japanese pullsaw as the basis for learning, rather than a typical Western tenon saw. 'It's a great tool in terms of body mechanics,' she says, because of the stance and arm movement. Next is a Surform because it so good at shaping curves and after that drilling. She gives a safety demonstration for each type of tool so the kids understand how to use it properly. They are fast learners and pick up the basics so long as they are taught properly. However, they are not allowed to use power tools.

The workshop

Although on a hot, sunny day Sydney is a wonderful place to be, it isn't always possible to work al fresco on workbenches in the back yard. Instead, during the winter months the under-bench heating keeps the workshop warm. Incidentally, it is located just two streets from the waterfront with spectacular views across the harbour bay.

The day job

Kerryn is very family oriented with her husband, Douglas, and the boys always highest on the list of priorities, but even so she is always busy with various woodworking projects and more recently working with Ryobi Power Tools as a brand ambassador. Working on her own means gleaning useful information from Lost Art Press books and *Australian Wood Review* magazine, as well as interesting Instagram postings. Upcycling is important too, so anything and everything can get incorporated creatively into projects Kerryn is busy making and may well turn up as handy YouTube clips. You can see loads of Kerryn's projects being built on Instagram and the notorious video clip 'hammer flipping' – not to be recommended to readers.

The future

Living in a very big country and having lived and worked in the US, Kerryn thinks nothing of travelling to meet other people in the business, like her visit at the start of the year to HNT Gordon in Ballina, nearer to Brisbane on the Gold Coast, to see how the Aston Martin of wooden hand planes is made, or travelling to the US for the Woodworking In America conference in 2016. In a nutshell, it's looking bright. Kerryn is always keen to learn more and pass on that knowledge in her teaching. We await her future progress with great interest, as do all her 40,000 Instagram followers.

(P.S. I'm very hopeful that Kerryn will be doing a blog in the magazine, so watch this space – Ed.) ■

The fundamentals of.

John Lovatt looks at various types of drilling and boring tools for use on the lathe

Colt Forstner bits for clean cutting of holes

First off, let's run through the various types of drilling and boring tooling for use on a woodturning lathe, but before doing so, and in order to avoid getting picked up on a point of correct nomenclature, you'll no doubt spot that the article uses the terms 'bit' and 'auger', for 'drills' they are not. Even so, it's more than likely that bits will still be called drills.

CENTRE BITS

These are primarily metal-turning lathe accessories and may not be all that familiar to many woodturners (see Figure 1). They are, however, very useful in providing a means of cutting accurate 60° centre recesses to perfectly match the cone angle of standard live centres. They can be held in a hand drill, a drill press, or in a tailstock-mounted drill chuck as appropriate, thus avoiding concentricity problems of a recess being formed off the chosen centre mark position – an obvious boon where accurate multi-centre recesses are required. It also avoids the undesirable practice of creating a recess by forcing the tailstock centre into the workpiece.

Centre bits are double ended and available in a range of sizes, with the most useful having a pilot lead diameter of 2-3mm (3/32-1/8in) with a body diameter of about 6mm (1/4in).

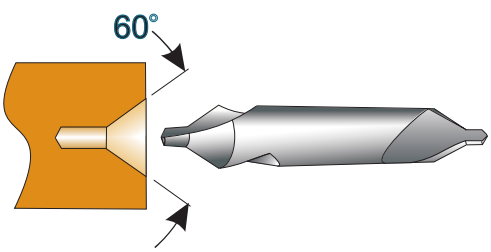


Figure 1

TWIST BITS

The plain versions, without 'spurs' (see Figures 2a and 2b), are predominantly designed for drilling hard, man-made materials, such as metals, plastics, etc., and as such are usually made in high speed steel (HSS). For woodturners, this means the steel is more or less unaffected by the heat generated during re-sharpening on a grinding wheel.

Although not specifically manufactured for drilling holes in wood, they can, and do, have a role to play, and certainly in very small diameters there is no other choice.

Perhaps the main fault is the splintering, or 'ragging' that occurs at the lip of a drilled hole, but this can often be overcome by drilling the holes while there is a small amount of material left on the workpiece as a clean-up allowance (as shown in Figure 2c).

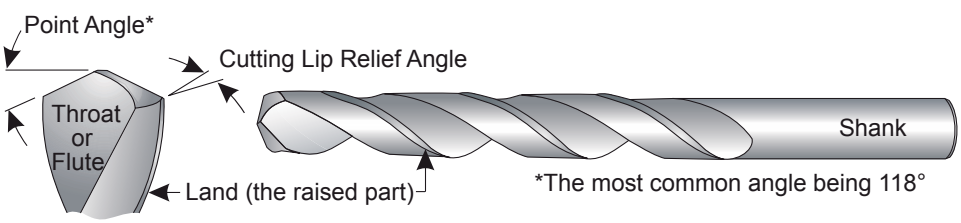


Figure 2b Figure 2a

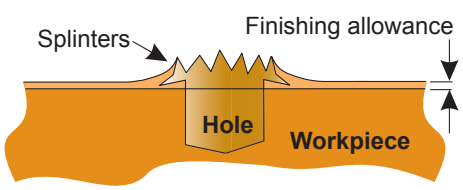


Figure 2c

..drilling on the lathe

TWIST BITS

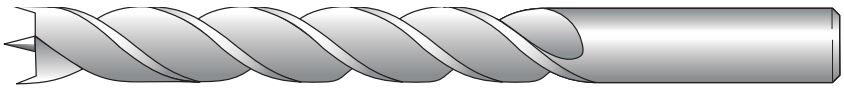


Figure 3a

Figure 3a

Spur-tipped bits are specifically designed for woodworking. The spurs, or 'nickers', provide a cutting action to slice through the grain fibres, thus generally avoiding the splintering, or ragging, that occurs with ordinary twist bits. However, the precaution of leaving a small cleaning-up allowance is still prudent.

Because there is no lead form on such drills, they have a projecting lead or centrepoint which engages the workpiece and holds the drill steady on axis until the spurs have cut into the work surface

Figure 3b

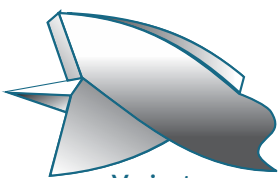


Figure 3b

Here a similar approach is being used, but this time angling the cutting lip inwards to create a sharper tip form at the point of engagement, but retaining the centrepoint feature. This is not as effective as the true spur tip design, but superior to ordinary twist bits in terms of a clean entry into the workpiece.

Figure 3c

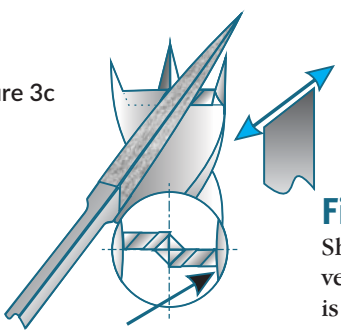
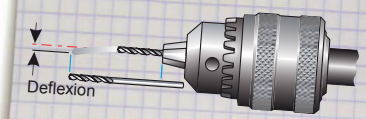


Figure 3c

Sharpening spur tips is relatively straightforward versus sharpening ordinary twist bits, providing it is dealt with properly. Hold the bit firmly in a vice and, using a good-quality diamond file (ideally a square one), follow the original angled cutting face, trying to keep it as flat as possible and filing both sides equally. The variant (shown in Figure 3b) is somewhat easier to sharpen.

Tip

When drilling very small holes, set the drill as far inside the drill chuck as you can – the shorter the projection, the stiffer the drill will be to resist being deflected by hard spots, knobs or grain grooves in the wood.



SPUR-TYPE BITS

The size range of spur-type bits is generally between 3mm (⅛in) and 20mm (¾in) diameter. At the upper size range they are in competition with the sawtooth bits (multi-spur in the US) and Forstner bits, and below 3mm diameter there is no choice apart from standard twist drill bits.

On the larger cutters, the most popular choice would be the sawtooth bit (see Figure 4a), as they cut more easily and quickly and with a little less force and frictional heat generation than a Forstner bit (see Figure 4b). Set against this is the fact that Forstner bits impart a superior surface finish to a hole and a slightly better square-bottom finish. The available range of sizes depends on the manufacturer, but generally within the range of 7mm (¼in) to around 100mm (4in) diameter.

Where, in size terms, the choice to move away from spur-type bits is made, it is partially a matter of personal preference and the required quality of hole finish. There are other bit designs that could be considered, but generally where larger diameters are concerned the choice is clearly between sawtooth and Forstner. A good quality auger of both types is quite a bit more expensive than spur bits.

This presupposes that purchasing criteria be a combination of performance and long-term economic value, rather than buying at a cheap price – there are plenty of inferior ones to choose from.

One further factor is how the bit is to be guided into the workpiece. If the method of guiding requires some accuracy in the approach angle using a proprietary steel drilling jig or guide – more of which later – spur-lipped bits are easier to work with and are less likely to be damaged by contact with the bore of the said jig. Drilling from the tailstock is not affected by this consideration. ➤

Figure 4a

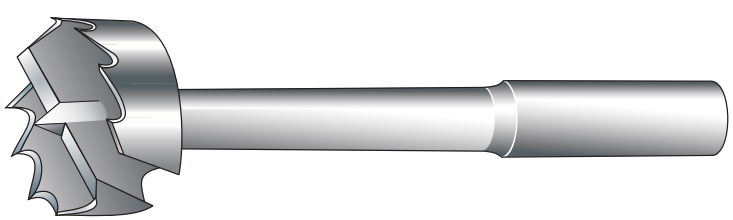
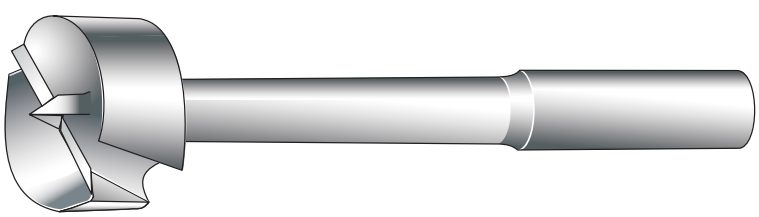


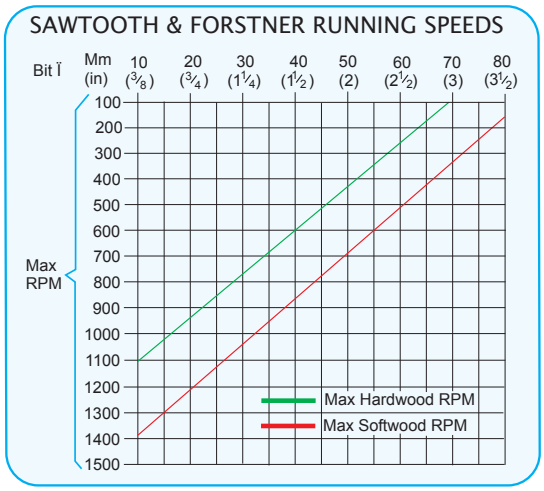
Figure 4b



RUNNING SPEEDS

Some consideration needs to be given to minimising the heat generated by keeping down the running speeds for these larger bits, and in particular with Forstner bits as they generate more heat from friction than other types. This is because the rim action is that of a knife which cuts by being pushed into the workpiece, rather than with a sawing action. The chart shows the recommended maximum revolutions per minute (rpm) relative to the cutter diameter.

'Some consideration needs to be given to minimising the heat generated by keeping down the running speeds for these larger bits, and in particular with Forstner bits as they generate more heat from friction than other types'



SHARPENING SAWTOOTH AND FORSTNER BITS

Maintaining sharp edges, particularly on Forstner bits, is important. Frequent touching up on the cutting edges is preferable to having a grand session well after any reasonable edge has come and gone. Apart from simply having bits with good, clean cutting ability, it is easier to preserve the original angles and edges if the dressing of the bits only requires light attention. For the purpose of accessing the various surfaces and shapes, a selection of 'fine' or 'very fine'-grade diamond files is recommended (see Figure 4c and Figure 4d). And one big 'do not' – do not ever file the outside diameter of either bit.

Sawtooth and Forstner bits can be used to bore much deeper holes, such as the first stages of hollowing a deep vessel, by the addition of an extension shank, as shown in Figure 4e.

Extension shanks usually have 12mm (½in) diameter or bores which match exactly the shank diameter of the bit. The head of the extension shank would be about 21mm (53/64in) diameter, so in practical terms they are only practicable for bits larger than 22mm (⅞in) diameter. Generally, the extension adds about 150mm (6in) extra reach for the bit.

They may be hard to find, but there are companies in the world that make other, smaller diameters to take 6-8-10mm shanks, and in a variety of longer lengths.

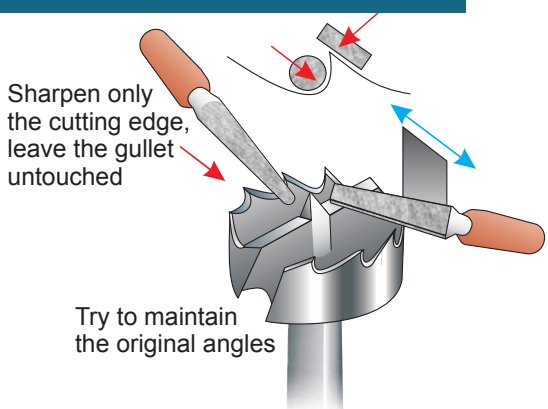
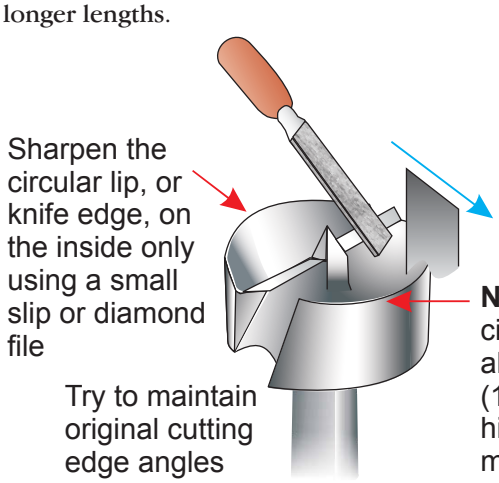


Figure 4c



Note: The peripheral or circular lip should be about 0.3 to 0.5mm (12 to 20 thou in) higher than the main cutting edges.

Figure 4d

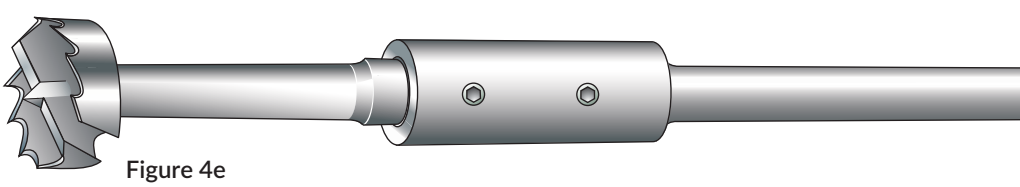


Figure 4e

OTHER DRILLING BITS

Perhaps it is stating the obvious, but the production of holes can also be achieved using a much wider range of drilling bits than is practicable to include in this article. Hence limiting the range to try to set out a fair representation, and a fundamental understanding of the differences of the bits that are currently available.

A considerable number of bit design variants in the world are too specialised to be of fundamental interest, because they are just adaptations of standard tooling, such as stepped diameter bits, integral counterbore bits, or those bits that only possess a marginal difference from those included in this article. And, of course, there are still plenty of older bits in the world, such as, say, a 'Scotch' bit, which undoubtedly a turner somewhere in the world uses to start a workpiece hollowing process, but in practicable terms is the same as a 'Jennings' pattern bit (see opposite) without the spurs.

EXPANSIVE BIT

Also known as an expanding bit, or an adjustable bit, due to the design feature that allows the cutting blade components to be set for any hole diameter within the size range limit of each particular bit (see Figure 5a).

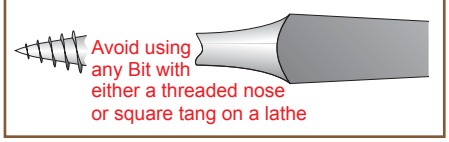
Most expansive bits typically have ranges like: 16mm (⅝in) to 45mm (1¾in), or 20mm to 50mm (2in) diameter. However, some are supplied with interchangeable cutting facilities: 22mm (⅞in) to 76mm (3in) diameter.

They have a single spur and flat blade arrangement to produce a square-bottomed hole, but generally of a poorer quality than is achievable with sawtooth or Forstner bits.

If this type of bit appeals then, for safety reasons at least, some care needs to be exercised in choosing both make and model. Only consider the sturdy ones specifically designed for use in power tools, and if it's to be used in a drill press, or on the lathe, then only consider the ones that have a captive clamping plate/blade assembly.

Running speeds are difficult to suggest because of the different designs. The wisest advice suggested running as slowly as possible, but for a robust bit in the right circumstances, running speed would be similar to a sawtooth bit.

SAFETY ADVICE



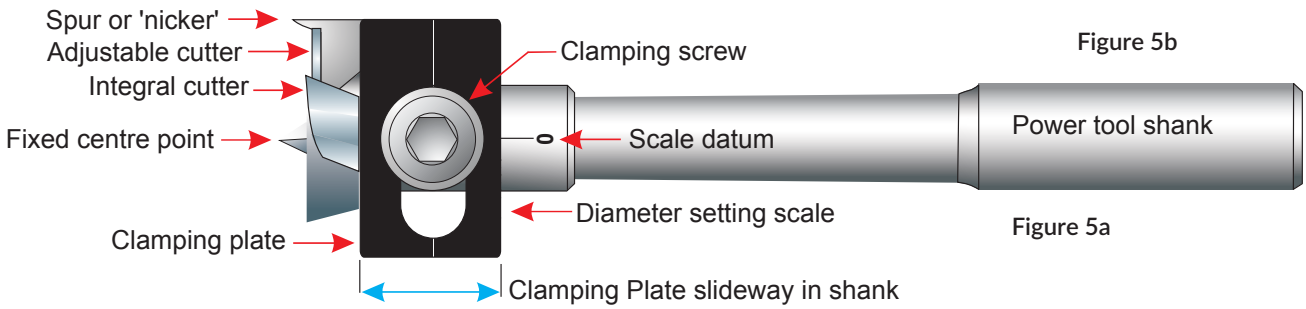


Figure 5b

Figure 5a

OTHER BITS

There are other bit types, such as the machine auger bit (shown in Figure 4b), also known as a levin, or universal, bit. As you'll see, it has a helical form with a single spur and either one or two cutting lips. Most bits of this type are really designed for hand or power drilling, as they often have a tap form or spiral worm nose point to pull the bit into the workpiece, and are therefore not desirable if held in the tailstock of a lathe.

They are available in a wide range of diameters from 6mm (¼in) to 32mm (1¼in), and in a wide range of lengths from short 'hobby' models to around 600mm (24in) in length. The running speed is similar to spur tip bits.

Figure 5c

Here, we see a 'Jennings' pattern auger bit featuring two cutting lips and two spurs.

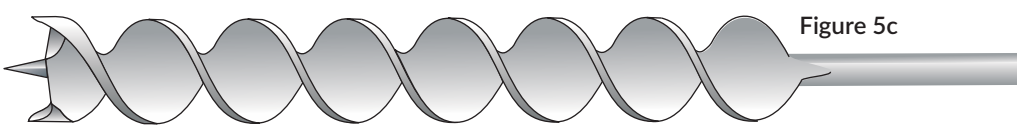


Figure 5c

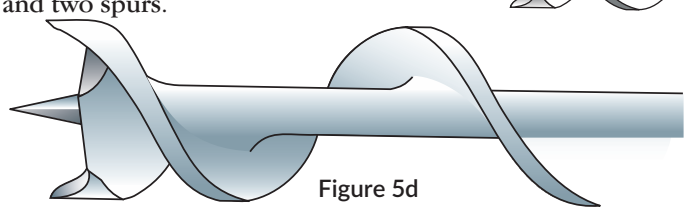


Figure 5d

Figure 5d

This illustrates the 'Irwin' variant, with a wider, or slower helix, which is better at accommodating wood shavings. Both are fairly rare in machine versions – most that are still available have square-ended hand brace shanks, and tap form points. This once-popular bit had many other variations, particularly in the business end department, such as the 'Gedge', Bullnose, Scotch (or Irwin as already mentioned), and L'Hommedieu, etc.

Figures 5e and 5f

Spade or flat bits are not the most accurate cutters in the world and are certainly a bit rough and ready. However, treated with a little respect. They are capable of boring less important holes

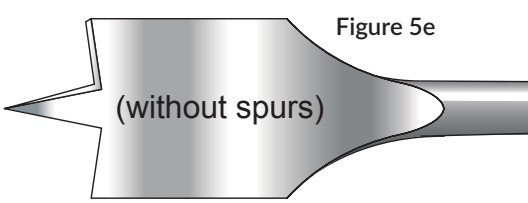


Figure 5e

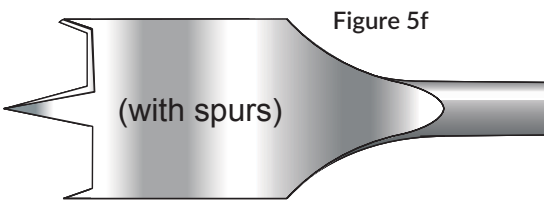


Figure 5f

Figure 5g

The predecessor of the split-nose long hole boring bit featured in *Woodturning* magazine issue 191, these are generally available only in 8mm (5/16in) or 9.5mm (⅜in) diameter and still available for that purpose.

Figure 5g

KITTED OUT

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

From £136.80 inc vat

Makita's latest pencil drivers

The latest versions of Makita's compact but powerful 7.2v pencil drill driver and impact driver have a host of enhanced features – more rpm, more tightening torque and enhanced controls. These pencil screwdrivers weigh just over half a kilo and can be used in either pistol-grip mode or as 'in-line long handle' powered screwdrivers.

The new Makita TD022DSE 7.2v pencil impact driver will now run up to 2,450rpm, deliver up to 3,000 impacts per minute and generate 25Nm of tightening torque, which is sufficient to drive home a M8 standard bolt or machine screw. A new rotary switch conveniently placed on the motor body selects forward variable speed and reverse rotation.

The Makita DF012DSE pencil drill driver has two speed ranges, up to 650rpm with a maximum 3.6Nm of tightening torque on high speed and on low speed up to 200rpm, that can deliver 5.6Nm of torque. With 21+ drill settings selected by the rotating collar on the chuck housing, this ¼in hex drive drill will drive a 5mm hole in steel and 6mm in timber.

TD022DSE 7.2v pencil impact driver: SSP £136.80 inc VAT

DF012DSE 7.2v pencil drill driver: SSP £189.60 inc VAT

Contact: www.makitauk.com

Roxil wood protection cream

Weatherproof wooden structures for 10-plus years with a single coat.

New Roxil wood protection cream from Safeguard Europe weatherproofs wooden surfaces while retaining their natural appearance and allowing them to age naturally. With a single coat the water uptake in timber is reduced, giving an improved resistance to warping, reduced mould and algae growth and neater-looking timber constructions. Best of all, Roxil only has to be applied once. The cream formula enables a dripless, precise application with brush or roller – no pre-treatments necessary. Simply clean the surface, apply Roxil and wait for it to absorb into the substrate.

Roxil wood protection cream - 3litre tub £29.99 inc VAT

Contact: www.safeguardeurope.com

£29.99 inc vat

Fisco Tools A1-Plus hi-vis tapes

Excellent-value measuring from one of the UK's long-standing favourite brand of tapes. With EC Class II measuring accuracy, these new hi-vis tapes have a tough ABS case with a high-impact rubber overmould, combining hardwearing reliability with ease of use. There are three models, available in 5m and 8m lengths with 19mm and 25mm blade width variants. Each has a handy belt clip, self-zeroing end-hook and a 'positive action' brake. These A1-Plus hi-vis tapes should satisfy most general measuring tasks on site.

Contact: www.fisco.co.uk

From £4.80 inc vat

From £597.90 inc vat

Axminster Trade Series scrollsaws

Trade Series scrollsaws are serious machines for craft or joinery work. They come in small, mid-sized and large sizes with many features in common, some of which are unique to this brand. They are mainly constructed from plate steel, including a 7mm heavy gauge steel table with an epoxy painted surface. The blade actuating arms are very short and driven by a lever and rod mechanism. This gives high control of the blade and results in exceptionally low vibration.

The arm assembly can tilt 45° right and 35° left while the table stays horizontal, allowing much better control of the work with greater visibility working in a natural position. The variable speed control system ranges rom 400-1,500 strokes per minute.

Blade changing is easy and tool-free, with two hand clamps and a quick-release lever.

An air blower and work hold down are provided. Dust collection is efficient when connected to a suitable fine dust extractor. The manufacturer recommends mounting the machine permanently on a workbench or one of the dedicated stands which are optional extras. They take unpinned blades allowing a large choice, or 150mm lengths of 6mm bandsaw blade, ideal for cutting thicker materials. The machines are supplied with an assortment pack of Swiss-made Pégas blades.

EX-16 £597.90/ EX-21 £645.67/ EX-30 £734.11
Prices include VAT and may be subject to change without notice.
Contact: www.axminster.co.uk

ProDesign apron – no strings attached

Here is a new apron design from The ToolPost. The fabric is pre-washed heavy-duty cotton cloth in a natural oatmeal colour. Heavier than conventional apron fabric, it will withstand heavy use and frequent washing while offering an enhanced degree of physical protection. The bib section is wider than usual, providing greater wrap and improved upper body coverage, and long to afford maximum lower limb protection. ProDesign aprons feature an adjustable neck strap that alters the neck loop size. The loop is connected using an easy operation plastic clip-in buckle. The same is also used on the waist strap. No more apron strings to tie and no loose ends to catch on machines etc. These aprons afford ample storage with a deep, robust, high-mounted front pocket. The bib features a horizontal pencil pocket to suit left and right-handed users.

Available in sizes:
S (small); M (medium); L (large)

Contact: www.toolpost.co.uk

£17.50 inc VAT

£44.93 inc vat

Dremel multi-purpose router bit set

Routing in wood, rubber, plastic, carbon fibre and more with this seven piece multi-purpose router bit set. You can perform a diverse range of routing applications – edge, corner, straight, keyhole, word and letter routing – in a variety of materials including but not limited to hardwood, softwood, plywood and laminates. They have 3.2mm shanks to fit all of the latest Dremel multi-tools with ease. Perfect to use with the Dremel router table 231 attachment or the Dremel plunge router 335 attachment. Conveniently stored in an included wooden box.

Box Contains:
2 x roundover cutters
1 x V-point
3 x straight cutters
1 x keyhole cutter

Contact: www.dremeleurope.com/gb/en/

BOOK REVIEWS

This month's book selection definitely puts the Editor in a making mood

Outdoor Woodworking – 20 inspiring projects to make from scratch

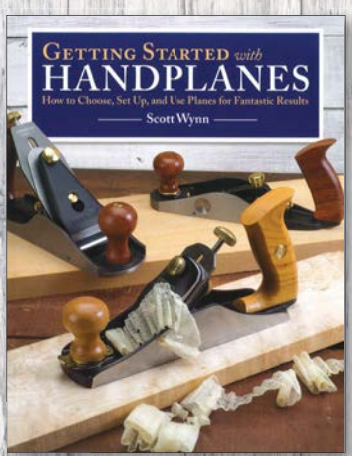
Edited by Alan Goodsell

Picking up this book is like meeting an old acquaintance – familiar and comfortable. It gathers together collective works which form a really useful tome of garden-based projects. In here lies something for everyone. There is always something else the garden lacks and you are sure to find the very thing in this comprehensive book. From a planter to a wheelbarrow, a micro-shed to seating, all are achievable with typical workshop resources. Indeed, much of my own construction work is done outside my workshop in the garden, the perfect place to be. Incidentally the feathered occupant of the delightful Gothic dovecote project is called Kevin.

ISBN:978-1-78494-247-2
Price: £14.99
Published by GMC Publications Ltd

Getting Started with Handplanes – How to choose, set up and use planes for fantastic results

By Scott Wynn



Picking up this volume reminds me how much of a tool junkie I really am. Names such as Sargent, Stanley and Millers Fall instantly evoke images of cast iron and finely honed steel. This is an American production but it is entirely consistent with our knowledge and use of hand planes in the UK. Indeed, although some makes of vintage plane are rare in the UK, others are very familiar, especially Stanley and, much more recently, Veritas and Lie-Neilsen. The author takes us through every stage from choosing planes to using them and everything in between. For me metallurgy is fascinating and complex, much more so than wood, which is fairly predictable in its misbehaviour if you work with it enough. What goes on inside a cast iron plane body or plane iron is very much at a molecular level. Knowing how to fettle them to create the winning combination that produces nice, even shavings thinner than a sheet of paper is very useful knowledge indeed, which this book manages to successfully impart.

ISBN: 978-1-56523-885-5
Price: £12.99
Published by Fox Chapel Publishing

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

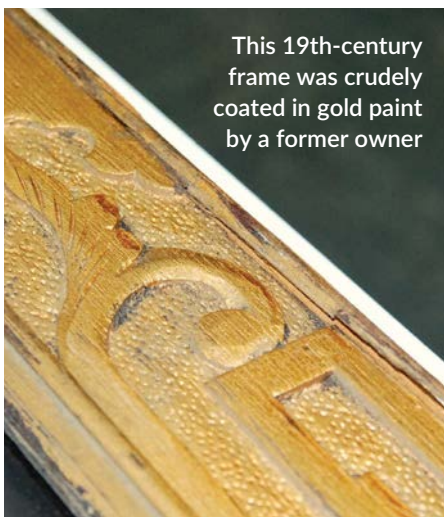
Restoring picture frames

If you have a work of art in need of TLC, then **Amber Bailey** has some well-framed answers

Picture frames are a household decoration often used to accentuate artwork and it is easy to forget that they are objects in their own right. Frames are frequently susceptible to knocks and scuffs as people walk past them as well as the occasional drastic upcycling project gone wrong. I have seen a number of frames come through my workshop, all in different styles and stages of wood, paint and gilding. Despite each having its own individual problems, I have found that there are a few techniques that prove fail-proof in restoring most frames to their former glory.

Replacing an old finish

After an extended length of time, traditional wood finishes are prone to flaking and discolouration. Those without a background in woodwork can be easily tempted to slap a new coat of finish or paint on the top to hide any damage, or may even do this to give the frame a change of style. A build-up of layers is a sure way to lose detail and definition from a frame's form, particularly if it has intricate or low-relief carving. This can mean that there is a hidden build-up of layers using various unknown finishes. To get down to the bare wood may require ➤



This 19th-century frame was crudely coated in gold paint by a former owner

PHOTOGRAPHS COURTESY OF AMBER BAILEY

removal techniques to be repeated several times. It is always advisable to start with the least intrusive and corrosive techniques, only upping the strength when strictly necessary.

Always begin any surface treatment by giving the frame a wash to lift any superficial dirt. The best technique for this is to use a selection of cotton buds and an old toothbrush, regularly changing the water and finishing off with a clean wipe over once all grime has been dislodged. It is important not to allow the wood to get too waterlogged as the fibres will become furry and the grain will rise.

Removing stubborn finishes

If delicate cleaning proves useless, the best way to dislodge thick finishes is with paint stripper. The stripper is corrosive and will soften the finish so that it can then be scraped off.

Working over the frame one section at a time, apply paint stripper with a brush and leave for several minutes to react. With a wooden spatula or tongue depressor, scrape away a small section of the stripper to see if the finish will lift. If unsuccessful, simply reapply and leave a few minutes longer. As the reaction begins to work, scrape away the stripper and then neutralise the frame with water. It is highly likely that the process will need repeating several times. Intricate crevasses may require modelling tools and wire brushes if the wooden spatula proves insufficient.

As a very last resort, abrasives and scrapers may be necessary, but these will remove more than just the existing finish and can change the actual shape of the frame. Reversibility is implicit in restoration practice today, so a technique as severe as this can sometimes be frowned upon.

Replacing colour and definition

The major disadvantage of having to remove a finish rather than rework it is losing the definition naturally created by gradual dirt build-up. Rather bizarrely, grime can be desirable and add value to a piece – it is often more preferable for antiques to show some age rather than look shiny and brand new.

There is a fine balance when it comes to cleaning and occasionally dirt will actually need to be artificially added back in through the use of colour. The secret to a natural appearance is to ensure the grain is still visible. For recreating notably dark areas, diluted gouache paint can be applied with a natural fibre brush. The most recommended colours to mix in this circumstance would be yellow ochre, sepia and Van Dyke brown. For an overall revival of colour, the frame can also be coated in a weak solution of Van Dyke paste. Van Dyke can be built up in layers. To stop these running into one another and diminishing the colour, it can be advisable to seal layers with shellac.

A pearl and bone lacquer panel with a carved mahogany frame, coated in a very dark varnish to give the impression of a far darker wood

Nitromors is a shop-bought paint stripper that, although far weaker than once allowed, still works effectively

Given the age of the frame, it is highly likely that the finish was used to impersonate an expensive and luxurious wood such as ebony during a time when dark and heavy furniture was all the rage

The frame after 'antiquing', to bring back some of the definition that is usually attributed to age

Reapplying a finish

With the ideal colour achieved, the frame can now be sealed with a 50:50 ratio of shellac and isopropyl alcohol, moving up to a 75:25 ratio being built up in layers until you are happy with the depth. I chose transparent polish for my shellac to avoid the colour of the frame altering. If a deeper colour is desired then special pale or even garnet polish might be preferable. For flat areas, apply the solution with a polishing mouse and use a mop to cover any carving. Once the polish has been allowed to harden, the frame can be buffed up with microcrystalline wax and a soft cotton cloth.

Right: A fresh coat of finish demonstrates that a dark colour can be achieved without sacrificing the character of the carving

Conservation cleaning is a delicate art and its equipment often involves household and beauty products

Safety advice

Gloves should be worn when working with paint stripper as it will irritate and burn the skin. Should it come into contact with skin, wash immediately with water and, if necessary, seek medical advice.

Tips

If the frame has moved and a mitre is left with a gap, this can be filled using a sliver of matching wood. Glue in place oversized and, once dry, it can then be carved and cut back to blend in with the rest of the frame.

When working with gilding it can be a good idea to use latex gloves, especially if you have the intention of re-gilding. The grease from your fingers can react negatively with the gold leaf and any contamination may call for the frame to be degreased with methylated spirits.

Patching a gilt frame

As stunning as antique gilt frames can be, the delicate mouldings don't always survive the plaster crumbling or the pins and glue failing. Although it is entirely possible to re-gild any damage, sometimes you don't have the time or equipment; if you are working in situ you may even find that the humidity is too damp for the gold leaf to successfully adhere to the gesso. If this is the case, a nifty trick is to 'tone' the plaster instead. Toning is a technique often used to age gold leaf with gouache paints. It is also possible to work directly on to the plaster to create a faux gold finish. Gouache paint is water-based and can be easily removed, making toning a useful temporary measure until the frame can be properly re-gilded.

Conservation cleaning

The intricate embellishments on gilt frames are an ideal trap for collecting dust. As desirable as patina can be, if it becomes too dark then the original colour and detail of the frame is easily lost. Cleaning this dirt is an extremely delicate job – too much pressure and the gold leaf will lift away so the safest method is to carefully use cotton buds and warm water. It is always a good idea to bulk-buy cotton buds as you will get through hundreds. For stubborn dirt, some restorers will choose to add a few drops of ammonia to the water. Ammonia is, of course, a dangerous chemical that needs to be handled in a well-ventilated area, if the solution is made too strong then it can also do more damage than good to the gilding.

Refitting broken sections

The plaster detail on antique gilt frames can be extremely fragile and highly likely to take a fair beating. This is especially common at the base of frames where they are in better range for getting knocked into. If pieces have been collected and are still in a useable condition then it is possible to re-glue these back into position. The existing patch on the frame will need to be cleaned of any residual adhesive and dirt with warm water, then it is ready for a fresh coat of protein glue on both surfaces. Once slotted back into place and dry, any signs of the plaster showing through the gilding can be covered up with paint. ➤

In certain lucky circumstances, if broken segments are found they can be saved and reattached

Mould-making and replacing missing sections

Symmetry is common practice in the manufacture of gilt frames. This means that if a segment breaks or goes missing, it is possible to take a mould from another part of the frame to reproduce it. A popular replacement material is composition, commonly referred to as compo – a mixture made up of hide glue, rosin, linseed oil and whiting. Compo is extremely durable but time-consuming to produce. Alternatively, the traditional method of plaster is an off-the-shelf option that is simple and economical but fragile.

Mould-making is surprisingly simple – two-part impression putty is conventionally used in dentistry but is also available as an artist material. Following the kit directions to mix the base and catalyst, the putty will become firm but also durable enough to peel away from the frame without damaging it or the mould. This means it is suitable for applying directly to the moulding until it has set.

You are then left with a mould that can be used to duplicate the pattern an infinite number of times.

Whether you choose to reproduce your mouldings in plaster or compo, once hardened they can be either pinned or adhered in place with protein glue.

Toning

With your mouldings finally in situ and prepared for toning, begin by covering the entire patch with yellow gouache paint. The initial coat may require the gouache paint to be fairly thick to allow it to stick to the moulding. Subsequent layers may need to be thinned out for better manipulation.

With an overall coverage in place, begin to work through a selection of yellows, browns and greens to emulate the dust and shadow that falls on similar mouldings around the rest of the frame. Pay close attention to filling crevasses with darker colour and, for a realistic appearance, avoid the temptation to go anywhere near black paint.

Once you are happy with the colouring, seal the patch with a shellac solution. Remember that the polish will make the colour darker so it is advisable to stick to a neutral shellac such as transparent or super-fine white. ■

The colour starting to be built up, starting with light yellows and gradually using shades of brown to replicate age

To help the paint stick to the compo, it may need to be lightly diluted with shellac

Replacement sections blending fairly effectively, and can always be gilt at a later date

Details that have been pinned into place are highly susceptible to snapping off, leaving obvious bare sections

Dental impression putty is flexible enough to wrap over and be safely removed from segments that need to be recreated

A new shell pinned into position

Equipment used

- Cotton buds/old toothbrushes
- Paint stripper
- Wooden spatulas
- Various gouache paints
- Van Dyke paste
- Natural fibre brushes
- Isopropyl alcohol
- Transparent shellac
- Polishing mouse and mop
- Microcrystalline wax
- Soft cotton cloth
- Two-part impression putty
- Plaster or composition
- Protein glue

Suppliers

Equipment and materials can be found at your local DIY shop, two-part impression putty is available at most well-stocked art shops.

Rustic votive & tealight holders

Michael T Collins shines a light on the millennia-old tradition of using candles

Safety

Naked flames are always a safety hazard. Ensure you use safe containers such these glass ones. Space them apart and not near anything flammable, and do not leave unattended.

You will need

- Wire brush
- 38mm & 50mm Forstner bit
- Tablesaw and/or bandsaw
- Cut list/supplies
- Any scrap wood
- Candles

Candles have been around for centuries – the earliest known candles were first seen in China around 200BC and appeared in Europe after 400AD. These first candles were generally made of natural fat and wax, with paraffin revolutionising candlemaking in the 1830s. These days candles are a scented luxury found on mantelpieces in 'hygge' homes (pronounced hue-guh, meaning cosy, kinship, special time, nice) across the globe, and no longer principally used for illumination. As a child in the '70s, I can recall the frequent power cuts we experienced in the evenings, and remember with fondness doing jigsaws by candlelight.

There's something about candles – they create subtle lighting and bathe your home with texture and colour. Studies have shown that soft light has a calming effect on the body and relaxing with candlelight can help reduce stress. Plus, putting on a candle-light dinner will always win extra brownie points. In this article we rummage through the scrap wood bin for pieces which will make candle holders that can be used as attractive table centrepieces or given away as gifts. One year I made candle holders for friends out of offcuts from wood they had given me. ➤


1


2

Making a holder

1 There are no hard and fast rules when it comes to making candle holders, but you will need to make sure that the candle support is solid and the construction is not top heavy, for obvious reasons. Start by selecting the wood and laying out the location for each candle or votive to give the most pleasing look.


3


4

2 I have used two types of candles: standard tealights and long burn votive candles. For the tealights, use a 38mm Forstner bit and drill down to the depth of the Forstner – this is approximately 12mm and is a perfect fit for the candle.

3 The glass votive holders will also fit this size hole. However, the design can be enhanced by using a 50mm Forstner bit. This will allow the votives to hang below the holder. I ran the router, with a small chamfer bit, around the top edge of the holes. Be aware that adding this chamfer will cause the votive to drop slightly.

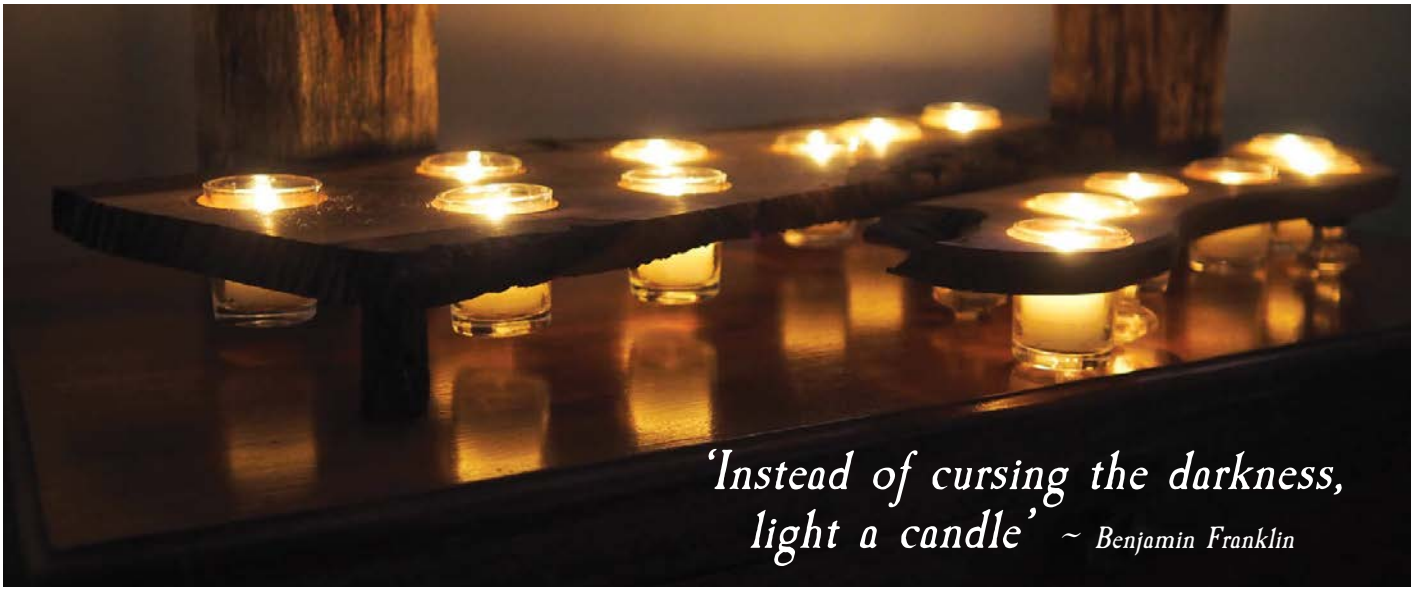

5

4 With the votive holders dropping below the surface the holder will need to be raised to allow the glasses to hang just above the surface on which the candle holder is placed. Over the years I have used many items, including old light pulls, draw pulls, door knobs, and custom-made legs. In this example I used the pieces cut off when I tidied up the ends of the holder.

5 Secure them to the underside of the holder using long panel pins.


6

6 Experiment with different ideas to give your 'candelabra' different heights and character. I used an angle grinder to give the ends an old handsaw effect. A rasp would also have achieved a similar result.



Old fence post candle holders

7 My neighbour was removing an old fence that had been standing for 50-plus years and I grabbed a couple of the fence posts.

8 Once all the crud was removed and the two pieces cut to length…

9 … it was clear that the wood was beautiful white oak – it made two lovely, rustic tealight candle holders.


7


8


9

Note: *When working with old wood that has had a utilitarian use outdoors beware that it may be full of metal, so check thoroughly with a metal detector before running through a tablesaw or planer. Better still – just use hand tools.*

The finish

By now you probably know that my go-to finish is natural Danish oil. This brings out the natural beauty of the wood and if several coats are applied (sanding lightly between) a beautiful lustre can be achieved.

For safety's sake I like to apply the Danish oil on holders where the votive glasses are used – the glass adds an extra barrier between the flame and the wood. For the natural finished holders I very rarely apply any finish.

And there you have it – beautiful creations that add light and atmosphere to the soul. ■

PHOTOGRAPHS BY GMC/ANTHONY BAILEY UNLESS OTHERWISE STATED

GLUE TECH Part 1

Adhesives are essential for woodworking, so it's really important to stick to the right ones...

The use of adhesive, or glue as we commonly term it, goes back centuries. It has become increasingly important in the past several hundred years as it allowed more sophisticated fixing methods to be used. Joint work no longer needed to be big and clumpy because the construction materials changed from timber hewn from trees to precision sawn sections and, later, manufactured board material. The creation of the 'cabinetmaker' as distinct from a carpenter or joiner meant the use of finer wood components, discreet fixings and the use of veneers and other covering materials such as fretted brass sheets, leather skivers and shagreen (sharkskin) to decorate and finish furniture. Nowadays we take adhesives to be the norm in everyday life – anything from aerosol spray mount for artwork and photos to cyanoacrylate (otherwise known as Superglue – a brand name). Indeed, we even limit the sale of many adhesives by age, because of the solvent content in some modern versions.

Choosing the right adhesive

How do you decide on which is the best option? That's a complicated question as it very much depends on what you are trying to stick and why. If we are talking about construction of any wood project, in a perfect situation, being true to our skill and our woodworking heritage, joint construction would be more important than the adhesive, which would simply hold good quality joint work together rather than being effectively the joint itself. But we know that isn't often the case, of course.

Tight fit

Adhesives mainly work best when the surfaces being glued are a good close fit. There are a few adhesives, such as urea formaldehyde glue or polyurethane glue, which are designed for gap filling, but most others need that tight fit to bond properly. So the first step is to ensure that, whether it is a nicely cut dovetail joint or a plain butt joint with two flat surfaces pressed together, they do meet nicely.

Joint first

If you are using 'proper' joints then good timber preparation – planing, checking components for squareness and then accurate marking and cutting with sharp tools – will help at the glue-up stage. A dry fit is vital because you will find out if anything is wrong before you add glue, when things can get very stressful with a complicated assembly. So, if you opt for joints – whether mortise and tenon, bridle, finger joint or whatever you choose – do try to get them right first.

ADHESIVE SELECTION

PVA

Standard PVA wood adhesives are very good on the whole. Avoid 'craft' PVA or one sold as a 'sealer' as well as an adhesive. These are weaker compounds and not suitable for strength giving. Polyvinyl acrylate, to give it its full name, is water-based so is very safe to use and easy to clean up. It is versatile and will fix wood to wood as well as leather, card, etc. There are limitations though. There are exterior versions but I wouldn't stake my life on them – they need some kind of protection, such as paint, to avoid early failure. PVA can suffer frost and cold damage and the average workshop is cold in winter, so the liquid adhesive should be stored in a warmer environment during the cooler months. It is an elastic adhesive and strength tests take this into account. Generally it gives a solid bond but in exceptional circumstances it can move under stress. It isn't suitable for gluing paper because the water content makes the paper swell up and cockle, and it may not go flat again afterwards. It is a non-reversible glue so mistakes or faults cannot be undone.

Biscuit jointing with PVA glue

Aliphatic resin

Aliphatic resin glue is a form of modified PVA adhesive with a slight yellowish colour. It is often favoured for better-quality work. It has a fast grab, or tack, which means it will naturally help to pull the meeting surfaces together, although normal clamping or fixing methods still need to be used. It is less suitable in hot, dry conditions because it doesn't give much scope for making fine adjustments at the critical assembly phase. It comes in different grades, from interior work to exterior quality. Both it and standard PVA can be used to make 'rubbed' joints, where the glued surfaces are rubbed back and forth, creating a suction effect without the use of clamps while allowing surplus adhesive to exude. It is a non-reversible adhesive.

Urea formaldehyde

Brands such as Cascamite or Extramite are urea formaldehyde-based and come in a tin in powder form. They have been largely superseded by more modern adhesives for a variety of reasons. The powder needs to be kept dry and it needs to be mixed in a correct proportion with water to a thick, creamy consistency. It can also cause dermatitis and it has a limited usage time before it starts to go rubbery and then rock hard. It does ➤

PHOTOGRAPH BY MARC FISH

West System epoxy resin

gap fill but the question, unless it is a repair job, is why are there gaps that need filling? It can be used in exterior work successfully but as the wood weathers the bond with the glue will break down eventually. It is suitable for veneer press work. In the modern world, I don't think it has many advantages to be honest. Another non-reversible adhesive.

Epoxy resin

Standard epoxy resins bought in a DIY store are fine for small repairs in mixed media – wood/glass/steel/stone/etc. – depending on the type, but they aren't intended for general woodworking assembly. There is one that stands out and is used universally by professionals requiring an exceptional resin adhesive and that is West System. It is one type of epoxy resin to which an array of different hardeners, fillers and compounds can be added to suit the job. Since it can be used for various specialist applications it is important to seek advice before making a purchasing decision. It is waterproof and can be used as a barrier as well as an adhesive when using the correct additive. It is non-reversible.

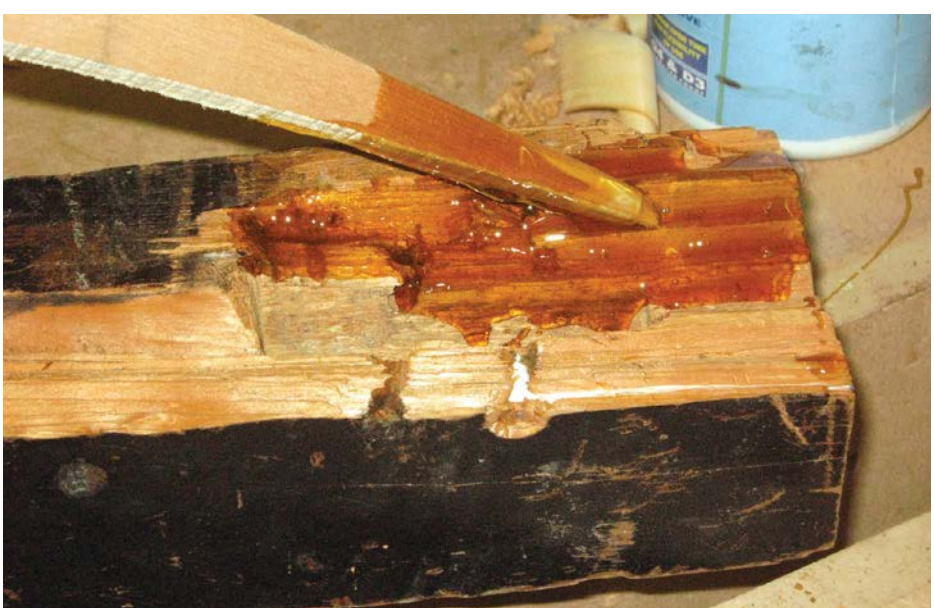
CA (cyanoacrylate)

An incredibly useful adhesive which has a reputation for creating medical emergencies due to its fast, high-strength adhesion properties. This is largely unjustified unless very sensitive, vulnerable areas of the body are involved. In fact warm water and a blunt object such as a spoon can be used to effect separation relatively easily. It is, however, very useful for minor close-fitting repairs. It is activated with water so dampening surfaces of wood, porcelain, etc. will help speed up the process. Cheap 'pound shop' CA glue is fine for simple tasks, but you can buy superior versions in thicker compounds for better gap filling. It finds uses in woodturning for stabilising minor cracks and urgent repairs in furniture. It is often used by kitchen fitters and the like for quick bonding of mitres in cornice in conjunction with a spray aerosol used on one surface to speed up setting. A non-reversible adhesive.

CA glue and activator

PU (polyurethane)

This is similar to builders' expanding foam filler. Instead of aerosol delivery through a long injection tube it is spread via a standard nozzle in a squeezable bottle or mastic gun tube. Although its expansion rate is lower than that of the foam type, it still expands and therefore need not be overused to avoid too much excess. Surfaces must be firmly clamped, screwed or nailed to keep them together while curing. Not ideal as



PU used for a gap filling repair

Hide glue pearls absorbing water

Hide glue – heated liquid state

Colle de poisson (fish glue)

PHOTOGRAPH BY AMBER BAILEY

a general purpose wood glue, it is, however, good for external work exposed to damp or for bonding woodwork to walls, etc. It is activated by water so it may help to dampen dry surfaces first. Any spillage must be left to set into hardened foam as it is then easy to remove with minimal marking left behind. Non-reversible but some joints can be separated.

Hide glue

The traditional cabinetmaker's and restorer's protein glue made from animal parts such as skin, bones, tendons and other tissue. It is supplied in flake, or more usually pearl, form and is heated with water in a special glue pot which has a water jacket to prevent burning or denaturing. It is smelly and sticky and, if left in damp conditions, will start to rot. However, it is very effective for antique repairs or for laying veneers, although there is a correct technique for the latter using a veneer hammer to make the glue exude and the veneer lie flat. It is reversible, making it suitable for restoration work. There is a cold version sold in a bottle as a repair glue but it isn't as strong as the standard type.

Colle de poisson (fish glue)

A very specific variety of traditional glue made in two types. One is from various parts of a fish – skin, heads and bones – and has various uses including painting. The other sort is made from the very rare sturgeon swim bladder. This is a superior glue which will bond a variety of materials, such as musical instruments, cabinets, porcelain, glass, leather and, importantly for marquetry especially, bonding metal to wood as in 'boulle' work where there is no equal to its strength. Glued elements must be held tightly while drying. It does not discolour wood, it dries slowly and is reversible using a mixture of water and alcohol. A side note – Guinness uses fish glue (isinglass) to filter and lighten its beers instead of adding yeast.

Thixotropic adhesive

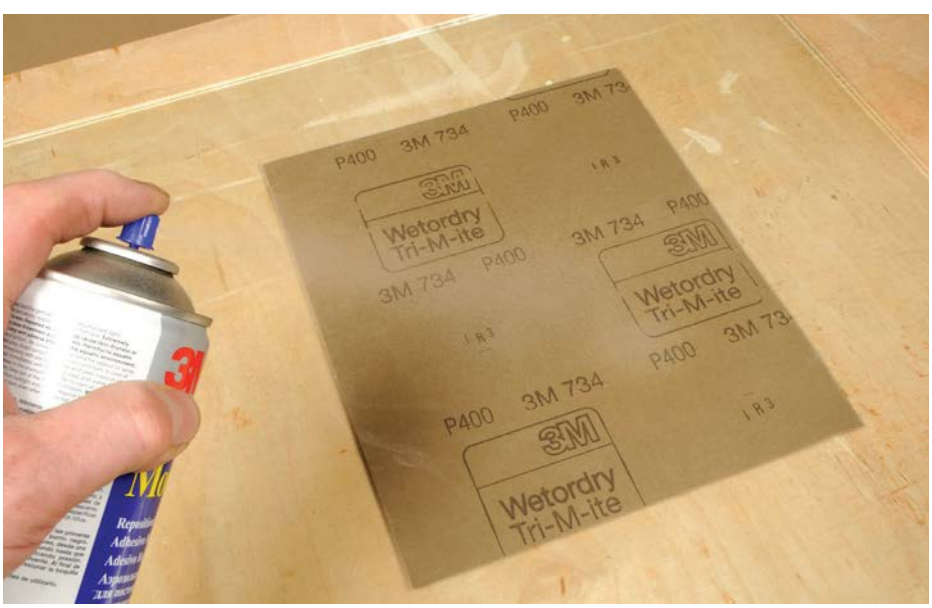
Better known as contact adhesive, it has limited use in woodworking. It works well bonding sheets of laminate but its rubbery nature is wrong for conventional woodworking. Unfortunately, it sometimes turns up in badly repaired chair joints and needs thorough removal before doing a proper repair job.

Spray adhesive

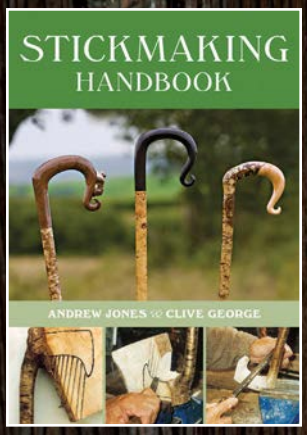
The type designed for mounting photos or artwork is good for temporarily bonding paper templates on wood. It is better to spray the paper and let it dry a little to avoid leaving a deposit on the wood. The heavier carpet-laying variety is useful for bonding thick material or for sticking carpet on board as a safe, non-scratching surface for restoration work.

There are more specialised adhesives, but this article covers the most common or important types. ■

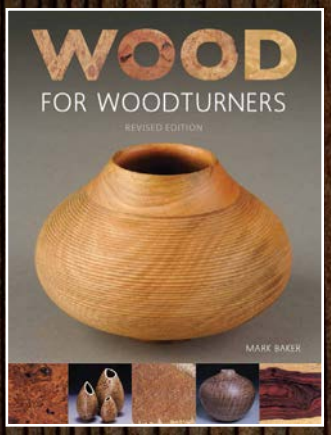
Next time we look at using adhesives in practice.



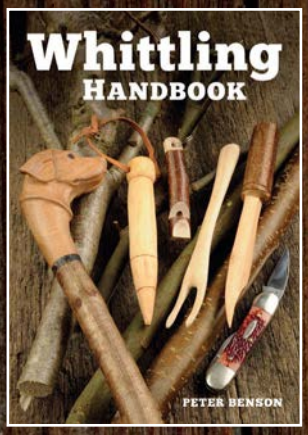
Spraymount adhesive used for sticking down abrasive sheet



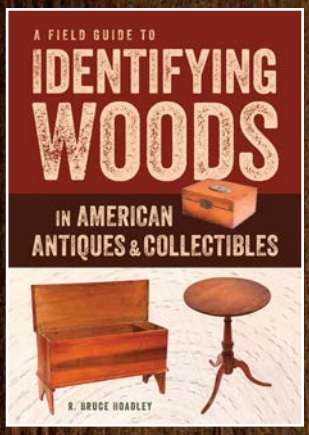
Quick Find Code: 25610
Stickmaking Handbook
£7.99



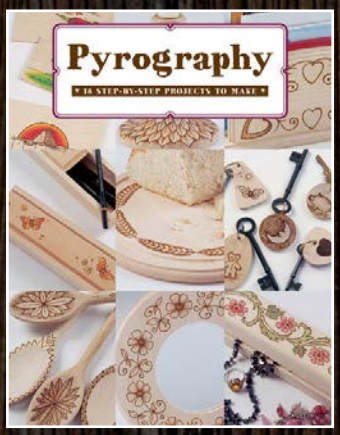
Quick Find Code: 25773
Wood for Woodturners
Revised Edition
£16.99



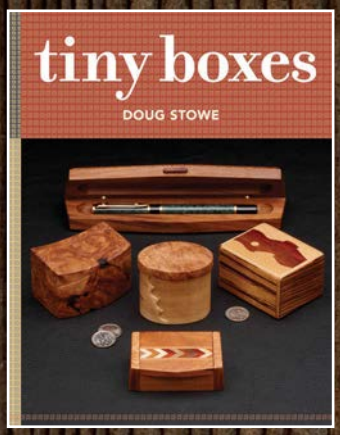
Quick Find Code: 25478
Whittling Handbook
£7.99



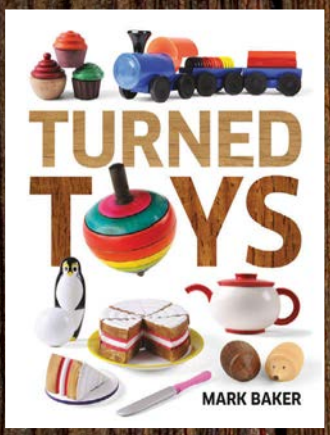
Quick Find Code: 27275
A Field Guide to Identifying Woods
£19.99



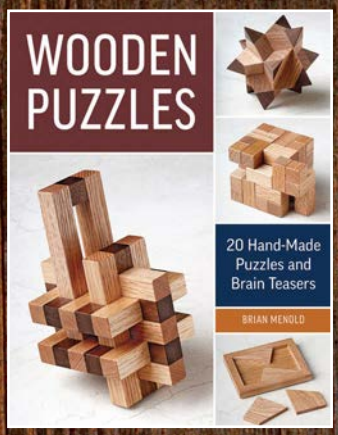
Quick Find Code: 26136
Pyrography
£5.99



Quick Find Code: 27276
Tiny Boxes
£17.99



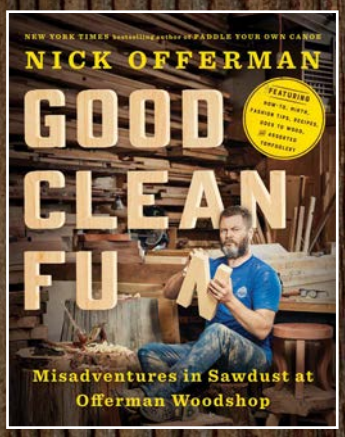
Quick Find Code: 25371
Turned Toys
£16.99



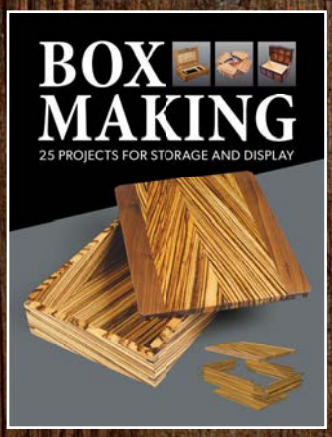
Quick Find Code: 27349
Wooden Puzzles
£17.99

NEW **WOODWORKING** BOOKS

Quick Find Code: 26498
Weekend Woodworking
£14.99



Quick Find Code: 27331
Good Clean Fun
£25.00



Quick Find Code: 26501
Box Making
£14.99

Hundreds of inspiring Woodworking and DIY books available
Visit **www.thegmcgroup.com** or call **01273 488005**

#@*&!%?! happens!

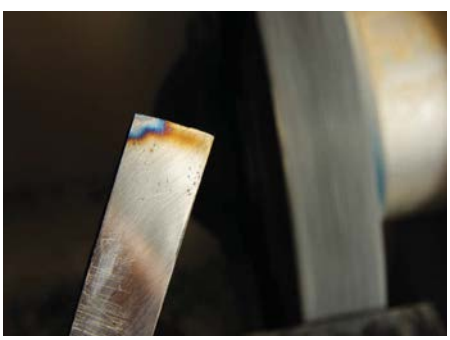
Damaged blades

It's distressing when you are merrily planing or chopping away at some existing woodwork or reused timber and the blade snags on an embedded screw or a nail

It is perfectly possible to repair a damaged edge by regrinding the blade, but care is needed. If it is really serious the first thing is to use a dry grinder to remove the bulk of the damaged metal. This is the critical operation. You need to be able to rest the blade at the correct angle, usually 25°, and move it from side to side if it is wider than the grinding wheel while keeping a straight edge on the blade. Importantly, the blade must not overheat and lose its 'temper'. While holding it, the trick is to keep your finger or thumb safely back from the blade edge. As soon as it gets uncomfortably hot, remove the blade and quench it in water for several seconds to arrest the heating effect.

Safety note

Using a grinder creates sparks which usually die fairly quickly, but take care not to work with anything flammable around you. Wear safety glasses and lower the clear guard over the grinding wheel.



1 You can see a colour change if it gets too hot. This often happens at the corners of a blade – it goes a light-straw then dark-straw colour, followed by purple and finally a dull, greyish-blue which you must avoid at all costs or the metal will not behave well in use. If this happens then proper heat treatment becomes necessary.

2 An alternative is to use an inverted belt sander. If you are lucky enough to own a wet grinder, overheating isn't a problem but edge restoration is a slower process than a dry grinder.

3 Once you have a decent flat or slightly hollow ground bevel you can proceed with your standard sharpening routine and you are back where you started before the damage occurred. ■

PHOTOGRAPHS BY GMC/ANTHONY BAILEY

Woodland ways

THE GREAT STORM 30 YEARS ON

'Twas a dark and stormy night...The Great Storm 30 years on, as remembered by Gary Marshall

Millions of people in southern Britain, from the Channel Islands to Norfolk, including me, remember the small hours of 16 November 1987. The roaring winds blew straight across our chimney stack making a noise like a giant organ, while windows and doors rattled and the roof made creakings and groanings, giving up its tiles to the air. We were very lucky – some people had lost their homes completely.

The next morning local neighbours came out in a state of utter disbelief, like shocked, timorous animals, gazing incredulously at the scale of damage to trees and property. It had turned from a pleasant leafy mid-October season into leaf-stripped winter overnight, even with many of the largely undamaged trees.

We had five large trees down in our garden, three had fallen across the road. It was 11 days before our electricity supply was fully restored and it took months, even years, for everyone affected to deal with the aftermath of the devastation.

If you want the full story read *In the Wake of the Hurricane* by Bob Ogley, ISBN 0-9513019-1-8.

The storm was so devastating to trees and woodlands because certain factors that rarely come together actually did on that occasion:

- Trees were still mostly in full foliage;
- A very wet prior period had the effect of loosening soil around roots;
- Much of south east England where the storm tracked is the most heavily wooded part of Britain – particularly Kent, Sussex and Surrey;

The morning after – woodland savaged by the Great Storm

Fallen woodbank shortly after the storm ... and (right) the same woodbank 28 years on

- Many woods were undermanaged or unmanaged with large hazardous trees or unthinned plantations prone to windblow;
- The wind came from the south, blowing over the mainly east-to-west-running Wealden ridges, causing massive turbulence and a 'sucking' effect on trees at, or on the north side, of the summits;
- Further high winds occurred after the initial storm, further weakening affected trees.

There are still many signs of the Great Storm about and this article is scattered with just a few that I've selected from my archive. It wasn't all doom and gloom though. Many damaged trees and woods have regenerated and woodpeckers have definitely increased given a surge in the number of insects living in fallen and split timber.

Small herds of naturalised wild fallow deer have bred with prime fallow deer lost from deer parks. This happened when trees toppled, making gaps in boundaries – and we now see huge numbers of wild deer across the south east of England, creating problems for motorists, farmers, growers and gardeners. Greater areas of impenetrable scrub and fallen woodland give sanctuary to all manner of wild things large and small. New vistas and viewpoints have been created.

It's interesting to compare the effect where storm damage was cleared and replanted in woodland and forests with areas just left for nature to heal. In many cases nature has won out. Certainly there are many more character trees in woods, distorted or regrown since that fateful night. Many a seemingly intact timber tree from the Weald, when felled, will show shakes in its rings around the time of the storm.

The storm also had a salutary effect on authorities' and even lay people's attitude to tree safety. Electricity and phone companies undertake rotational pruning work to try to avoid the massive disruption of 1986 occurring again. 'Once in 200 year storm' scenarios are often built into woodland management plans – accepting that, with climate change, the 'every two centuries' guesstimate may well be over-optimistic. ■

Survivor truncated beech, Hargate Forest

No chances taken – tree surgery has made safe a large oak at Emmetts in one of the hardest-hit areas

The bluebells don't mind...

The legacy of the Great Storm will be with us for many decades yet – unrotted fallen oak with bone-hard heartwood

scheppach Germany

NEW DECO-XL 16" SCROLL SAW

406 mm

LED

50 mm

90 YEARS 1927 – 2017

INCLUDED FOOT SWITCH

Table adjustment at an angle of 0 - 45°

LED light allows you powerful visability on each work piece

Foot switch comes with generous 1300 mm cord length.

£179.99 INC VAT

+ FREE PKT 60 X ASSORT. BLADE SET WORTH £33.00 INC VAT

INCLUDES DELIVERY - UK MAINLAND ONLY. OFFER ENDS 31ST DECEMBER 2017

Make precise and detailed cuts on wood, plastic, metal, plexi glass or plaster

Accepts pin / plain end blades

THE NEW SCHEPPACH DECO-XL SCROLLSAW OFFERS NEW STANDARDS OF SAFETY AND CONVENIENCE TO ALL MODEL AND HOBBY ENTHUSIASTS. WITH VARIABLE SPEED AND FOOTSWITCH CONTROL THE DECO-XL IS THE IDEAL TOOL FOR WORKING IN WOOD, PLASTICS, METALS, PLEXI GLAS OR PLASTER. TRUST SCHEPPACH!

2 year Guarantee

- Cutting height / depth: 50 / 406 mm
- Saw blade length: 127 mm
- Table adjustment 0 to +45°
- Variable speed: 550 - 1600 rpm
- One-step design - press once to turn on, release to turn off
- Quick release blade tension knob allows quick and easy blade change
- Low vibration allowing you to work with precision for professional results
- Blower keeps the working area free of dust
- LED light and foot pedal switch comes as standard

NMA AGENCIES LTD

www.nmatools.co.uk

01484 400 488 | sales@nmauk.com

Unit 1, Brookfoot Biz Park, Brighouse, W Yorks. HD6 2SD

The art of peening a scyth

Mowing grass with a scythe makes 100% sense. It is quiet, fossil fuel-free, and great exercise. Michelle Lainé explains how to use and maintain a scythe properly

'The improvement in mowing that can be gained even by a beginner peener makes it worth taking the time to learn the art'

The values of the Austrian-style scythe have been widely promoted in the permaculture movement. Useful in the garden, orchard, allotment or small-holding, it is a pleasure to use and environmentally friendly.

As well as the swish of a sharp blade cutting through grass, the Austrian-style scythe has brought the distinctive ring of hammer on metal to the fields and gardens – the sound of peening. Here I'd like to introduce you to the mysterious art and how it can improve your mowing.

Keep it sharp

A scythe works by having a fine but sharp edge that slices through vegetation with relatively little force. As it becomes more blunt, the work of 'slicing' becomes harder. To use a scythe effectively, correct set-up and good mowing technique are important – at least as important is learning to keep the blade sharp. The key to relaxed, easy mowing that is gentle on your body is a *really* sharp blade.

Above: The effects of a sharpening stone are remarkable but diminish with repeated use. Peening restores the effectiveness of stone sharpening

PHOTOGRAPHS COURTESY OF PERMACULTURE MAGAZINE

Peening kit: Top left: Table with hand peening machine
Bottom left: Peening bench with peening jig and hammer
Right: Peening bench with peening anvil.

The sharpening stone

This is the aspect of sharpening that people are most familiar with. A sharpening stone is used to hone the blade, restoring a thin cutting edge when it has been worn blunt through use. The effect is remarkable – a quick sharpen with a stone and suddenly mowing is easier, the blade is cutting well and the quality of cut is improved. However, after repeated use of the stone the effect starts to diminish.

What's happened to my blade?

In the field, the sharpening stone is used as frequently as every five minutes. After repeated honing, the blade edge gradually becomes worn back into the thicker metal of the body of the blade, the profile of the edge is altered and it becomes less efficient at cutting. The mower finds they are having to sharpen more frequently, the blade is not holding its edge so well and mowing is becoming harder work. It's time to peen the blade.

What is peening?

Peening is the art of cold hammering the edge of the blade to draw out and thin the metal, restoring a thin edge that can be effectively sharpened to a long-lasting edge with a stone. It is also used to tailor the blade edge to the task in hand (e.g. ultra-fine for lawns, more robust for mowing weeds) and to repair damage to the blade edge.

Hammering my blade? Really?

It is true that peening is an aspect of scything that can appear intimidating. The improvement in mowing that can be gained even by a beginner peener makes it worth taking the time to learn the art. The peening jig is the place to start, a tool that has been designed to make the task more accessible. ➤

What is a peening jig?

The peening jig consists of three parts – a base and two 'caps'. The blade is placed between the first cap and the base of the jig. The cap is struck repeatedly with a hammer as the blade is drawn through the jig, producing a line of blows near the blade edge that draws out and thins the metal. The process is repeated with the second cap, which is shaped so as to create a line of peening closer to the blade edge than the first.

The jig is relatively easy to use and requires less accuracy than freehand peening. It produces good results for most circumstances and can produce excellent results with practice.

What is freehand peening?

The most common method of freehand peening in the UK uses a bar peen anvil. The blade is placed on top of the anvil and a flat hammer is used to hammer a line a few millimetres back from the blade edge, drawing the metal forward and thinning it. The process is repeated a number of times, the exact number depending on the profile of the edge required. Each time the hammered line is placed closer to the blade edge, with the final line being on the blade edge.

It takes some practice to master freehand peening. Using a jig before beginning freehand will practice some of the skills needed and help with the transition. Many people will find the jig meets their needs, others will enjoy the progression to freehand peening and the results it can achieve.

What kind of hammer do I need?

With a peening jig, a standard hammer about 500g in weight can be used. The condition of the face is unimportant as it does not come into contact with the blade edge.

Peening with an anvil requires a more specialised hammer. The face of peening hammers must be kept smooth and shiny as any dint or defect in the face of the hammer will be imprinted in the blade being peened. A peening hammer should be reserved for peening with an anvil only and NEVER used with the jig or, worse yet, to hammer in nails.

How often do I peen my blade?

The frequency with which a blade needs to be peened depends on the blade and the work it is being asked to do. Mowing lawns and meadows requires a fine, ultra-sharp edge and so more frequent peening of the blade is necessary (something like after every four hours of mowing).

Less frequent peening is required when mowing rougher grass and weeds. A very fine edge is not required to mow efficiently in these circumstances and would be more vulnerable to damage. When mowing very rough stuff, e.g. bracken or brambles, it is possible to get away without peening at all, but the work will be easier if you do.

With practice, peening can be used to repair the blade edge. Top: before repair, bottom: after repair, arrow points to where damage was

Want more help?

As peening is an unfamiliar skill to most people, a course can be a really good way to begin. Most introductory scythe courses will cover basic jig peening and there are specialist peening workshops too. YouTube can be a useful resource, but beware – not all videos show good technique.

Michelle Lainé uses the scythe extensively on the 8ha (20 acre) smallholding of Dyfed Permaculture Farm Trust, as well as running courses on their use and a scythe shop. ■

Resources

Lots more information on using a scythe in a permaculture setting can be found at **www.scythecymru.co.uk**

See **www.scytheassociation.org/courses** for courses near you.

www.tiny.cc/peening is a good video by Neil Dudman on jig peening.

Extract from Issue 84 of *Permaculture* magazine – www.permaculture.co.uk. Print subscribers can also access 23 years of free digital editions.

Coming next month in
Woodworking CRAFTS

ISSUE 32 ON SALE 28 SEPT

Carve the perfect stick for dog lovers

- Make a cutting board using your router skills
- Mark Palma uses plywood offcuts to make bowls
- From bed frames to bench seats
- Antique sofa back repair

PLUS: *Woodworking glossary • Glue tech part two • Reader group test – Rider chisels Ask the experts • Plans for you – Gothic porch*

THE ‘SWISS ARM

What tools do you really need? Build your custom toolkit here

Woodworkers are tool junkies – we collect new tools, old tools, grandpa’s old tools, tools we like for the sake of ownership, tools we never use…

But what do you really need? Let’s start again and pretend that, although we have the knowledge to use tools and we have ideas of things to make, we don’t actually own any tools. By doing this mental trick we can, in theory, start with a blank slate. Now, see how few tools you think you could get away with and still be able to do some meaningful work. It’s a good mind-cleansing exercise – we are no longer encumbered by toolboxes aplenty, tools on shelves or hanging from racks gathering dust and cobwebs. I’ve used the example of a winebox as a starting point. It is neatly made of jointed softwood, it has a drop-down, thin ply lid and a rope carrying handle. Small yes, but I reckon you could, with cunning, get a cute but workable set of tools inside. Here’s my list – see what you think.

At a push I reckon it will just fit. But the point I’m making is, if you work with just this basic selection, whatever tool case or toolbox you put it in – tell me it isn’t doable. The truth is if you have the skill and the motivation, you can still make worthwhile projects with quite limited means.

THE KIT BASICS

Marking
150mm steel workshop square
Double-edged marking knife
Expanding stainless steel rule
300mm stainless steel rule
Medium and fine grade carpenter’s pencils
Combined marking and mortise gauge

Sawing
Tenon saw – traditional English type
Pax beech-handled 10in 15tpi crosscut
Japanese flushcut trimming saw

Planes
No.4 smoothing plane
Cabinetmaker’s small rebate plane

Chisels
10, 16, 25mm bevel-edged chisels

Drilling
Set of bradpoint drills with hex shank
‘Pencil driver’ powertool with hex socket

Hammer
16oz claw hammer with fibreglass handle
Set of punches

Sharpening
Diamond plate
Honing guide

Carpenter’s pencils have their place for general marking out of components

It’s unthinkable not having an expanding steel rule, but beware possible inaccuracy at the sliding hook end

A dedicated marking knife is essential for precise joint cutting, finer than any pencil line

A traditional tenon saw will cut much more precisely than a modern hardpoint saw

A combined marking and mortise gauge takes care of marking ‘with the grain’

A Japanese flushcut saw is incredibly useful for trimming off protruding dowels, wedges, etc.

Y' TOOLKIT

A standard no.4 smoothing plane will take most planing work if used correctly

A cabinetmaker's small rebate plane will trim tenons to fit or create rebates

Just three chisels will do most tasks – you don't need a big set, just keep them sharp and ready for use

A set of hex bits will fit straight into a pencil driver with a hex socket for quick changes

A combination scale and engineer's square will give precise marking out each time

A standard, lighter-weight claw hammer will deal with anything from panel pins to large nails

You need a set of punches to bury pins and nails and avoid hammer dents on wood

A 300/1000 mesh diamond plate and a honing guide will take care of your sharpening

A 'pencil driver', either straight or angled, will perform basic tasks such as driving and drilling

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

PLASTIC PROBLEM

Maybe you can answer a query. I've had a discussion with a friend who is convinced that uPVC windows aren't as long-lasting as they are supposed to be and can cause walls to crack. This doesn't sound right, but as I need to replace several windows in my house it would be good to have a definitive answer to this matter.

Tom Gladden

Anthony replies: Your friend is at least partially right. UPVC is designed to cope with the elements – sun, rain, wind, frost, etc., which it does very well. However, like all materials you can think of, it does degrade over time. The sealed glass units will eventually mist. There are more thermally efficient versions available which may be worth the extra cost. The plastic can become matt and start marking with age but you can buy special paint to rejuvenate the plastic. Regarding the cracking your friend mentioned, I have asked a professional builder for his opinion and he is vehemently against uPVC, which surprised me, but he points out that plastic units have very little movement or shrinkage so they tend to create cracks in the walls around them. On the other hand, if you opt for timber joinery it needs to be made to a high standard in good-quality wood and with all seals, drip runs, etc. in place. Properly maintained, i.e. regularly re-treated, such window units should last a long time. It is lack of maintenance that kills woodwork. Best of all they can be fitted with modern double glazing for comfort and they look good too.

STAR QUESTION

Repair to mortar and plasterwork where cracks have occurred next to a uPVC window. Timber joinery causes less disturbance to the surrounding structure

A BIT RUSTY

I found an old no.4 smoothing plane in a box of tools when we were clearing out my uncle's shed. It's a bit rusty and I think it might be quite old, or it may just look that way. I don't know how to go about finding out. It's a Stanley plane by the way and marked Bailey? at the front.

Vicky Marchant

Anthony replies: If you have found one lying in a shed, imagine how many more there must be around the globe. It may be old but probably not very valuable, however the family connection and the detective work discovering its age and which pattern of plane do make it interesting. The rust can be got rid of quicker than you might imagine – a good clean up and use of emery paper stuck to a board will soon improve it. There are certain features to look out for which will tell you a bit more about it. The front knob and rear handle, or 'tote', should match in appearance – a squat front knob is late Victorian and a tall, narrower one early 20th century. Very thin wall castings are often Victorian. A 'sweetheart' marked blade is old and decent quality, although a bit thin compared to some modern blades. If it says on the blade 'tungsten vanadium' then it is post WWII. The Bailey name is in deference to Leonard Bailey who developed the basic design in the mid-19th century, and which is copied by most modern planes.

A late 19th-century No.4½ smoothing plane with squat front knob and Sweetheart blade. Sympathetically restored by cleaning alone, no abrasive treatment

The best places to seek information are the following rather bizarrely named websites, which are very useful for identification and dating.

www.supertool.com – the home of Patrick's Blood and Gore plane identification

www.hyperkitten.com – a section on Stanley bench plane dating

There are others but these are the most useful. Bear in mind that Stanley US is not the same as Stanley UK unless it is imported stock – it can get confusing.

SEEING IS BELIEVING?

I've noticed in the magazine you always seem to 'push' using diamond plates for sharpening – why is that? I watch a lot of YouTube clips and the experts are generally using waterstones and getting really nice shavings when they are planing. What's the problem with using them or is it that 'diamonds are the editor's best friend'?

Gerry Newall

Waterstones are good to work with but need maintenance to keep them in condition so they can give the best results

Two diamond plates. The solid metal one on the right is more expensive but better quality

Anthony replies: Thank you for your amusing suggestion regarding diamonds… I've used waterstones and they are great, but there is a whole methodology to using them. They need to be kept in water prior to use, they lose their flatness so you need a special coarse dressing stone to level them and a very small special stone to prepare them ready for sharpening. Then there are all the wide choices of grit grade and the confusion about which one to pick. Diamonds are a much simpler deal altogether. The best combination is a good quality dual-sided 300/1000 mesh plate for both preparing a poor edge and honing. Lapping fluid works best of all as a lubricant, being non-rusting and keeping the plate in good condition. When new, a diamond plate gives a rather coarse edge but as it wears in the result is much better and it will last you a lifetime. After honing you can finish the job by making up an end grain MDF block and use metal polishing paste to strop the edge and lose any wire burr. I've used diamond plates for years and I wouldn't go back to my old ways.

RINGING SENSATION

I have a bow-fronted chest of drawers, which I've been told might be Georgian. It has some whitish ring marks and a dark ring mark and several other odd markings on the top. Should I get a restorer to deal with them or is it something I could do? I'm nervous because it is so old and I suppose it has what's called a patina?

Belle Harmer

The dark ring marks to the right cannot be removed without damaging the surface and are best left as part of the patina and history of this antique

Anthony replies: You can certainly ask a restorer to work on it but I would ask a couple of questions, which you ought to consider. Is the surface finish intact, e.g. the French polish? Does it have a sheen or shine over the entire top? If it does and it has a patina and what we might refer to as 'chatoyance', or reflectance, it may be better to leave well alone. The pale ring marks could be dealt with by using French polish reviver – a professional restorer can advise you. The dark mark or marks almost certainly cannot be removed even by stripping and bleaching the top, which is a complete no-no, it could damage the appearance and value.

The best advice is to just go over it with a non-silicone furniture wax, buff it off and leave it. Enjoy the history of the piece and imagine who might have loved it and used it enough to cause the markings.

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

In the latest of our timber series we look at a tree that is a survivor thanks to its flying seeds or 'keys' – the sycamore

The sycamore is as well known as any other British landscape tree and it is hard to avoid the effect of it when its wind-dispersed keys block gutters or put down roots in your garden before you know it. It is, of course, better than that. We wouldn't want to be without it unless it is standing right next door and its timber is beautiful, the very best being sought after by cabinetmakers for fine-quality furniture. As with all tree species it isn't alone as there are variants, but we will concentrate on *Acer pseudoplatanus*.

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Did you know?

The botanical name *Pseudoplatanus* refers to the superficial similarity of the leaves and bark of the sycamore to those of plane trees in the genus *Platanus*, the prefix 'pseudo' from the Ancient Greek meaning 'false'.

History

It was certainly known by the 15th century in the British Isles where it has naturalised, also in other parts of Europe, North America, New Zealand and Australia. The lack of 'old names' for the sycamore has been used to suggest it did not exist prior to this but this is challenged by an old Scottish Gaelic name which suggests it was present as far back as the 6th or 7th centuries and therefore possibly existed without human intervention. This is still subject to scientific debate.

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Sycamore

Although known as sycamore in the UK it is called the sycamore maple in the United States. It is a flowering tree which belongs to the soapberry and lychee family *Sapindaceae*. It is a large deciduous broadleaf tree which is tolerant of wind and coastal erosion. It can grow to about 35m high with branches forming a rounded crown. The bark is smooth and grey in young trees but later will flake in irregular patches.

The leaves grow on long leafstalks and are large and palmate (like the palm of the hand) with five radiating lobes. When the leaves are shed they leave horseshoe-shaped marks called leaf scars on the stem.

The buds are produced in opposite pairs and are approximately oval in shape and pointed. The scales that enclose and protect the bud are green, edged in dark brown and with dark brown tips.

The dangling flowers are greenish yellow and produce plenty of pollen and nectar which attract insects. The winged seeds, called samaras are produced in pairs and rotate as they fly down to the ground where they free-germinate in the spring. Sycamore vigorously self-seeds and has various strategies to avoid self-pollination which could damage its genetic variation.

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

The winged seed 'keys'

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Sycamore bud

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Sycamore bark

Typical uses

The sycamore produces a hard-wearing, creamy white, close-grained timber often used for making musical instruments, furniture, joinery, wood flooring and kitchen utensils such as spoons, rolling pins and bowls. It also makes good firewood as it is easy to split and burns with a hot flame. The rising spring sap has been used to extract sugar and make alcoholic and non-alcoholic drinks, hence the American name sycamore maple because it behaves like the maple in that regard. ➤

PHOTOGRAPH BY SUE HARKER

A sycamore scoop

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Sycamore and ebony desk by Gordon Fry

Fascinating fact

In Scotland sycamore was favoured for hangings as its branches very rarely broke under the strain.

Timber conversion

Sycamore is very suitable for timber conversion but, almost uniquely, once in plank form it must be carefully 'end reared' because when laid conventionally 'in stick' staining occurs where the green boards lie on the sticks. This is made worse because the wood is such a pale colour that it shows up marks easily. There is little movement in service.

Working characteristics

It steam bends and works well with hand tools and machines. Ripple or curly stock is often used for finer-quality work but reduced angle blades are advised to avoid the grain 'plucking'. It stains and glues well and as a veneer is often turned into 'harewood' which is veneer dyed for decorative effect. It is non-durable and vulnerable to woodboring insect attack.

PHOTOGRAPH BY GMC/ANTHONY BAILEY

Sycamore and pear candle box by Allen Barret

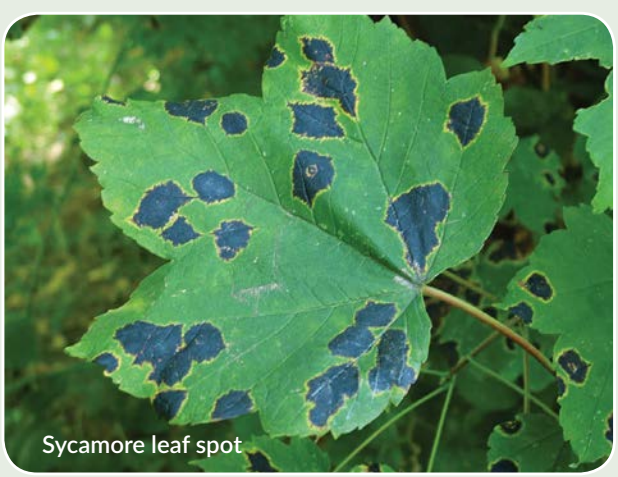
Environment

It is often planted in urban areas due to its tolerance of environmental pollution. However, it readily invades disturbed habitats such as forests, abandoned farms, old railway lines and brownfield areas. It is tolerant of a wide range of soils except for heavy clay.

Diseases

Sooty bark disease caused by a fungus results in wilting of the crown, death of branches and bark detaching exposing fungal spores which are hyper-allergenic causing maple bark stripper's disease, a hypersensitivity pneumonitis. Tar Spot is caused by another fungus that causes leaves to fall but the tree remains in good vigour.

Sycamore leaf spot is caused by a third kind of fungus which causes leaves to curl up and dry, but the tree is otherwise largely unaffected.



PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

Sycamore leaf spot

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

The Martyrs' Tree

PHOTOGRAPH COURTESY OF SHUTTERSTOCK

Symbolism

Sycamore is the inspiration for the trade union movement started at Tolpuddle in Dorset, where six agricultural workers became known as the Tolpuddle Martyrs after forming their union under what is now known as the Martyrs' Tree. They were found to have breached the Incitement of Mutiny Act of 1797 and were transported to Australia, but after public outcry were returned to the UK. This tree has a girth of 5.9m and has been dated to 1680. It is cared for by the National Trust.

The Money Tree

A monastery at Clonenagh, Ireland founded by St Fintan in the 6th century had a spring nearby which was considered a pilgrim holy site. In the 19th century a Protestant landowner, annoyed at people visiting the site, filled in the well and the water started to flow into the hollow of a sycamore tree the other side of the road. People were amazed and hung rags on the tree and pressed coins into the trunk as votive offerings. It became known as the Money Tree. It remains a place of veneration on St Fintan's day, 17 February.

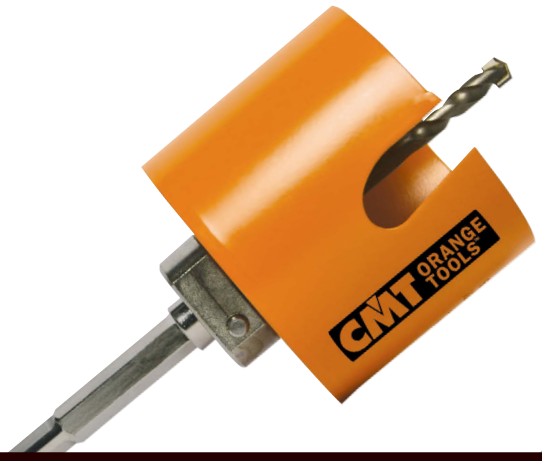
Make your own discoveries

Visit: **www.woodlands.co.uk/blog/tree-identification/sycamore/**
For additional information and photos

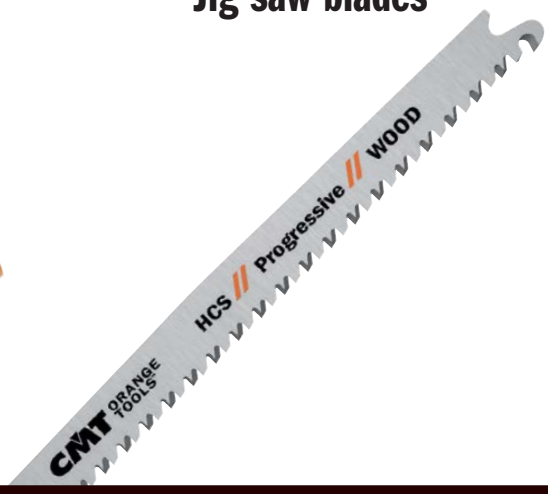
CMT ORANGE TOOLS™

Saw blades

Hole saws



Jig saw blades



Sabre saw blades

Tools with bore & knives

Router bits & sets

THE WIDEST TOOLING RANGE

TOMACO
THE TOOL MARKETING COMPANY

For more information and to find your nearest stockist please visit www.tomaco.co.uk

SUBSCRIBE
TO OUR OTHER TITLES
FROM ONLY £8.93*

From **£19.95*** (6 issues)
Monthly publication

From **£17.85*** (6 issues)
Monthly publication

From **£8.93*** (3 issues)
Bi-monthly publication

Save up to 30% on any of these magazines

+44 (0) 1273 488005

www.thegmcgroup.com/offer/woodwork

*Direct Debit price for 6 months subscription, UK subscribers only. Offer expires 30/11/17

Thomas Flinn & Co.

Saw & Hand Tool Manufacturer
Sheffield, England

The UK's last remaining traditional saw manufacturers.

Now also manufacturing Clifton Planes

Garlick MADE IN SHEFFIELD ESTABLISHED 1858 · E.T. ROBERTS & LEE · PAX ESTABLISHED 1776 · CLIFTON

www.flinn-garlick-saws.co.uk
orderonline@flinn-garlick-saws.co.uk
Tel: 0114 2725387

Missed an issue

YOU CAN STILL OBTAIN BACK ISSUES DIRECTLY FROM US!

A back issue of Woodworking Crafts magazine costs £5.25 in the UK and £5.75 overseas.

To check availability and to order:
CALL OUR SALES TEAM ON
+44 (0) 1273 488 005 OR

VISIT OUR WEBSITE:
WWW.THEGMCGROUP.COM

Top : One of the Tōdai-Ji statues
Above: The Tōdai-Shoro building houses the bell

Focus on…

Tōdai-Ji – the Eastern Great Temple

Located in the city of Nara, Japan, is this Buddhist temple, once one of the seven Great Temples. Its Great Buddha Hall houses the world's largest bronze statue of the Buddha Vairocana who is seen as the embodiment of the Buddhist concept of emptiness.

PHOTOGRAPHS COURTESY OF WIKIPEDIA COMMONS

The Great Buddha

Along with seven other temples, shrines and places of worship, this is a listed UNESCO World Heritage Site. The temple is vast and sits in perfectly maintained grounds where deer – which are regarded as messengers of the gods – are free to roam.

Early temple building began in 728AD, but in early years there was a succession of natural disasters and uprisings. In following eras Buddhism was heavily regulated and latterly Tōdai-Ji has no longer enjoyed its former authority, thus no Buddhist ordination ceremonies take place there now.

In 743AD Emperor Shōmu issued a law that people should build temples throughout Japan. Records show that 2.6 million people were involved in the construction of the Great Buddha and its hall with 350,000 of those working on the statue.

After many fires and earthquakes the temple was completed in 751AD and a year later 10,000 monks and 4,000 dancers celebrated completion of the Buddha. The work nearly bankrupted the Japanese economy.

Materials used included all the bronze that was available, the gold was imported and there were 48 lacquered cinnabar pillars, each 30m long and 1.5m in cross section, which support the roof of the Daibutsu-den.

As a result of previous fire damage the current hall was completed in 1709 at a massive 50m long and 50m wide, actually smaller than its predecessor.

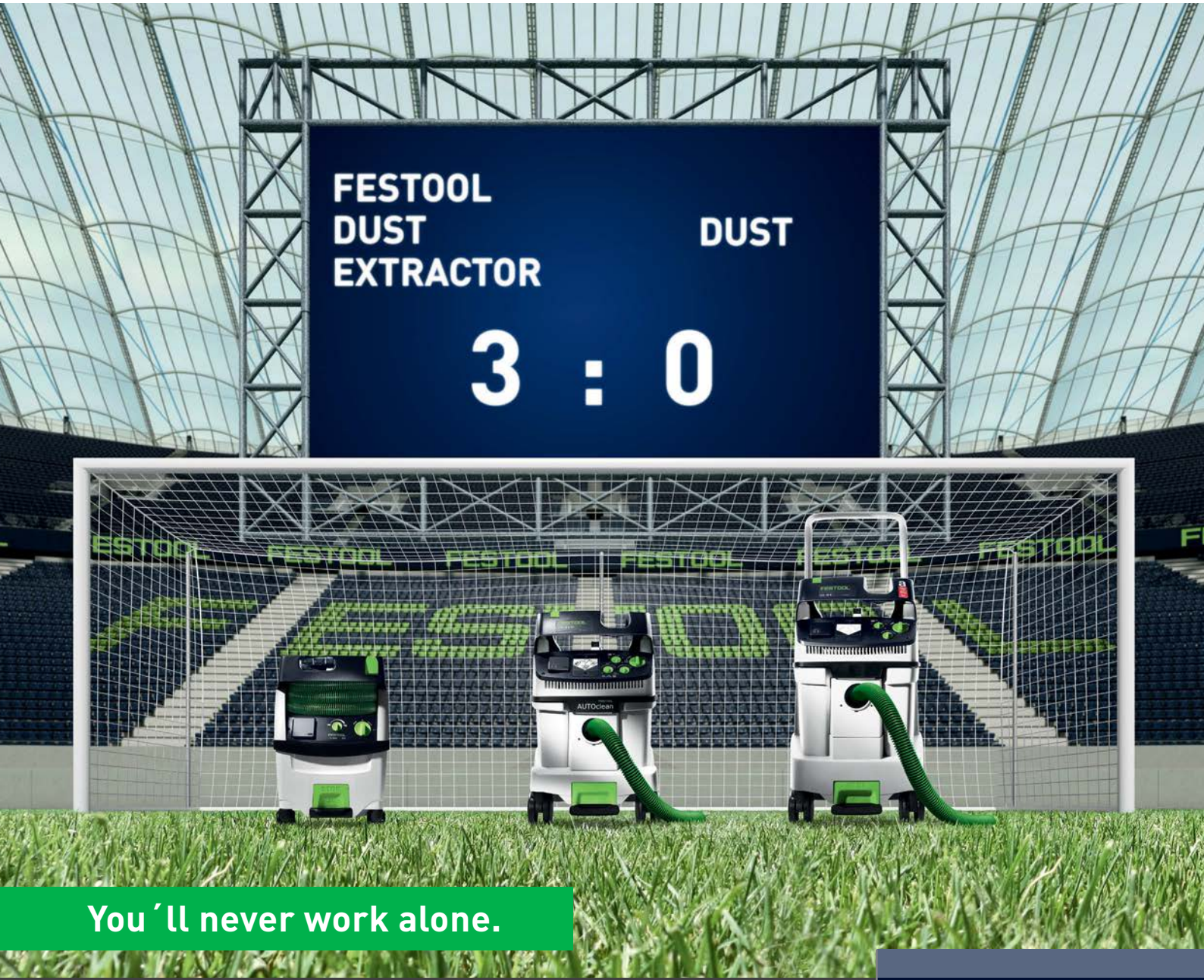
Originally there were two 100m pagodas which were destroyed by earthquake and Nandaimon (meaning Great South Gate) was constructed in the 12th century after the original was blown down by a typhoon.

A great deal of conservation work has been carried out on statues and the various buildings and now the Tōdai-Ji Culture Centre is open to the public and includes a museum, library and research centre and auditorium.

To find out more about this amazing complex of buildings and to arrange a visit, see: **www.japan-guide.com/e/e4100.html**

Keep a **clean** sheet.

Festool dust extractors. For healthier work. For better results.



You´ll never work alone.

SERVICE
all-inclusive

A clean job is more than a perfect result. The Festool mobile dust extractors work discreetly in the background, but are immediately on site when they are needed. Sawing, sanding, routing. Perfectly matched to the tools, they extract the dust where it is generated. They thus guarantee not only health-friendly work, but also save you time and effort on time-consuming cleaning.
For more information please visit www.festool.co.uk/dustfree or your retailer.

FESTOOL
Tools for the toughest demands

www.**festool**.co.uk

STRAIGHT CUTTING

triton
Precision Power Tools

PENDULUM ACTION JIGSAW 750W

The **TJS001**'s powerful 750W motor and three-stage pendulum action deliver an incredibly fast cutting performance.

Dual-axis grips allow the tool to be held with both vertical pressure and horizontal direction control. When a perfectly straight cut is needed, the supplied track adaptor and parallel guide transform the Jigsaw into a precision tool ideal for breaking down larger sheets and fine trimming finished pieces. Detailed work is no problem with the precision bevel, which can cut up to 45° in wood, steel or aluminium.

Keeping a clean jobsite is essential for continuous work, and the **TJS001** is supplied with a dust extraction port adaptor, which can be connected to a workshop vacuum. The jigsaw is also supplied with a practical carry case, which ensures a quick clean-up and pack-up every time.

Engineered Precision

tritontools.com