

Woodworking

CRAFTS

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

Choosing moulding cutters

Projects

Oak & ash bed

Salt & pepper shakers

Plans For You – bookcase

Techniques

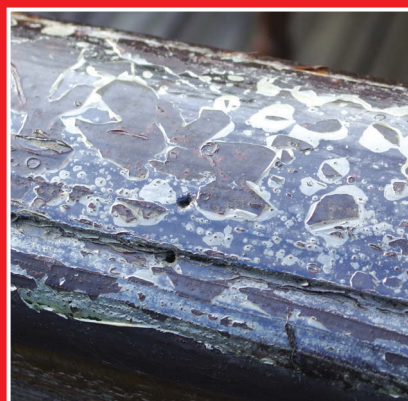
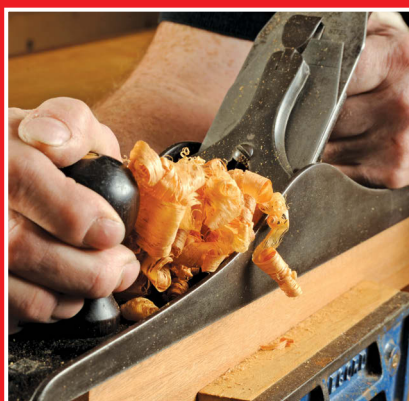
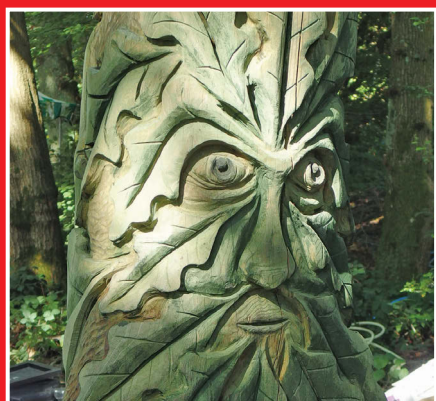
Router coping sled

Green wood cleaving brake

Fretwork cabinet restoration

Feature
Trees for Life
–Mahogany

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A3 41 D

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F3

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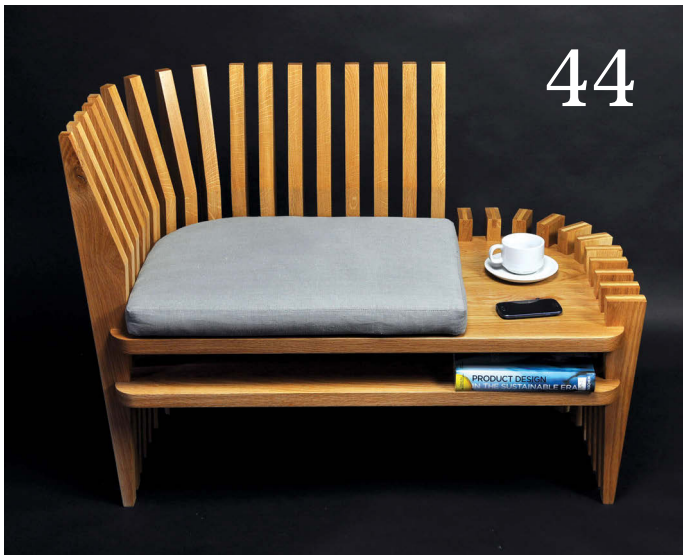


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Welcome

to the July issue of
Woodworking Crafts

Hello everyone and welcome to the July issue of *Woodworking Crafts*. One aspect of the magazine we always like to feature is green woodworking, which is also supported by articles on aspects of the countryside. This seems to go down well with readers but it is useful to have hard evidence of people interested in the subject. So, a regular visit to my osteopath revealed he had been on a yurt building course – for anyone unfamiliar with the term ‘yurt’ it is a portable round tent originally covered with skins or felt and deriving from Central Asia, but more recently embraced by back-to-nature folk looking for a different experience to conventional camping. I was somewhat surprised by this revelation, but next up was a work colleague who admitted an interest in spoon carving but who was having trouble sourcing ‘green’ wood.

It does seem that, in this fast-paced, always connected, modern and sometimes rather ‘virtual’ manufactured, organised world we now live in, there are many people who are seeking genuine experiences, opportunities to make and to live with natural materials in natural surroundings. Of course, if you do blacksmithing, for example, it isn’t exactly natural but it is a traditional craft skill. And if you spend time in a yurt it will be in some form of organised but rustic setting on land where the owner of the business has had to get planning permission with certain limits on usage and ensure the site meets health and safety requirements etc.

In other words, we cannot completely escape the modern world in attempting to enjoy a simpler lifestyle. Indeed, you can probably still get a 3G signal on your mobile phone, so you can still get updates on domestic problems back home or check where the nearest organic farm is located.

I’m not being cynical – far from it – it is just the reality of life as we know it. What it doesn’t take away is the opportunity to do something different, to experience a refreshing, life-enhancing time away from our daily lives and perhaps have a go at a craft skill which demands all our concentration, learning good hand-eye coordination and creating our own unique product, a spoon, a trug, a bowl, whatever it may be. A simple thing earnestly wrought by our hands that is unique, at which our companions can marvel. Better still, it doesn’t need a lot of tools or training, just enthusiasm, persistence and learning from others.

I hope your summer goes well and maybe you too can ‘have a go’.

Anthony Bailey, Editor
Email: anthonyb@thegmcgroup.com

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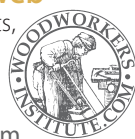
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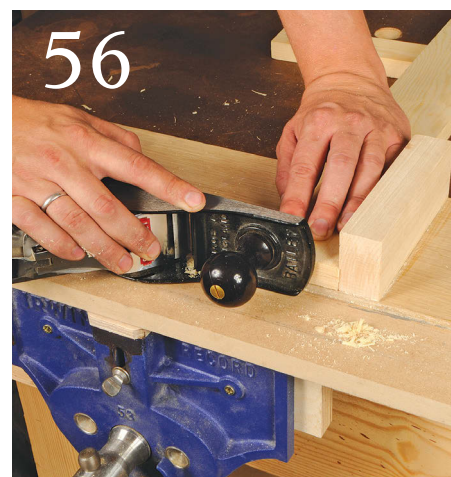
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Woodwork on the web

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CLEAN FINISHING



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Engineered Precision

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An unusual use for a sheet of OSB (Orientated Strand Board) – maybe it has more decorative possibilities?



A pretty bed design with black wrought-iron detail in the headboard. As it is painted, any base wood and ply can be used

INSPIRATION

Everyone has a different idea of what a bed should look like. It very much depends on the room setting, and yet the bed is the main focus of the room. It needs to be big enough and comfortable enough and look good too



Modern and dark wood is perfect in a clean, lined, stylish contemporary setting



Above: A style reminiscent of the early 20th-century Gustav Stickley designs; simple but striking and elegant

Below: Minimalist in pine, using the fewest materials necessary and still having a strong frame construction



A lighter version of the bed above, with matching bedside cabinet and sliding door wardrobe





Oak & ash bed

by **James Hatter** (with the help of Kieran Bradshaw, aged eight)

Dads seem to be in continuous demand when it comes to providing their offspring with items. So the latest request, from my eldest daughter, was to build a single bedstead to accompany a new mattress. The other family member eager to assist was my eight-year-old grandson, whose help and ideas I value greatly.

Timber choices

This project describes the construction of a bed frame to take a standard 90cm x 190cm single mattress. Ash is the main timber used, for strength and its decorative feature. However, to give contrast, oak is also used for decorative infills. The ash and oak timbers used for the head and end boards are joined using edge joining techniques, involving jointing biscuits

and adhesive. The side rails that join the head to the endboard make use of coach bolts. This allows easy assembly and disassembly. The mattress is supported using pine slats between the side rails, attached using screws.

The main infill panels for both the head and endboards use oak and have two ash inlays each. The inlays are 10mm thick and 27mm wide, and these are inlaid into the oak panel by trenching out 8mm deep by 27mm wide slots. This will allow 2mm to protrude for decorative purposes. It is best to use a piece of oak the width of which will allow both infills to be obtained. This will allow the trenches to be made at the same time before cutting the required widths for the head and end boards infills. An excellent quick and accurate method of trenching is to use a powered mitre

saw with a depth stop. Failing that use a router and bit, or saw and chisel. The inlays should have a snug fit in the trenched slots.

The area of the feet is increased by adding foot inserts, which also act to support any additional plastic or polished wood feet pads to aid mobility. The bed frame components received three coats of a clear matt, quick-drying acrylic varnish, which was applied using an artificial bristle brush with a light sanding with 400g sandpaper between coats.

The design could be adapted to make a double bed, either by building two single beds, using single mattresses and pushing them together, or by making the frame wider. If the frame is made wider it is recommended that additional support be given along the centreline of the base.

Cutting list

Part	Qty	Material	Length	Width	Thickness
A Headboard legs	2	Ash	830mm	75mm	27mm
B Endboard legs	2	Ash	545mm	75mm	27mm
C Head and end board leg attachments	4	Ash	285mm	75mm	27mm
D Head and endboard rails	5	Ash	760mm	75mm	27mm
E Headboard infill panel *	1	Oak	760mm	130mm	27mm
F Endboard info panel *	1	Oak	760mm	95mm	27mm
G Headboard lower infill panel **	1	Oak **	760mm	180mm	27mm
H Headboard inlays	2	Ash	130mm	27mm	10mm
I Endboard inlays	2	Ash	95mm	27mm	10mm
J Side rails	2	Ash	1925mm	75mm	27mm
K Side rail end attachments	4	Ash	48mm	75mm	27mm
L Side rail slat supports	2	Pine	1810mm	44mm	44mm
M Slats	11	Pine	854mm	90mm	18mm
N Foot inserts	4	Ash	40mm	75mm	27mm

* Cut and trench a common panel then cut to provide widths for head and end board infill

** A 760mm x 180mm x 12mm MDF panel could be used instead as the panel is partially hidden by the mattress



1



2



3



4



5



6

1 Cut the oak infill to length, and measure the positions for the trenches to take the ash inlays. The trenches can be cut using a powered mitred saw with a depth stop.

2 Check that the ash inlay fits snugly in the trenched slot. The inlay should protrude the oak face by 2mm.

Cut to produce the widths for the headboard and the endboard.

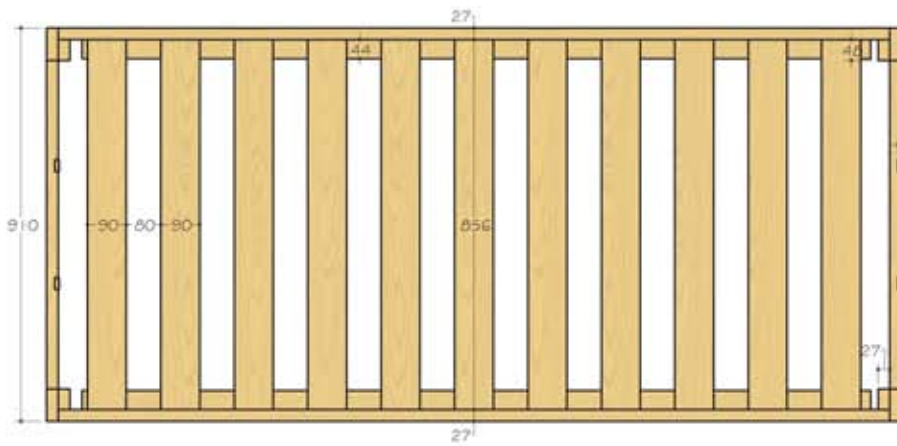
3 Cut the other components to length, and mark matching jointing biscuit positions.

4 Cut the jointing biscuit slots in the components, and dry fit to check

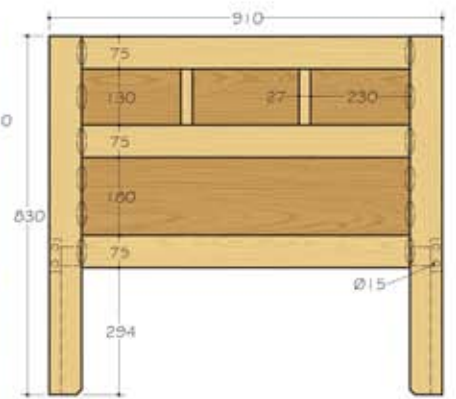
alignment. Sand off all the sharp edges of the components.

5 Start assembly using size 20 jointing biscuits and adhesive to form the headboard panel.

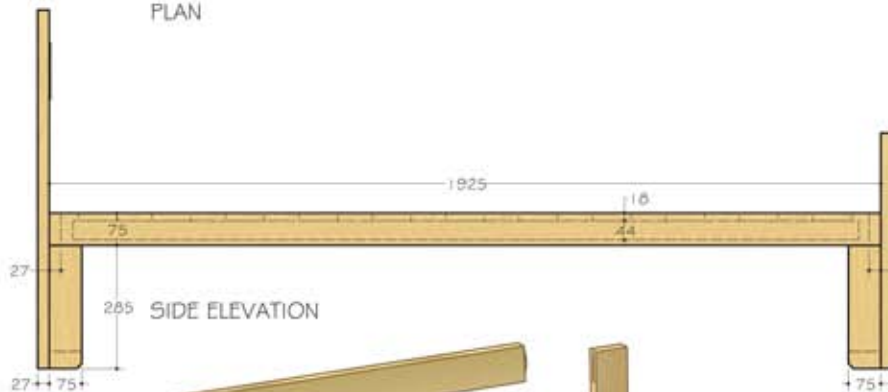
6 Continue using the trenched out oak panel. ➤



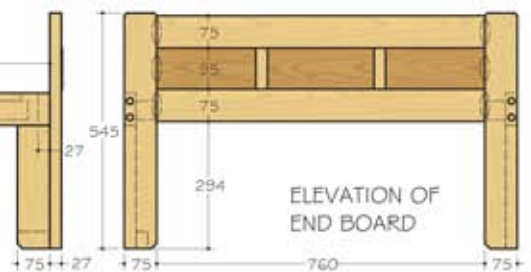
PLAN



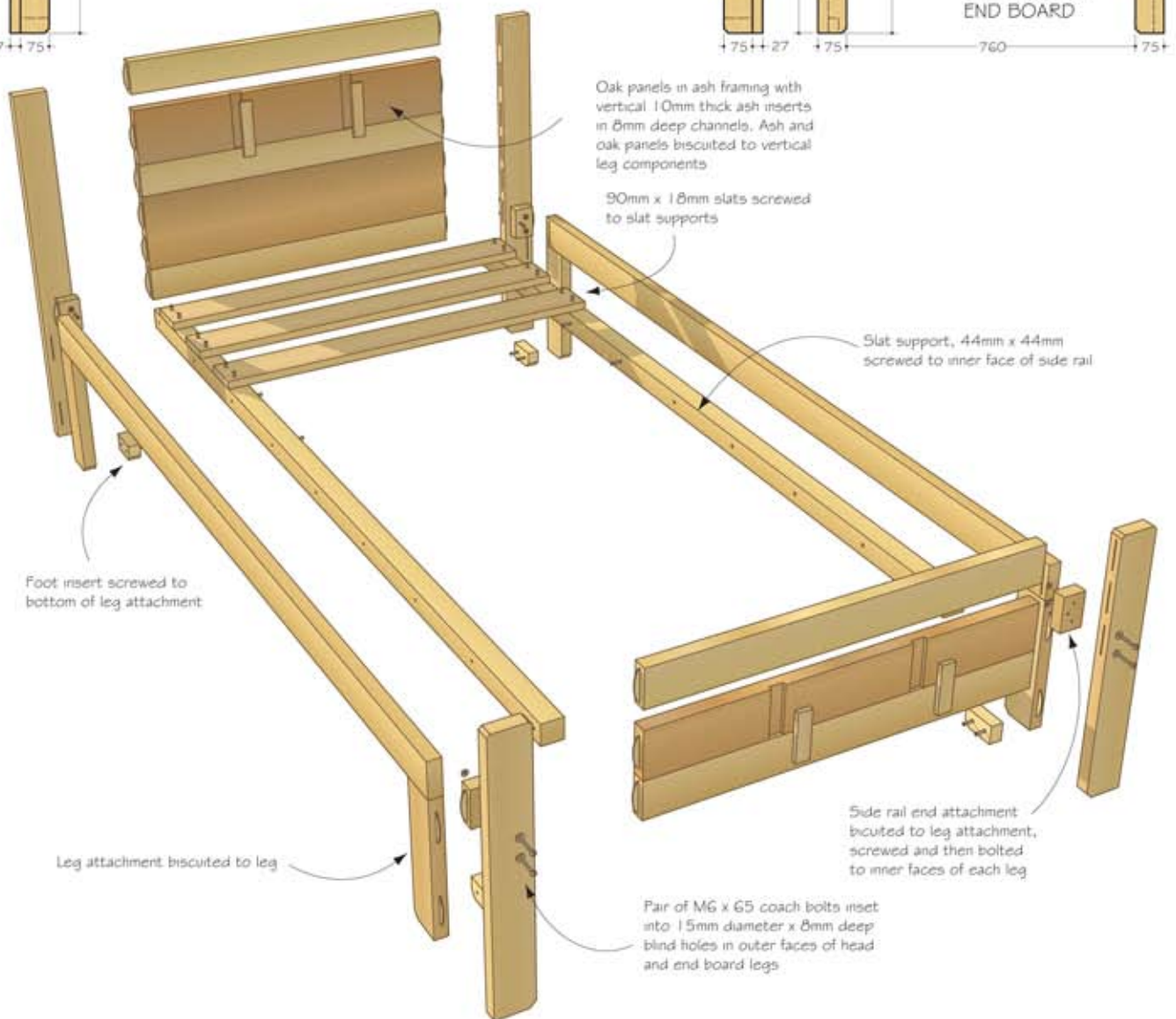
ELEVATION OF HEADBOARD



SIDE ELEVATION



ELEVATION OF END BOARD



7 Use a 15mm Forstner bit to bore 8mm deep holes in each leg to take the head of the coach bolt. Drill a 6.5mm hole for the coach bolt.

8 Attach the legs to each side of the panel using size 20 jointing biscuits and adhesive.

9 Cramp the assembly, wiping off any excess adhesive, and allow the adhesive to set.

10 Repeat for the endboard. When set, sand the panels.

11 Cut the ash inlays to size and fix in place using adhesive.

12 Join the leg attachments to the head and endboard legs, using jointing biscuits and adhesive.

13 Attach a foot insert to the bottom inside of each leg using a 4mm x 35mm countersunk screw and adhesive.

14 Cut the side rails to length, and at each end cut a size 20 jointing biscuit slot. Cut an end attachment piece and cut a matching biscuit slot. Drill a clearance hole for a screw for temporary fixing. Use adhesive and a size 20 jointing biscuit to add the attachment to each end.

15 Sand all the component to give a smooth finish. Wipe over with a damp cloth. Apply three coats of clear varnish to all surfaces. The author used a matt quick-drying, water-based clear varnish, applied with an artificial bristle brush. ►



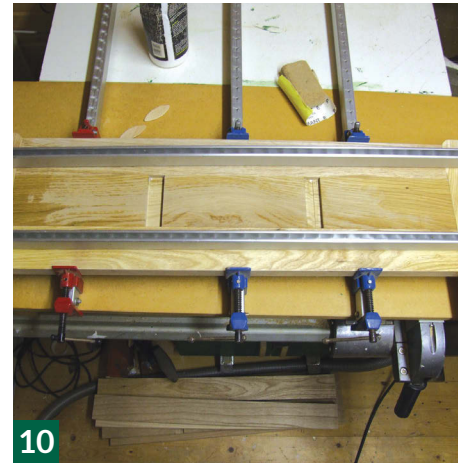
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11



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14



15

16 Rest each end of the side rail in turn on to the top of the leg attachment and clamp in place. Use a screw to further temporarily fix in place.



16

17 Use a 6.5mm drill bit and use the hole previously drilled as a guide to drill through the side rail attachment. These holes can be enlarged using a 7mm drill bit to assist fitting later.



17

18 Add a plastic or a smooth wood foot to the bottom of each leg. This will ease moving the bed for cleaning underneath. If the bed is to be used on a smooth floor then consider using a felt foot.



18

19 Attach a pine batten along the inside of each side rail to support the slats. Use a spacer of the slat thickness to give the correct spacing for the slat thickness.



19

20 Have to hand all the bed components and attach the head and endboards to the side rails using 6mm coach bolts, washers and nuts.



20

21 Tighten the nuts to pull the assembly to provide a stable frame.



21

22 Lay the slats between the side rails resting on the fitted side rail supports. Use a spacer each side to give the correct slat spacing and attach each slat using two 4mm x 35mm screws.

23 The bed frame is now complete and ready for a mattress. ■



22



23

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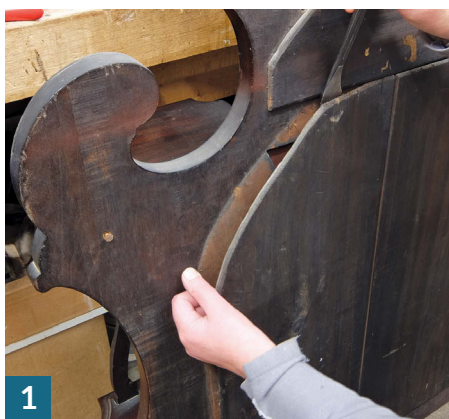
Display cabinet

Splits, cracks and breaks – when **Louise Biggs** found this cabinet it had them all...

The display cabinet is a family piece which has been handed down and is now in the care of my customers. Unfortunately, due to the ceiling height of modern-day rooms, they are unable to use the fretwork pediment. They had noticed some damage to the cabinet and the stored pediment and that various sections were all a bit loose, so approached me to have the piece restored.

Tool list

- Japanese cat's paw
- Glue pot
- Flush cut saw and dovetail saw
- Chisels – various sizes
- Carving gouges
- Bandsaw
- Drill and drill bits
- Screwdrivers
- Pin hammer
- Pliers
- Small 'G' cramps
- Winding sticks or equivalent



STAGES OF RESTORATION

Carved decoration

1 As the piece could not be laid on its front due to the tiered shelving, it was supported upright against the bench and the back panels carefully removed, levered off using a Japanese cat's paw, working around the edges so as not to split the panels. Removing the back panels revealed the remaining screws which held the tiered shelves.

2 Having removed the tiered shelves the applied carved decorations were lifted off the back panel to be re-fixed after the other restoration work was completed. One pair of carvings had one carving with half missing and the second with a small piece missing. A template was made of the more complete piece and the shape cut out of card.

3 Joint surfaces needed to be cut where the breaks had occurred. As the carved sections were thin and fragile they were supported in the vice, with my finger underneath for additional support and the joint carefully cut by paring the timber in thin slices, as too much pressure might further break the carving. ➤

Assessment

- The bottom carcass was loose at every intersection of timber and the legs were loose.
- The fretwork on the door had some loose sections and splits within the door frame.
- On the top section the tiered shelves on each side were loose.
- There were some splits and cracks in and between the sections that made up the top back panel.
- The mirrored carved decorations applied to the back panel were loose and one piece had been broken and only half remained.
- On the pediment the moulding which fitted around the back panel was broken and a piece missing.

While completing the assessment I could find no tell-tale signs as to the type of joints used on the bottom carcass. It appeared at first glance that the whole cabinet was screwed and nailed together. This article will concentrate on repairing the carving and fretwork. Throughout the process old mahogany and animal/hide glue were used.



Damage to the fretwork door panel



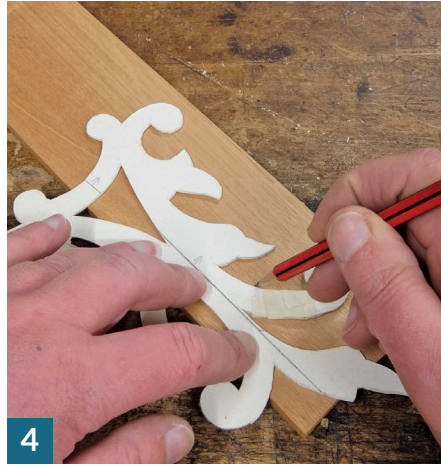
Tiered shelving loose on the back board



Safety

If you are at all unhappy with placing your fingers in this situation; find an alternative method of supporting this type of work while you cut the joint.

4 The broken carving was lined up over the template, which was marked at the point of the joints. The area was then marked out on a piece of mahogany prepared to the required thickness. The timber was cut out, slightly oversize, on a bandsaw with a narrow blade and the edges adjusted to form a tight joint with the existing carving.

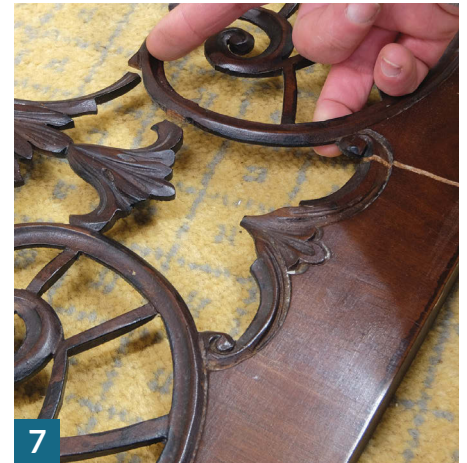
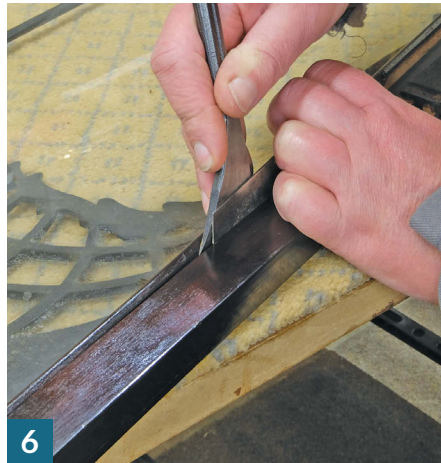


5 The existing carving was glued to a waste piece of board using wallpaper paste and newspaper to form a paper joint. The replacement piece was glued to the board in the same way, while rub jointing the two pieces together. This effectively held the carved decoration ready for it to be sent to the woodcarver while the other restoration work was carried out. The small missing section on the second carving was replaced in the same way.



Fretwork door

6 The glass needed to be removed from the door in order that the fretwork could be restored. Using the cat's paw and an old cabinet scraper to lever against, the beading was carefully prised off the door frame as both glass and beads would be re-fitted.



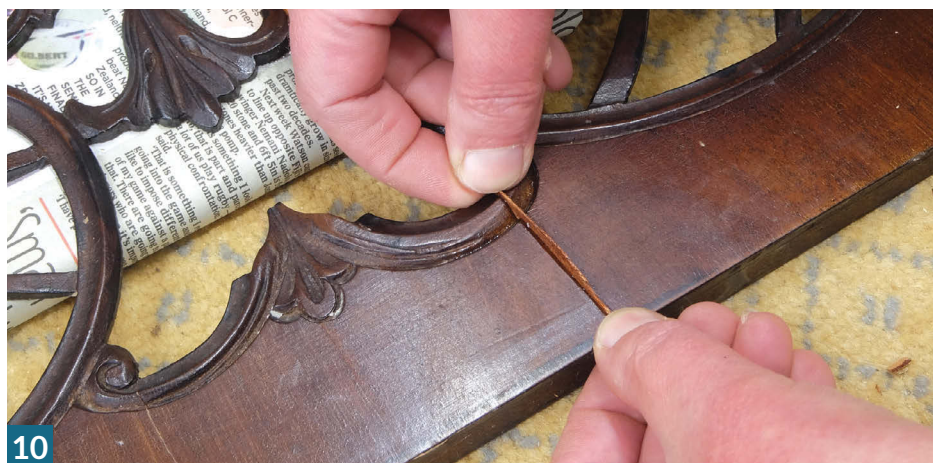
7 The fretwork and the veneer overlaying the door frame were cut from the same piece. Due to shrinkage some of the fretwork was broken and there were splits in the wide edges that were lifting away from the door frame.



8 Having cleaned out the dust and debris from behind the edge veneers, traditional animal/hide glue was applied between the two surfaces and the frame and veneer clamped together until dry.



9 Supported on a piece of waste board wrapped in newspaper, the breaks in the fretwork were glued if they were a tight break. For those where pieces were missing or the breaks too wide, small pieces of old mahogany were cut and fitted into the relevant areas and held with a combination of low tack tape and fine pins. Be careful of your fingers when cutting small sections like these; I only use a small hand saw and hold the piece with pliers or similar if required.



10 Any remaining splits in the edge veneers were cleaned out using a fine flush cut saw, with no kerf on

the blade. This kept the split as small as possible and removed less of the original material. The resulting grooves were then filled with small shivers of old mahogany.

11 Once dry the shivers were pared down flush with a chisel, being careful not to remove the surrounding finish. In this instance no abrasives were used. The fretwork repairs were carved to shape using a selection of small carving gouges which corresponded to the curves.



General repairs

12 The bottom carcass was dismantled and, where necessary, the worn screw holes plugged with timber before the carcass was reassembled and the screw holes drilled with a pilot drill and the screws fitted and tightened. The back panels were then reinstated and pinned, making sure the carcass was square. This further stabilised the carcass before the top was reinstated.

13 The front legs were fitted to the carcass by the front frieze and a bracket, which were nailed and screwed together and to the bottom. New support blocks were shaped and glued into place.



14 Having dismantled the carcass the whole bottom section was turned upside down and, using two straight edges spanned between the legs as winding sticks, the legs were checked for being level. When sighted through the two bottom edges they should be parallel, as shown in the photo. At first one front leg was slightly high so the end was eased off with a rasp until the winding sticks were parallel.



15 With the carvings returned, the sections were separated from the boards by passing a thin knife behind, which separates the paper joint. Any remaining paper was then removed using some hot water to soften the wallpaper paste and carefully scrape the paper off.



16 With all the repairs completed the areas were stained and polished to match, the applied carvings were polished before being glued back in their respective positions and a board made for the pediment to ensure that it was protected while in storage. It is seen here in its rightful place. ■



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

Clarke BELT SANDERS

BS1

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

Ideal for surface removal, sanding and finishing

ABRASIVE SANDING BELTS IN STOCK

Clarke TURBO AIR COMPRESSORS

airmaster

8/250

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

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

MODEL	MOTOR	CFM	TANK	EXC.VAT	INC.VAT
8/250	2HP	7.5	24ltr	£99.98	£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)

CDS300B

FROM ONLY £129.98 EXC.VAT
£155.98 INC.VAT

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

Clarke STATIC PHASE CONVERTERS

PC60

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

ROTARY PHASE CONVERTERS ALSO IN STOCK

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

CON18LB

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

powered by Li-Ion

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 CIRCULAR SAWS

CON185

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

Great range of DIY and professional saws

- Ideal for bevel cutting (0-45°)

Includes laser guide

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

CHB1500

FROM ONLY £144.99 EXC.VAT
£173.99 INC.VAT

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

Clarke SHEET SANDERS

CON300

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

Ergonomic design for optimum comfort

MODEL	SHEET SIZE	MOTOR	EXC.VAT	INC.VAT
COS200	190x90mm	150W	£16.99	£20.39
CON300	230x115mm	330W	£34.99	£41.99

Clarke BOLTLESS SHELVING/BENCHES

150 PER SHELF

350 PER SHELF

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

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

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

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

Clarke WHETSTONE SHARPENER (200MM)

NEW

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

ONLY £119.98 EXC.VAT
£143.98 INC.VAT

Clarke KET & DRY VACUUM CLEANERS

CON185

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

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

MODEL	MOTOR	MAX CUT (mm)	EXC.VAT	INC.VAT
CCS185B	1200W	65/44	£41.99	£50.39
CON185*	1600W	60/40	£62.99	£75.39
CCS2	1300W	60/45	£59.98	£71.98

Clarke PORTABLE THICKNESSER

CPT250

FROM ONLY £219.00 EXC.VAT
£262.80 INC.VAT

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

Clarke OSCILLATING BOBBIN SANDER

COBS1

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

Provides exceptional finishes for deep & wide work pieces, front edges & narrow inner curves

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

Clarke PLANERS & THICKENERS

CPT800

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

Ideal for DIY & Hobby use

Dual purpose, for both finishing & sizing of timber

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

COEBS1

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

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

NEW

Clarke OSCILLATING BELT & BOBBIN SANDER

COBS1

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

Provides exceptional finishes for deep & wide work pieces, front edges & narrow inner curves

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

Clarke SHEET SANDERS

CON300

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

Ergonomic design for optimum comfort

MODEL	SHEET SIZE	MOTOR	EXC.VAT	INC.VAT
COS200	190x90mm	150W	£16.99	£20.39
CON300	230x115mm	330W	£34.99	£41.99

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- Planing depths adjustable from 0-2.5mm
- Powerful 1250W motor

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

CMS1052

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

CMS1052	210/30	60/120	£159.99	£171.98
CMS1052	254/30	78/340	£139.99	£167.98

Clarke ELECTRIC HEATERS
• FROM ONLY £49.99
• BEST SELLER

DEVIL 7003
was £382.80 inc. VAT is now £430.80 inc. VAT

MODEL VOLTAGE HEAT EXC. VAT INC. VAT

DEVIL 6003	230V	1.5-3	£49.99	£59.98
DEVIL 7003	230V	3	£59.99	£71.98
DEVIL 8003	400V	2.5-5	£74.99	£89.98
DEVIL 9003	400V	5	£84.99	£101.99
DEVIL 1003	400V	4.5-9	£119.99	£142.80
DEVIL 1203	400V	9	£139.99	£167.98
DEVIL 1403	400V	5-10-15	£179.99	£214.80
DEVIL 1603	400V	15	£199.99	£239.98
DEVIL 1803	400V	22	£299.99	£358.80
DEVIL 2003	400V	30	£349.99	£418.80

Clarke TURBO FAN GAS HEATERS
Offering low cost, efficient heating

LITTLE DEVIL
• stainless steel

PROANE GAS FIRED

MODEL MAX OUTPUT KW EXC. VAT INC. VAT

Little Devil SS	10	£79.99	£95.98
Little Devil SS	10.3	£84.99	£101.99
Devil 700	15	£99.99	£119.98
Devil 900	24.9	£139.99	£167.98
Devil 1600	36.6	£169.99	£203.98
Devil 2100	49.8	£259.99	£310.80

Clarke MAGNIFIED MITRE GUIDE
• QUICK RELEASE FENCE
• DRIVE-BELT TENSIONING

CBS300

THROAT DEPTH MAX CUT 90° CUT 45° EXC. VAT INC. VAT

CBS300	305mm/12"	165mm/115mm	£399.00	£478.80
CBS350	340mm/14"	225mm/160mm	£499.00	£597.80

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

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

MODELS ALSO FEATURE:

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

Clarke MITRE SAWS
• Laser Guide
• Sliding Compound

TC-SM2131

BLADE DIA/ MAX CUT EXC. VAT INC. VAT

Einhell TC-SM2131	210/30	62/310mm	£129.99	£155.98
Einhell TC-SM2131	250/30	75/340mm	£159.99	£191.98

Clarke MORTISING MACHINE
• 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

CBM1B

CHISELS AVAILABLE FROM £8.39 INC. VAT

Clarke QUARTZ HALOGEN INFRA-RED HEATER
• 3kW instant, clean odour free heat.

DEVIL 370SP

MODEL POWER DEPTH OF CUT EXC. VAT INC. VAT

Clarke CJ5380	420W	55/6mm	£15.99	£19.98
Clarke CON750	750W	80/10mm	£28.99	£34.79
Bosch PST700E	500W	70/4mm	£44.99	£53.99

Clarke ROUTER TABLE
• Router not included

CRT-1

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

MODEL DUTY WHEEL DIA. EXC. VAT INC. VAT

CR66RP	PRO	150mm	£32.99	£39.99
CR66RZ	DIY	150mm	£42.99	£51.99
CR66RSC	HD	150mm	£54.99	£66.99
CR66SB	PRO	150mm	£54.99	£66.99
CR66RWC	HD	150mm	£59.99	£71.99
CR66W	(wet)	HD 150/200mm	£56.99	£68.99

Clarke GRINDERS & STANDS
• Stands come complete with bolt mountings and feet anchor holes
• 6" & 8" AVAILABLE WITH LIGHT

STANDS FROM ONLY £47.98 INC. VAT

Clarke FOLDING MITRESAW STAND
• Suitable for most sizes/makes of saw
• Inc. outriggers & rollers

CFMSS1

IN STOCK - COMMY ONLY £131.99 INC. VAT

Clarke 13" MINI WOOD LATHE
• Ideal for enthusiasts/hobbyists with small workshops
• 325mm distance between centres • 200mm max. turning capacity (dia) • 0.2HP motor

CWL325V

Clarke DETAIL SANDERS
• Perfect for smooth and fine finishing along with hard to reach areas or curved surfaces

CDS-1V

MODEL WATTS EXC. VAT INC. VAT

PS105	105W	£19.99	£23.98
RT-0513	130W	£24.99	£29.98
CDS-1V	280W	£28.99	£34.79

Clarke ROUTERS
• Powerful heavy duty machines ideal for trade and DIY use

CR2

CR2 INCLUDES 15 PIECE KIT WORTH OVER £20

Clarke POLISHING KITS
• 4" to 8" FROM ONLY £27.59 INC. VAT

• With sanding belt "8" whetstone & 6" drystone

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

COP152B

B = Bench mounted
F = Floor standing

MODEL SPEEDS EXC. VAT INC. VAT

COP152B	350/5	£69.99	£80.39
COP102B	350/5	£79.99	£95.98
COP152B	450/12	£139.99	£167.98
COP202B	450/16	£189.99	£222.00
COP10B	370/12	£198.99	£238.79
COP352F	550/16	£229.99	£274.80
COP502F	1100/12	£499.00	£598.80

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

CSS400C

MODEL MOTOR SPEED RPM EXC. VAT INC. VAT

CSS400C	85W	1450	£82.99	£99.98
CSS16V8	90W	550-1600	£94.99	£113.99
CSS400C	90W	550-1600	£114.99	£137.99

Clarke 12" DOVETAIL JIG
• Simple, easy to set up & use for producing a variety of joints • Cuts work pieces with a thickness of 8-32mm • Includes a 1/2" comb template guide & holes for bench mounting

CDTJ12

Clarke CR1C
• DIY

MODEL MOTOR PLUNGE EXC. VAT INC. VAT

CR1C	1200	0-50	£46.99	£56.39
Bosch	1400	0-55	£86.99	£104.39
POF1400ACE				
CR2	2100	0-60	£124.99	£149.99

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

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DONCASTER Wheatley Hall Road		MANCHESTER OPENSHAW Unit 5, Tower Mill, Ashton Old Rd	0161 223 8376	WOLVERHAMPTON Parkfield Rd, Bilston	01902 494186
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NEWS & EVENTS

All the latest events and news from the world of woodworking

Life of Brian

Actor Brian Blessed has brought Cumbria's Great Knott Wood to life in the form of a talking yew tree. Recordings of the actor's voice have been fitted inside the tree, installed by the Woodland Trust. The tree is a real survivor and had to be rescued from being engulfed by a neighbouring Norway spruce. The tree tells us it has been there for hundreds of years as the woodland has been looked after by people, but later too many planted trees had blocked out the sun for the yew, before the trust thinned out the wood as part of its restoration process.

Great Knott Wood is a precious area of ancient woodland on the edge of Lake Windermere, being used by the trust as a restoration demonstration site to educate and inspire visitors' understanding of why ancient woodland is so important.

Brian Blessed said: 'When the Woodland Trust asked me to help with this project there was one clear answer. What better thing to lend my voice to than an old yew tree, just a stone's throw away from the edge of Lake Windermere?'

'Creating a persona for this veteran being and bringing it to life was an offer I couldn't refuse. I hope the tree, and the story it tells, will shock, captivate and inspire visitors to Great Knott Wood for many years to come.' Site Manager Heather Swift, added: 'We are delighted that Brian has given his distinctive voice to our wonderful tree. It's really fantastic to have such high-profile support for our restoration work, and exciting to see people's reactions when they first discover the amazing talking tree.'

'Great Knott Wood provides a glorious backdrop to the beautiful lakeside scenery and is an intriguing, delightful wood to explore. It's been loved and worked in for centuries.'



PHOTOGRAPH: GETTY IMAGES



PHOTOGRAPH COURTESY OF WOODLAND TRUST

Now everyone is welcome to visit the new trail and enjoy features such as the talking tree.'

Today, ancient woodland is facing increasing threats and covers only 2% of the UK. Almost half of what remains is in need of restoration as a result of being planted with non-native conifers and the spread of invasive species such as rhododendron, which can cause damage to the existing wildlife.

Thanks to National Lottery players, a £1.9 million grant from the Heritage Lottery Fund (HLF) is being used by the Woodland Trust, which is carrying out a UK-wide, five-year project to restore areas of damaged ancient woodland by gradually thinning out conifers and allowing light to reach the floor, encouraging native species to flourish.

Visit: www.woodlandtrust.org.uk

Events

Wood Show 17-18 June 2017, Weald and Downland Museum, Singleton, West Sussex
www.wealddown.co.uk/events

Peter Sefton Furniture School – Open Day Saturday 22 July 2017, The Threshing Barn, Welland Road, Upton Upon Severn, Worcestershire, WR8 0SN
www.peterseftonfurnitureschool.com

Lammas Festival, Western Lawns, Eastbourne, East Sussex
 29-30 July 2017
www.lammasfest.org

South Downs Show 19-20 August 2017, Queen Elizabeth Country Park, nr Petersfield, Hants
www.southdownsshow.co.uk

Biddenden TractorFest and Country Fair 19-20 August 2017, Biddenden, Kent
www.tractorfest.co.uk



PHOTOGRAPH BY PETER SEFTON

Peter Sefton's Furniture School Open Day

Charcoal and Woodyard Weekend 26-28 August 2017, Weald and Downland Museum
www.wealddown.co.uk/whats-on

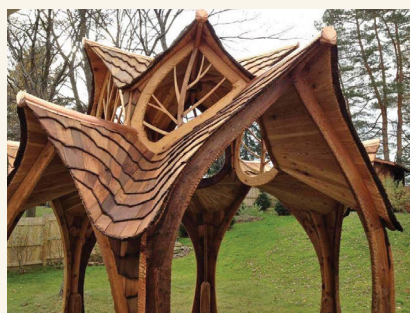
Stock Gaylard Oak Fair 26-27 August 2017, Stock Gaylard Estate, Sturminster Newton, Dorset
www.stockgaylard.com/the-oak-fair.asp

Web links for you

Facebook

• woodworkingideas1

If you like the weird and wacky here are some interesting organic sculptured works, from beds to garden shelters. Make sure you click on 'public photos' for the whole selection.



YouTube

• 100 ways to split wood

There are several videos on this theme. Whether you split wood for green woodworking or firewood or just get a kick out of big logs being split, these devices and machines which are beyond our means are fascinating to watch. Man's inhumanity to trees, you might think.

Twitter

• @Woodworkidea

Some wry and amusing truisms on the subject of woodworking.

Instagram

• @girlsofwoodwork

These girly, not so tongue-in-cheek, drawings are all the work of one young woman and her wry, very feminine but somewhat irritated, observational sense of humour.



Websites

• Health & Safety Executive www.hse.gov.uk

As a woodworking magazine editor I receive a regular digest of serious safety failings in the building construction and allied trades sector from the HSE. It makes for unpleasant, grim reading and is the perfect antidote to everyone who shouts: 'It's health and safety gone mad.'

Accidents in the workplace seem to regularly fall (no pun intended) into repeatable categories, proving no one seems to learn – falls from height, asbestos contamination, crushing injuries, amputations, electrocution and so on. Many result in life-changing injuries or death.

On the bright side, the HSE website has some very useful information to help woodworkers work safely.

Pinterest

• plansnow.com

An American website, this has all sorts of exciting workshop projects, from storage to sheds – even to making your own vertical panel saw.

high performance extraction design + technology



The GYROAIR dust processor revolutionised the traditional principles of dust collecting. It was designed with Axial Centrifugation Technology (or called Gyro Air Technology) which is totally different from any existing dust collectors.

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before filtration

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Compact size with mobility kit
Strong and constant pressure

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99.7% dust separation
before filtration



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Compact Size

Delegate and elegant.



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A professional woodworker
A peaceful and clean shop



Making a simple but effective Cope & stick sled

Michael T Collins shows us just how easy it is to make frame joints

The term cope is probably familiar to you – it's the term given when cutting crown moulding or skirting board profiles so that one piece perfectly matches the profile of the other intersecting piece. Typically this profile is cut with a coping saw.

Cope and stick construction is a technique used in making panel doors and window frames. Rails and stiles are given a decorative profile, using paired router bits. The cope and the stick are the names given to the two pieces of wood that are cut using a router bit so that a smooth, perfectly fitting joint is created.

Joiners refer to the moulded edge along the inside of a door or window frame as the stick. While a decorative type of edge is more appealing than a square edge, it creates a technical problem that requires joining moulded profiles at the corners. This is where the cope comes into play. The cope is the recessed complementary cut that is added to the opposite edge so the stick can be seamlessly joined, creating a

much more ornate design. The greatest advantage, however, is the strength and tight-fitting durability that this technique achieves.

I can hear you asking: 'Why wouldn't you just make a panel door using bridle joints or mortise and tenon. Wouldn't that be just as strong?'

Well, yes it would, but, as mentioned earlier, if you wanted a decorative profile on the inside edge of multiple door frames, that would be quite a challenge to cut, making the cope and stick a better, faster and more attractive option.

The rails have a coped profile cut across the end grain that fits the profile of the stile. If you're building cope and stick panels, it's important to be able to accurately and safely cut the end grain.

So let's make a coping sled.

There are several expensive products on the market, but being known for frugality, here's a quick and inexpensive way to create an adjustable coping sled using supplies and scraps you probably have laying around.

It features a sturdy toggle clamp to

Materials and tools

- 1 piece of 400 x 360 x 9mm birch ply or Formica for the sled (something that is stable)
- 2 pieces of wood 230 x 120 x 19mm
- 1 toggle clamp
- 1 T-bolt (or toilet bolt)
- 1 star knob or wing nut
- 1 old plane or saw handle
- 1 old plane tote or door handle (in my example I have used an old router handle)
- 1 piece of 19 x 9mm hard wood to act as a runner

hold parts firmly against a sacrificial block, thus preventing end-grain blowout, while an abrasive strip prevents the work piece from moving as you pass the bit for a clean, square cut. The sled keeps your hands safely out of harm's way with two large handles. This jig uses the mitre slot for smooth action. ➤

Construction

1 Cut a piece of melamine or MDF to size.

2 Position the runner in the mitre slot, placing the board on top, parallel to the longest side of the sled so that the sled clears the largest router bit you will be using by about 3mm.

3 Use a couple of pieces of double-sided tape to temporarily hold the board in place.

4 Secure the runner from the bottom with three counter-sunk screws. Screw one of the two blocks of wood perpendicular to the sled's long axis – I glued and screwed mine. With the forces that a router bit exerts, one can't be too careful.

5 The front handle is secured from the bottom and again in line with the mitre slot – I used an old plunge router handle (I recycle everything).

6 An old saw handle is screwed to back-stop from the bottom so it is in line with the mitre slot. The toggle clamp is screwed in position between the handle and the edge closest to the router bit. Make sure that it can span a 25mm scrap of wood. Glue a strip of sandpaper to the front edge of the backstop.

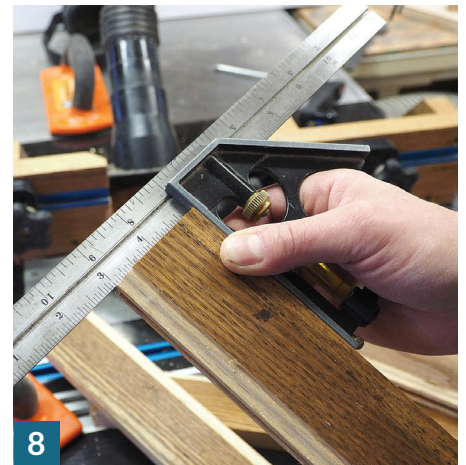
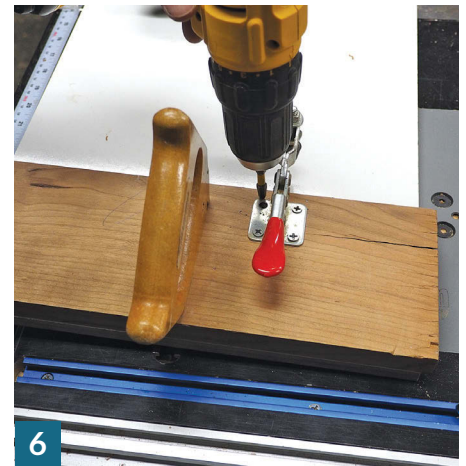
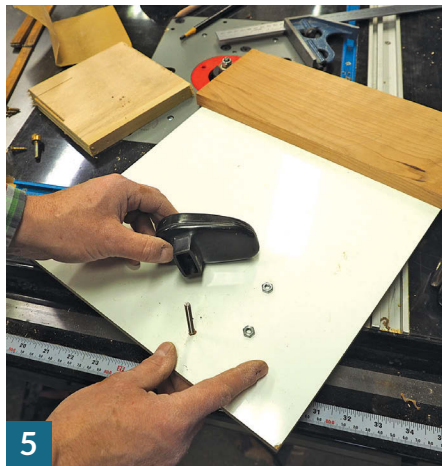
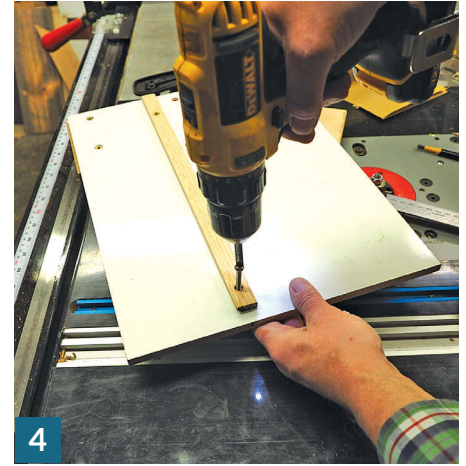
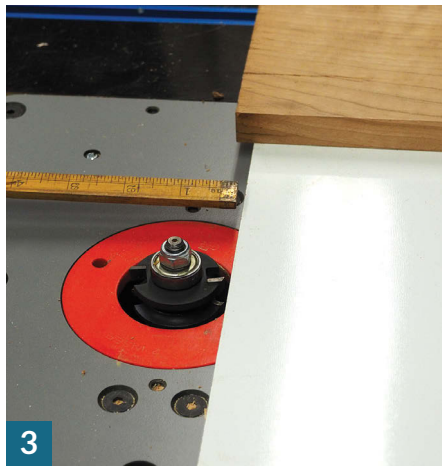
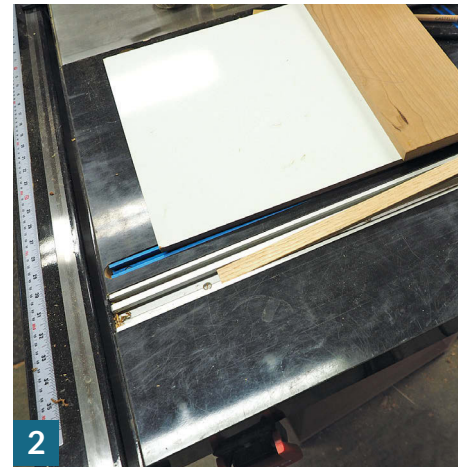
Note: old saw and plane handles are always very handy to have around.

7 Take the second block – the 'clamping piece' – and rout a slot for the bolt. It needs to be able to slide back and forth allowing the maximum and minimum size rail. I used a small piece of wood to keep the clamping piece parallel, but this is not necessary. Recess the bolt head on the underside by counter boring the hole. Add a strip of sandpaper to the leading edge of this.

Using the sled to make a panel door

8 The first step to successful door construction is to measure the actual door opening. Always take measurements from the physical dimensions.

The length of the rails will be the width of the opening minus the width of the two stiles. Unlike mortise and tenon or bridle joints we do not need to allow for the wood that makes up the joint.



Cut the rails to the exact length and square the end. This is crucial.

9 I always make my stiles about 50mm longer than needed. Not only is this practice a holdover from when I make mortise and tenon frames, but I also find passing a longer piece of wood through a router gives more control and provides you with extra wood at the leading edge where tear-out is likely to occur.

Routing the stiles

10 **Note:** when producing cope and stick panels the work pieces are pushed past the router face down.

Take a piece of wood of the same dimension as the stiles and pass it through the router bits, adjusting the height until you have a proper profile. This will take some trial and error.

For accurate cuts use feather boards to make sure that the wood is pressed firmly into the cutter. Once you are happy with the profile, run the stiles through the router bit, cutting the profile in stages, increasing the depth of the cut with each successive pass. Do make sure to take grain direction into account. Replace the stile cutter 'stick' with the rail cutter 'cope' and adjust the height, taking the sled's thickness into account. At this point I realised that I needed a hole in the sled so that I could access the lift mechanism.

11 Use a backer piece to avoid tear out and pass the stile through the cutter, increasing the depth with each successive cut. Again, there is an element of trial and error here.

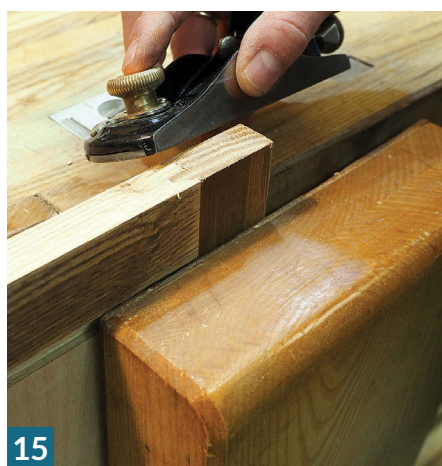
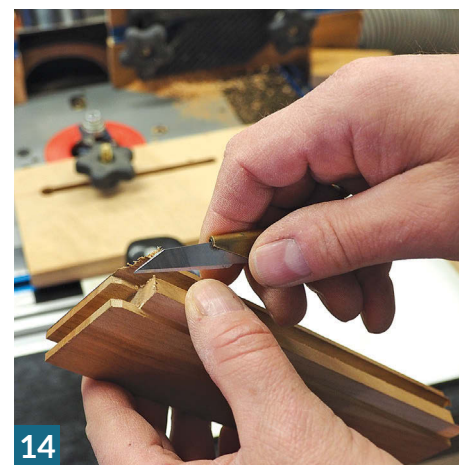
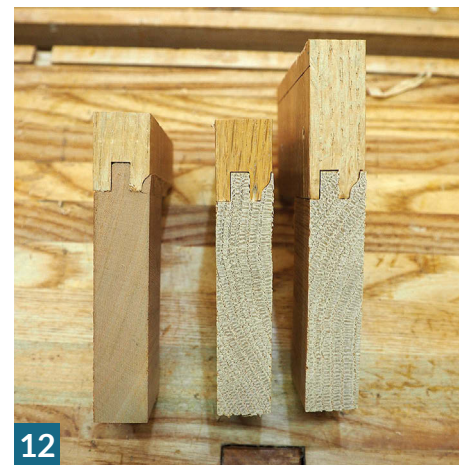
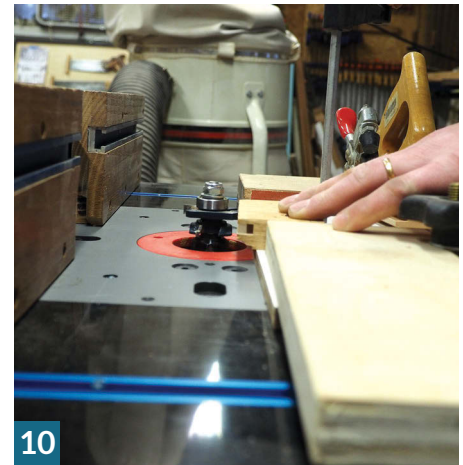
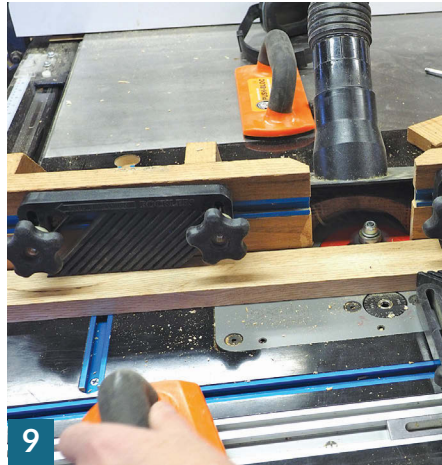
12 Here are three profiles. You can see that the left-hand profile is very weak while the right-hand profile is just right.

13 Once you are happy with the mating pieces, put these aside – they will be the templates for future set up.

14 Clean up any stray fibres – being careful not to alter the profile – so the joints fit cleanly together.

15 Glue the frame together and clean up the joint ends and edges with a block plane.

16 Now you are set to 'cope' with anything. ■



A woodworking glossary

The letter A

ADHESIVE A substance capable of bonding materials together. Examples are PVA (Polyvinyl Acetate) white glue, yellowish aliphatic resin (contains tackifiers), thixotropic (contact adhesive), CA (Cyano Acrylate), hot-melt adhesive and epoxy two-part resins.

ADZE A traditional wooden-handled tool with a very sharp blade perpendicular to the handle or haft. The blade is curved in both planes and can either be a long-handled, two-handed tool for shaping table tops or Windsor chair seats, or, alternatively, a small version for seat shaping. Once referred to as 'old shinbreaker' – leather spats usually being worn for added safety.

AIR DRIED Timber stacked and stored usually under dry open cover to 'season' for a number of years, generally assumed to be 1in of board per year plus a year in total. Each board in the log is separated by small sticks known as 'stickers'. The aim is to reduce moisture content below 20%.

ALLEN SCREW A screw head with a hexagon-shaped recess needing a matching key to turn it, mostly used on machinery and tools. Metric or non-metric SAE sizes are available so the correct sizes need to be used.

ANNUAL RING GROWTH The layer of growth added to the circumference of a tree in an annual growing season. There are difference in cells formed during the early and late parts of the season. The growth is affected by weather conditions and, as part of the

science of dendrochronology (tree ring dating), can be used to determine meteorological conditions for many centuries past in some circumstances.

ANTI-KICKBACK ROLLERS OR PAWLS Ribbed non-return rollers (planer thicknesser) or toothed fingers (tablesaw) which prevent wood from being thrown back toward's the operator.

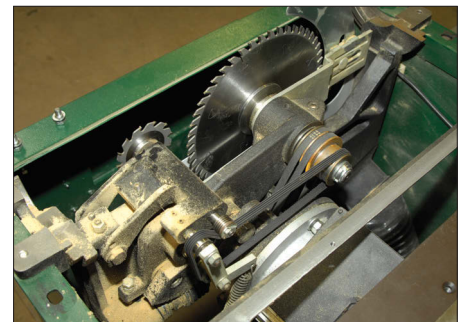


APPLIED MOULDINGS OR CARVINGS Mouldings can be made and carved detail created separately before being fixed to a wooden or other substrate.

A) APRON A frame around the base of a table jointed into the legs, it may be plain wood, veneered or decorated in some other manner as suits the design.

B) APRON Protective workwear that covers the front of the user and hangs around the neck and has cords or straps to tie it around the waist. For traditional woodwork it is usually made from a cotton canvas. For better protection with certain activities, such as green woodworking, a leather apron is advisable.

ARBOR A rotating stub shaft on a machine used to mount blades and tooling. A typical example is the tablesaw.



ARCHITRAVE The moulded frame around a doorway which adds visual detail but conveniently covers the gap between the surrounding wall and the wooden door lining. Usually accompanied by a deeper version as skirting along the bottom of the wall.

AUGER A large drill bit with a helical screw shape and a bladed tip, it usually has a screw point to draw the bit into the wood. It was traditionally used in a hand brace but there are now versions used in power drills.



AUXILIARY FENCE Sacrificial wood facing fastened to a machine table fence to give better support, reduce breakout and improve working safety.

MAKITA TABLE SAWS

Table Saw

2704
2704X

TCT blade diameter	260mm	
Bore diameter	30mm	
Size	W	L
Main table	625mm	567mm
With sub table	1050mm	1060mm
No load speed	4,800rpm	
Input	1650w	
Net weight	34.9kg	

Cutting angle	Depth
90°	93mm
45°	64mm
Angle settings	-0.5° to 45.5°

Centre Blade Position

The centre of the swing arc of the saw blade is located at the surface of the table so that the cutting line is always at the same position for any angle.



3/8" x 3/4"
T-formed Groove

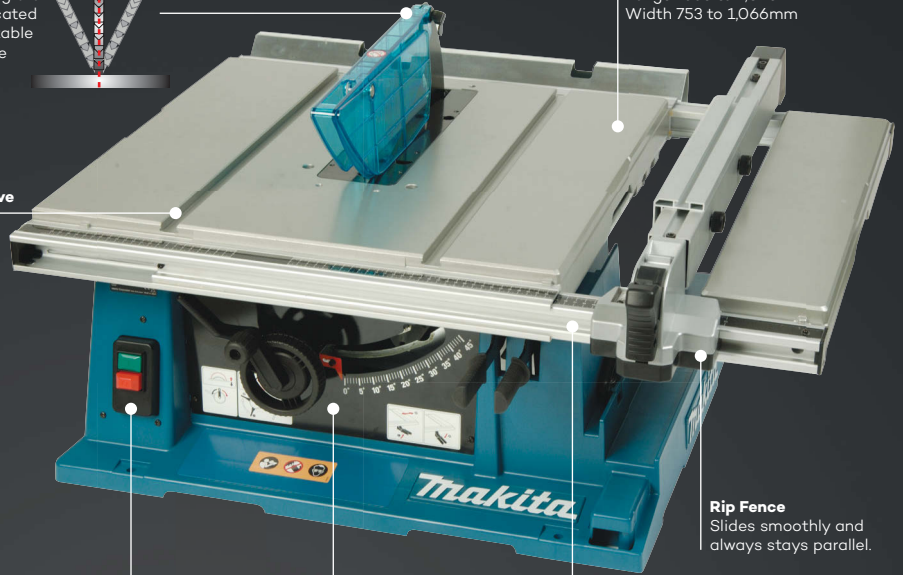


Table Size

Length 665 to 1,045mm
Width 753 to 1,066mm

Rip Fence
Slides smoothly and always stays parallel.



2704X
Comes with a folding stand: 194093-8



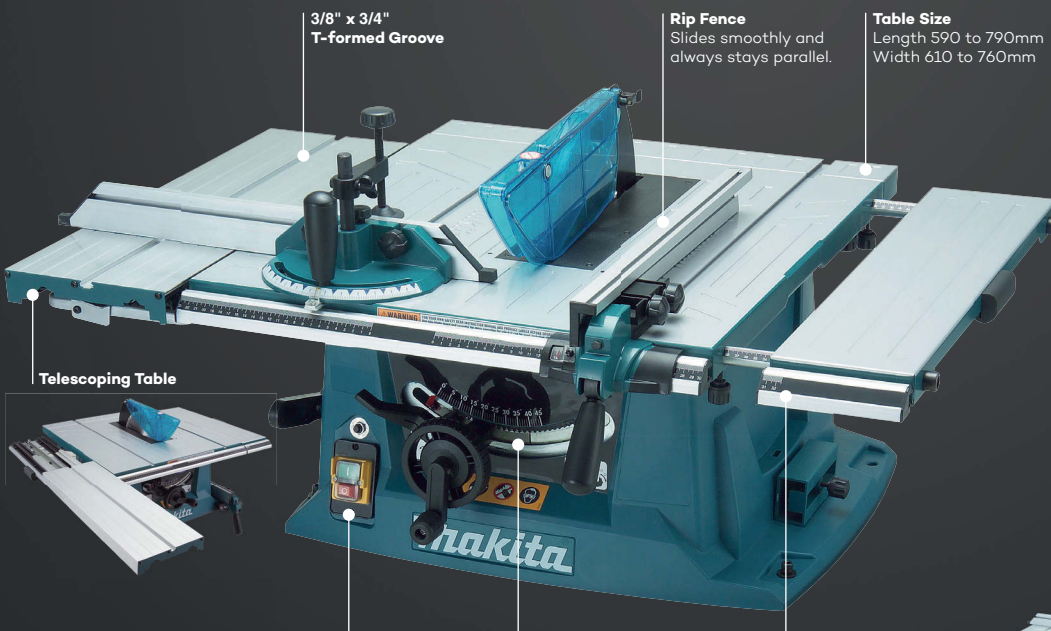
Power Switch
Electronic soft start and anti restart function



Easy to Read Scale



Telescoping Guide Rail



3/8" x 3/4"
T-formed Groove

Rip Fence
Slides smoothly and always stays parallel.

Table Size
Length 590 to 790mm
Width 610 to 760mm

Telescoping Table

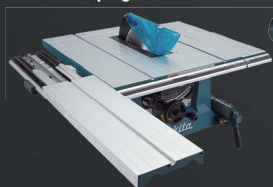


Table Saw

MTL100
MTL100X

Blade diameter	260mm	
Bore diameter	30mm	
Size	W	L
Main table	610mm	590mm
With sub table	760mm	790mm
No load speed	4500rpm	
Input wattage	1500w	
Net weight	34.1kg	

Cutting angle	Depth
90°	93mm
45°	64mm
Angle settings	0-45°



Power Switch
Electronic soft start and anti restart function



Easy to Read Scale



Telescoping Table



MLT100X
Comes with a folding stand: JM27000300

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PHOTOGRAPHS BY PETER WOOD

Cleaving brakes — devices for cleaving

Peter Wood shows us some artful ways to split wood for his green wood projects

In this article I will be examining a range of different types and styles of brake that allow us to convert a round log through cleaving (splitting) in a controlled manner into parts that are close to the size needed to shape. Using a few simple hand tools, no power and a brake we can control where the split travels. This is useful for a number of reasons.

Obviously not needing any power to convert the timber means we can work where our raw materials grow. It's much easier to transport a number of smaller pieces than one large piece,

and this can reduce the impact on the environment (if extracting timber from a nature reserve, for example).

Cleaving wood, if done correctly, splits the wood along the grain. You will have seen this in some of my previous articles, both when steam bending and cleaving to make an oak gate.

As you split along or follow the grain you retain the inherent strength of the wood. Conversely, cutting with a saw is usually slower and will follow where the saw wants to go rather than the grain. Cutting these fibres reduces

the strength of the wood. Finally, when it's all working well, cleaving is very fast.

We control the split by putting pressure on the side with the greater mass. Putting pressure on the larger side reduces its effective mass and 'moves' the split towards the pressure.

We can then relatively accurately control where the split moves and this enables us to cleave and produce blanks that are very close to the finished size, which means we have less wood to remove when shaping – giving less work and less wastage of materials.



1 The first and simplest brake is a simple dovetail chain-sawed from a large log. The piece to be cleaved is slotted in and by pulling on the top of the log we can apply pressure to the underside of the log and, using a froe lever, open the split.

2 You can see here the larger section is underneath so receives the pressure. With a smaller mass above the froe the split would very quickly run towards the smaller side.

3 This type of brake is handy to have in your workshop but I only find it useful for smaller stock. It has a number of problems: with only one fixed opening it only works with one size of wood. Ideally it needs to be substantial in size or have a long piece of timber behind the opening to stop it lifting up. Finally, as you can see with this piece of oak, there is a danger of the leverage splitting the brake along the grain. A coach bolt through the wood will reduce this danger.



4 The second brake we'll be using is an older style green woodworker's brake. What we're trying to achieve with this brake (and all brakes) is to put more pressure on one side of the wood. Here I've fixed two poles to some secure uprights – I was lucky enough to have two convenient trees to use.



5 At the right-hand end both horizontal poles are fixed to one side of the upright with some large pegs. On the left-hand upright the horizontals are fixed on opposite sides of the other uprights.

6 The lower pole is 'in front' of the upper horizontal pole. We can then rest the piece of wood we are cleaving on this horizontal and apply pressure.



7 Because the horizontals are offset we can move across the split depending on the size of wood we are cleaving. Initially, with larger diameter wood we use the left-hand side then move towards the right as the wood reduces in size. Another advantage of this brake is that, as well as dealing with different sizes of wood, you can move the wood through the brake so you can apply pressure at very specific points. ➤

8 The final cleaving brake I'll look at is the simple but effective box brake. Its design is credited to Dave Sawyer (a great American Windsor chairmaker). It's very versatile, movable, easily stored and constructed very quickly out of offcuts. This one is made from an old table top, a spare plank of oak and some cleft ash to make the pins.

9 You have a choice of where to place the lengths of wood for cleaving depending on their size. Here I'm cleaving some spindles and will happily split down to 20mm square.

10 Larger billets can be placed in the second section with much larger logs in the first section. The brake needs to be substantial and the bottom 'floor', as with the first brake, needs to be long to cope with the leverage when applying pressure.



11 Finally, if you have no brake to hand have a look around. When I was working in a school and needing to cleave some wood, a metal gate enabled me to put just enough pressure on some wood to stop the split running off. If you are in the workshop just open up your vice and it will make a very effective brake for cleaving smaller lengths of timber. ■



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Moulding cutters

If you need to shape up, then moulding cutters are the way to go. We look at a selection of the many types available

Router cutters fall into three main categories – joint-making, slotting and rebating using straight cutters or groovers, moulding cutters that confer a shape on the wood and, finally, a combination of both using frame and panel cutters which joint and mould in one operation.

Moulding cutters

We are looking at the second group, which don't perform any joint-making function. They divide into two sub-groups – traditional inspired shapes and simple, more modern profiles. This latter group, unless they are out and out modern in profile, can often be incorporated in traditional work. Some are designed to do both in any case. An example is a roundover

cutter with interchangeable bearings. If the chosen bearing is the same as the cutter radius then it can be either modern or traditional, but fitted with a smaller bearing the resultant quirk or step produced is recognisable as a traditional detail. It is the versatility of a router and its cutters that enable these possibilities.

Choosing shapes

A basic cutter set usually includes narrow and wide straight cutters, a couple of roundover cutters, a cove and corebox cutter, bevel and V-point, roman ogee and the useless dovetail cutter when unmatched to any jig. Although it is understandable that someone new to routing needs to start with a basic set, once you have moved

up the learning curve, it makes sense to pick an individual good quality cutter to match the sort of work you do. Prepared components have square edges, or arrises, but for various reasons we need to 'tame the arris'. At the very least it needs to be 'broken' with abrasive to take away the sharpness and reduce the risk of splinters. If you are machining a maple worktop then a tiny 3.2mm roundover cutter looks modern and feels right. Or let's say you are making something out of oak; in this case a 'stopped' bevel looks right and has been used down the ages to improve the look of oak furniture as it suits the appearance of the grain. Lastly, mahogany is invariably used in a traditional style so a medium size roundover with a quirk will look right. ➤



The variety of moulding cutters even within just one cutter type is extensive in terms of size and shape variation

So deciding on a cutter is actually dependant on the project design and the material.

Face or edge

Moulding cutters are basically edge mould or face mould. Edge moulds are the easiest to do either using a straight fence or bearing guided. When you have created a rather plain square furniture carcass, moulding the edges dramatically alters the look of it, making it seem much more visually pleasing and acceptable.

Machining techniques

Face moulding requires some sort of additional guidance in the shape of a template that a bearing guided cutter can run against, or just a straight fence if you are creating a fluted column effect. All machining operations create dust, but face moulding is particularly bad for this, so extraction is essential.

One way to improve the look of a furniture project which is controllable and easy to do, is to machine the edge of a board, cut off the moulding and repeat ad infinitum. This gives you lots of mouldings which can be applied to a plain carcass once it is built.

Mouldings made by the saw and repeat method need to be done on the router table for safety and accuracy. Being cut off a wide board means the wood is stable without bending or breakage during machining.

Reference material

It is worth poring over cutter manufacturers' catalogues or visiting their websites to give you an idea of the scope of moulding patterns available. However, to make best use of them it helps to find old books featuring furniture and moulding styles as a guide to which is the correct pattern to use.



These very common profiles illustrate size variations very well, with larger ones on 1/2in shanks for strength



Two cutters, the left hand one being more suitable for a modern, gentle face mould and the right hand cutter designed for a traditional mould on the front edges of shelves etc., but needing guidance



Two slightly different ogee cutters, generally associated with classical forms so better with traditional furniture styles



Face mould cutters which need to run around a template for a properly guided and accurate result. Dust is an issue especially with MDF, so extraction has to be fitted to the router

The use of mouldings in stone and then wood originates back to early times. The Egyptians, Greeks and Romans have all contributed to the vast panoply of moulding styles which are still in use today. Various terms, such as Grecian ogee, torus, cornice, bolection and lamb's tongue, may seem obscure but are recognised descriptions of moulded profiles which are frequently reproduced in router cutters.

Straight or combination cutters?

The most useful cutters you can have are straight cutters in different diameters and rebate cutters, because mouldings often need to be used alongside flat sections – cornice being a prime example where curves alternate with flat or dentil-moulded sections to create a projecting moulding on top of a bookcase or cabinet.

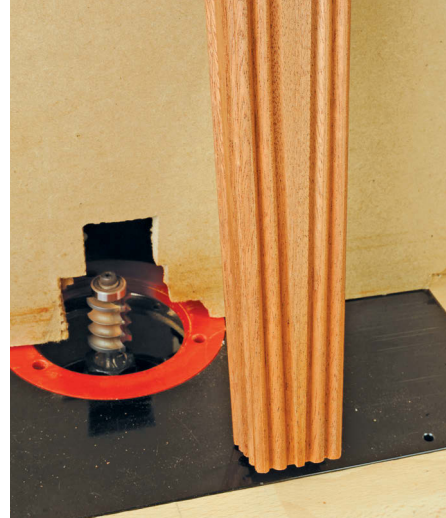
Combination cutters have more than one shape so can be used in a router table at different heights to give different moulded effects. They can be very useful but are often expensive and need a ½in router to accommodate them, so you need to decide with care before shelling out on one.

As with any table-mounted router, lack of cutter projection can be an issue. Don't be tempted to reduce the amount of shank in the collet. Instead buy a good quality shank extender for safe, low vibration working.

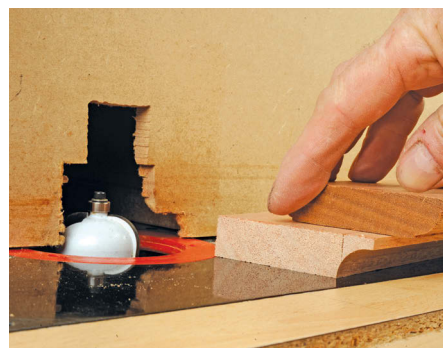
Changing the position of a workpiece on the router table from flat to vertical can affect the moulded result. Make sure you machine the correct way round each time, but you can also use a cutter more creatively if you do switch positions. There are no absolute rules about the use of mouldings – if it looks right it probably is. ■



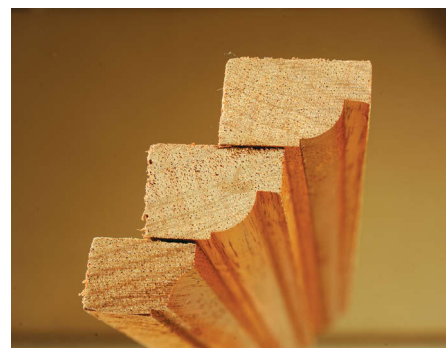
A V-groove effect works well here in ash. It could also be done with a round bottom corebox bit instead



A tapered leg moulded using a multi-reed cutter. The trick is to ensure a neat corner meeting of the reeding on all four faces



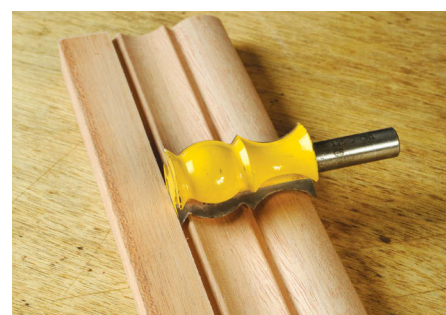
Making a cornice building up stage by stage, here checking the first two stages look right together



A typical multi-stage cornice giving the illusion of just one moulding when viewed from the front



Two different sizes of a useful Wealden combination cutter. They offer several different possible moulding shapes



A tall face mould suitable for corncoring using just the one cutter or for a moulded surround. Cutters like these are only available with a ½in shank



This rough drawn-in end illustrates how a roundover cutter removes less wood than a cove cutter. The latter will need more passes, taking off less wood each time, to avoid straining cutter and machine

Just a small selection of the moulding cutters available today. There really is no limit on choice



Trees for life

A continuing series looking at trees, timber and their uses. There is one tree inextricably associated with antique or traditional-style furniture and that is **mahogany**

In common with many other timber species, mahogany is a catch-all name for a whole variety of different timbers that look like mahogany, and indeed some are. But others definitely are not, rather they are effectively being sold under the same guise because they tend to have a reddish brown colouring which is normally stained or darkened during construction ready for end use.

Honduran (*Swietenia macrophylla*), West Indian or Cuban (*Swietenia mahagoni*) are the two classified as genuine mahogany which are, or more accurately were, used commercially. Honduran is still being harvested either legally or illegally but has been listed as endangered under CITES (Convention on International Trade in Endangered Species). West Indian or Cuban mahogany is not now in commercial use, although considered to be a superior timber. So when you buy something that purports to be from the mahogany family or to be similar in species, it is likely to be one of these – African mahogany, sapele, utile or meranti (otherwise known as lauan). None of them in fact look like genuine mahogany and their working characteristics are all different too. We will look at the genuine species because it helps to give a historical understanding of why we now accept almost anything else that looks similar instead.

Fascinating fact

Mahogany is the national tree of Belize and the Dominican Republic and appears on the Belizean national coat of arms with two woodcutters bearing an axe and a paddle.



A mahogany tree at Kannavam Forest, Kerala



Mahogany seed

PHOTOGRAPH COURTESY OF JIM SHARRATT



Tip-up dining table
by Jeff Sharratt

Typical uses

Furniture is the most obvious use for this wood but due to its strength and density it has been used for shipbuilding, canoes, boat interiors, panelling, musical instruments including pianos and turnery. It can also provide very attractive veneers. In the 1960s mahogany was used for drum making because of its integrity and capability to produce a dark, warm tone. The famous Beatles sound was made with Ludwig drums in mahogany shells. It is a tonewood, making it very suitable for making acoustic guitars.

A cabinet
in Cuban
mahogany
designed
by John
Channon,
1745



History

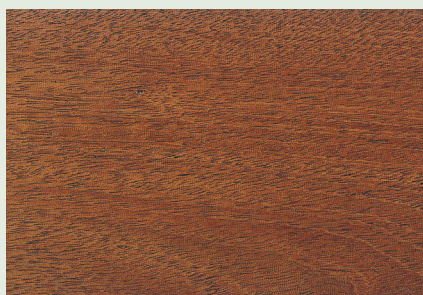
Mahoganies have been part of the dense tropical rainforests for millennia, forming a major part of the forest canopy. We now understand that indigenous peoples cropped these rainforests in earlier times, so more recent major disastrous logging and deforestation may well have a precedent that could have affected the development of the mahogany species.

In 1492 Christopher Columbus introduced the 'Americas' to Europeans – it having been discovered by other peoples much earlier on. This led to the start of logging and deforestation in the 1500s as European colonisation took hold.

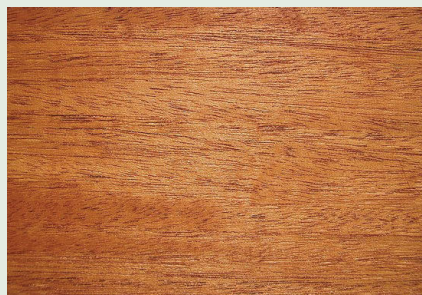
In 1724 there was the first recorded use of mahogany in furniture in Europe, following the 1721 act of parliament which removed all duties from British possessions in the Americas. Mahogany is a timber exploited for its dense, reddish wood, ideal for furniture and other important structures right up until today.

Legend

The Mahogany Ship refers to a wrecked Portuguese caravel that is purported to lie beneath the sand six miles west of Warrnambool in south west Victoria, Australia. It was described as being constructed of panels and its timbers were of a dark wood, described as either mahogany or cedar. If the remains of the ship are ever uncovered, they could provide evidence of an unrecorded Portuguese landing on the shores of Australia in the 16th century, or even an earlier visit by explorers from China. Various efforts are still going on to try to locate this mystery vessel. In 1992 the state government of Victoria even offered a substantial reward if it could be found and today there is a Mahogany Ship Walking Track for anyone who wants to explore the alleged wreck area.



Cuban mahogany



Honduran mahogany

Durability

The heartwood is very durable and resistant to white rot fungi and brown rot. The sapwood is vulnerable to attack from the powder post beetle and common furniture beetle. The sapwood is resistant to preservative treatment while the heartwood is highly resistant to such treatment.

Timber supply

As already indicated, supplies of the real thing are limited and must be properly certified, with solid Cuban or West Indian mahogany unobtainable. For very special work, however, you may be able to obtain some Honduran in solid or veneer

form and Cuban or West Indian (often called Indian) in veneer form only. Replanting is taking place in limited amounts but the tree is slow growing. Therefore, your only course of action may be to buy one of the alternatives, which do not qualify as 'genuine'. African mahogany can offer some very convincing grain and figure in veneer form particularly.

Working characteristics

Not suitable for bending unless steam bent, works well with sharp hand tools or machining. However the possible presence of silica deposits in the grain can cause blunting. It accepts screws and nails with pre-drilling and takes a good finish.

Fascinating fact

It is thought the name 'mahogany' was imported with the West African slaves into the British controlled West Indies who used that name in their native country. This explains why African mahogany is so called, because the name already existed on that continent.

Hazard

It can cause dermatitis, respiratory problems, irritation, giddiness and vomiting and furunculosis (boils) so the correct use of PPE (Personal Protection Equipment) is essential.

Wildlife

Philippines environmentalists have called for an end to planting of mahogany because it has a negative impact on the environment and wildlife, including causing soil acidification and no net benefit to wildlife. Interestingly, recent research into the importance of rainforests has found that only a small percentage of the trees actually make a positive impact on the environment.

For further reading visit:

Young People's Trust for the Environment – <https://ypte.org.uk/>



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KITTED OUT

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

PR/01/01 WRT Workshop router table

The Workshop router table is packed with all the necessary features to maximise the versatility of all portable routers, ensuring safe, efficient and consistent performance every time.

A large 804mm x 604mm x 35mm thick laminate MDF top offers a durable, slick surface and comes with a 6.35mm aluminium insert plate for securing the router, giving solid support while losing minimal plunge depth. The plate is easily adjusted for a flush fit to the table using seven screw adjusters and magnets. A further four corner holes are used to secure the plate firmly to the table once level.

A 98mm aperture accepts the biggest panel raisers to be fitted and comes with two reducing inserts. The plate is pre-drilled to the Trend Base Configuration (TBC) to suit the vast majority of routers available and has an access hole for the Trend T11's Quick Raiser giving easy height adjustment.

The table is at the ideal working height of 890mm. With the steel framework, full perimeter rails and height-adjustable feet, the table offers solid, durable performance. The table comes complete with a 240v no-volt release switch, top and side pressure fingers, a pushstick and a fully adjustable aluminium mitre fence. Accessories are available, including additional top pressure fingers, adjustable limit stop and castors.



Contact: www.trend-uk.com



The Dremel Moto-Saw

The Dremel Moto-Saw is a compact and easy to use scrollsaw for making detailed cuts in different materials. Thanks to its detachable fretsaw, it can be used not only stationary but also conveniently as a hand-held tool. This user-friendly scrollsaw is easy to store, set up and operate. The Dremel Moto-Saw is the most user-friendly scroll saw if you are new to this craft. RRP £103.98

Contact: shop.dremeleurope.com/gb

Arris rounding cutter

Designed by Wealden, this two-flute bearing guided TC tipped cutter removes the arris from timber, with a taper after the radius to produce a soft edge to the cut. This design makes setting up less critical and helps produce a smooth cut without the need for any additional finishing, as it avoids leaving a slight cut line in the adjoining surfaces.

Arris rounding cutter available with 1.5mm, 2mm and 3mm radius and in 1/4in and 8mm shank, all priced at £17.50

Contact: www.wealdentool.com



Makita DPT353 LXT pin nailer

The new Makita DPT353 LXT takes 23 gauge (0.6mm) size nails and can deliver 15, 18, 25, 30 and 35mm length nails. The magazine will hold 100 nails of each of these sizes. The finished driving depth, i.e. how deep below the surface the nail head finishes, or alternatively level if required, is adjusted by the simple rotary adjuster adjacent to the nose assembly. The anti dry-fire mechanism stops the nailer operating if the machine has run out of nails. The nose tip has been redesigned for better visibility, enabling the operator to get a quick and easy view of the desired firing point on the workpiece.

The DPT353 has a low reaction force mechanism, which enables easier nailing of long pins. Makita recommends that the trigger safety lock should always be applied when the machine is not in use. With LED job light, soft-grip handle, belt clip and battery fuel gauge, the new Makita DPT353 LXT pin nailer will appeal to all installers and construction trades. It is available with two 5.0 Ah Lithium-Ion batteries in a Makpac case, or as a body-only machine, replacing the DPT351 model.

Contact: www.makitauk.com.



£741.60

MINI TEST Gorilla wood glue

Gorilla Wood Glue isn't the only PVA glue on the market but, like original Gorilla PU (polyurethane) glue or Gorilla Tape, it is as much the tough brand image which sells it. This PVA glue is classed as water resistant, not waterproof, and it starts to set after about 15-20 minutes. This is presumably helped by the presence of something known as a 'tackifier' – a chemical component which does what the name suggests, as it helps hold the surfaces in close adhesion. Unlike some unmodified PVAs, which can stretch and separate, this adhesive stays firmly together, making it suitable for all the standard bonding tasks you expect from a PVA water-based adhesive. For some jobs, such as laying leather insets on desks etc., I wouldn't use it. Standard white PVA slightly weakened with water is good enough, but for all carpentry and other woodworking tasks Gorilla is a winner and with no discolouration. Sizes: 118ml, 236ml, 532ml, 1 litre.

£4.56
(236ml)



Contact: uk.gorillaglue.com

Axminster trade rate pillar drills

These new trade-rated pillar drills are well suited to the trade, school or home woodworking workshop. Two are designed to sit on a bench and the other two are floor standing.

Despite their compact size, both benchtop models offer a whole host of features. All four drills are robustly made from cast iron and machined steel with a highly accurate quill and spindle assembly, running in NSK ball bearings to ensure consistent drilling. Powered by smooth running induction motors with 12 belt speeds, the Japanese-made multi-vee belts give maximum grip and the lowest level of vibration. A quality 3-16mm keyless chuck is fitted and other features include an electrically interlocked chuck guard, belt cover safety switch and separate emergency stop switch.

Prices start at £376.46 for the smaller of the benchtop drills, rising to £866.96 for the larger of the floor-standing models. The two floor-standing models come 95% assembled on delivery. Prices include vat and may be subject to change without notice.

Contact: axminster.co.uk



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Meet the contributors...

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



Peter Wood

Peter has been a skilled green wood craftsperson, making Windsor chairs and other creations, for more than 25 years. He demonstrates these skills around the country, gives lectures and runs hands-on workshops for all ages. He set up Greenwood Days in the National Forest as a centre to teach a range of traditional and contemporary crafts. He is also the current world champion pole-lathe turner.

Web: www.greenwooddays.co.uk



Louise Biggs

Having completed her City and 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



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



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



James Hatter

James' main interests include design and construction of a wide range of wood-based projects, and DIY, mainly for home and family use. Ash and oak are favourite timbers, which are included whenever possible in appropriate projects.

He enjoys teaching and working with his seven-year-old grandson Kieran, who often makes really good suggestions in design.



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



Sue Harker

Sue is a member of the RPT and AWGB, teaches woodturning, demonstrates all over the country, writes for *Woodturning* magazine and has produced three DVDs.

Email: sue@sueharker.com

Web: www.sueharker.com



Steve Bisco

Steve Bisco has been carving as a hobby for more than 25 years, specialising in decorative carving and period styles. He is inspired by a love of historic buildings and aims to capture the spirit of a period in pieces for display in the 'home gallery'.

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!

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PLANS 4 YOU

Bookcase

Simon Rodway makes the case for storing all your books properly

Appearances can be misleading and if at first glance this project looks complicated or tricky, then please try looking for a joint, apart from the tongue and groove on the side panels and shelves. There is, in fact, a housing joint where the front and back rails meet the sides, and that is basically it. As with all these projects, I have tried to keep things as simple and easy to construct as possible and, in this case, while hopefully maintaining the look and robustness of a much more traditional construction.

One of the key decisions with this type of carcass is how to make the sides. If you use a frame and panel construction, which can be lighter and uses less materials, there is a cost in terms of complexity, work and time and, additionally, shelf support is just a little more tricky. A solid timber side avoids most of these problems, and I have also used readily available plain T and G 22mm thick planks of the type you might use for good quality flooring. As this is carried through the bookcase into the bottom and shelves (these are thinner at 19mm), it might be an idea to source this timber first and let the plank widths determine the depth of the carcass. Three boards should always come out with an internal depth of around 320mm or more, which should be sufficient for anything up to and including an atlas.

Additionally, as you are making this for yourself, you can decide at the outset on the shelf spacing, so I haven't gone for any kind of adjustable fixings on these. The dimensions of this bookcase are intended to lend

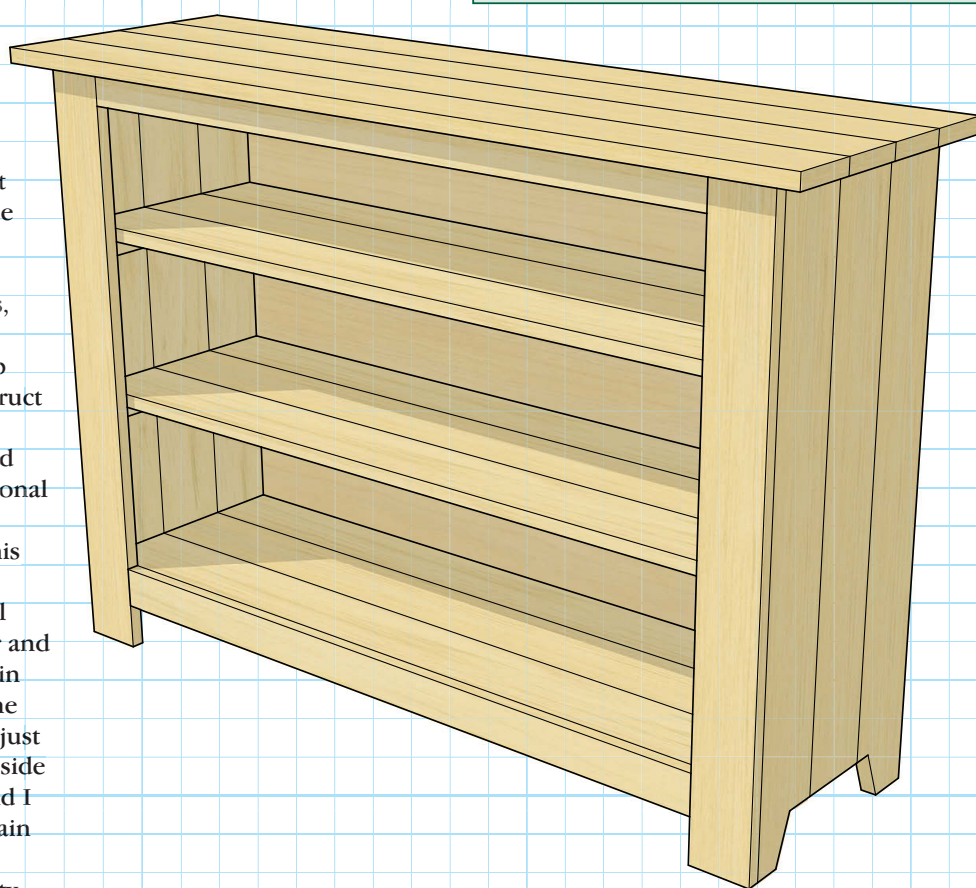
themselves to a second use as well, as the top is at typical sideboard height, with the length to match, so ideal for display. However, if you badly need additional book storage, another shelf could be added, making the bookcase chest rather than waist height.

The sides, as I have mentioned, are just a trio of T and G boards, and I would begin by removing the front tongue and planing the front board edge flat. Turning to the back board, strip the inside part of the groove at the back so that a rebate is formed along the inner vertical edge. Glue the

Cutting list

Top	1 @ 1300 x 400 x 22
Sides	2 @ 878 x 345 x 22
Back	1 @ 1182 x 770 x 9
Top rails	2 @ 1156 x 50 x 19
Front stiles	2 @ 878 x 90 x 19
Front top rail	1 @ 1020 x 50 x 19
Front bottom rail	1 @ 1020 x 60 x 19
Shelves	3 @ 1156 x 333 x 19
Top side battens	2 @ 333 x 50 x 19
Bottom side battens	2 @ 333 x 36 x 19
Shelf battens	4 @ 313 x 32 x 19
Glue blocks to suit	

Shelves are listed at maximum width and length and no allowance has been made for fitting. Sides, top and shelves shown at overall size.



three boards together for each side, and then mark out and cut the feet out on the bottom edge.

Next, fix the top and bottom side rails or battens, having first notched out the top two to take the front and back rails. These battens should have all screw holes slotted to allow for movement across the grain.

Fix the top rails and square the carcass across the diagonals, put the bottom shelf in place and screw to the bottom side battens from below. Now you can screw the plywood back into place along all four edges, and this will



This just leaves the shelves and the top. Fix the shelf battens, which have slotted screw holes as well and are chamfered on the ends to lighten their appearance. The top is from 22mm thick timber and can be a contrasting wood or the same as the main carcass. It is secured using the slotted screw holes in the front and back rails, and the exposed edges should all be rounded or chamfered slightly. I allowed a small overhang at the back; increase this for skirting or remove for a flush fit against a wall. ■

9mm plywood back let into rebates on sides formed by stripping half the back groove, screwed to back, top rail and bottom

Diagram illustrating the assembly of a wooden shelving unit. The components shown include:

- Shelves from 19mm T & G**: The shelves are shown being inserted into the side panels.
- Screwed to back, top rail and bottom**: The shelves are secured to the back panel, top rail, and bottom rail.
- Shelves secured to sides with battens**: The shelves are secured to the side panels using battens, which are screwed through slotted holes. The middle battens are chamfered.
- Front frame verticals and cross pieces**: The front frame is joined using pocket screws and fixed to the carcass with screw blocks and glue.
- Solid timber sides from 22mm T & G with shaped feet at base**: The side panels are made of solid timber with shaped feet at the base.

Shelves secured to sides with battens screwed through slotted holes, middle battens chamfered

Front frame verticals and cross pieces joined using pocket screws and fixed to carcass with screw blocks and glued

43



COURTESY OF AOIFE HERRIOTT PHOTOGRAPHY

Landscape
shots of
Connemara

Galway pearl

With its cutting-edge engineering and manufacturing technology and focus on creativity and innovation, Irish college GMIT Letterfrack – tucked away on the spectacular west coast of the Republic – is a gem for students of furniture design

Famous for its handcrafted goods, bookshops and exciting music scene, the medieval Irish city of Galway has long been a top destination for tourists and students alike. Only the latter, however, are likely to be aware of another attraction that lies 80km north west of the city, teetering on the edge of the Atlantic Ocean on Ireland's Wild Atlantic Way. 'You do think you're going to fall off the edge at times,' laughs Dermot O'Donovan, head of GMIT Letterfrack the Galway-Mayo Institute of Technology. 'It's a dramatic landscape – you can't hide away from that.' Equally as impressive is the college's reputation for excellence, creativity and craftsmanship.

GMIT's origins go back to Regional Technical College (RTC) Galway, which welcomed its first students in September 1972. The RTC went on to form partnerships with the Franciscan Agricultural College, Mountbellew

in Connemara West, and Letterfrack in 1987 before changing its title to Galway-Mayo Institute of Technology (GMIT) in 1998. Today, GMIT has five campuses and more than 6000 students. Letterfrack, which has around 215 students, is the smallest campus. 'The country's RTCs, including Galway, became institutes of technology with the remit to be strongly linked with industry – that's a big part of their focus,' explains Dermot. 'We still work closely with indigenous industries and small and medium enterprises, but equally we collaborate with a range of international companies through work placements and research.'

Dermot has been head of the Letterfrack campus since 2006, but his relationship with the college goes back much further. 'I did a Bachelor of Commerce in University College Cork before entering into business for a few years, but then I went back to study

furniture design and did a year-long course in Cork before moving north to GMIT in 1997 to join its two-year Furniture Design & Manufacture course.' A spell as a technician at the college followed in 1999 and, in 2004, Dermot moved across to lecturing before taking up his current position.

The past 25 years have seen many changes at the college, including the development of a suite of programmes that reach degree level. The three and four-year courses include Furniture Design & Manufacture; Furniture & Wood Technology, which has a strong engineering focus; and a teacher education programme. For applicants wishing to study at undergraduate level to become a secondary school teacher, the four-year programme also covers the principles of pedagogy as well as the skills to teach Woodwork, Design & Communication Graphics, and Construction Studies. ➤



IMAGES BY AOIFE HERRIOTT PHOTOGRAPHY / GERALDINE O'BRIEN



Clockwise from top left: Satchel by Paul Neylon, BSc in Furniture Design & Manufacture; Flower Table by Niall Conway, BSc in Furniture Design & Manufacture; Occasional Table by Sean Hogan, BSc in Furniture & Wood Technology; Bench 72 by Conor Sweeney, BSc in Furniture Design & Manufacture; Mirrors by Bendan Tuffy, BSc in Furniture & Wood Technology

Technological revolution

One of the biggest shifts at the college, which has a Green Flag for sustainability, has been led by technology. The campus comprises both old and modern buildings incorporating a state-of-the-art machine hall. 'We have always felt it important to invest in the latest technology such as CNC and CAD/CAM software. It takes time to get up to speed in those areas, but our staff now lead in terms of CAD/CAM and we have embedded those skills into our courses.'

'So, as students move through a suite of programmes, they learn craft skills and a quality-centred approach using hand tools in the first year while by year two they're programming CNC technology and applying CAD/CAM systems to projects.'

Having said all that, Dermot reveals that one of the first projects student tackle in the first year is the humble chopping board. 'We deal with woodwork from first principles. Students have to perfectly plane three pieces of timber, butt-join them and make it absolutely polished. If they can do that then they can go on to more complex projects, such as tables. We still do traditional marquetry, too.'

All students are expected to have a toolkit of high-quality Japanese saws, a Clifton plane, scalpel, marking-out and measuring tools, Vernier callipers, and a full set of chisels. 'It's about honing skills and making students really capable of producing crisp, quality work. Often a lecturer will make a project in the workshop so students can see the standards that are possible. Peer interaction is important – we work in groups of about 16 in a workshop, so it's a busy space and



Candle holders by Patrick Friery, BSc in Furniture & Wood Technology



Occasional Table by Casper Skinner, BSc in Furniture Design & Manufacture



Wine Holders by Thomas Rigney, BSc in Furniture & Wood Technology

students can see the standard of each other's work.'

Moving on, the college has enough technology to fill an aircraft hangar. The first year alone covers routers, sanders, jigsaws, biscuit jointers, arbortechs – 'there are a lot of new Festool tools we use to experiment,' says Dermot. The second year sees the introduction of fixed machinery and a move into the more industrial environment of the machine hall, which houses a large bandsaw, cross-cut saw, planer-thicknesser, drum sander, veneer press, spindle moulders and dimension saw, to name a few. The automated machinery includes two CNCs, a beam saw and a tool for lipping panel material, laser machine, 3-D printers and a robotic arm. So, while students cut veneers using a scalpel in first year, by the second year they're learning

how to programme the machine and let the laser do it.

'It's what you'd expect to see in an industrial environment. We have a full set of machines for the students to bring out their products from raw material through to spraying and finishing, and that includes traditional oil-based approaches as well as polyurethane and waterborne lacquer systems.'

There's also a science and technology lab, with an Instron test rig and climatic testing chamber, which is a key part of GMIT Letterfrack's student learning. 'We do a lot of testing to European and British standards, so by the time students are in the fourth year they have to be able to demonstrate an application and understanding of those standards in their research and projects. There is a strong basis of scientific knowledge of materials and systems and digital fabrication and all the courses are very much aligned with the needs of industry.'

While the college attracts a relatively high number of second jobbers and mature students – some 25% – Dermot would welcome more applications from women. ‘It’s still male dominated. We really try to attract women into the programmes, but we’re predominantly feeding from the school system and they are still traditionally male-dominated in these subject areas. It’s still seen as male, as is engineering. It’s a shame because the industry could do with more women to bring a whole gender balance to that space and we find generally that women give a different perspective in their design ethos and their ideas.’

International reach

The other good news for students is that GMIT Letterfrack runs international placement programmes with companies in the UK, US, Germany and France, which helps with future employment. ‘Students have to apply for a placement, provide a CV and have to be interviewed. They get to work full-time for 20 weeks in industry, which is fantastic and a great opportunity.

‘For example, there’s one partner company in Northern Ireland that fits out cruise liners and super-yachts. We work with another company in the US that has just finished the interior of Apple’s headquarters in California.’

Some GMIT Letterfrack graduates move into local bespoke work but many go into industry, working with larger companies on interiors, hotels, reception areas, boardrooms, super-yachts and major multi-million euro projects. Those who do decide

to set up on their own have a head start thanks to the college’s emphasis on business skills. ‘It’s a big part of what we try to teach the students,’ says Dermot, ‘particularly the costs involved in manufacturing, producing, running a workshop, ensuring you have electricity, that you can pay people and afford to transport and distribute goods, as well as having the ability to write professional reports.’

It isn’t all work, though. The campus, which has a nurturing and supportive framework, is a buzzy, thriving place. ‘There’s a lovely festival called Sea Week when everyone involved in education – probably about 400 between primary schools and crèches and youth education and ourselves – build props with the festival company and they work with the students in either doing displays or building props for the parade. It’s a lovely introduction to the community for students. There’s also a lot of sport, including hurling and football and the Students’ Union comes out here to the campus. The programmes are very applied and we have a fantastic group of committed staff with incredible expertise, resulting in very high retention of students.’ And the rewards can be high. ‘The key is not to think of the courses as purely furniture-related degrees. The knowledge and practicals are very broad and applicable to areas beyond furniture manufacturing. The skills are transferrable across a wide sector of industry.’ ■

UK applicants are always welcome, visit: www.gmit.ie/letterfrack



Stool by Robert Gorman, BSc in Furniture Design & Manufacture

Letterfrack lights

While it’s a smaller number than enter industry, GMIT Letterfrack alumni have set up their own businesses. Barry Liston, Graduate of BSc (Hons) Furniture Design & Manufacture, 2007, is now the CEO of Grasshopper Skateboards, Ireland’s first skateboard brand and manufacturer. His company, based in Co Kerry, uses a newly developed bio-composite material for the sustainable production of skateboards. ‘I don’t know where his interest in skateboards came from, but he developed a material made from hemp and bamboo, did all the testing, gained support from Enterprise Ireland and did market research in the States,’ says Dermot. ‘He’s a good example of using all of those skills of manufacturing and technology and design to come up with a new product.’ Barry, meanwhile, has no doubts that the college was the right place for him. ‘My decision to study at GMIT Letterfrack was hands-down the best decision I have ever made,’ he says.

Tricia Harris, Graduate of BSc (Hons) in Furniture Design & Manufacture, also struck out on her own. She runs her furniture design business, Tricia Harris Designs, from the Chocolate Factory in Dublin and is a member of the Design & Crafts Council of Ireland. ‘When I heard that a college course existed that focused solely on furniture design and making, it was an easy choice for me,’ she says.



GMIT Letterfrack campus

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What the testers had to say

Trevor Robshaw: I mainly use a router table, but the router I own is very fiddly to fit to my Clark table.

The T5 was very easy to use out of the box, it was very simple to set up. The soft start was a nice surprise, no big jerk that I experience with my current router and the dust extractor spout actually worked, compared to



PHOTOGRAPH BY LIAM MOTYER

others I have used. 95% of the dust and chips were removed.

The only point was that there was no fine height adjuster, which would be essential for use in a router table, but the height adjuster on the turret was straightforward to use.

You can get routers that are comparable in power cheaper but they are not of the same build quality and it would be debatable if they would last

as long. I've learnt the hard way that where tools are concerned you get what you pay for.

Barrie Fisher: I own Bosch, Trend and Black & Decker routers and use Trend guide bushes and jigs. I use a router table set up with an older model Trend router.

The only problem that I came up against was the position of the control on/off switch. As I have larger hands it could be better placed around the front more, but this was the only problem aspect. I have solved this by using a foot switch. I would recommend it to other people. It surpassed all of the others that I have and it was a pleasure to use.

Liam Motyer: I currently own the Makita RP2301FCXK 1/2in plunge router and the Bosch GKF600 palm router.

For this test I was routing a walnut kitchen worktop and used the supplied guide bush to follow the pattern of a purpose-made jig.

I found that the T5's size made it nice to use. It fits nicely between my two other routers. It allows good control with its comfort grip handles and is light enough to manoeuvre repeatedly for multiple passes. The dust extraction shroud works well



As the router didn't come with a case Trevor Robshaw thought the best way to test it would be to use it to knock up a box using tongue and groove joints, which was done very quickly and easily

PHOTOGRAPHS BY TREVOR ROBSHAW



Liam Motyer machining a kitchen worktop joint



Barrie Fisher created a fluted effect with his T5



and makes a big difference to routing without extraction. I was conscious, however, that it could be broken accidentally due to the way it needs to be slightly bent to click into position.

I have seen the T5 for sale for as little as £155 online and I think that's a fairer price for this model. There are many competitors and I feel that the build quality of this tool could be better for the price. It is let down by small things such as the printed numbers on the speed dial rubbing off easily, and it seems to me to have a somewhat budget feel overall.

Tony Wickham: I have a Clarke model CR1C attached to a CRT-1 table and also a Bosch model POF52, which is in excess of 20 years old.

Recently I built a copy of the mortice box in *Woodworking Crafts 23*, but I have modified the router sliding platform which the T5 sits on.

My first activity was to set up the



Tony Wickham found it had good balance and it was quiet

router and a length of 45mm wide pine batten in my homemade mortice box. This enabled me to rout two channels side by side, both the same depth but one slightly wider than the other to be used as a pencil and toolrest on my wife's sewing machine table. I also used this arrangement to test rout some keyhole slots to hang a shelf using a Trend keyhole cutter.

I subsequently used a length of 150mm wide pine to test both the side fence and beam trammel actions.

The side fence test was across the end grain. I found it easy to achieve and the tool well balanced. I was also impressed with the fact that the fence cheeks were adjustable, not a feature on either of my other routers.

To test the beam trammel I set up a 100mm radius to remove one corner of the end of the test sample and it provided a good shape. I did find that the weight of the dust extraction hose tended to pull the trammel guide pin out of place – this was the result of my hose set up. A feature which I consider very good is the depth stop with its graduated depth of cut markings.

My overall impression of the Trend Router is that it is a very good product which is well balanced and quiet, to the extent that wearing my ear defenders and with the dust extraction unit switched on, I could not hear if the router was running. The power cable is also of a good length at 3m-plus.

I consider it to be an excellent product, it represents good value for money at £255. ■

How our testers rated the product

How would you rate the product performance? **9.25/10**

How would you rate the product ease of use? **8.75/10**

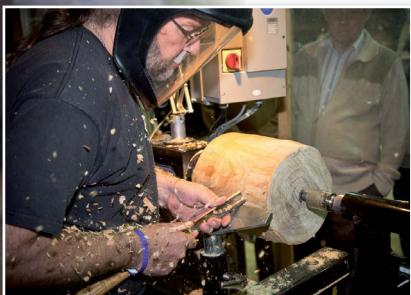
How would you rate the product overall? **8.5/10**

Editor's comment:

One of our testers scored the new T5EB lower than the others on our panel and also referred to certain minor quality issues and the price. I've used a lot of T5s and they have always done the job expected of them. However, they are slightly hobbled by the basic design, which has limited the amount of upgrading possible without a total redesign, an example being the lack of inbuilt extraction or fine height adjustment. However, the extra power and reliability plus access to other accessories, especially an extensive range of guide bush sizes, make it a predictably useful professional machine. Currently there is a Trend price promotion which hopefully will carry on for some time.



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From top to bottom: Typical Green Man pub sign; 18th century Jack in the Green; carved pew end at the Church of the Holy Ghost in Crowcombe, Somerset



Woodland ways Little green

Our very own little green man, **Gary Marshall**, explores some of the myths that have inspired carvers to create little green men

I bet many of you know of a public house not too far away called The Green Man. You will also probably have heard of such mythological beings as Jack-in-the-Green, Robin Hood, Robin Goodfellow, the King of the May and the Garland King.

Visit a medieval church, chapel or cathedral and, tucked away in the ceiling bosses, corbels or elsewhere, you may find curious figures, many with vegetation sprouting from the mouth.

Nature too has a curious way of embellishing burrs and swellings on roots and branches – or covering all with moss, honeysuckle and ivy. No doubt natural woody ‘faces’ gave inspiration for green men and other carvings.

Famous carvings have been much copied and modified and have influenced depictions of the green man for centuries. When I started looking into material for this article I was amazed at how much current interest there is in these mystical, mythical masks – and how many old versions there are.

Some are just heads surrounded by foliage, others have growth emerging from their mouth and yet others can be very stylised, such as the famous and much copied mask at Bamberg

Cathedral in Germany. They are depicted in both stone and wood. There are unique and wonderfully carved dragon green man and merman pew ends in the Church of the Holy Ghost in Crowcombe, Somerset.

There is much evidence that green man-type images pre-date medieval times – the green man was a Celtic fertility symbol and there are also Roman mosaic depictions of foliate faces.

Nowadays it seems there is something of a revival of the ‘cult of the green man’. There is the Green Man Festival, near Crickhowell in the Brecon Beacons in Wales. Hastings celebrates Jack in the Green and has its Green Man Parade and Festival in late April/early May, and there are numerous others throughout Europe. No doubt it’s mainly a bit of fun, but some take the old magic of the trees, woodland spirits and plants very seriously and there are rituals and myths associated with many of our native species.

And, finally, I leave you with an image of a not so little ‘green’ man taken in Galloway, near where the filming took place of the cult movie *The Wicker Man*, which sinisterly mixes pagan myth and folksy goings on. ■



Above left and centre: Examples of green man carvings Above: The Green Man and May Queen in the annual May Day Procession, Clun, Shropshire. Right: Natural woody 'faces' may have inspired green men carvings



men



Carved green man at Bentley Wood Fair



Wicker man, Galloway

THE MAGIC OF TREES (according to myth and legend)

Apple: wassailing in winter to wake up the trees and ensure a good crop.

Ash: entombed wrens in a split ash to ensure healing properties.

Birch: cloths tied to a tree to prevent witches from riding horses.

Elder: the Devil's wood purported to burn with a cold flame. (author's comment: it doesn't.)

Hawthorn: the May tree guards against witches on May Day.

Hazel: for dowsing – and for treasure hunting if cut on St John's Eve (midsummer's day).

Holly: your holly hedge is supposed to keep out evil spirits.

Juniper: smoke from juniper supposedly kept the Plague at bay.

Oak: protects from lightning – presumably getting struck instead of you.

Poplar: chant a spell and pin a lock of your hair to a trembling Aspen to stop the shakes.

Rowan: if you want a fat pig, hang a garland of rowan around its neck.

Willow: give away some willow in May – it's said to be lucky.

Yew: back to the witches – this time the yew can stop them whipping up storms.

#@* &!%?! happens! Tearout

PHOTOGRAPHS BY GUY/CANTHONY BAILEY

One of woodworking's common disappointments is tearout, otherwise known as breakout or spelch. There are various ways to avoid it though...

Once tearout has happened often the best you can do is work in a bit of matching coloured wood filler and sand it flush before applying a finish. However, you can often plan for it and avoid the problem or make a slight compromise and re-machine away just enough to remove it. Here are a couple of examples.

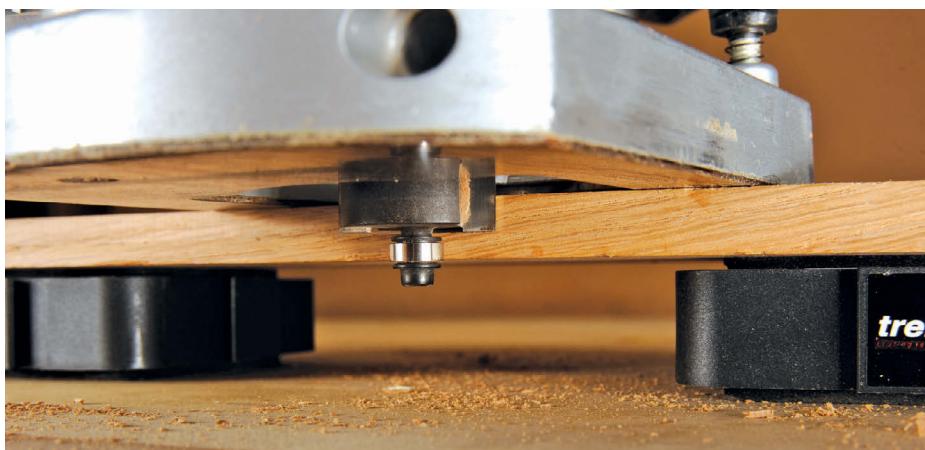
Most of us don't have big routers but might still want to make frame and panel doors. Instead of a big, expensive panel raising cutter you can buy a vertical panel raiser on an 8mm shank instead. Unfortunately tearout along the raised endgrain section of

the panel is inevitable. To beat this you need a breakthrough fence for the cutter and, crucially, do not lower the cutter without replacing the fence as the open area above the cutter will allow breakout to happen anyway.

Another example is hinge recesses or frame rebates. In the former example taking too wide a cut can cause tearout at the front edge, in the case of rebating, running a large rebater with a small bearing can rip out the front edge of the wood. A multi-bearing cutter allows you to take a very shallow cut first which will preserve the front edge of the wood before swapping to a small bearing for the actual cut. ■



1 The critical section of the breakthrough fence is at the top. Adjust the cutter upwards so it cuts slightly into the fence and re-machine to remove tearout.



2 Rebating at full depth has caused slight tearout along the edge to the left of the cutter. There is just enough wood remaining for the bearing to run against, to be able to lower the cutter by, say, 1mm to remove the damage.



3 A multi-bearing rebater is a much better option as you can make a very shallow starting cut each time and avoid any tearout.

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TOP 10 BENCH AIDS



1



2



5

Do you need help and guidance? Homemade bench aids can provide exactly that

Woodworking doesn't just need good tools to make good work. A variety of aids and devices are necessary to make it all happen and the best thing is you can make all of them yourself, just the way you want them.

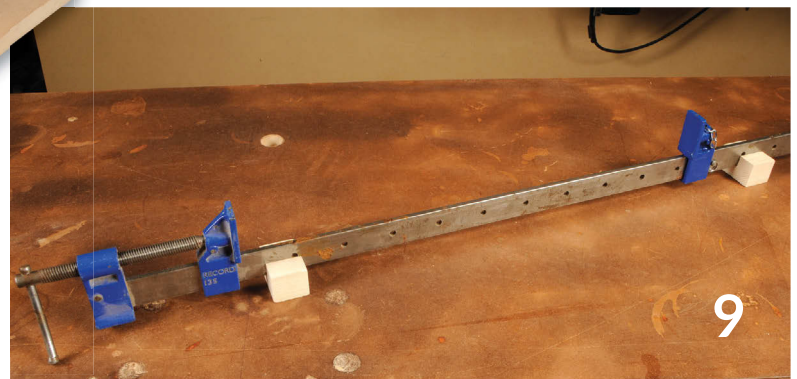
1 Drill Bit Holder So easy to make. Just get a suitable sized block of 19mm MDF or ply, draw a grid pattern and drill at each intersection using the correct shank/hole sizes required. This is best done with a drill press to ensure the holes are all perfectly upright.

2 Bench Raisers If you are a tall person the average bench is too low. However, you can easily make raisers that consist of four pieces of wood formed around a block the same cross section as each leg. Times by four and you can raise your bench by a suitable amount, 100mm or so should suffice.

3 Bench Hook A bench hook for crosscutting small sections with a tenon saw is a must. It can be whatever size you like and you can make it for left or right-hand use or both. It can clamp in a vice or simply be pressed against the face of the workbench.

4 Abrasives Dispenser Dispensers come in various types but this is really simple – just a pole, a hole and a rope in this case. The rolls of abrasive are slid on in order of grit size before the pole is pushed through the hole so it all just sits there. Pull down and tear off a piece as you need it.

5 Long Workpiece Bench Supports When your vice has to grip a long workpiece the other end will need support. Drill a hole in the bench leg furthest from the vice and use a large diameter dowel as support.



6 Engineer's Vice Adaptor If you need to do some metalwork an engineer's vice is essential. Bolt it to a length of 75 x 50mm PAR softwood then you can mount it in the vice jaws or a portable workstation whenever you need it.

7 Bench Dogs There are readymade bench dogs for holding workpieces firmly on the bench top but you could make ones such as these homemade aluminium versions, which have a small ball catch fitted in holes drilled in the sides to keep them in place.

8 Shooting Board A shooting board and a very sharp, well set up plane will make quick work of flattening and squaring the ends of workpieces you have just sawn on the bench hook. If you drill, tap and fit a bolt-on handle it

makes using the plane like this much more comfortable.

9 Sash Cramps Stands Sash cramps are very useful for panel assembly and lighter than T-bar cramps but they have a tendency to keep falling over – and loose pads, intended to prevent crushing the wood, keep slipping out. Simple slotted stand pieces and glued-on jaw pads make the whole process much easier.

10 Sharpening Station A sharpening stone in a case is OK, but you generally need more than one stone, a strop, a lubricant and stropping paste. Keeping it all together on a non-slip board makes it easier to access and use whenever you want. ■





Polyester salt & pepper shakers

Sue Harker uses polyester resin to create a matching pair of salt & pepper shakers

Polyester resin is a lovely material for turning small projects. It has been widely available in small pieces for pen-making for some time, but more recently it has become available in larger sections. A variety of colours and pattern variations are available, ideal for making pendants which sell very well. There are several other uses for this material, such as small pots, vases, bases for desk pens and menu clips, to name but a few. For this particular project I chose a piece of briar measuring 50mm diameter x 150mm long and salt and pepper shaker inserts.

The material turns very differently to timber, in that the traditional bevel supported cut has a tendency to cause the polyester resin to chip, sometimes very badly. I have found that the most effective tools to use are negative-rake

scrapers and spindle gouges used to shear scrape. A spindle roughing gouge, parting tool and bead formers can also be used with some success. If used with gentle pressure and a very sharp edge, the spindle roughing gouge can be used for turning the rod into the round. The gouge is used without the bevel rubbing the resin, more scraping than cutting. There is a risk of a small amount of chipping but this method is quick and effective and the chips can be removed with the negative-rake scrapers when shaping the project. A 3mm parting tool can be used to remove large amounts of resin effectively. However, if too much force is used the resulting chipping can be quite severe. A bead forming tool also works well; if used with gentle, even pressure the scraping action creates a crisply formed bead.

The resin can be drilled effectively. Run the lathe at approximately 500rpm and withdraw the drill regularly to remove the material.

The finish from the negative-rake scrapers is so clean that sanding can start with 320 grit and finish with 1200 grit. Abranet abrasive is a good choice for this material – the holes in the mesh help to minimise the build-up of dust which, if too much heat is created, can melt itself to the resin requiring you to go back to a coarser grit to remove it. Micromesh soft touch pads are available in nine grades, ranging from 1500 to 12000 grit should you wish to sand to a finer grit.

1 You need to start this project by mounting a cylinder of polyester resin measuring 50mm diameter x 150mm long in the jaws of your chuck.

INFORMATION

TIME TAKEN AND COST

Time taken: 1.5 hours

Cost: Approximately £16 (including shaker inserts)

TOOLS REQUIRED

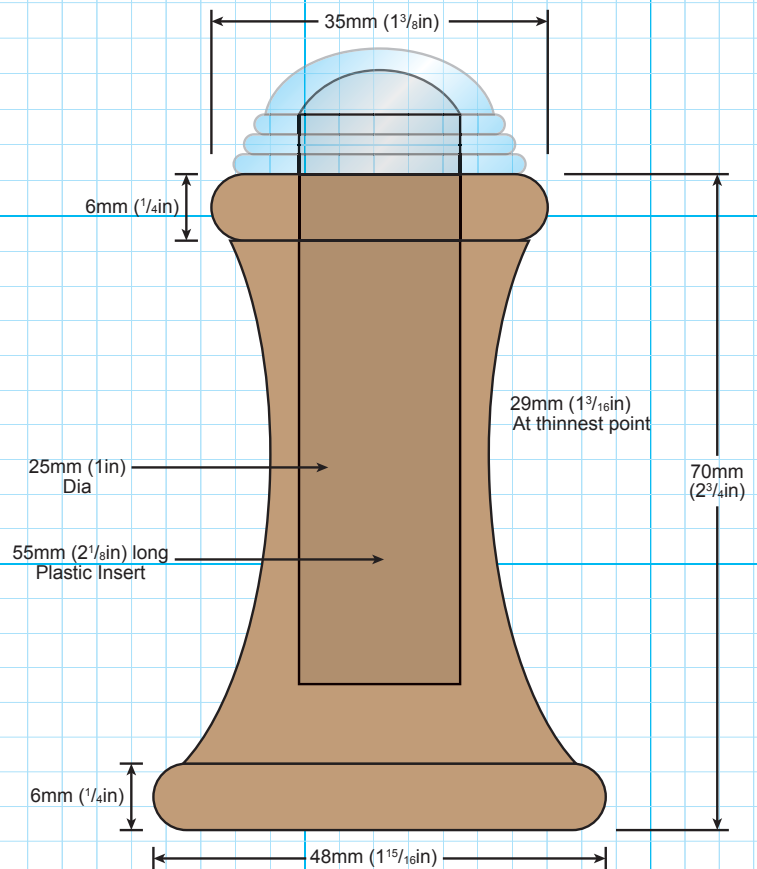
- 3mm parting tool
- 25mm spindle roughing gouge
- 10mm bead former
- 25mm round scraper ground with a negative-rake

ADDITIONAL TOOLS

- Jacobs chuck
- Drill
- Burnishing cream
- Kitchen towel
- Saw
- 25mm pin jaws
- Micromesh abrasive
- Dental tool or similar
- Araldite glue
- Buffing wheel and Carnauba wax – optional
- PPE: facemask, respirator/dust mask and extraction

MATERIAL REQUIREMENTS

- 150mm length of polyester resin measuring 50mm diameter
- Salt and pepper inserts

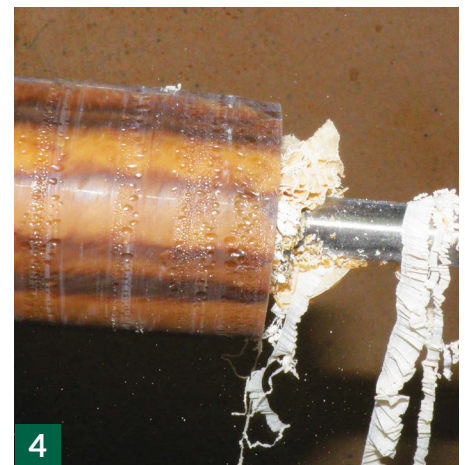


Next, using a 3mm parting tool, cut a chucking spigot the correct size for the chuck you are using.

2 You now need to mount the resin in your chuck and bring up the taildrive for support purposes. Using a 25mm spindle roughing gouge, gently true up the cylinder. It is important to take care not to apply too much pressure at this stage, as this can cause serious chipping to the blank. Polyester resin turns very differently to timber, as you will find out.

3 The next step is to draw pencil lines as a reference for the resin needed for each shaker. Now, using a 3mm parting tool, cut a shallow recess at the centre point. At this stage, you will notice how the polyester resin will have chipped in places.

4 Next, mount a Jacobs chuck in the tailstock of your lathe with a 25mm hole cutting drill attached. With the speed of the lathe reduced to approximately 500rpm slowly drill a hole 50mm deep, withdrawing the drill regularly to remove the resin that builds up. This will prevent the drill from jamming inside the hole. ➤



5 Try the plastic shaker insert for fit; only the insert thread should be visible.

6 Cut a shallow recess wide enough for the silver screw top of the shaker to fit into.

7 Screw the shaker lid on to the plastic cylinder and try for fit. The silver lid should sit snugly into the recess, thus centralising the plastic cylinder and holding securely.

8 Using a 3mm parting tool, take several sizing cuts where the top bead is to be formed. Gentle, even pressure should be applied and, if required, take cuts half the width of the tool. Here you can see the streams of resin being gently cut away.

9 Using a 10mm bead forming tool, form a bead, again applying gentle pressure. The bead former is a form of scraper but if it is applied with too much force then chipping will still occur.

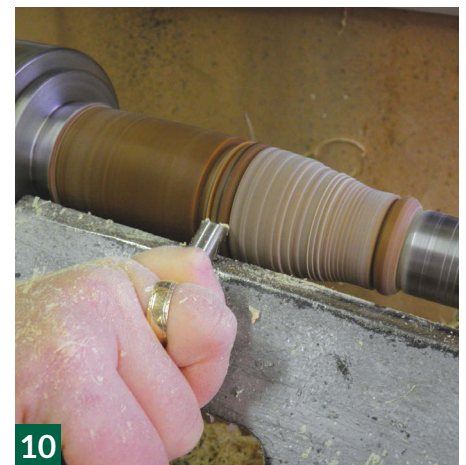
10 Take some more sizing cuts and form a bead at the base of the first shaker.

11 Using a round scraper, ground with a negative-rake angle, refine the shape, removing small amounts of material at a time. Regularly sharpen the tool; the finish from the negative-rake scraper will be shiny when the tool is sharp and dull when blunt. Too much pressure applied with a blunt tool will result in the resin chipping.

12 When the desired shape is achieved sand to a smooth finish starting with 320 grit abrasive and working through 400, 500, 600, 800 and 1200 grits. For an even smoother finish, work through the nine grades of Micromesh soft touch pads, starting with 1500 and finishing with 12000 grit. Avoid building up too much heat – especially with the Micromesh pads.

Top tip

If the jaws on your chuck are too small to receive the polyester resin, make a deep jam chuck and secure the resin in place using a revolving centre fitted in your taildrive. This will hold the cylinder sufficiently to enable a chucking spigot to be cut.



13 Apply some burnishing cream to a piece of kitchen towel or similar and buff the finished shaker. See how this reveals a depth of shine.

14 Part off the finished item, again slowly with gentle, even pressure of cut. The parting off cut needs to be wider than one width of the parting tool and the last 3mm of material can be carefully snapped off or, better still, cut off with a saw.

15 You can now turn the second shaker to match. Due to the length of available resin this will have to be turned in a slightly different way. Reduce the diameter for the top bead and form using the bead former. Drill the hole and cut the recess for the shaker insert and top. Using the 25mm diameter hole drilled for the plastic insert, mount on 25mm pin jaws to form the bottom bead.

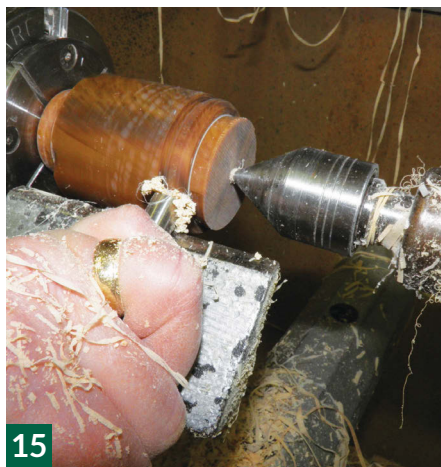
16 Remount the shaker using the chucking spigot, pull up the taildrive and secure into the hole drilled to receive the shaker insert. Reduce the diameter, where needed, with a parting tool and shape to match the first shaker. Here you can see the finished shaker and the second one shaped. Check the diameter of the thinnest section before sanding to a finish.

17 Using 25mm pin jaws or a jam chuck, mount each shaker in turn on the lathe using the 25mm hole drilled for the plastic insert. The resin is very thin in places so try to avoid over-tightening the jaws. Using a round-nosed negative-rake scraper, tidy up the surface and slightly undercut. Sand to a finish and buff with burnishing cream.

18 Using a dental tool or similar, apply some glue to the inside of the hole, avoiding soiling the rebate; here I am using Araldite. Screw the lid on to the plastic insert and apply a large amount of glue to the base.

19 Gently feed the plastic insert into the hole in the polyester resin, ensuring the rebate remains free from glue. Press together firmly, making sure the lid is positioned correctly into the rebate and allow to dry.

20 The matching pair of polyester resin salt and pepper shakers should look something like this. ■



Ammonia fuming & tannin staining

Amber Bailey explores wood's reaction to tannin treatments

Tannin is derived from the German 'tanna', meaning oak, and is an organic molecule found in trees and other flora, used to extract iron for uses such as nutrition. Tannins are also responsible for natural discolouration, particularly when exposed to certain chemical reactions, causing an alteration to colour that is resistant to decomposition.

Tannin colouring can range from pale yellow to light brown, blue to black and even green.

All woods will react differently to this discolouration dependant on the tannin levels within them. Woods such as oak are known for having high tannin content and will be able to discolour to black.

There are several processes that will induce this discolouration. One is ammonia fuming and another is tanning staining. These processes not only darken the wood, they have the advantage of bringing out the grain texture in a way that artificial colouring would disguise it.

AMMONIA FUMING

Ammonia fuming, or smoked oak, is a technique for darkening wood by exposing it to the fumes of ammonium hydroxide – the fumes will react with the tannins in the wood.

The fumes need to be absorbed in a concentrated dose. This is done by sealing the wood inside a chamber with an open container of ammonia. The colour produced will be dependant not only on the wood tannin content but also on the exposure time and ammonia strength. A minimum of 24 hours is usually recommended. The ammonia levels can be topped up if they are showing signs of evaporation.

Ammonia fuming can be performed on a large scale but also on a small and simple scale, such as sealing veneer within a plastic box.

Safety notice

Ammonia will cause serious respiratory damage and must be used in a well-ventilated area with the correct PPE equipment worn. This is particularly true with the concentrated 33% ammonia used in this process which will affect both the eyes and lungs.

CREATING AN AMMONIA FUMING SAMPLE CHART



Cut a piece of veneer into strips. If you intend to use fuming on a large project it is always a good idea to experiment with a small sample in the exact same wood. With veneer a number of small pieces can be put into the chamber at the same time and individually removed periodically to create a colour chart

Preparing a fuming chamber

Pour ammonia into a small petri dish and place in the centre of a plastic box. Position your veneer so that it domes over the top allowing full exposure to the fumes. Seal the box up and check periodically on how the colour is reacting. When happy with the colour, allow the veneer to off-gas in the open air for an hour or so before use



The finished chart (from left to right) at 0, 6, 12, 24, 48 hours exposure

TANNIN STAINING

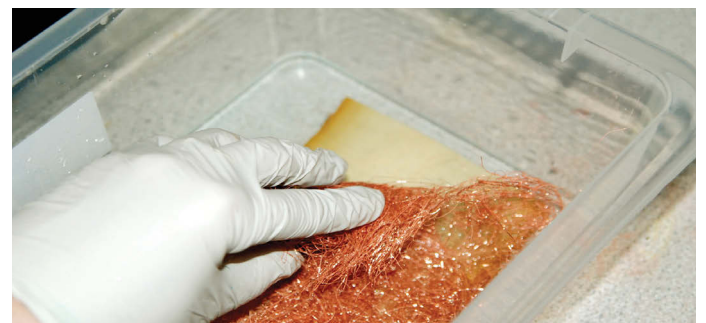
Tannin staining, or ebonising, is a messier but far safer technique for darkening wood through the use of tannin chemical reaction.

Instead of the use of a chamber, a solution is applied directly to the wood, brushed on in the same way that you would any other wood stain. If the pieces are small enough, such as veneer, then the wood can be soaked in a bath of the solution.

The solution is made up of iron oxide (rust) and distilled vinegar. Once applied it will need to be allowed time to develop. Several coats may be required for a deep colour. The effectiveness of the reaction will depend on the strength of the solution. A homemade solution needs to ideally have been sitting around for at least several weeks. Alternatively there are now off-the-shelf solutions available to purchase.

While a conventional iron oxide solution will create a blue to black colour, substituting iron for copper will develop a green hue.

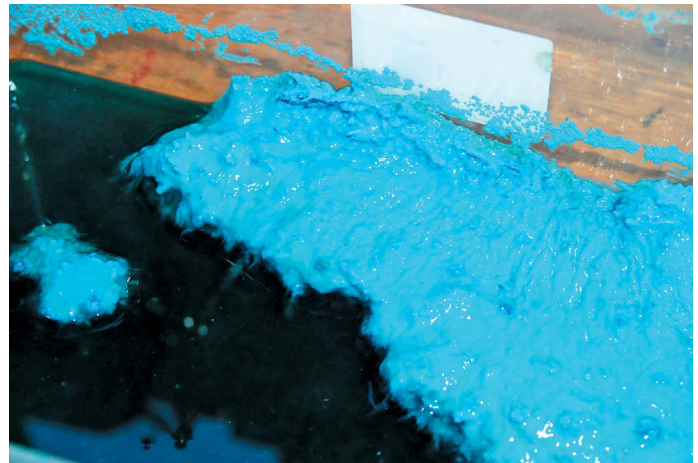
CREATING A TANNING STAINING SOLUTION WITH COPPER



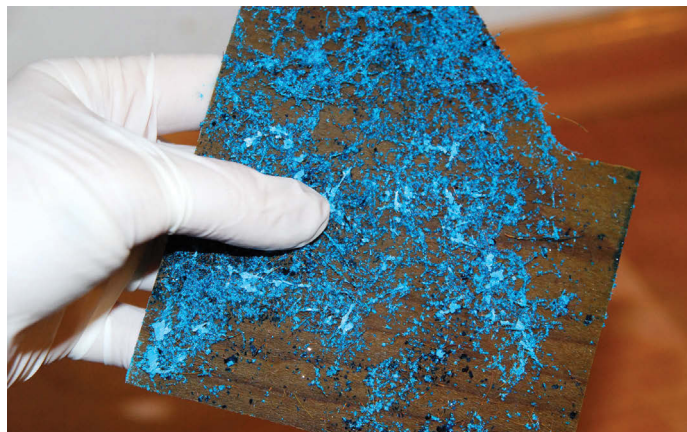
Pour a bath of distilled vinegar in a plastic box and sink your veneer into it. Cover the veneer with a layer of copper wire wool. It is recommended to seal the box up, as the smell of the vinegar can be unpleasantly potent. Leave the veneer to sit in the solution from anything from several days to several weeks, until the desired colour is achieved. ➤



Within a few weeks the wire wool begins to crystallise



If the solution is left to fester for long enough the wire wool will eventually turn into blue sediment

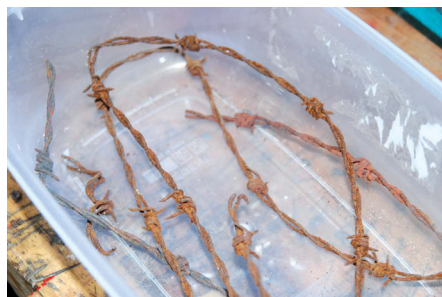


After a period of time, the remains of crystallised wire wool may attach itself to the veneer and need to be brushed off afterwards



Several weeks in the solution altered colour of the holly veneer to a pale green

CREATING A TANNING STAINING SOLUTION WITH IRON



Conventionally iron oxide rusty nails are used, occasionally more unusual items may prove suitably rusty, such as this rather dangerous piece of barbed wire



Within a matter of weeks the solution will begin to look like a revolting lava-like substance



Pieces of holly and oak veneer having been blackened with the tannin staining solution. The oak is definitely black in colour while the holly is dark blue in colour ■

Natural reaction

Wood will have a natural tannin reaction when stored in damp circumstances or even prolonged exposure to the air. We associate Jacobean furniture with very dark oak. This discolouration is due to oxidation and would not have originally looked like this.

Time for tannins

Tannins can also be found in certain foods and drink, such as chocolate, wine and tea. Tannin can be naturally occurring or through contact with wood.

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Work smarter

Hand planing *tips & tricks*



Rubbing down the base of a No.5 jack plane to remove rust and to 'flat' it properly before bringing it back into use



The importance of flattening the back of a plane blade is often ignored. It ensures both edges meet properly at the bevel edge



PHOTOGRAPH BY GMC/ANTHONY BAILEY

Hand planes are very versatile but are you getting the best from yours? Here are some ideas to improve your technique

Who honestly takes the trouble to prepare their hand plane properly for use? Not many I suspect, just straight out of the box, sharpen the blade and that's it, then it sits in a toolbag or metal shelving gathering dust and rust. Yet it is, or can be one of the best, most controllable tools you possess. Here are some suggestions to make it work for you.

Preparation

The first time you pick up a plane, say a No.4 smoother or No.5 jack plane, it needs a bit of preparation. The blade is obviously the most important element but it may not be obvious the flat back of the blade is generally not truly flat. So first of all, using a flat sharpening stone, work on that before sharpening the bevel so the area coming to the edge is noticeably ground flat by the stone. When sharpening the bevel it is far better to use a honing guide than cope without because the rocking motion of your arm can give a convex surface to the bevel, which may not cut so well.

If the plane is an old one or has been left to deteriorate and get rusty, it is perfectly possible to clean it up and get it working again. Rust on the sole or sides can be tackled by first removing the blade assembly and then working backwards and forwards on emery paper stuck to a reliably flat surface, such as a cast iron machine table or a thick piece of float glass.

Cheaper modern planes can have

blade steel of unknown quality. It can be worth investing in a more expensive replacement blade which will be thicker and made from a known grade of steel which will stay sharper longer. Good quality carbon steel is known to keep its edge but there are more sophisticated steel alloys available.

Working tips

If you need to bevel the edges of a workpiece a block plane is ideal, you don't need to reach for a router. Starting a bevel doesn't take off very much wood so you may want to wind the blade out a bit, but withdraw it as the cut progresses. With practice you can produce even, constant bevels at will, including on end grain. This is really useful for ends of furniture legs or chair arms but is best done at an angle down to the middle of the end grain.

A hand plane is normally used by clamping the workpiece in the vice and moving the plane over it. But what if the workpiece is quite small? You can invert the plane, clamp it in the vice and move the workpiece over it. A couple of warning notes though. One, clamp the plane low down so the sole is only slightly above vice jaw level and the pressure is sideways through the cast iron base. If it is clamped higher up the sides of the plane could crack. The second point is to tape over part of the blade so you cannot catch your fingernails on the bare blade.

There are different ways to shape a



The use of a honing guide gives a much more predictable result as the angle and shape of the bevel will be constant



The cap iron has been rubbed on the sharpening stone so there is no gap for shavings between the two irons

blade edge and then use it. A No.5 jack plane needs a straight edge for planing edges or for shooting end grain. However, if you are flattening the face of a board then it needs a cambered (slightly curved) edge so it can cut the fibres efficiently without dig-in and working across the grain or diagonally. On a No.4 smoother the edge should be straight across its width, with the ends shaped upwards slightly to avoid dig-in when doing final finishing of a surface. So you may need a change of blades available for the No.5 at least.

When planing along an edge pressure needs to be applied on the front knob to start with and transfer pressure to the rear handle, or tote, towards the end of the stroke. What is harder is getting the edge perpendicular to the face. You can, of course, tilt the plane, but trying to achieve a fractional change is challenging. It is easier to use the blade adjustment lever to make the blade angle slightly so it cuts more to one side.

Care in use

Always withdraw the blade using the depth adjustment knob, then wind it the other way to get the blade to project the correct amount while sighting along the base. This is because a standard Bailey adjustment mechanism is slightly sloppy and not doing this step may cause the blade to get pushed back into the body on contact with the wood.



Above: A dead straight edge is needed for narrow edge planing or shooting endgrain for a very accurate result

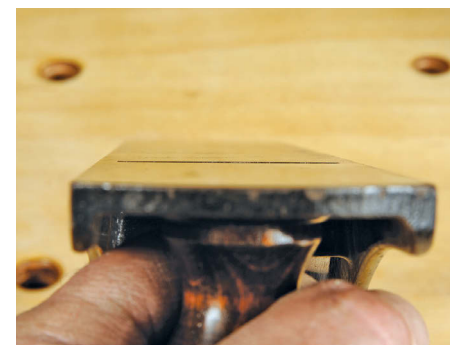


The difference between a straight blade edge and a cambered one for a No.5 jack without any dig-in

A hand plane at rest should either be laid on its side or propped on a slim strip of wood so the blade doesn't touch the bench surface and become damaged or moved by contact.

Hand planes come in a range of sizes, most of which we don't really need unless we take our planing work very seriously or want to be a collector of planes.

However, even the more common sizes come in two widths. The wider ones suit wide surfaces, obviously, but they also have extra weight which gives more mass and helps keep the plane moving smoothly.



Always withdraw the blade before winding it out to give a fine amount of cutter projection



A plane collector's dream. L-R: squirrel tail, block plane, Record No.4, Stanley Nos 4, 5 and 6. The big No.6 is the Editor's favourite for larger work

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Where timber rules

Steve Bisco takes us to New England, where wooden buildings reign supreme

When I was a young lad growing up in rural Essex in the 1950s, a large proportion of houses, barns and workshops were timber-framed and clad in weatherboard. Sadly, most of this had disappeared by the late 1960s, partly as a result of British mortgage companies adopting a policy of only lending on 'bricks and mortar', and partly due to the all-obliterating 1960s modernism.

From forest to homestead

Fortunately, while building in wood withered and died in Britain, it lived on in good health in the heavily forested parts of the US where wood has remained king. Nowhere is this more

apparent than in the New England states of the north east US. From the edge of New York City to the Canadian border, and from the Hudson River to the Atlantic coast, wood is everywhere. Deciduous forest stretches continuously for hundreds of miles in every direction, and New England in the Fall, when the forest turns red, is a major tourist attraction.

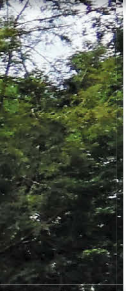
Dotted among the trees, growing out of the landscape as organically as the stone houses of our Cotswolds, are the distinctive and beautiful wooden buildings so familiar to anyone who has visited North America. Houses, barns, even industrial buildings and apartment blocks are timber-framed and timber-clad. The outer walls

(known as sidings) are usually clad in horizontal overlapping weatherboard or vertical board & batten, and are painted white, cream, grey or some other pale colour. Cedar shingles (thin wooden tiles) are also often used to clad roofs and walls.

A renewable resource

It is easy to see why timber (or 'lumber' as they call it in the US) is the principal building material in New England – there is a super-abundance of trees but very little of anything else. The trees grow mainly on thin soil above granite bedrock, with little useable building stone or brick clay. Why would you ship in large quantities of brick or stone at high cost when you are surrounded by timber? Trees are a renewable resource that can be replanted as they are used up, and timber has good insulation properties to keep you warm through the bitterly

Tall and grand white wooden churches stand proudly over beautiful village greens in many New England small towns
Left: Carpenter's Gothic decoration around a church door



New England is almost completely covered in deciduous forest, mostly on thin soil over granite bedrock



Left: The 'porch' – usually a complete wrap-around veranda – with the Stars & Stripes hanging by the front door, is a typical feature of American homes

Below: This grand 19th-century Colonial-style house shows the versatility of wood in the construction of its beautiful and elaborate balconies



Left: As well as weatherboard, cedar shingles are often used to clad the roofs and walls of timber-framed houses

cold New England winters.

Wood, as we woodies well know, is a very versatile material with a high strength-to-weight ratio that can be fashioned into many different shapes and be assembled into fantastic structures. New England houses make full use of this versatility with numerous turrets, towers and projections that would not be feasible or economical in brick or stone. It is cheap and easy to repair a timber frame and to re-clad the sidings. When an old building is too far gone to repair, a 'tear-down and rebuild' is much cheaper than replacing a brick building. Subsidence is rarely a problem with timber buildings due to their light weight and the flexibility of the structure.

Fancy Gothic design

Fancy decorative woodwork in the style known as Carpenter's Gothic

embellishes many 19th-century buildings. Not only is it found adorning the windows, barge boards, porches and finials of domestic houses, but also the many large churches with tall spires that are also built in wood. Most New England small towns can boast a beautiful white-painted timber church overlooking a perfectly manicured village green.

The Colonial style is probably the most abundant period style, with its timber columns and massive classical porticos dignifying everything from suburban town houses to country courthouses and millionaire mansions. The most significant feature common to all styles is the modestly-named 'porch' – more of a large veranda – that is to be found wrapping around most houses with the Stars & Stripes draped prominently from a flagpole by the front door.

Timber building in the UK

In recent years, timber frames and weatherboard cladding (though often in the form of a composite fibre-board) have been making a comeback in the UK. Mortgage companies have overcome their prejudice against wood, and my Essex coastal village now starts to look more like it did in my youth. But a slight difference in style leaves you in no doubt who we need to thank for this wooden revival. The style is unmistakably American. New England has served Old England well by keeping the timber-framed, timber-clad building alive to return it to the old country. ■

Incompatible finishes



Ever had a sticky situation to deal with? Sometimes finishing work can be very un-a peeling...

One bugbear I come up against regularly is finding the right combination of wood finishes, so I thought it was a subject worthy of attention. You might think almost any finish can be applied over any other finish but that isn't the case, so we need to find ways of determining the correct procedure before we even start. This isn't a scientific analysis, more of a personal observation. No doubt readers will have had their own experiences.

Bare surface preparation

Wood finishing of any kind needs to be applied to a properly prepared surface. This may be bare wood or sanding off an existing finish, in which case it will be sanded to a good enough standard to take a new finish. Although abrading a surface with coarse or fine abrasive paper or cloth seems perverse because you are roughing up a surface in order to make it smooth, the scratches, however fine, will allow stains, oils and varnishes to penetrate to a limited depth.



Sanding prepares a surface ready for refinishing although it doesn't guarantee the removal of all contaminants



Modern, quick-drying primer undercoat speeds up the repainting process. It is designed to bond to previous layers of paint as well as bare wood

Oil-based paints

Thinning down any liquid finishing material will help it penetrate further. Incidentally, the first coat of an oil-based finish tends to be slow to dry. Subsequent coats applied within a short time frame will not only dry quicker as the oil base absorbs into the earlier coats but will also bond well together.

The difficulty arises if a finish has been applied months before and has had time to become hardened. The new coats will not necessarily want to join to the earlier one, especially if dirt and other contaminants have landed on the old surface and possibly migrated into it as well. A suitable cleaning agent which doesn't leave any oily or silicone-based contamination, plus the use of abrasives, should help the new coating to adhere, although this outcome won't be apparent until some time later.

Primer undercoat

Oil-based paints are part of a complete system. Previously separate oil-based primer and undercoat were needed. Now primer and undercoat are often combined and aqueous-based, which is quicker and less messy to clean up. Painting gloss straight on to old gloss paint without using primer undercoat doesn't work and it will usually start detaching itself a while after drying.

Strangely, modern emulsion paint will often stick better to existing gloss paint than new gloss because it doesn't form such hardened skin, although it isn't a recipe for success and may 'reject', i.e. roll back, as you try to paint if there is serious contamination.



Very difficult surfaces, such as this pine which has wax ingrained into it, may need a special bonding primer like this one



Stains and dyes

Often bare wood is given one or more coats of stains or dyes to improve the appearance. The presence of dried glue or other marking can ruin the look of a surface so a scrupulous regime of removing still-wet glue with a damp cloth is essential to avoid contact with any contaminants. Machining often involves the use of lubricants and cleaning agents to improve running performance, such as blade cleaner or machine wax on a thickening bed. The presence of these can prevent finishes absorbing or coating evenly. ➤

Spirit dye has a volatile solvent that allows it to spread easily and dry quickly, but any contamination or residual previous coatings may give an uneven result

Spray finishes

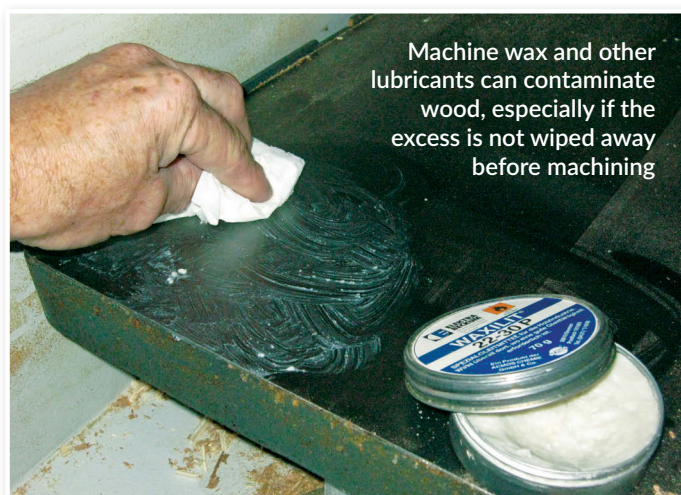
Silicone spray or wax in particular must be avoided and with spray lacquer finishing it causes 'cissing' or rejection. It can be a considerable effort to remove invisible contamination successfully and can involve re-sanding causing further damage and patchy finishes. Stains can be aqueous or spirit types which don't cause rejection, although the former can sometimes cause grain raising so damping and rubbing down the bare wood before applying the dye can help reduce this problem. Oil-based naphtha dyes have largely gone out of use, which is a good thing as their oily nature causes rejection.



Silicone spray polish can damage antique finishes with minute scratches and it will prevent lacquers from coating properly



This lacquer surface is very uneven and pitted due to contamination of the wood underneath. It will need to be stripped off completely as a result



Machine wax and other lubricants can contaminate wood, especially if the excess is not wiped away before machining



Interior surfaces, including floors, subjected to wear can be varnished with water-based products which are quick to apply and dry and have low toxicity

Varnishes

Interior varnish is generally water-based and goes on in quite thin, quick-drying coats, but is remarkably durable. Exterior or marine varnishes are a different matter, being oil-based and taking longer to dry. They can give extensive protection but they may not bond effectively to other finishes, speaking from personal experience. Really good preparation is required because, rather like painting gloss-on-gloss, the varnish forms a separate, hardened coating or shell which may crack and separate.



Marine-quality varnish is incredibly tough and has inbuilt UV resistance. However, if it is applied over a previous finish it needs to be properly prepared so the new coating 'keys' to it successfully

Exterior finishes

Oil based finishes such as Sadolin or Sikkens have a good reputation and will stick to most surfaces irrespective of whether they are bare or have an existing finish. However, good preparation will help give them the greatest longevity.



Oils and hardwax oils are available for internal and external use, depending on the type. They are easily recoatable at any time

Oils and hardwax oils

Tung oil is most often the key component of oil finishes because it is a genuinely tough, long-lasting material, which can be combined with other oils, resins and waxes with varying benefits. Because oil doesn't create a 'shell' effect and can be wiped over surfaces and wiped off again leaving a thin layer, it is effective so long as any previous coating doesn't prevent it soaking in. If any previous finish is present, it needs to be removed first.



French polish has the advantage of sticking to anything, it comes in different types and is applied by hand or brush as a rule

French polishing

There is one type of finish which, for all its faults, will stick to anything and that is French polish. Because it often contains a waxy component depending on which grade it is, and the fact that a lubricating oil is often used when applying with a 'rubber' to stop the rubber sticking, it follows that it will cling to any surface. Indeed, I remember years ago reading about an expert polisher in the US who applied French polish to a chrome car bumper for a bet. French polish is renewable if it gets damaged as it gives way to alcohol-based solvents such as meths or finishing spirit.



White spirit is oily but a useful cleaner. Dewaxing solution is less oily, suitable for antique restoration and cleaning. Cellulose thinners is very volatile but very effective at removing oily deposits

Cleaning agents

Removing contaminants can need anything from warm water and washing-up liquid right through to cellulose thinners – it very much depends on the job in hand. White spirit is oily and therefore not good at all, although it can remove muck and grease. Wax cleaner isn't so oily and is good for cleaning up antique furniture but can still leave a film behind which can prevent things like lacquer from bonding properly. Methylated spirits (denatured alcohol) is an effective cleaner and quite drying, so it lifts off oily deposits but it can also affect the skin, so protective gloves are needed. In common with all the more volatile chemicals which include cellulose thinners it is flammable and toxic to breathe in as well as penetrating skin, so correct PPE (Personal Protection Equipment) such as a carbon filter mask and good ventilation and no naked lights are essential.

The answer to refinishing is to check and prepare first before applying that all-important, and possibly costly, finish, which may cause much heartache and waste your valuable time. ■



Sometimes the only option is to strip back to bare wood. However, paint and varnish strippers leave a residue that must be neutralised and cleaned off



Hopefully choosing the right method of preparation will give a beautiful long-lasting finish

Ask the Experts

Here we have the latest selection of readers' queries for us to answer



ANTHONY BAILEY
Editor,
Woodworking
Crafts magazine



MARK BAKER
Group Editor,
GMC woodworking
magazines

TEETH MARKS

“ I bought an old saw at an antiques centre where a tool dealer has a display, although I've never seen him there to ask questions. It is a large tenon saw, nothing remarkable but I liked the look of it. It cuts adequately but is certainly not the sharpest tool in my shed. Realistically, can I sharpen it or does it need to go to a professional? ”

Andy Streeter

Anthony replies: You don't mention if it has any maker's markings. It probably isn't particularly collectable but it's worth checking who made it if you can. Old tools can be a disappointment for several reasons – they may have excessive rust pitting, they may have been unsympathetically 'restored' (I prefer to do my own restoration) and the vital cutting edges, in this case the teeth, may be very worn or damaged. Saws are something I generally steer clear of because sharpening and setting the teeth needs care and persistence to get right. You



You need a degree of skill to sharpen saw teeth properly

need a saw file, a saw set for bending the teeth and a homemade blade clamp so you can file and set easily. You need to understand the correct angle at which to file and to alternate between teeth, as the tooth geometry is critical to it working. Alternatively, you can send your saw to a saw doctor,

there are fewer of them nowadays but you can do a Google search. However, a saw doctor will cost more than perhaps you paid for the saw. I believe I have a saw sharpening article on file so I will send that to you. Any other readers who are interested can also email me for a copy.

WEIGHTY QUESTION

“ I need to fit wide doors on a built-in downstairs cupboard. I'm not sure the best way to hinge it and how to keep the weight down rather than using a solid sheet of MDF or ply. It would be good if I didn't have a lot of machining to do as I don't have the means to do it. ”

Lindsey Buchan

Anthony replies: Hmm, that is a bit of the problem, the weight particularly. I cheat wherever possible, there is no point in making work for yourself or buying cutters etc. that get used just once. The obvious solution I would use is to measure up the opening sizes you need, go to your local friendly timberyard and ask them to cut those sizes out of a sheet of 6mm or 9mm ply or MDF. They should be able to do this on a big panel saw, possibly with a small cutting charge. You can then get the door pieces and waste sections home easily on a car roof rack without the bother of sawing the board yourself. You need to buy some suitable flat strip



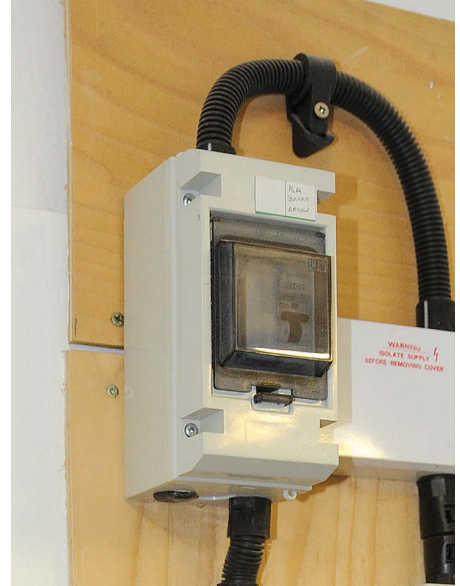
in either soft or hardwood and glue it around the edges to create a frame effect and stiffen the panels. Once dry you will need to trim them to fit no doubt, but on the outside they will look like regular frame and panel doors but at about half the weight. Make sure they are lying flat when gluing up so they don't warp. Hinge-wise the choice is yours but standard butt hinges are probably good enough.

WORKSHOP POSITIVITY

“ I have an electricity supply to my workshop but I'm not sure if it is strong enough to supply the lights and the machines safely. Do I need to ask an electrician for advice or can I risk it? ”

Ron Prosser

Anthony replies: I think your remark 'risk it' says it all. Do consult an electrician, it is a lot safer to be safe rather than hoping your setup is OK. However, I can give you my own experience, which is that with a heavy-duty armoured cable down a long back garden to my workshop the supply has held up very well. The size of the conductor must have something to do with it. When an electrician did a full test of our domestic installation a few years ago he noted that a small consumer distribution unit was correctly fitted in the workshop, but no earth grounding rod was present, so he dealt with it. It is detail such as that which can be easily overlooked even if the supply voltage is strong enough, so do please get the whole circuit checked.



A small workshop will only need a small consumer unit

SETTING OUT

“ I'm very careful about measuring and marking but I still get occasional errors so I have to trim components to match properly. I'm about to embark on my biggest project yet, which is a dresser to go in our dining room. I'm worried dodgy measurements will let it down as there are so many components which need to fit together. ”

Brian Welcombe

Anthony replies: Without seeing the design you are working from I can't comment on whether there are things that could make your life easier by altering the design and construction. However, with any large piece of furniture it is the norm to make what is termed a 'rod', also known as a 'storey stick'. Both terms relate to its use for setting out staircases between floors, but in cabinetmaking it can be either a long stick or a board with all the key dimensions marked on it. It means you can check everything is the same from one end of the dresser to the other without resorting to a tape measure!



Using a 'rod' means dimensions must match throughout a piece of furniture

MORE BITE

“ I've started doing some green woodworking. I've been on a yurt-building course, enough to hopefully get me going so I can build one in my back garden. One tool I can't get hold of secondhand is a decent rasp. Any suggestions? ”

Gloria Widgen

Anthony replies: I admire your pluck having a go at yurt building – they are quite an undertaking and quite large too. I hope your neighbours and the planners don't have any objections – maybe you have a very large lawn to sit it on?

Anyway, your question is quite a simple one. There are some tools best bought new and rasps are among them. There are different makes available but one we did a reader group test on, back in issue 13 were Narex rasps. These have real bite and cut quickly and cleanly, so you might want to try one of those.



These Narex rasps are very efficient and clean cutting

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.



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BOOK REVIEWS

Anthony Bailey is enthralled by this latest selection

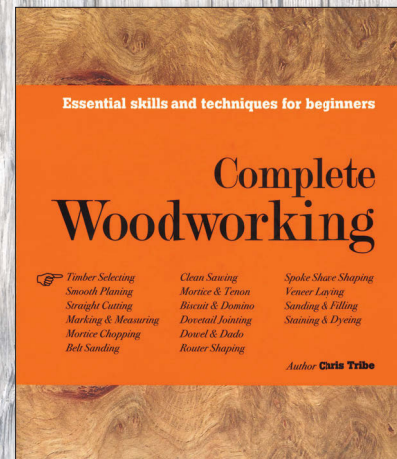
Complete Woodworking

By Chris Tribe

Contemporary furniture maker and tutor Chris Tribe has brought together his considerable knowledge to produce *Complete Woodworking*. Starting with a look at Wood and the Workshop, the book offers a comprehensive guide to hand and power tools as well as explaining routing, jointing, veneering and finishing techniques. The final chapter is made up of projects including an oak side table, a workshop cabinet and a memory box. The text is accompanied by clear photographs and illustrations.

Complete Woodworking is aimed at beginners so advanced woodworkers are not really its target audience, however, as there is rarely only one way to do something, even the most accomplished woodworker will pick up the odd trick or two. If you're at the point in life where you're in danger of forgetting some of the things you don't do every day, *Complete Woodworking* is the perfect refresher course for dozens of techniques. One of our favourites was the author's veneer punch made from a piece of thin-walled steel tube.

Every technique comes with its own 'clinic' in case your piece of timber doesn't behave exactly like the author's and there are extra tips that show alternative methods if your tooling differs from that shown in the step-by-step sequences. We can easily see *Complete Woodworking* becoming a solid workshop 'bible' so it's worth checking out.



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ISBN: 9780857621467
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£20.00

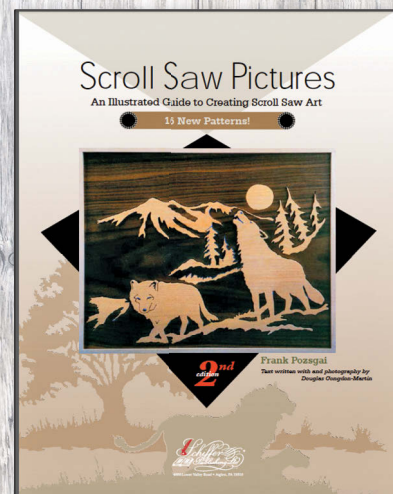
Scroll Saw Pictures – An Illustrated Guide to Creating Scroll Saw Art

2nd Edition By Frank Pozsgai

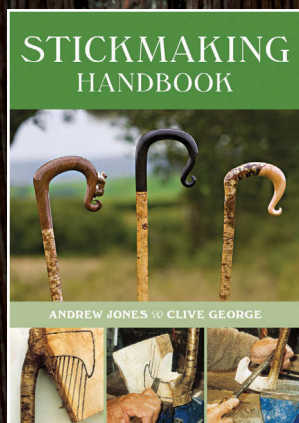
This book is very easy to read and accessible, so even if you are starting out in scroll sawing it won't be too hard to follow. It starts with a step-by-step photo sequence of one project after a drawing called Wolf Pack, then there is a short gallery followed by a series of patterns to use. Some are detailed, others are outline only, leaving you to add any final detail once cut out.

There is an American theme inevitably but quite a few of the projects translate well to the UK. Animal studies such as swans, rooster, horses and farmer ploughing and the interest of various '50s vintage classic cars are some of the examples.

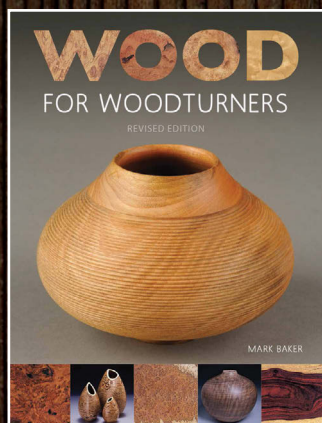
The author gives advice on resizing the patterns when photocopying so getting the right size to work from should be no problem. There is also technical detail about blade type and working method, plus the promise of creating two finished versions of each project by reversing out the cut pieces.



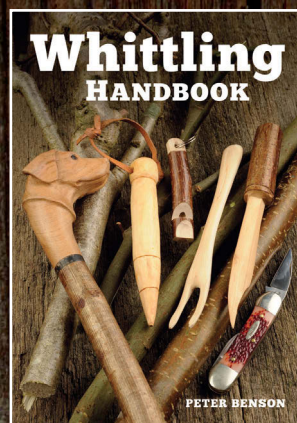
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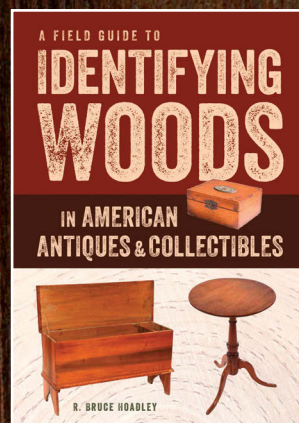
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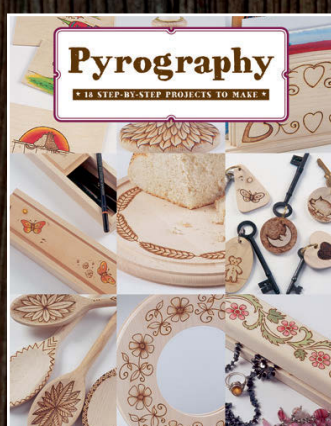
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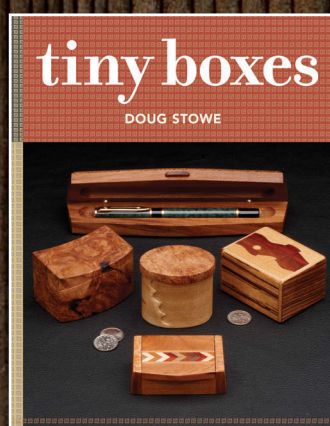
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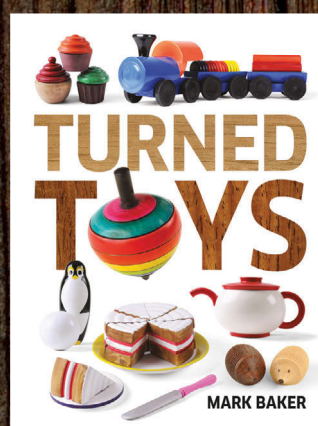
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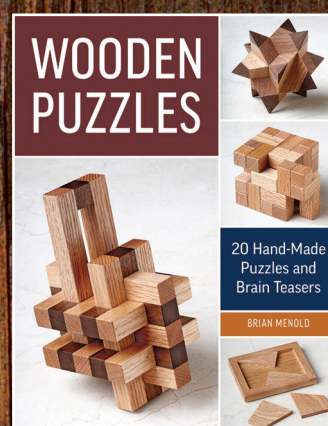
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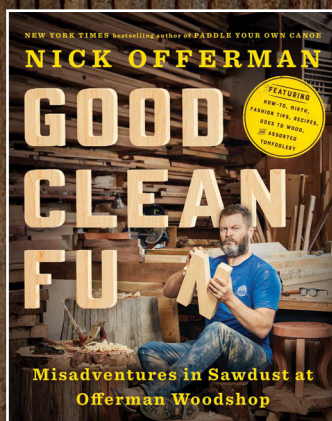


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Panel raiser

Fatigued by metal clamps? **Derek Jones** builds a set of wooden sash clamps and puts them to the test to build a pair of traditional chests

Hard to believe I know, but there was a time when the workshop walls of the world were not festooned with row upon row of neatly arranged metal sash clamps. Cast your eye over ancient reproductions of period workshop images and you'll notice a distinct lack of clamping paraphernalia, save the odd twin screw and holdfast.

There are a couple of possible explanations for this – either these items were so thin on the ground as to not be thought of as important details or there just wasn't a need for them full stop, suggesting a different approach to building the basic forms of cabinetry.

There's a natural tendency among furniture makers and joiners towards resourcefulness and, to some extent, many assembly headaches are best dealt with by selecting the right style of joinery in the first place. That might be something as simple as a nail or as complex as a sliding tapered dovetail.

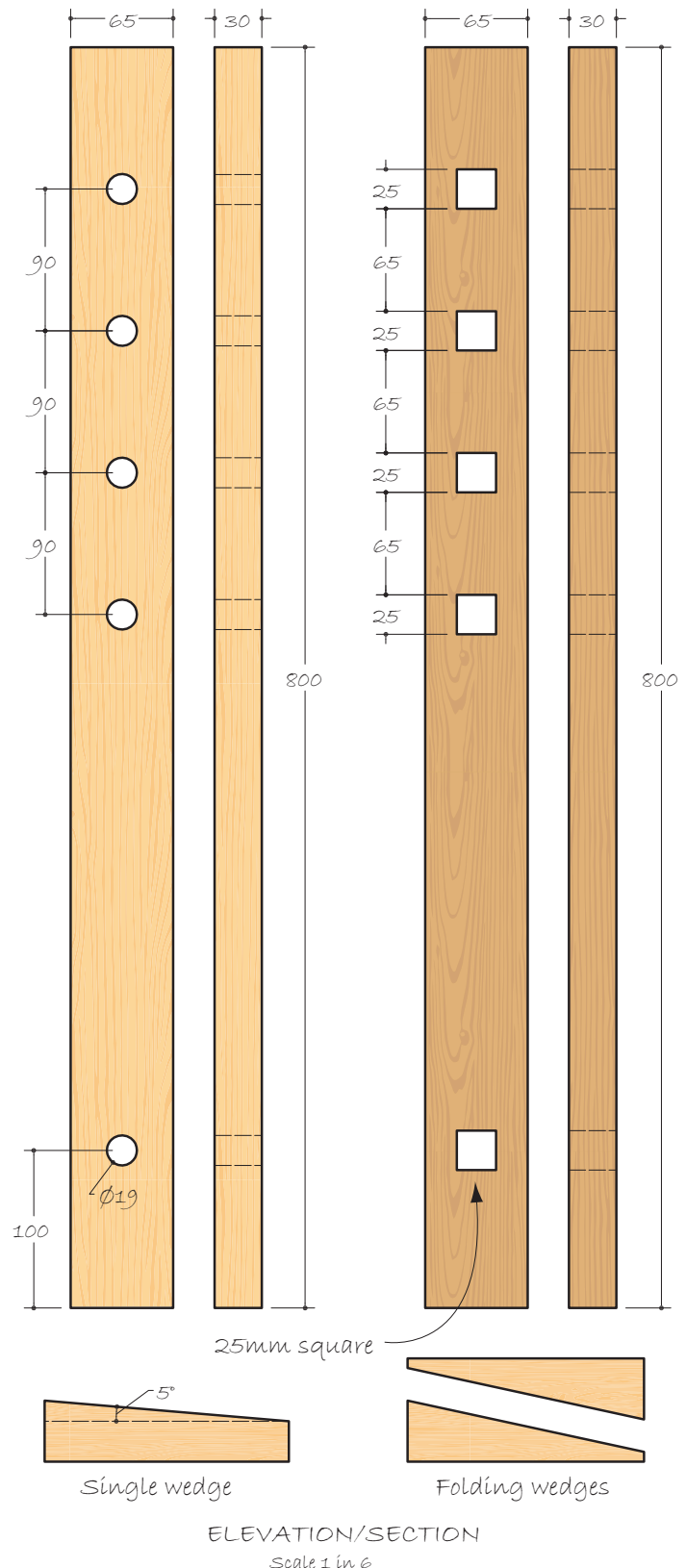
The use of clamps to exert pressure across a joint suggests a reliance on glue and for that the woodworker needs a controlled method to deliver the right amount of force in precisely the right place for anything up to 24 hours.

In *The Anarchist's Design Book* (Lost Art Press) there's a picture reproduced from an original Roubo plate of some rather serious clamping. The image in this context is being used to illustrate the use of 'marriage marks' for the sequential orientation of components within a structure – fascinating stuff for sure but not what caught my eye. It was the idea of 'shop-made sash clamps' that had me rifling through the leftover bin for suitable components to recreate my own serious clamping. The marriage mark is drawn across what we assume is a series of edge-jointed boards joined together to make a larger panel.

When joining just two boards together it would not be uncommon to use a simple rub joint, i.e. one that doesn't require clamps. This is achieved by coating one of the two flat edges with glue and then rubbing it back and forth along the length of the joint on to the mating edge of the corresponding piece until the two pieces are sucked together. Once set in this state the panel just needs supporting while the glue dries. No clamps or pressure is required for this method, although it will require the boards to be accurately trued in all directions.

Add a third board to the mix and things get a little more complicated. The options now are to allow the first two boards to become one panel and then add the third in the same way, or do the plate-spinning equivalent of glue-ups and join all the boards at the same time.

I'm sure it's possible but I think I'll leave it to someone else to try. ➤



Under pressure

Whether 'T' section, round or rectangular bar, metal sash clamps are unpleasant to use for a number of reasons. Heavy and cumbersome they typically require a means of barrier protection between their surfaces and those of the item within their grasp. For the most part this means either growing or borrowing a third hand or developing a series of accessories to mitigate the effects of an over-engineered solution. Wooden, 'shop-made' clamps on the other hand are a joy to use and a whole lot cheaper.

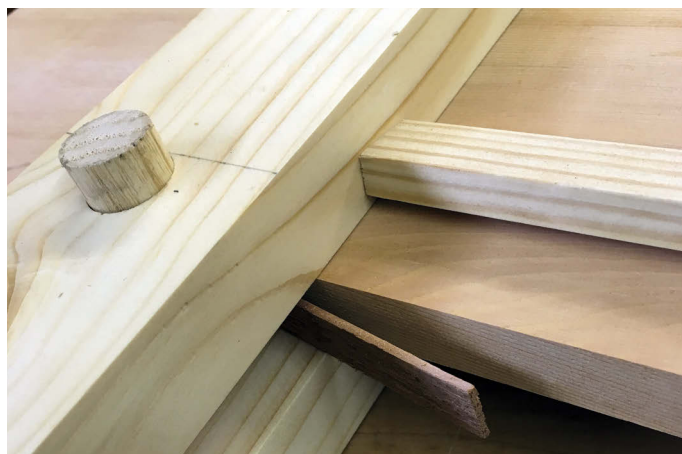
For this example I repurposed some leftover short sections of softwood from a stud wall. I spent a few minutes

removing twist from two of the wide faces of each pair. I sourced a length of 20mm diameter hardwood dowel and drilled a series of holes in each piece with identical spacing to suit the size of panels I intended to make. I found that having a tight fit on the bottom dowel and a slightly looser fit on all the rest made things a bit easier to handle when they are put to use.

Although the faces of the bars are flat and straight they are not really intended to correct defects in the panel components while gluing up. I made them like that to facilitate accurate drilling of the dowel holes and so as not to inadvertently introduce a wave into the panel.



Protect the inside face of the bars with packing tape and beeswax polish



Use softwood packers to avoid bruising the edge of the workpiece

Closing the gap

Applying pressure across the panel is done by driving a wedge between the edge of the outer board and the top dowel. There's a little leeway here when it comes to choosing suitable material for either of these parts. Softwood wedges work better with hardwood dowels as they compress less than the dowels and are easily replaced. If your only option was to use softwood for dowels then stick to the softwood wedges. Cut your wedges with a 5° – 10° slope and if you're using the clamps in pairs drive them towards the centre with a strategically placed batten between each clamp. This will help to ensure the pressure is applied at 90° to the joint. If that's not possible then use a pair of wedges driven from opposing directions. If you struggle to find dowel of a suitable thickness then use square stock and cut square holes. If you do then the twin wedge method is your only option.

Conclusion – on wooden sash clamps

I know what you're thinking – they look a bit clumsy don't they? Let me tell you they're not. They are lighter than metal clamps and also stack



Put a batten between the clamps and drive the wedges towards the centre

neater when you want to move the panel off your bench while the glue dries. They don't fall over when you're about to rest the panel down and you can make them to the size you need. Oh yes, and in the winter they're not freezing cold. What's not to like? ■



Leave folding wedges rough sawn

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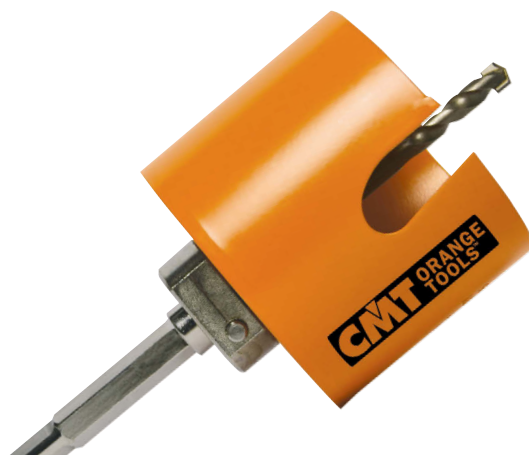
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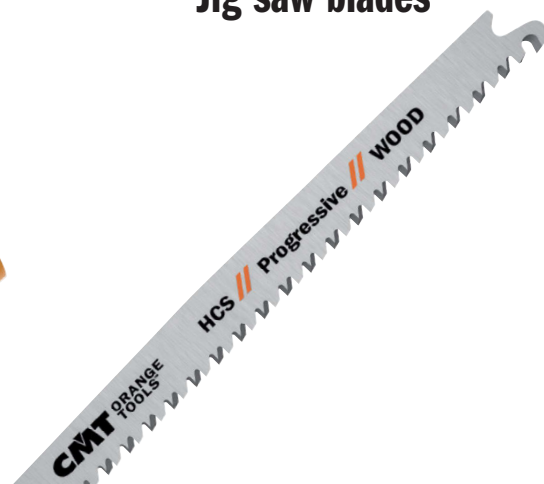
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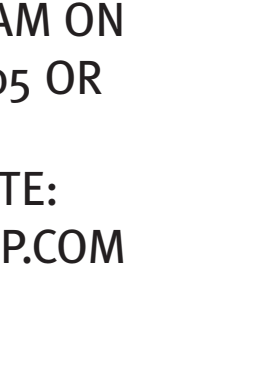
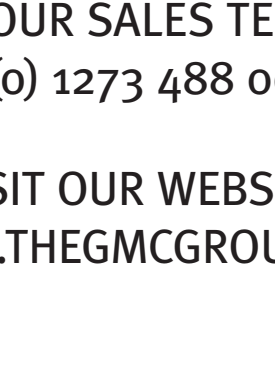
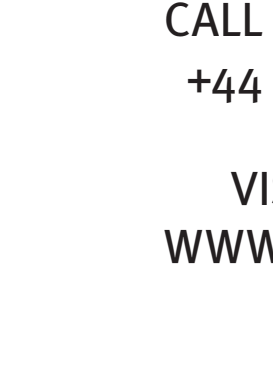
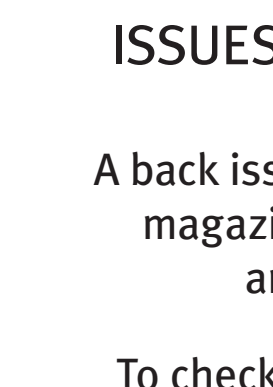
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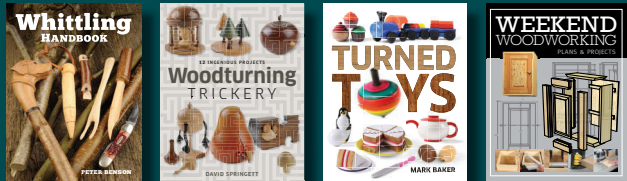
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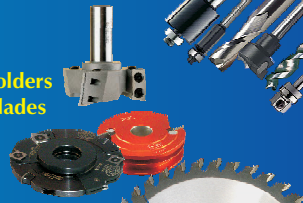
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Focus on....

The post windmill

A brief study of the post windmill

The image of a windmill perfectly captures the evocative, idyllic qualities of an English landscape. Yet these machines – for that is what they were – as impressive workhorses in the sky, had to be controlled, tamed and mastered by the miller as the four winds blew. A risky vocation with the ever-present threat of collapse in a gale or fire caused by flour dust and the mechanism running out of control. Or perhaps the miller and his smock getting caught in the woodworm-riddled teeth of the gear wheels while working in the dead of night, no naked lights allowed.

Post mills – great, creaking wooden beasts weighing sometimes in excess of 30 tons – contained a complex mechanism. The buck, leaning forward with its flared front, had for safety to point into the wind, pushed round by the miller alone holding an extended bar at the back, for his was a solitary occupation. The brick roundhouse usually found at the bottom of most post mills serves no purpose, except when added later for enclosed storage. The sweeps were fitted with variable pitch shutters, again altered to suit the wind conditions – of course, if the weather was calm they would lie idle. A later development was a regulating governor mechanism to control the milling speed of the two circular stones, one from Derbyshire, the other often brought from France for effective grinding, depending on the intended usage. Flap, trap doors allowed the miller to haul grain up and boxed channels and graders separated the freshly ground flour or animal feed, allowing it to travel downward again into sacks.

It was not unusual for a post mill to be taken down and moved to a better location, all done on horses (or oxen) and cart with a team of men. This would not be an easy task now, but in earlier times with unmade roads it would seem impossible. Windmills were once everywhere to be seen, but disuse, decay, fires and high winds have seen many off. There are, however, quite a few preserved examples still to be seen.

For further information visit: <https://millsarchive.org> ■

All photographs are of the windmill at Windmill Hill, Herstmonceux, East Sussex



The massive post on which the buck sits. This mill was raised off the ground when newly built houses interfered with the wind flow



All the gear teeth on this cast iron wheel have woodworm and will need replacing in due course

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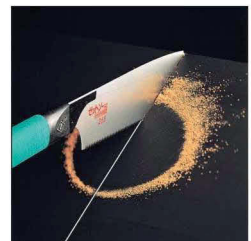
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