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Helping you make the most out of wood

ISSUE 11 SEPTEMBER 1993 £1.95

**TOOLS
ON
TEST**

● NEW PRODUCTS – Elu biscuit jointer, Multi-Sharp sharpener, Bosch planer and Chestnut finishes
● ROUTER TABLES – we find out which one is best to buy



EXCLUSIVE DESIGN

Using up offcuts

How to make three useful projects from workshop waste now

Mitre saw test



Woodworking
TEST
WORKBENCH

Our experts recommend the best saw to buy

Woodturning



Tobias Kaye explains how to take your turning a step further – by making moulds

**WEEKEND
WOODWORK**

Make a jig for hollowing chair seats, a designer clock and a carver's clamp

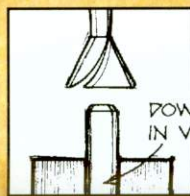


Improve your Techniques

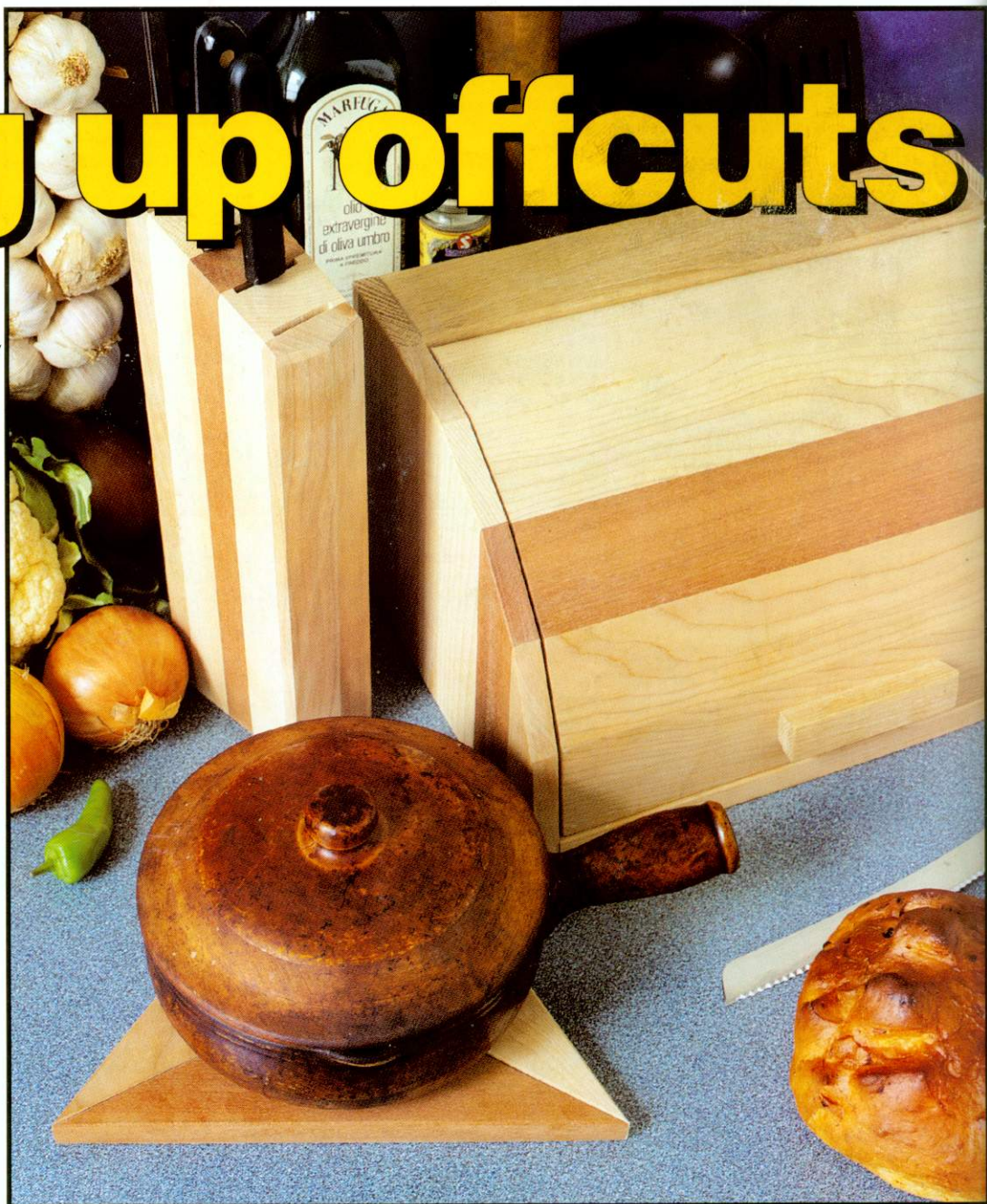
- Finishing: all about oils
- Marking out: getting it right
- Joints: coopering for curves
- Timber: imitating ebony

Woodwork Answers

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Four pages of answers to your questions



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(See below for details)

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DW3501/6" VariSpeed	331.00
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Startrite 301 B/6" Bench mod	419.00
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351/8"	833.00
352/11"	1078.00
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Elu TGS 173/10"	659.00
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HKP12 Glue gun	12.50
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(Send for Catalogue showing full range)	

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COMBI

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TK304 8" x 40 teeth	25.00
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MHB158E 3" Belt Sander	159.00
MHB90 4" Belt Sander	232.00
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Record DX750 4" hose	209.95
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Startrite Dustrite 3 Motor	623.00
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2.5 metre of 4" hose	19.00

Saturday 28th August

General Woodturning Demonstration

10.00am to 4.00pm

Easy parking

Refreshments Available

Everyone Welcome

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Mortice att. for above	22.00
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NT46 Belt/Disc Sander	116.00
NT69 Belt/Disc Sander	267.00
NT612 Belt/Disc Sander	467.00
NT80 6" x 89" Multi Angle Sander	504.00

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Bowl Turning (D. Stubbs)	30.00
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By Keith Rowley	14.95

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FB-004 5/8" Forstner Bit	5.60
FB-005 3/4" Forstner Bit	6.30
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FB-007 1" Forstner Bit	8.00
FB-008 1 1/8" Forstner Bit	8.80
FB-009 1 1/4" Forstner Bit	9.00
FB-010 1 3/8" Forstner Bit	11.40
FB-011 1 1/2" Forstner Bit	13.90
FB-012 1 5/8" Forstner Bit	13.90
FB-013 1 3/4" Forstner Bit	15.00
FB-014 1 7/8" Forstner Bit	16.00
FB-015 2" Forstner Bit	17.50
FB-016 2 1/8" Forstner Bit	19.90
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GST60PBE Jigsaw vari-speed	
+ 50 FREE BLADES	159.00
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BOSCH DIY

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PS208V Orbital sander 1/2 sheet	69.95

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Draper BTS250 10" bench saw	155.00
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24hr order line - 0539 733774 All prices include VAT



Using up offcuts 34

Make more of your workshop waste by making our breadbin, saucepan stand and knifeblock



Mitre saw test 18

Our experts put eight through their paces and find out which is the best



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Take your turning a step further by making moulds

COMPETITION

WIN A 320-page book of world woods - 22

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Kevin Cox - Publisher

☎ 0458 74011

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Coopering is taxing, but the results are well worth the effort

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We open the door to the workshop of a master of miniatures



When we were first planned Good Woodworking we spent some time discussing our policy towards rainforests. The last thing we wanted to do was to preach to the confused. Instead we decided to try offering solutions to the many problems that receive incessant publicity in the media.

The result has been regular testing of lesser-known species from tropical and temperate forests. The idea is that the use of these woods takes pressure off the endangered varieties. You can't get much lesser known than cucharillo - there is no information about in Britain - but we used it in a tantalus for bottles.

Most people now recycle their empty bottles. We have gone one step further on p.42, showing how you can recycle old records to reproduce an ebony finish. But we have stepped furthest to tell the tale, on p.45, of war-time Italian brothers who made wooden bikes when metal ran out.

Nick Gibbs

ON TEST

6 Minitests

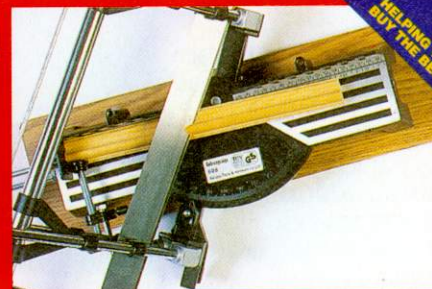
What's new for woodworkers? This month we test a biscuit jointer, a crowbar, finishes, fillers, a planer, scissors for veneers and a drill-powered wetstone

33 Books

Find out what's new on wood in the bookshops

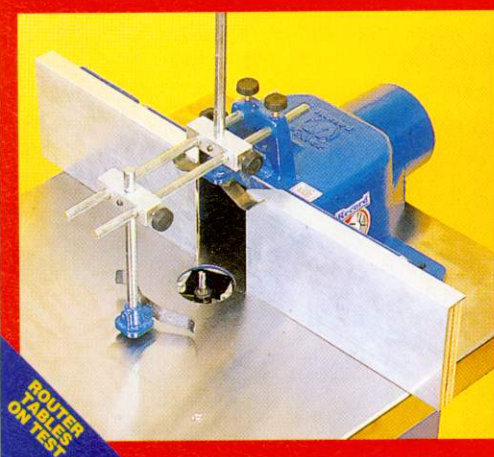
80 Router tables

Why bother with a router table, and are they all the same? We investigate and give you the answers



18 Mitre saws

You can spend anything up to £166 on one, but do you need to? Find out when our experts give you their special report





News

News editor Rob Ashton reports
on the world of woodworking today

'Green' label scheme gets thumbs up

Timberyards and Worldwide Fund for Nature united in support for international certification of sustainable timber

BUYING environmentally friendly timber could soon be made easier, as moves to introduce an internationally recognised labelling scheme gather pace.

Some timber is already claimed to come from sustainable supplies, and is labelled as such. However the validity of such claims is sometimes open to question. Matters have been confused further by some of the introduction by some growers of their own 'green' certification schemes.

Now a group backed by the Worldwide Fund for Nature is setting out to establish an internationally recognised labelling scheme. The first aim of the group – to be known as the Forest Stewardship Council – will be to verify claims that forest products come from well-managed, sustainable sources.

A Good Woodworking nationwide survey of timberyards found unanimous support for such a scheme.

Peter Lang of Timberline said, "Even with the best will in the world, it's often extremely difficult to pinpoint exactly where timber has come from." David Lyons of Lyons Woodturning agrees: "Just because it's got a

sticker on doesn't mean it's from a sustainable source."

Now that situation could be about to change. The FSC will be officially launched this October, with the main role of laying down principles of good forest management for independent inspectors to follow. In turn, the inspectors' approach will be two-pronged. SGS Silveconsult, which is part of the largest

inspection company in the world, is proposing a certificate of forest management, for growers, and a certificate of forest origin, for timberyards.

This could be good news for woodworkers with a conscience, as well as for the trees. Although timber supplies are getting scarcer, confusion reigns over what we should or should not buy. WWF's forest conservation specialist, Jean-Paul Jeanrenaud, said: "If forests

are managed well, then no species will become extinct....We've never said you should boycott a particular timber."

The support of timberyards removes one obstacle for the scheme. As one timberyard owner said, "The last thing a timber merchant needs is no wood."



Jean-Paul Jeanrenaud, WWF
"We've never said
you should boycott
a particular timber."

ANGRY TUTOR MAKES STUDENTS SCOUR SKIPS



A WOODWORK lecturer's obsession with avoiding waste has had a surprising effect on his students.

Mike McOwen, a course tutor at Mid-Warwickshire College in Leamington Spa, has long felt angry about the way wood is squandered by being burnt or buried, instead of being recycled. Now his latest crop of furniture students have taken his feelings to heart.

Every morning on the way to college they scour skips for discarded packing cases and pallets, before testing them for nails with a metal detector when they get to the workshops.

Mike said he really seems to have struck the right chord. "They've become positively paranoid about wasting the slightest fragment of wood," he said. "When they open their lockers, old timber falls out."

Offcuts and short ends are glued together and turned, timber is comb-jointed into longer lengths, and furniture and chairs are restored or remodelled.

Now Mike wants other woodworkers to take up the cause. "We must make more effort to recycle wood, otherwise, quite frankly, there will be none left."

BRING BACK B

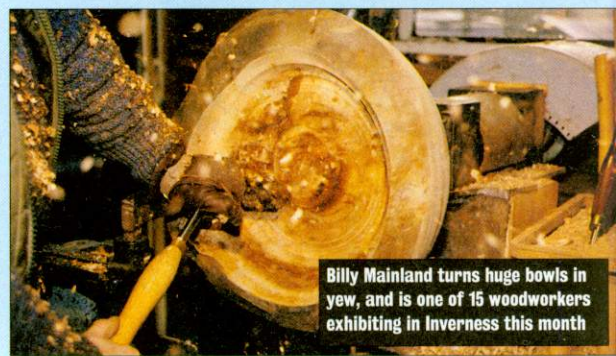
IF YOU think native British timber means oak, beech and sycamore, think again.

The organiser of an exhibition opening this month claims that at least one little-used native timber is as beautiful as mahogany, and that another rivals the best burr elm.

Forestry consultant Iain Brodie of Falsyde is the self-styled Godfather of the

Scottish native woodlands 'mafia'. By staging an exhibition in Inverness this month, he aims to make woodworkers an offer they cannot refuse.

Brodie claims that most of us are missing a golden opportunity by ignoring timber that grows on our own doorsteps. "Woodworkers have been gobsmacked at what they can do with birch,"



Billy Mainland turns huge bowls in yew, and is one of 15 woodworkers exhibiting in Inverness this month

THIRD WORLD WOODWORKER MAKES APPEAL FOR OLD BOOKS

THE FIRST despatch back from the VSO volunteer woodworkers in the Third World has arrived in the Good Woodworking office.

Cabinetmaker Trevor Baker has been working as a consultant to furniture makers in Guyana, South America since he left Britain last February (GW 5:4).

He had some fascinating tales to tell

when we caught up with him in a telephone call to Georgetown. "It's much more laid back here," he told us. "When I arrived I tried to do too much at once and became very frustrated. But if you slow down and go at their pace, you get much more done."

Safety standards are generally much lower than in Britain. Blunt circular saws being used as grinders and machines that are started by touching together two bare wires are just two of the incredible things that Trevor has encountered during

Trevor and seven other VSO volunteers began teaching woodwork last February

his first six months. "But I have also learnt an awful lot from the people here. They have devised some highly innovative jigs and are using some beautiful timber." Exotic names like purple heart, green heart, crabwood and locust are as common pine is over here.

Most factories have a good selection of machines but the operators have few skills. Basic training is therefore a priority, and Trevor is setting up a school for both existing tradesmen and school leavers.

He needs teaching materials, and is appealing to Good Woodworking readers to send old trade manuals, magazines and books. Send them to us and we'll post them on.



SHOPSMITH RING THE CHANGES

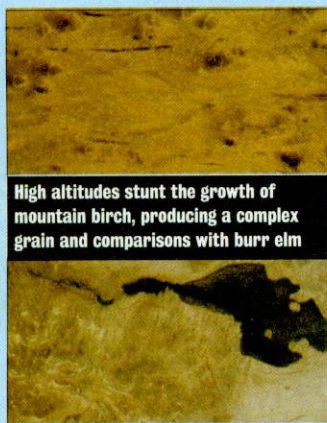
TOOL MANUFACTURERS Shopsmith are to be renamed. From this October, the South Yorkshire-based company will be known as *Woodworking Unlimited*.

General manager Roger Stanton says the move will allow them to sell other manufacturers' products, and it will bring them into line with their American parent.

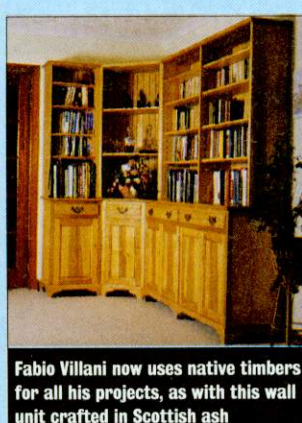
RCH SAYS GODFATHER



Iain Brodie of Falsyde carved a set of wall sculptures to demonstrate the beauty of mountain birch



High altitudes stunt the growth of mountain birch, producing a complex grain and comparisons with burr elm



Fabio Villani now uses native timbers for all his projects, as with this wall unit crafted in Scottish ash

working properties as beech, sycamore and ash.

But the timber that is causing most of a stir is the rare mountain birch, which some claim is a different species from its lowland cousin. It has a very complex grain because the high altitudes at which it grows stunt its development. Brodie

claims it is going to be "the substitute" for burr elm.

The exhibition will feature the work of 15 woodworkers based in the Scottish Highlands, all of whom use only timber from trees native to Scotland. It opens on the 17th August, and if it is successful will be repeated in Perth in October. (See Diary.)

DIARY

Scottish Native Timber Woodworking Exhibition

17th-21st August
Old High Church Hall, Academy Street, Inverness. See News for more details
Open 10-5.30. Admission £1, OAPs and accompanied children free. ☎ 0479 83672

The Northern Woodworking Show

20th-22nd August
G-Mex Centre, Windmill St, Manchester M2 3GX
Open 10-6 Friday and Saturday, and 10-5 on Sunday. Admission on door £4, OAPs and children £3; £1 cheaper if tickets bought in advance. ☎ 081 686 2599

Crafts Live!

29th and 30th August
Model House Craft and Design Centre, Bull Ring, Llantrisant, Mid Glamorgan. Crafts fair including opportunities to try a craft.
Open 10-5 every day except Mondays. Admission free, try-a-craft tickets £1. ☎ 0443 237758

Charltons Annual Exhibition

4th and 5th September
Charltons Timber Centre, Frome Road, Radstock, Bath. Includes turning, carving and dolls' house making demonstrations; and an exhibition by 30-40 manufacturers.
Open 10-5, admission free. ☎ 0761 436229

5th Annual Woodturning and Carving Show



See Good Woodworking's Tobias Kaye and other turners demonstrating at Yandle & Son in Martock, Somerset

10th and 11th September
Yandle and Sons Ltd, Hurst Works, Martock, Somerset TA12 6JU. Features demonstrations by Tobias Kaye, among others; woodworking clinics; talks by John Hunnex; and a retail exhibition.
Open 10-5 both days, admission free. ☎ 0935 822207

Craft Supplies Exhibition

10th - 12th September
Blackwell Hall Farm, Blackwell, near Millers Dale, Buxton. Includes

woodturning and other demonstrations, bargain barrels and discounts off courses.
Open 10-5, admission £3 per person. ☎ 0298 871636

Dorset Craft Guild Annual Full Members Show

10th September - 17th October
Walford Mill Craft Centre, Stone Lane, Wimborne, Dorset. Includes furniture by John Varley and Alan Tilbury, and the woodwork of Selwyn Holmes, who makes smaller items.
Open 10-5 every day. Admission free. ☎ 0202 841400

Dolls' House and Miniatures Fair

18th and 19th September
Quarry Bank Mill, Styal, Cheshire. Sale of dolls' houses and miniatures. Exhibitors from all over the country.
Open 10.30-4.30, admission £1.50. ☎ 061 928 9146

Bexley and District Crafts Guild Exhibition

23rd - 25th September
Roberts Hall (behind Christchurch), Broadway, Bexleyheath, Kent. Includes woodturning and carving by John Weir, turning by Brian Manning and Dolls' Houses by Nick Pascoe.
Open 10.30-3.30, admission free. ☎ 0322 338357

Woodworking Show

1st and 2nd October
Timberman Woodworking Machines, Bronwydd, Carmarthen, Dyfed. A chance to meet woodworking experts, watch woodmachining and turning demonstrations, and find out about new machines.
Open 10-7 on Friday and 10-4 on Saturday. ☎ 0267 232621 for admission details

Exhibition of Carved Birds

1st and 3rd October
Pensthorpe Waterfowl Park, Fakenham, Norfolk. Open exhibition for woodcarvers based in the east of England. Closing date for entries: 26th September (no entries to be submitted before 11th September).
☎ 0702 432774



Show your work at Fakenham if you carve birds, like this owl by Ted Oxley, and live in the east of England

Although all details were correct when we went to press, it is always advisable to make a quick telephone call before you set off for an exhibition, to check that dates and opening times have not changed

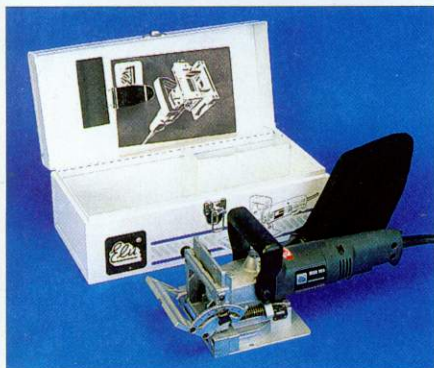


Minitest

Phil Davy opens all our parcels of new products, and tests them for performance and value for money

Our policy at Good Woodworking is to test rigorously all products sent to us and not to reprint press releases

Elu MBR100 Biscuit Joiner



depth and fence at first appear quite complex. On studying the comprehensive instruction manual, however, the functions of the various knobs and fine adjusters soon become clear.

The tool is comfortable to hold and operate whether you are right or left-handed. Positioned centrally under the motor housing is the power trigger, and your fingers find this naturally when you pick up the tool. A button on the end locks the switch on for continuous use.

A hefty plastic D-shaped top handle gives extra control in use.

The substantial base and fence are made from cast aluminium. Height adjustment of the fence is simple, with a scale provided. It is possible to make centralised cuts in timber from 10mm (3/8in) to 70mm (2 3/4in) thick.

Cuts can be made at any angle between 0° and 90° by pivoting the fence. This is done by releasing a single locking thumb-wheel, and a protractor scale clearly shows which angle you have selected. I would have liked an indexing notch at 45° as a useful addition. Edge

mitre cuts can be made in two ways, cutting from inside the angle or outside. This is to allow accurate alignment of either the inside faces of a joint or the outer ones.

You adjust the jointer for the three biscuit sizes by rotating a stepped wheel. This is clearly marked for each size and is quick to set. Fine depth setting is by using a Torx screwdriver that is supplied.

Pins have been provided on the front registration edge to prevent the jointer slipping. You can retract these to avoid scratching a visible surface, which is a thoughtful addition. A 4mm (3/16in) six teeth TCT cutter is fitted, along with a spanner for changing it. You get a dust bag with the tool and an extractor hose can also be fitted.

The Elu MBR100 is quick to set up and accurate jointing is easy to achieve. A great improvement on the first model. It's almost worth buying just for the box.

Performance ●●●●●
Value for money ●●●●●
RRP inc VAT: £199.95
Contact: Elu, ☎ 0753 500805

ELU have added a new biscuit joiner to their range, the MBR100. Unlike the existing Elu DS140 which makes a vertical cut, the new model works horizontally. This brings it in line with the majority of biscuit joiners on the market, which work by placing the tool on a horizontal surface and plunging the cutter into the work.

The new 600W Elu is made in the USA and comes in a superb steel box, giving protection on site or in the van. Adjustments for angled cuts, cutter

Clay Pry Bar

IF YOU ever have the problem of trying to remove a nail or pin from a tight corner the Clay mini pry bar could be the answer. At about 280mm (11in) long it is much smaller than conventional wrecking bars. It is made of carbon steel and has a V cut at both ends. The Vs are much shorter than those found on most claw hammers. Only nails up to about 3mm (1/8in) diameter can be removed.

One end of the bar is practically semi-circular and gives excellent leverage without the need for using a packing piece to provide more welly. The opposite end is much shallower and can be used more as a lever.

The Clay pry bar is probably not the sort of tool that is immediately useful in the workshop. At the price, though, it is a useful gadget to keep in the toolbag for those emergencies when you need to pull up a floorboard or clean up old timber.

Performance ●●●●●
Value for money ●●●●●

RRP inc VAT: £5.29
Contact: Paramo Tools
☎ 0742 725262



Chestnut Finishes



CHESTNUT Products are a new company making a range of finishes, in Britain, for wood. Ian Wilkie tried three of their products – which have all been designed for woodturners – in his workshop.

Friction Polish

This is a light coloured friction polish which can be applied to unsealed smooth wood. A thin coat is put on to the stationary wood in the lathe. Before the polish is

dry the wood is spun and another coat is applied with a soft cloth, increasing the pressure until an even sheen is obtained. The result under test was excellent. It is economical to use and had very little smell. The container says the finish is environmentally friendly.

Melamine Lacquer

This polish is designed for those turners who desire a more durable finish. It is applied to the prepared, stationary wood in the lathe with a soft cloth or brush. It dries very quickly and for large objects it could be difficult to apply an even coat. After five minutes you gently denib the surface with a very fine abrasive,

and the process is repeated two or three times. A wax finish can be finally applied. The result is a clear shiny finish which is smooth and silky to the touch.

Although the product claims to be heat and water resistant, I found that splashes of very hot water did lift the polish from a carefully prepared sample of ash that had been coated three times with the polish.

The main disadvantage is the very strong, unpleasant fumes, which took my breath away. The

polish needs to be used in a well ventilated area and the fumes may be harmful when inhaled.

Cellulose Sanding Sealer

Designed as a base coat for paste or stick wax finishes, this is a clear, quick-drying sealer. It's applied to static smooth wood in the lathe, and, after five minutes is denibbed with fine abrasive. The result is a good strong base for the final finish, in my case wax. Although not as strong smelling as the melamine lacquer, the cellulose vapours may be unpleasant for some turners.

Ian Wilkie

Cellulose Sanding Sealer

Performance ●●●●●
Value for money ●●●●●
RRP inc VAT: 500ml £3.49, 1litre 6.29

Melamine Lacquer

Performance ●●●●●
Value for money ●●●●●
RRP inc VAT: 500ml £3.99, 1litre £6.99

Friction Polish

Performance ●●●●●
Value for money ●●●●●
RRP inc VAT: 500ml £6.99, 1litre £12.49

Contact: Chestnut Products ☎ 0322 386567

Bosch PH025.82 Planer



chance of accidentally switching on the planer as you carry it. Cutting depth is altered by rotating the large plastic handle at the front of the tool. A maximum cut of 2.5mm is possible, and graduations indicate clearly what depth has been chosen. If you want to cut rebates, a depth of 24mm (1 $\frac{1}{2}$ in) is possible. A depth guide and fence, which is adjustable for angled cuts, are available as extras.

The base is made from 10mm ($\frac{3}{8}$ in) thick cast aluminium, the front half V-grooved for chamfering edges. Holding the planer at 45° for this operation is comfortable. Dust extraction is possible from either side. A lever close to the main handle lets you choose by swivelling a baffle plate inside the dust tube. No adaptor or dust bag is supplied, but these are available as extras. It is worth attaching some sort of extraction to any planer, and the Bosch is no exception. Using it outdoors we soon obscured a metre-square area of grass with oak chips.

Tungsten carbide planer blades are fitted, and these are reversible. Changing them is simple. Each blade is grooved for location and you clamp them in the cutterblock with three hexagonal bolts. The spanner, when not in use, sits neatly out of the way in a slot at the back of the drive belt housing. It is possible to fit high-speed steel (HSS) and rustic, or wavy edge, blades as an alternative to those already fitted. The Bosch performs well, and it is slightly more

powerful and has a better depth of cut than its predecessor, the PH020.82. However, the absence of a full-width blade guard is somewhat disappointing.

Performance
Value for money



RRP inc VAT: £159.34

Contact: Robert Bosch Ltd ☎ 0895 834466

THE Bosch PH025.82 planer is a new DIY machine from Switzerland. It comes with a 750W (input) motor and has a cutting width of 82mm (3 $\frac{1}{8}$ in).

Unlike the Bosch 20.82 which we tested a few months ago (GW 4:55), the new planer does not have a full-width retractable cutter guard. This is a pity as such a device is an excellent safety feature. It does have a spring-loaded end guard, though.

The power trigger is located under the main handle. You have to depress a thumb-operated side button before the trigger can be operated. This feels very safe and there is little

Power Scissors

BUYING a pair of scissors for the workshop may seem unnecessary, but these from Taiwan are a little different. With hardened steel blades they are capable of cutting a variety of materials. The blades are cranked and the ends rounded for safety.

Using them on veneer I found it easy to follow curved pencil lines. They sliced through plastic laminate like butter. If you use laminate and have the problem of cutting curved pieces without it shattering, the Power Scissors are the answer. They can also be used in the garden for pruning, and many other jobs. Another tool worth having in the workshop for emergencies.

Performance
Value for money



RRP inc VAT: £5.00+50p P/P

Contact: South West Surplus

Tooling ☎ 0209 843656



Plastic Wood

PLASTIC Wood is one of the oldest names in woodfillers, but Rawlplug have changed the product so that it is now solvent-free. It comes in tubes and three sizes of tub. I tried the pine/neutral and teak. It is also available in oak, walnut and mahogany.

There is a slight odour, and the teak was very tempting in its tub as it looks just like chocolate mousse! Plastic Wood's consistency makes it easy to apply with a knife. Thin layers dried within an hour, but deep holes needed several applications.

Rawlplug state that Plastic Wood can be used for outside work, but I was unable to judge its weather resistance over a long period. It certainly stood up to a night of Wiltshire rain with no ill effect.

Performance
Value for money

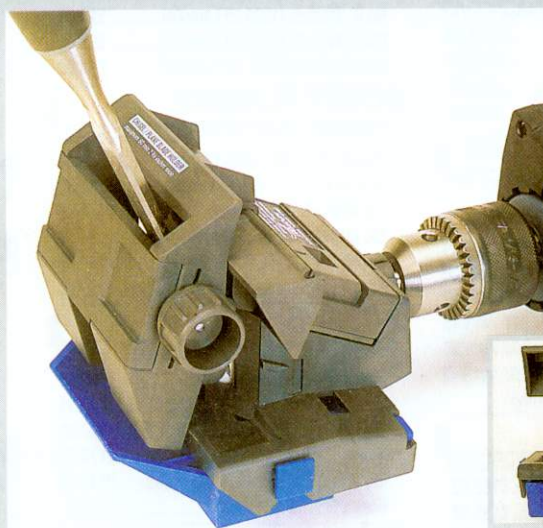


RRP inc VAT: £1.99- 37g tube,
£2.71-100g, £4.45-225g,
£6.51-350g

Contact: Rawlplug ☎ 041 638 7961



Multi-Sharp Wetstone



behind the wetstone is simply inserted into the chuck. The drill rests on the bench, and for most tool sharpening Multi-Sharp recommend the higher speed. Like any drill-powered attachment, the noise from the drill is considerable. Even when grinding a narrow chisel it is worth wearing ear defenders. Four preset angles are provided for sharpening chisels and plane irons - 25°, 30°, 35° and 40°. By sliding a rail forwards the angle is easily selected. You clamp the chisel or plane iron into the tool holder, which then slides along the rail.

I tried grinding a 60mm (2 $\frac{1}{2}$ in) wide iron, and was able to remove a deep nick efficiently. The edge was pretty square - certainly no worse than using a vertical bench grinder.

Removing steel is fairly quick, and being water-cooled there is no danger of drawing the temper of the tool. Clamping bevel edge chisels is positive with the threaded stop, which has the reverse bevel of the chisel. Trying to clamp an old sash mortice chisel was more difficult. As the blade was about 8mm ($\frac{5}{16}$ in) thick where it entered the tool holder, it

did not feel so secure. The weight of the tool didn't help.

A tool rest in front of the wheel allows scissor sharpening, but I found it too short. Maintaining constant pressure when drawing the blades past the wheel was tricky.

A knife guide, horizontal tool rest and leather strap are also supplied as standard.

The Multi-Sharp is useful for occasional regrinding and sharpening, but it is not sturdy enough for prolonged, professional use.

Performance
Value for money



RRP inc VAT: £21.99

Contact: Multi-Sharp Tools ☎ 081 200 7551

THE British-made Multi-Sharp Wetstone is a drill-powered attachment that can be used for sharpening all sorts of tools. It consists of several components, all of which are plastic.

The base, which you screw to a bench or board, is also the water reservoir. Clipped over this is the housing containing the wetstone. This housing does wobble about a bit, especially if a powerful drill is used.

With a diameter of about 57mm (2 $\frac{1}{4}$ in), the aluminium oxide wheel is quite a fine grit. As it revolves, the wheel draws water up and into a channel at the top. A constant trickle of water then flows out through a spout and across the face of the wheel. When the reservoir is full, water does tend to splash out over the floor, so don't wear your slippers when sharpening! Any power drill can be used, as the spindle

AXMINSTER POWER TOOL CENTRE

ROUTERS

Our Price inc VAT

Elu MOF 96 1/4" 700W.....	£134.95
Elu MOF 96E 1/4" 900W.....	£164.95
Elu MOF 131 1/4" 1300W.....	£219.95
Elu MOF 177 1/4" 1/2" 1600W.....	£259.95
Elu MOF 177E 1/4" 1/2" 1850W.....	£289.95
Hitachi M8 1/4" 800W.....	£137.19
Hitachi M8V 1/4" 800W var / speed.....	£168.27
Hitachi M12SA 1/4" 3/8" 1/2" 1600W.....	£199.00
Hitachi M12V 1/4" 3/8" 1/2" V/S.....	£258.01
Ryobi R150 1/4" 750W.....	£114.95
Ryobi R500 1/4" 3/8" 1/2" 1600W.....	£189.95
Ryobi RE600 1/4" 3/8" 1/2" V/S.....	£229.95
Bosch POF500A 1/4" 500W.....	£83.17
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Elu Height Adjuster 131 / 177.....	£24.05
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New Elu 24" Dovetail Jig.....	£149.95
Elu Accessory Kit 96 / 96E.....	£92.53
Elu 551 Router Combi Bench.....	£187.06
Luna Router Table.....	£210.44
Record RPR60T Router Table.....	£242.04
Trend Routerack.....	£133.24
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Size	APTC	CLICO	Freud style
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5/8".....	£7.31	£13.16	£6.20
3/4".....	£8.16	£14.33	£6.20
7/8".....	£8.57	£16.20	£7.40
1".....	£9.63	£17.66	£7.40
1 1/8".....	£10.67	£19.30	£8.40
1 1/4".....	£11.64	£23.53	£8.40
1 3/8".....	£14.95	£24.64	£12.50
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1 3/4".....	£19.07	£33.95	£16.00
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DeWalt DW501 Chip Extractor.....	£269.95
DeWalt DW611 Dust Extractor.....	£360.87
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Record Power DX750 1300M ³ /Hr.....	£209.95
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WV2000 Fine Dust Extractor.....	£475.00

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Size of Blade	Rip	G/P	Fine	ExFine
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9" 225mm	-	36T £25	56T £33	72T £38
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12" 300mm	24T £26	48T £31	72T £41	96T £48
14" 350mm	28T £32	56T £36	84T £48	108T £56
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State bore size when ordering

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Ryobi W6402C 7" 1450W.....	£134.95
Ryobi W8402C 9" 1750W.....	£185.06
B&D P3703 7" 1020W.....	£79.95

For suitable replacement power tool TCT blades contact APTC Sales Office or see new catalogue

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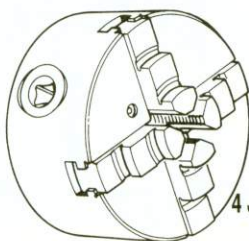
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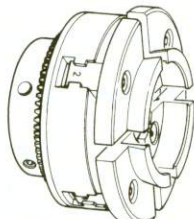
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Serpentine Tantalus

PROJECT GUIDE

DIFFICULTY: Advanced
TIME: 40 hours
TYPE: Furniture

EXCLUSIVE
design
COMMISSIONED BY
GOOD WOODWORKING

The worst thing that can happen when cooping doors is that the strips taper along their length. Take great care when marking up, planing and checking the strips.

WARNING

TOOLS YOU WILL NEED

HAND-TOOLS

The Tantalus can be made with a standard set of hand-tools. A well set-up plane is essential

BANDSAW

Cutting the veneers, laminates and curved work will be made much easier with a bandsaw

ROUTER

Though you could make a scratchstock a router will help for moulding the base. It is useful for rebating the lid parts

Test your skills by making a storage cabinet with serpentine doors, for a pair of bottles and a selection of glasses, and find out what we think of a rare timber

It has to be admitted that as we started designing this project we were not convinced it was a Tantalus, unsure of the qualities that such a piece exhibits. The result, though, is a neat storage container for bottles and glasses. Larger than a box but smaller than a cabinet, this Tantalus can take a couple of bottles with shelves for whisky tumblers and sherry glasses.

It even has space for a little drawer to hold corkscrews, bottle openers and the other accessories found behind all good bars.

Timber Testing

While the size of the larger spirit bottles naturally determined the minimum dimensions, we were limited by a dearth of timber. We were using the project to test another of the lesser known species being imported by the Ecological Trading Company, and sold by The Working Tree (☎ 0428 76505).

The trouble was that the piece of 100x50mm (4x2in) cucharillo we had bought was only about 2.75m (9ft)

long. However, the timber was already planed all round and very clean; we did not expect much wastage and guessed that, with care, we'd have enough for the job. For contrast and

economy of timber, we decided to make the internal structure – the shelf and drawer box – from maple. We also realised that we would need to veneer the sides and top, onto MDF, cutting the cucharillo thinly on a bandsaw. If you have plenty of timber you can easily make all the components from the solid.

As if cutting veneers from thin section timber was not enough we also decided to make the doors more interesting with a serpentine shape. There are a number of ways to produce a serpentine, depending largely upon the circumstance. We chose to cooper the front, and work the curves with scrapers, planes and abrasive. In contrast, the front of the lid, which is considerably shorter, was produced by

laminating thin strips, using formers. The drawer front was cut from the solid.

If you do not want to waste any wood by cutting such a curve from solid timber, you could cut the shape from MDF and veneer it. One way to do this is to make up a box, filled with sand. Push the serpentine into the sand and remove it, leaving an impression behind. Place the glued veneer in the sand and press the serpentine onto it, to get an even pressure. Then clamp the whole thing.

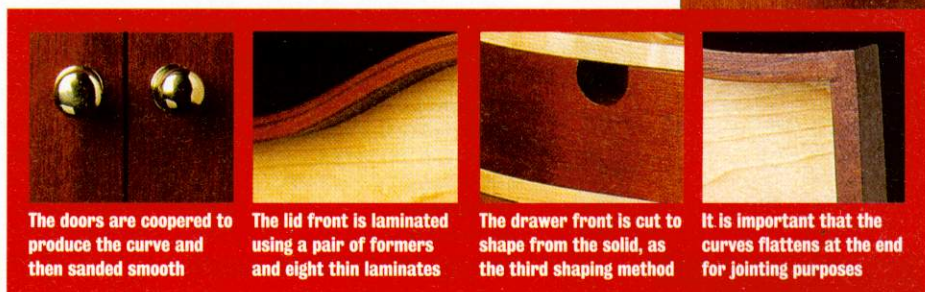
Designs for Wine

The timber we were using started out green. Though we thought it might darken to brown, we could not bank on it, so we decided to stain it to reproduce a mahogany finish. We wanted to see how well this wood, claimed to be from a sustainable source in the rainforests, could be made to look like mahogany.

As a result we felt that the piece needed to have a classical design. After looking at a few similar objects, the classical look was surprisingly easy to produce

with a Roman ogee moulding around the base, the serpentine front and the dark brown colour. We initially planned to mould the top as well, but decided it was not really necessary and simplicity was enough.

With the proportions determined by bottles and the shortage of timber, we chose to start with the doors. James Krenov, the American furniture designer, has said that whenever you are dealing with curved work it is best to make the doors first, and then make the rest to fit. That seems a fair idea,



The doors are coopered to produce the curve and then sanded smooth

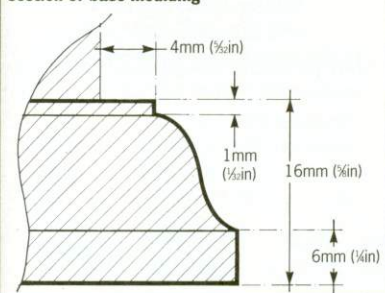
The lid front is laminated using a pair of formers and eight thin laminates

The drawer front is cut to shape from the solid, as the third shaping method

It is important that the curves flattens at the end for jointing purposes



Section of base moulding



TIP

Groove a board before cutting it to its final length. The little extra waste might save the day if your grooving skids or hiccups as it begins the cut.



so start by drawing out the curve for coopering.

Making the Doors

1 Having drawn out the curves, select the strips for coopering so as to work out the angles to which they need to be cut. We have shown in the cutting list that the components are of equal width. This works well enough, but you may find that you can be more economical with wood by using narrower strips where the angles are steepest. The angles on the edges of the strips change as the curves change. They vary from 2° to 7½°. Draw the strips onto the full-size drawing, working out the angles one by one.

2 Plane the strips to thickness and width, a little overlength. With all the angles different you will find it as quick to plane them by hand as it is to adjust the planer fence. Take each angle off the drawing with a bevel and transfer it either to the fence or directly to the wood.

If you are planing by hand score both ends off the bevel. (Marking the faces with a marking gauge also works but takes longer.) Be careful about tapering the strips when you plane.

3 Glue up the strips in pairs for ease. It is important that the leading edges line up along their length. We used PVA adhesive and Klemmsia clamps (Luna: ☎ 0908 262262) which are easy to position for delicate, angled work.

Once all the pairs are

MATERIALS YOU WILL NEED

■ **CUCHARILLO**
We bought a 2.75m (9ft) length of 100x50mm (4x2in) planed cucharillo from the Working Tree (Milland Fine Timber) (☎ 0428 76505) which cost us £15 (about £30 a cubic foot).

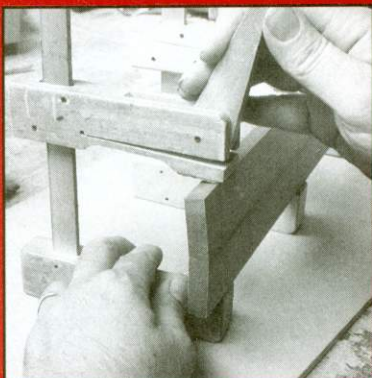
■ **MDF**
We used 10mm (¾in) MDF for the ground for the sides. You can use the same for the back, but you will need more veneer for that as we used ready-veneered 18mm (¾in) MDF.

■ **HINGES**
Two pairs of 38mm (1½in) butt hinges and one pair of 38mm (1½in) stop hinges.

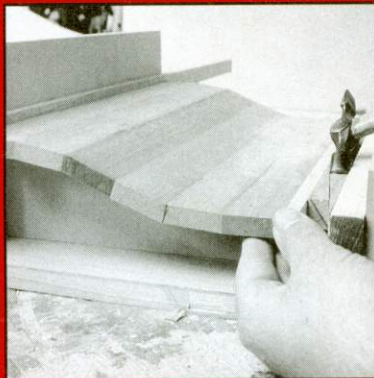
■ **DOOR KNOBS**
Two 16mm (¾in) diameter brass door knobs.

■ **BALL CATCHES**
One pair of brass ball catches.

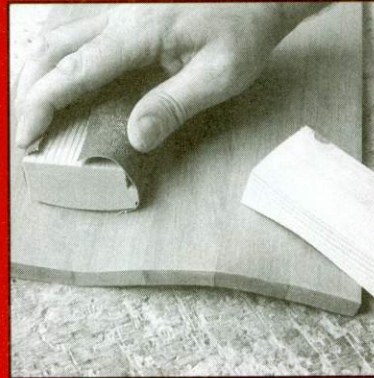
How to make the tantalus with veneer and laminates



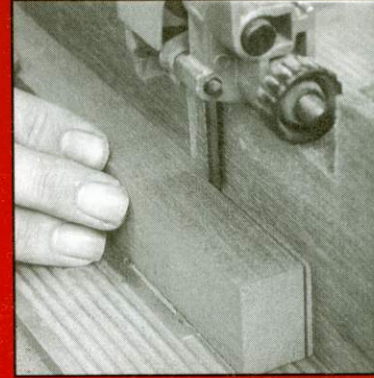
1 Having cut up the door components and planed the angles for the serpentine, glue them up in pairs, checking the joints for fit



2 Make up a cramping jig for gluing up the pairs. Cut out ribs to follow the shape of the curve, and tighten with folding wedges



3 Cut out sanding blocks to the appropriate curves for smoothing the doors. Use up old sanding belts for this sort of work



4 Cut the veneer on a bandsaw, having checked the fence, table and blade are square. Plane the leading face after each cut



We started with no more than a plank of 100x50mm (4x2in) cucharillo, which Pete Martin made into a tantalus in a week

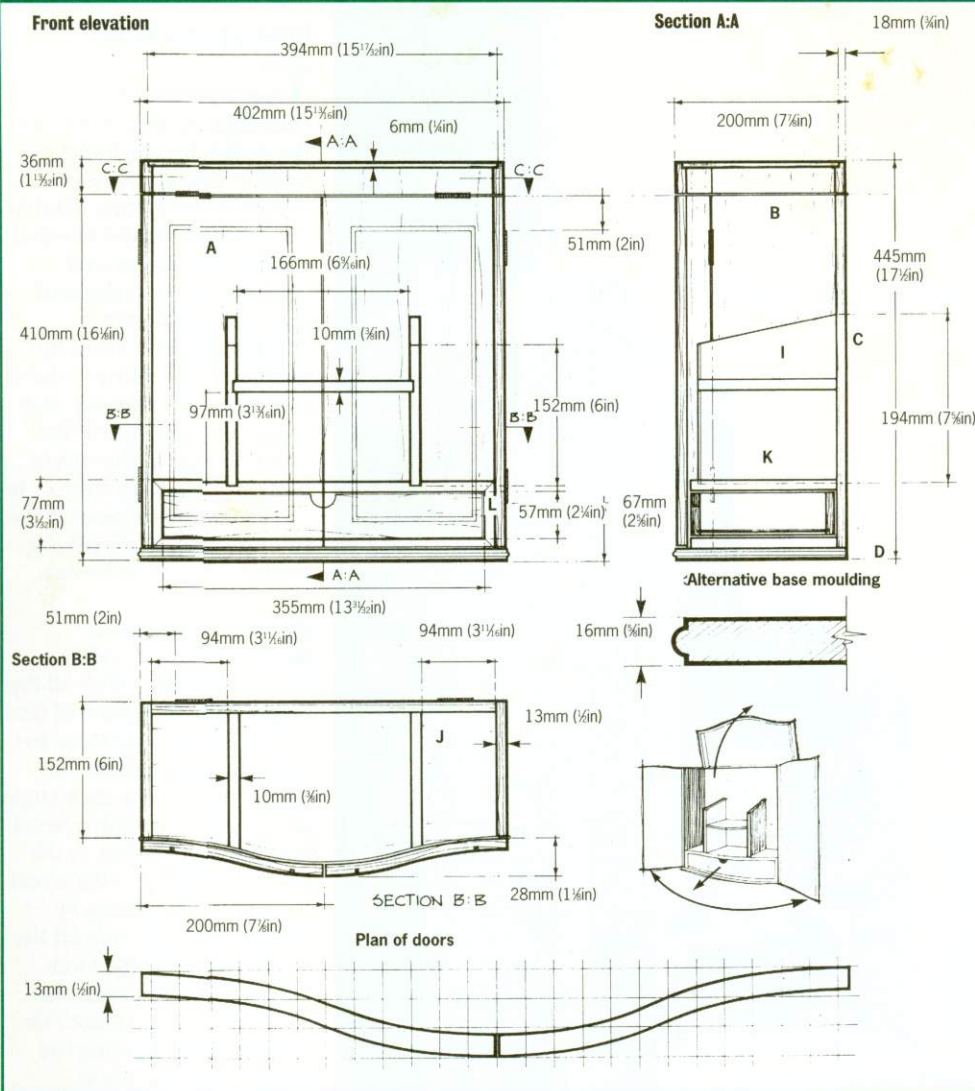
TIP

Use a flexible steel rule for marking across the serpentine before cutting the doors to length.

TIP

When cutting veneers on a bandsaw, plane the leading face before each cut. This ensures you have a smooth gluing surface. Make sure the plank from which you are cutting the veneer is planed up square all round. That way you do not need to plane the edges of the veneer for joining after cutting on the bandsaw.

Elevations and plan of tantalus, with details



grades, starting with 80 grit, and stop hollowing.

5 Cut the doors to length. The curve is so shallow that you can do this on a bandsaw, circular saw or radial arm saw. However it is always best to have a support directly below the point of cut. If you are using a handsaw, hold the doors in the cramping jig. The main problem is marking a straight line onto the curves of the door. We did this with a flexible steel rule.

Carcase Construction

6 We considered making the sides and back from solid timber but decided instead to veneer 10mm (3/8 in) MDF. We also discussed hinging the doors inside the sides, but preferred the fuller look of flush doors. You will need to cut enough veneer for both faces of sides, and both faces of the top, though we used maple for the underside of the top.

We cut the veneer 2.5–3mm (3/32–1/8 in) on a bandsaw, but if you do not own a bandsaw, buy ready-cut veneer instead. If you do cut veneer with a bandsaw, cut through the thinnest section of the timber. It is easier to work with many narrow strips than to cut a few wider ones. The longer the cut on a bandsaw the less accurate it is likely to be. Certainly fit a new blade on the saw, and check that it is set up square.

7 Shoot the leading face before each cut with a

glued up you will need to make up a jig for the pairs to sit in, for assembling each door. The idea of the jig is to have shaped ribs, like the hull of a wooden ship. The strips are pushed together with wedges. If the wood spreads in any way, pull

down the joints onto the jig with a G-cramp.

4 With the doors glued up you are left with an awful lot of scraping and sanding to produce the curves. The convex parts can be removed with a plane, but the concave

parts are more difficult. You can use a gooseneck scraper for much of the work, but we made shaped sanding blocks to suit the various sections of the convex and concave curves. These two blocks will keep the surface flat as you sand down through the

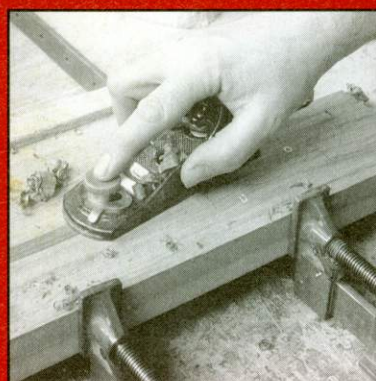
Laying the veneer and making the lid



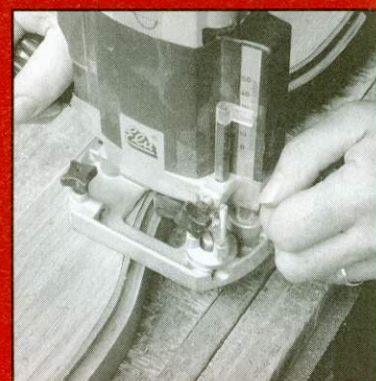
5 Use a wallpaper roller for spreading the adhesive evenly. Any bumps will be seen through thin veneer



6 Use flat boards for cramping up the sides. You do not really need curved cauls because the cramps are able to get to the centre



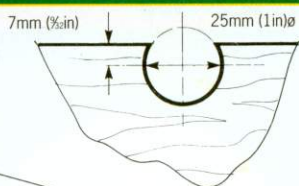
7 Plane the lid front in the formers you have used to glue the laminates. Use on former to support the doors when cutting them to length



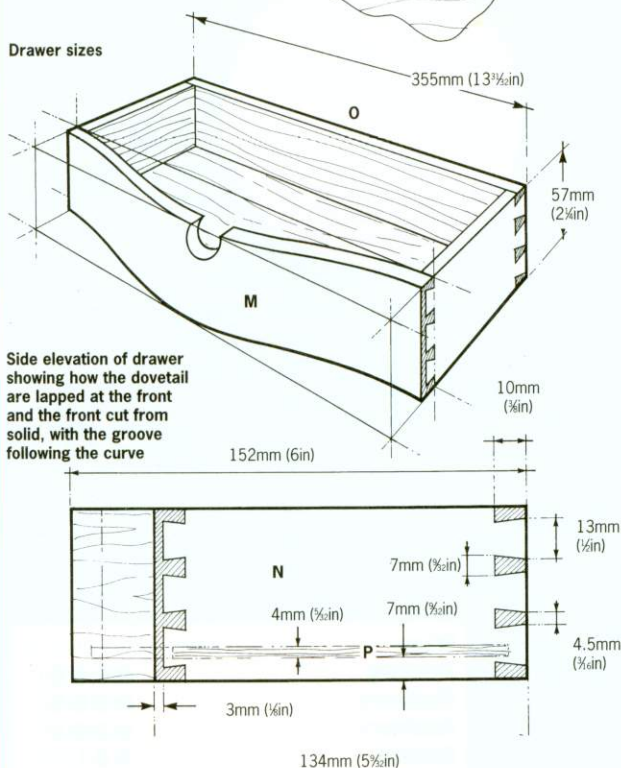
8 The former can also be used for holding the lid front when rebating it for the top. If you do not have a router, butt joint the top in place

Details of the drawer

Front view of drawer pull, drilled in drawer front



Drawer sizes



plane. It is difficult to plane veneer after it is cut, though we did skim each piece through a thicknesser. This is not absolutely necessary and is best with the veneer on a false table (GW 1:43). You will be choosing the first planed face for gluing, but skimming the second face helps to produce a better bond for the veneer tape. We lipped the sides after veneering to protect the veneer edge, but you may

find it easier to lip the MDF ground before veneering, and sand the lipping flush.

8 We tried initially to glue each strip of veneer on individually, but quickly decided that tradition is often best and reverted to the conventional approach of edge joining first with tape. Glue the edges with PVA and tape together with veneer tape (costing about £3.50 per roll from Aaronson Veneers

071 739 3107). Stick the tape across the join to start, and then along the length. Although you can use masking tape, it can pull up the fibres later.

9 Spread PVA across the surface, using a wallpaper join roller to get an even spread. You need a thin film of glue to ensure there are no lumps. Place the veneer on the surface and roll down. Clamp down between flat boards. You do not really need a curved caul as the section is sufficiently narrow to allow access for G-cramps. Veneer one side at a time, but do the other one immediately as there is a risk of distortion of the MDF with the drying veneer pulling it up.

10 Remove the tape when the glue has set (overnight), and trim up the edges, ready for lipping, which now can be done.

Assembling the Carcase

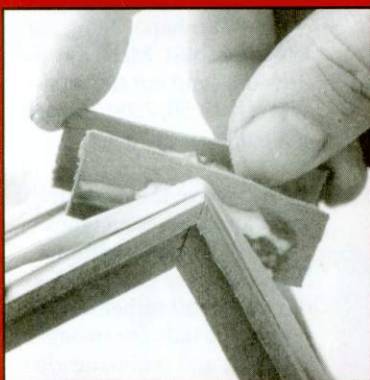
11 Cramp up the parts for the base, but do not mould the edge until you have cut the join between the base and sides. Cut the shape on the front to the line, with a bandsaw and spokeshave. Join the sides to the base with dowels or biscuits, or loose tongues, with a simple butt joint. Once you are happy with the dry assembly, rout the moulding around the base with an ogee cutter.

12 Cut the back to size and assemble the carcase, with the back dowelled inside the sides and on top of

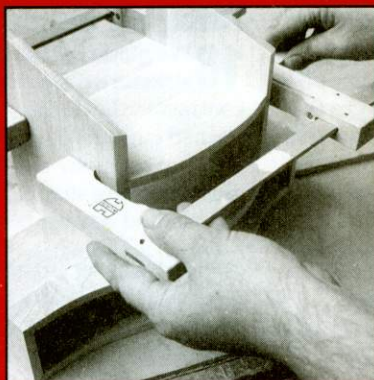
Cutting List

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
A Door laminate	Cucharillo	10	394mm 15 1/2in	41mm 1 1/2in	13mm 1/2in
B Side	MDF	2	393.25mm 15 1/2in	151.25mm 5 3/4in	10mm 3/4in
C Back	Veneered MDF	1	395mm 15 1/2in	375mm 14 3/4in	18mm 3/4in
D Base	Cucharillo	1	426mm 16 3/4in	211mm 8 3/4in	16mm 5/8in
E Top	Veneered MDF	1	394mm 15 1/2in	193mm 7 1/2in	6mm 1/4in
F Lid side	Cucharillo	2	166mm 6 1/2in	38mm 1 1/2in	13mm 1/2in
G Lid front laminate	Cucharillo	8	412mm 16 1/4in	38mm 1 1/2in	1.75mm 1/16in
H Lid back	Cucharillo	1	401mm 15 3/4in	38mm 1 1/2in	13mm 1/2in
I Shelf	Maple	1	174mm 6 3/4in	170mm 6 3/4in	10mm 3/4in
J Shelf support	Maple	2	193mm 7 1/2in	155mm 6 1/4in	10mm 3/4in
K Drawer box top and base	Maple	1 of each	375mm 14 3/4in	170mm 6 3/4in	10mm 3/4in
L Drawer box side	Maple	2	79mm 3 1/4in	134mm 5 1/4in	10mm 3/4in
M Drawer front	Cucharillo	1	356mm 14in	57mm 2 1/4in	48mm 1 7/8in
N Drawer side	Maple	2	131mm 5 1/4in	57mm 2 1/4in	10mm 3/4in
O Drawer back	Maple	1	356mm 14in	57mm 2 1/4in	10mm 3/4in
P Drawer bottom	Maple	1	344mm 13 3/4in	122mm 4 3/4in	4mm 1/8in
Q Side and back lipping	Cucharillo	1	1150mm 45 1/4in	13mm 1/2in	1.75mm 1/16in
R Veneer for sides/top	Cucharillo	22	457mm 18in	38mm 1 1/2in	1.75mm 1/16in

Cutting lists give the full length of a piece including the joint, but not wastage. Allow 25mm (1in) extra for length and 5mm (3/16in) on the width and thickness of sawn stock



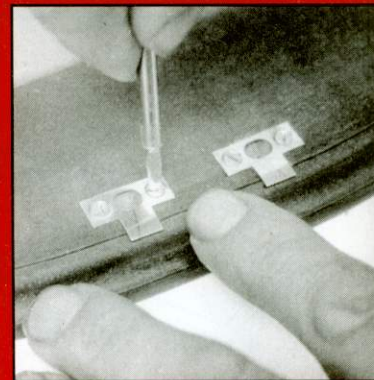
9 Having glued up the lid carcase, hold it with elastic bands and then cut thin slots for veneer keys, in the same or contrasting timber



10 When cramping up the internal structure make sure the shelf supports are parallel, and that the drawer box is square



11 Use the shape of the internal structure for marking out the drawer front, which is cut from the solid timber



12 Screw the ball catches to the base. These can be aggressive and difficult to open unless you fix them accurately

Jargon Busting

Sliding bevel

Often known just as a bevel, this is essentially an adjustable try square, which is used for marking out angles. Take the angle off a protractor first

In wind

When wood is twisted. This is difficult to eradicate as it is so hard to produce a flat surface that does not taper the wood in at least one dimension

Gooseneck scraper

A curved scraper with a constantly changing angle of curve, a little like a spiral for scraping concave curves and shapes of almost any radius

Shooting the edge

Planing the edge of a board with a planer or hand plane (as long as possible) before joining to the edge of another board. The sooner the boards are joined after shooting the better, to ensure the edge does not lose its straightness

Stop hinges

Special hinges that look like standard butt hinges, but which have flanges that stop them opening much further than 90°. They act as built-in stays

Ground or groundwork

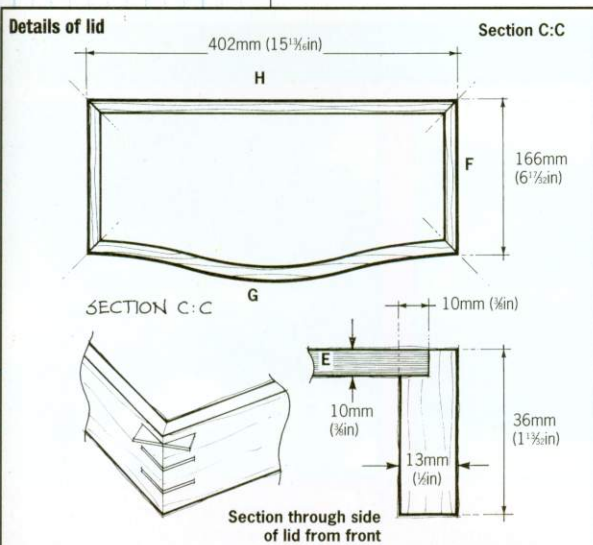
Solid wood or ply onto which the veneer is glued. Pine, or even mahogany, was a traditional ground, but nowadays MDF is more commonly used

the base, checking first that the doors fit. If you are staining the tantalus do so before assembling the carcass. It will be more difficult later.

13 With the carcass glued up, cramp the doors in place and lay a piece of scrap over the top. Pencil the outside shape of the doors onto the underside of the scrap, which must be thick enough to be used as a former for the laminated front of the lid. Draw another line on the former 13mm ($\frac{1}{2}$ in) inside the first line. Cut away the waste between the two lines with a bandsaw or jigsaw, and sand smooth both parts of the former.

14 Cut the eight laminates for the lid front, 1.75mm ($\frac{1}{16}$ in) thick, but overlength. As is true of most jigs, allow room for excess at each end of the former, so that you glue up a little more than you need. This will also allow you to pin the lid front to one of the former parts later for rebating. Having glued up the lid front, plane the top and bottom edges. For this it is best to hold the lid front in the former again, to ensure the edges are parallel.

15 Pin the lid front onto the exterior part of the former, and rebate for the top with a router. Cramp to scrap wood the pieces for the lid sides and back, with the top edge flush for rebating. Cut the ends at 45° for the mitre joints, and hold the lid together with rubber bands



Timber on Test – Cucharillo

Our quest for alternatives to mahogany has taken us right to the cutting edge of timber technology this month. In testing a plank of cucharillo, bought from The Working Tree (☎ 0428 76505), we have taken steps that others have not trod. Cucharillo is so rare outside Ecuador, where it is grown, that none of the timber agencies have even heard about it, let alone tried it out.

Cucharillo is a product of the El Pan Project in Ecuador. This community co-operative was set up with the help of the Ecological Trading Company in 1989-90. The first hurdle was to win land rights for the community of 200 people to the 5000 hectares that was already their home. The ETC then surveyed the forest and produced a management plan to run 100 hectares. This produces the community about three containers of timber a year. Because the ETC pay a reasonable rate for the timber they import into Britain (25 per cent of the retail value) that harvest can support the community. Normally the rates are so low, with the timber passing through many hands before export, that there is no living to be made, and the alternative is to cut the trees down to make space for cash crops.

When the British ambassador to Ecuador inaugurated the project in 1990, he sat at a table made from cucharillo, harvested only days earlier. We found the wood to be very stable, and that table top may well have seasoned without fault. However the ambassador cannot have failed to notice the

distinctive colour of cucharillo. When felled the wood is a vivid green, but it dulls and darkens quickly to a purple/brown. We were more interested to discover that it stains excellently to imitate mahogany.

The timber is light, with straight, rather than interlocking, grain. It planes very well, with good shavings, but you do need to wear a mask when sanding as the dust catches the throat and nose. The timber crumples a little when chiselling, but drills, screws and nails well. Though the price is on the high side, cucharillo is so stable and knot-free that there is virtually no wastage if you buy it planed all round, as we did. While there is an argument that timber must be able to compete on price whatever its source, if you want to support such projects as El Pan then you may have to pay extra.

Price:	about £26 a cubic ft
Finishing	●●●●○
Machining	●●●●○
Handwork	●●●●○
Sanding	●●●●○
Grain/colour	●●●●○
Value for Money	●●●●○
Overall	●●●●○

and then a strap clamp while the glue sets. It is at this stage, when you are cutting the mitres, that you realise the importance of curved work ending with a straight section for jointing and hinging purposes. Once the glue has set you can reinforce the mitres with veneer keys, holding the lid assembly in a vice with elastic bands, and cutting with a dovetail saw.

16 We used 6mm ($\frac{1}{4}$ in) maple veneered MDF for the top, and then veneered the top face. Cut the back and side edges of the top to fit the lid carcass, and shape the front with a spoke-shave to fit. Stain the inside of the lid, with the rebate deeper than the top thickness, so that you can then plane down flush.

17 We stained the tantalus with a Colron Peruvian mahogany stain. This went on easily and evenly, though

you do have to be careful of greasy fingermarks. There is also a risk that polyurethane will lift the colour of the stain. This is a problem when you are varnishing the maple at the same time because the varnish can be contaminated and stain the lighter wood. For that reason seal the stained surface with a shellac sanding sealer first. We then used a satin polyurethane and waxed the piece.

Fitting out the Inside

18 We made the interior structure from maple, in contrast to the darker, stained cucharillo. If you only have narrow maple, glue up a long strip for the shelves and drawer box.

When cutting a serpentine shape with a table saw, radial arm saw or bandsaw always support the point of cut, with a lid-laminating former underneath.

WARNING

Shape those parts that need to follow the line of the doors. Mitre the components for the drawer box, and glue up with rubber bands and strap cramps. Cut the shelf and shelf supports to size, and cut the housing joints. If you want you can stop these housings short of the leading edges to hide the joint.

19 The drawer front follows the third technique for producing a serpentine shape, being cut from the solid. Mark out the dovetails and cut the tails first (GW 1:50; 7:29); lapped dovetails on the front.

20 Groove the sides, front and back for a 6mm ($\frac{1}{4}$ in) ply or solid bottom. Make sure the groove goes through a tail rather than a pin, as the tails are stronger. Glue up, and while the glue sets, hinge the door and lid. We used special stop hinges for the lid, which act as stays.

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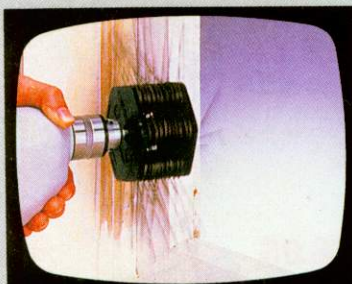
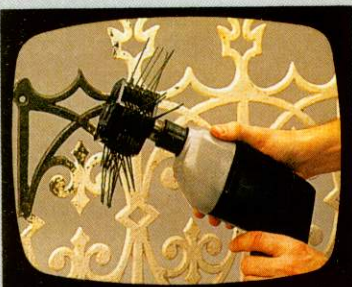
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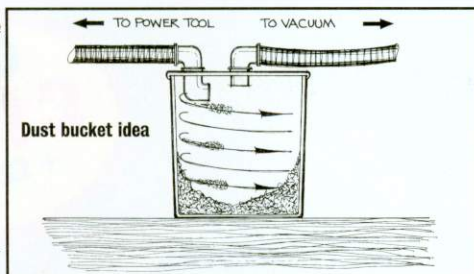


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Woodworking Hints & Tips

How to make extra space for dust

WITH reference to the article on dust extractors (GW 8:72), and the letter from K.W. Evans (GW 9:23), I use an old 1000W Hoover for dust extraction. But its small capacity prompted me to build a unit to increase it. The design uses an old catering-size mayonnaise bucket and a right-angled elbow. Air that is sucked from the Hoover is put into a spiralling motion by the elbow, flinging dirt to the sides by centrifugal force. Air (which is mostly clean) is



sucked from the bucket into the Hoover via a similar fitting.

Pat Tobin, Dublin

Painting jig

ON THE subject of Workmates, I use mine to support cupboard doors, panels and the like when painting or varnishing them. I place a suitable length of wood

in the jaws (a piece at each end of the jaws if I am doing four doors at a time). I then attach the doors by a single screw in each hinge. I can treat both faces and all four edges of the door in one go, in comfort, indoors or out. It beats crawling under kitchen worktops, balancing on steps (and you

don't get paint splashed everywhere) or painting only one side at a time. The method can be extended to any panel where an inconspicuous spot can be found for the screw holes.

Ron Fox, Sussex

Housing jig

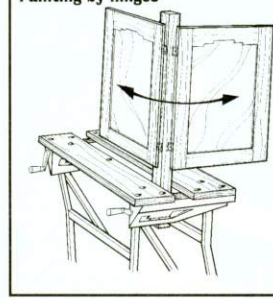
FACED with making many housings in the sides of a set of bookcases I came up with the device for holding the router steady while guiding it straight. I designed mine to clamp in the jaws of a Workmate, but you could equally make it for a bench, held down with cramps

The board to be housed slips between the top of the Workmate, or bench, and under the guide. I used offcuts that

were lying around the workshop to make the guide. The only really important consideration is the your router slides tightly between the guides. I find that candlewax and a few backwards



Painting by hinges



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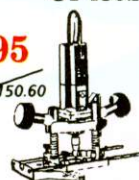
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I use shower gel containers for storing PVA. They have a self-clearing nozzle, with a spike built into the cap. The plastic body displays the quantity of adhesive left, and they hang up in the workshop with the adhesive always ready to be dispensed. And they are airtight.

Charles Smith, Staffs

and forwards slides gives it an easy slide without any wobble.

When in use, square the board to be housed to the front edge of the jig and along its length. For this reason it is

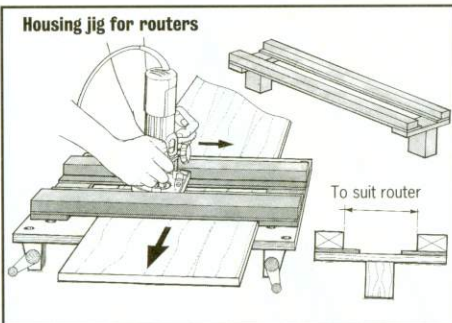
Don't throw away your old electric iron – the sole will make an effective anvil. It will be much better than the silly little things sold in DIY shops. Remove the sole from the iron and screw it to a piece of ply, then glue on a second piece of ply to cover the screws.

J.G. Stacey, Essex

important that the guides are parallel and square to the ends. You may have to support the other end of the board on a roller (GW 4:28) to ensure it is lying flat.

R. Morley, Northants

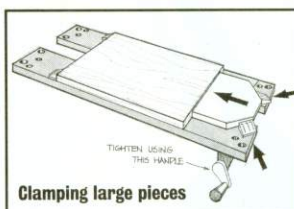
Housing jig for routers



Holding work without cramps

WHEN planing wood that is wider than can be clamped by the standard clamps on a Workmate, I have developed a simple method of clamping the wood end-ways, using an angled piece of wood that squeezes lengthways by the sliding action of the dogs. I find that it helps to undercut the angled edges a little to get a better grip with the dogs. The same is true of the cramping edge, which, if undercut, holds down the workpiece more effectively.

R. Metcalfe



To make sure that your plane irons, chisels and turning tools are ground to the correct angle, make your own angle jig from hardwood. **Reg Flower, Avon**

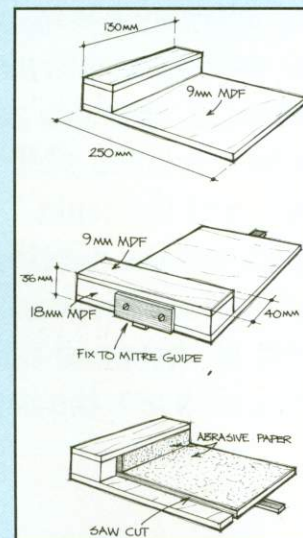
Cutting tenons on a sawbench

Cutting tenons on a table saw is not a new idea, but some saws do not drop far enough for shallow shoulders. So modify your mitre guide.

1 Cut a piece of 9mm (3/8in) MDF, 250x130mm (10x5 1/8in), to fit your table and guide. Glue a piece of 18mm (3/4in) MDF and a piece of 9mm MDF, both 250x40mm (10x1 1/8in), to the base. Keep screws from the saw cut when fitting the jig. The guide may need drilling first.

2 Raise the blade so that it cuts at a depth of 27mm (1 1/8in), and cut through the jig, with the crown guard – but not the riving knife – removed (take care). Stick abrasive on the jig with double-sided tape for grip.

H. Wells, Humberside



Send us your tips to win a prize

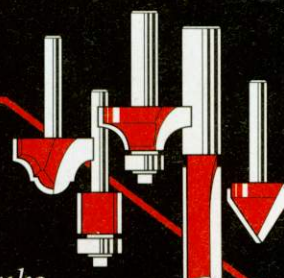
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The mitre saw is ideal for cutting architraves, skirtings, cornices and picture frames. Phil Davy and the team check out the subtle differences between eight of them and tell you which are the best

M put



Compound angles can be cut with some mitres saws. These angles are found on plinths, cornices and frames

Mitre saws to the test

Why bother to buy a mitre saw when you can easily make a mitre box for next to nothing? If you can saw accurately to a pencil line at any given angle, surely you can manage without?

Well perhaps you can, but you certainly won't get the accuracy or the fine finish that this versatile tool offers.

The mitre saw is the ideal tool for cutting architraves, skirtings and cornices. If you have done any house renovation that includes replacing wide skirting, you will know how frustrating it can be to cut bad mitres. A mitre saw will simplify life enormously.

If you make picture or mirror frames you will know that the mitres must be cut spot on at 45°. If they are not accurate you will end up with gaps in the joints. Using a mitre saw means that every cut, in theory, will be spot on at whatever angle you need.

The blade-locating slots of a mitre box will eventually become sloppy. Then either more cuts or a new box must be made.

The advantage of a mitre saw is that it will make precise cuts at any angle between 45° and 90°. If you need to build a pentagon, hexagon, octagon or any other polygon it is simply a matter of pivoting the saw blade to the selected angle.

Model and dolls' house makers will find a mitre saw useful. When it is fitted with a fine blade, small

sections of timber can be cut precisely. Unlike using a small circular saw, timber can be held in place safely with the fingers, close to the blade for angled or 90° cuts.

Plastics and non-ferrous metals can be cut with a suitable blade. If you needed to cut brass or plastic tubing at a precise angle, for instance, a mitre saw would do this efficiently.

How Fine are the Teeth?

If you are a joiner or carpenter what saw do you use for mitres? If you are cutting wide skirting, for example, the blade of a tenon saw will not be deep enough. The saw's back will prevent you cutting the full depth of the wood.

If you use a handsaw for mitring skirting it is likely that the teeth will be quite coarse, and so give a ragged cut. A panel saw will have no more than about 11tpi (teeth per inch, or 25mm), and a crosscut saw about 6 or 7tpi. If you need to produce fine joints, in cabinetmaking, for example, it is likely that the sawn edges would

need cleaning up with a plane. A mitre saw generally has finer teeth than a handsaw. The blades are replaceable and available in several grades, costing from about £9.50 each, depending on length.

Most of the saws we tested have blades with either 14 or 18tpi, which are considered suitable for general carpentry. Faster cuts are possible with 12tpi, while 24tpi blades are ideal for picture framing. It is possible to cut non ferrous metals with 32tpi blades. Nobex produce a bi-metal blade, costing £16.95, for cutting ferrous metals with their Champion saw.

But how much of the blade is actually used? When cutting 32mm (1¼in) picture frame moulding at 90°, I used less than 254mm (10in). This was less than half the available teeth on the blade. Cutting wider material means using more teeth, but there will still be a lot left over. If only I had a few spare teeth myself!

What is Compound ?

A cut that is angled in both

horizontal and vertical planes is known as a compound mitre. This may be a joint that you rarely need to make. However, if you build furniture and have to make plinths or cornices then a mitre saw will save a lot of hassle.

Only three of the saws tested can cut compound mitres. The Craft Supplies Multi Function saw can be tilted at 45° to the right or left of perpendicular. But this involves removing a pair of bolts beneath the saw carriage, which is a slow process. The blade can only be fixed at 45°, and no intermediate angles are possible.

The Proman and Nobex Champion saws allow eight different compound angles to be cut. On both of them the base is grooved lengthways. The front edge of the timber sits in the chosen groove, the back resting on the fence. This presents the work to the blade at the selected angle. Compound angles of 20°, 25°, 30°, 35°, 40°, 45°, 50° and 55° are possible on the Proman, and these are clearly marked next to the

Sandvik 232 Mitre Guide

If you need to make angled cuts in deep timber a mitre saw is not necessarily always the best tool. If you do not want a particularly fine cut then a much quicker method is to use a handsaw. However, it is not always easy to cut an accurate angle, especially if the work is three or four inches deep.

The Sandvik mitre guide lets you use any handsaw at angles of 30°, 45°, 60°, 75° or 90°. Made of heavy gauge aluminium, the base is lipped so that it sits against a timber edge. A large plastic wheel allows the perpendicular fence to be locked at the required angle. The saw blade is slipped under a sprung steel plate and is held tight to the fence. Two fence positions allow left and right hand cuts.

I found it best to cramp the workpiece down. A cheap hardpoint saw is recommended as the faces of the blade do get scratched when sawing.



Value for money

Overall

RRP inc VAT £14.92

Contact: Sandvik Saws ☎ 021 550 4700



appropriate groove. The Champion will cut at 60° but not at 25° or 35°.

Construction Quality

Each saw has a cast bed with a rigid rear fence. Most are made from aluminium, although the Ulmia is made of cast iron. The Ulmia has a solid beech base and the Proman and Nobex Champion have steel legs which can be screwed down. The rest of them have a base of veneered MDF.

Most of the bed surfaces are ribbed and this does allow sawdust to settle without interfering with timber positioning. The Craft Supplies Multi Function and all

three Nobex saws have metric and imperial graduations along the bed. Zero is the point where the blade cuts the timber.

Most of the saws are rather like hacksaws in appearance. The removable blade is secured at both ends and can be tensioned. This is usually done by tightening a wingnut on the end of a steel rod. However, the Nobex Champion is quickly tensioned by flipping down a lever on the handle.

Unlike the others the Ulmia is actually a backsaw. This limits the cutting depth to 52mm (2½in). The rigid blade is made of Swedish steel and is resharpenable. Each

blade slides in a carriage that is supported on steel guide rods. Most saws have two rods, in pairs, though the Nobex 202 Pro has only the two rods. This does not appear to affect the stability or cutting action of the saw.

All the saws have some means of securing the blade above the work while positioning the timber. The APTC, CK, Draper and Craft Supplies saws have sliding collars on the rods that can be locked at any height with plastic thumbscrews. This allows you to cut grooves in the work instead of sawing all the way through.

The Ulmia and Nobex 202 Pro

saws have wire clips that hook over the top of the rods. Flicking the clips allows the saw to drop.

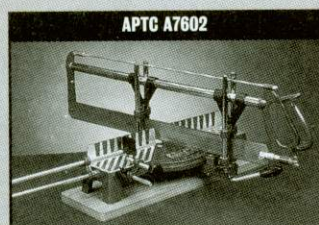
A combination of metal clips and stops works in a similar way on the Proman and Champion.

Both the Proman and Nobex Champion saws can be "parked" when not in use. By lifting the blade off the rods it can be swung round and placed on a locating lug on a corner of the bed.

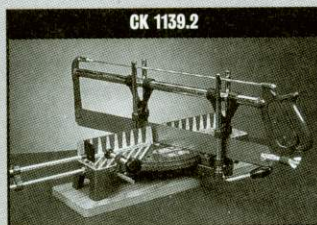
Choosing the angle

All the saws have preset positions for locking the blade at 90°. They can also be locked on the right or left at 67°, 60°, and 45°. Apart

TOOLS ON TEST



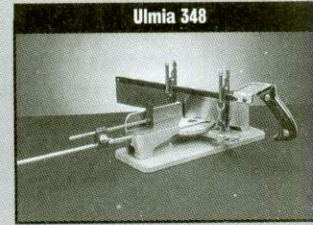
APTC A7602



CK 1139.2



Draper MS550



Ulmia 348

Contact	0297 33656	0758 701070	0703 266355	0758 701070
Manufacturer	Axminster Power Tool Centre	CK Tools	Draper Tools	CK Tools
RRP (inc. VAT)	£29.95	£54.50	£74.00	£166.00
Origin	Taiwan	Taiwan	Taiwan	Germany
Cutting depth	114mm (4½in)	114mm (4½in)	114mm (4½in)	52mm (2½in)
Construction	Cast aluminium bed and fence with a blade length of 550mm (21½in). A sprung lever allows the saw to pivot, locking in nine positions. No compound mitres	The 550mm (21½in) blade is released by a wing-nut on the handle. Nine pivoting positions possible, and clamp can be sited left or right. No compound cuts	Cast aluminium bed and fence. No compound mitres, but nine saw pivoting positions. Blade length of 550mm (21½in), and 2 collars for locking blade height	Cast iron bed mounted on beech base. Resharpenable blade can be adjusted for wear. Lever squeezed for blade pivoting in seven positions
Brown	An accurate saw on narrow, wide and deep cuts although a little sluggish. The swivel release and lock is effective. This saw performs well and is remarkable value for money	The horizontal depth stop is flimsy but effective. It is interesting that although the blade is 550mm long only 100–254mm (4–10in) was used when cutting test pieces	The extra-long reach work clamp is fairly useful. I liked the ribbed table which clears dust and debris from the contact surfaces. However this saw is on the expensive side	A connoisseur's saw for picture framing. Very well made, simple and solid design with resharpenable blade. A nice action and accurate, but pricey
Davy	The cutting action is not particularly smooth but at this price does it matter? Teeth are poorly stamped but accurate cuts were made. The front clamp is limited	This saw has useful depth stops that can get in the way of the blade. The front clamp is slow to adjust and will not hold short pieces. A good blade was fitted making accurate cuts possible	A fine tooth (18tpi) blade is fitted which gave a good finish. This saw has the benefit of a long-reach clamp but it is slow to adjust. The saw pivot lever is a little awkward to use	No degree markings on the bed is a disadvantage. The blade pivot lever is a bit stiff and there is no clamp. It does have a lovely cutting action, but at a price
Wilkie	The alloy castings have some sharp edges. A clumsy saw pivot lever meant there was a tendency to graze my hand on the blade. It cut accurately but the blade is of poor quality	A spanner is needed to move the length stop and front clamp from one end to the other. Some sharp edges on the cast alloy bed. A fairly accurate cut from this saw	A long-reach clamp is supplied with this saw for holding small pieces of wood. The blade is of poor quality but quite accurate cuts were achieved. It was not particularly easy to use though	The range of this saw is limited and there are no angle calibrations. Screws on the saw back and length stop have sharp edges. An accurate but coarse cut
Brown Value for money Overall	●●●●●	●●●●○	●●●●○	●●○○○
Davy Value for money Overall	●●●●○	●●●○○	●●○○○	●●○○○
Wilkie Value for money Overall	●●●○○	●●○○○	●○○○○	●○○○○

from the Ulmia, the rest will also index at 54°, and the Proman and Champion at an additional 75°. These last two saws lock in a total of 11 positions.

Pivoting the blade is done by lifting a spring-loaded lever on the APTC, CK and Draper machines. When set at 45° the blade does tend to get in the way of the lever on these three saws.

The Ulmia has a small lever that is squeezed to release the lock. This was slightly stiff but would probably ease in time.

The Craft Supplies Multi Function and all three Nobex saws work by simply pressing in the

lever beneath the handle. These were the easiest to operate.

Cutting a mitre at an angle that is not preset is easy. But as the position cannot be locked, cutting involves holding the saw steady at the start of the cut. On the Nobex 202 Pro an extra lever at the back of the saw carriage locks the blade at any angle.

If you make frames or boxes with more than four sides the Nobex saws have an advantage. Five, six, eight and 12-sided shapes are displayed on the saw's protractor scale. All you have to do is swing the blade until it matches the correct symbol.

Final Verdict

If you only need to cut the occasional mitre you probably will not want to spend a lot of money on features you will not use. The APTC A7602 is a basic saw that is very good value. It cuts accurately but I would be inclined to buy a better quality blade.

If you want something more sophisticated then the Proman is excellent value. Compound mitres can be cut at several angles on this saw, and it has a very smooth cutting action.

If you only want to cut compound mitres at 45°, the Craft Supplies Multi Function saw is worth considering. Changing the blade over to the 45° position is a bit fiddly, though.

For overall performance the Nobex Champion emerges as the winner. This is a big saw and it is expensive, but it has a greater capacity than the rest. The rear extensions to the fence are a neat idea and give extra support when cutting deep timber. Blade tensioning is quick and the handle is particularly comfortable over long periods.



Craft Supplies Multi Function

0298 871636

Craft Supplies

£42.89

Taiwan

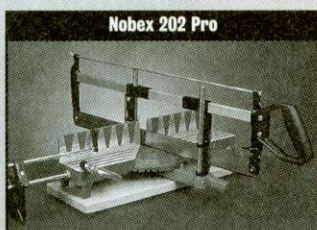
152mm (6in)

Cast aluminium bed and fence, with blade length of 600mm (23½in). Nine pivot positions for saw. Compound mitres (45° only) by repositioning bolts under saw carriage

There was some play on the swivel lock and movement when sawing. I found the handle uncomfortable and liable to chop a curled forefinger against the frame. The depth stop swings round and fouls the blade

The graduations on the base are useful, and the clamp can be fitted on the fence for vertical holding. Quite a good cut was produced, but changing over for compound cuts is a pain. Blade pivoting is easy

The pivot lever is rather too close to the blade unless the depth stops are used to raise the blade. Clear calibrations on the base for ease of measurement. A poor quality blade but accurate cuts were possible



Nobex 202 Pro

0926 493389

Brimarc

£123.38

Sweden

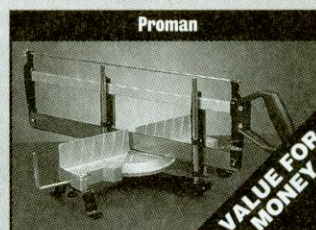
114mm (4½in)

Aluminium bed on pine base, with a blade length of 565mm (22½in). Saw will rest on clips above work. Nine blade positions, by squeezing lever. Depth rod and substantial clamp

A well-made tool giving a nice cut. It has an excellent quick release clamp and takes wood up to 105mm (4¼in) wide at 45°. The single columns may contribute to the cuts being slightly out of square. The swivel lock is good

This saw has a simple and quick to use clamp. It has an excellent blade pivot action and rear lock. The geometric symbols are useful. A heavy duty saw that produced a superb cut

A very well made saw that is easy to use. No spanners are needed for adjustments. A positive back lock secures the blade at any chosen angle. It gave extremely accurate cuts and is sturdy enough for professional use



Proman

0926 493389

Brimarc

£59.95

Sweden

114mm (4½in)

Aluminium bed and steel legs, with a blade length of 565mm (22½in). Lever is pushed in to pivot blade, and eleven preset positions possible. Base is ribbed for eight compound angles

I found this saw has the nicest cutting action and was reasonably accurate on deep cuts. The compound angle cutting ridges on the base are novel. They are quick to use but I wonder how useful they are

Compound mitres are possible on this saw. The blade is easy to pivot and can be rested simply above the workpiece. It has a fast cutting action producing an excellent cut. The blade can be "parked" when not in use

This saw is designed by and for craftsman. It is easy to use and gave accurate results. Catches hold the blade up above the work. The pivot locking is positive. This my choice for the amateur woodworker



Nobex Champion

0926 493389

Brimarc

£114.56

Sweden

190mm (7½in)

A blade length of 630mm (24½in) and an aluminium bed. Blade tensioned by flicking handle. Eleven preset positions and seven compound angles

This is a big saw that cuts 190mm (7½in) deep. It has a useful extending fence and a comfortable grip. There was some juddering and slight inaccuracy on the vertical cut

If you need to cut deep skirting this is the saw. The fence extensions support the work well. Two substantial clamps are fitted and the length stop is easy to adjust

This is a large and versatile saw. It is ideal for use by site carpenters for mitring skirting. It has a useful depth capacity and extra rear support. A first class machine



We would like to hear what you have to say about the world of woodworking, good or bad. Please send your contributions to:
Good Woodworking Letters, 30 Monmouth Street, Bath, Avon BA1 2BW

LETTERS

Who will train the next generation?

I have been in various industries as a wood machinist since leaving school in 1953 at the age of 15. I am still employed as a lecturer in wood machining, and to relax at weekends, I do woodwork. Wood still has a fascination for me.

I am writing to you in frustration. What is happening to wood machining? Where are the future wood machinists going to be trained? In the current recession, companies are not employing trainees, and the days of apprenticeships have long since passed.

The colleges are increasingly closing wood machining courses, saying they are non-viable. I believe the only colleges in the London area running craft level wood machining courses are Lambeth College (formerly Vauxhall), and ourselves, Bexley College (formerly Erith).

A few years ago there must have been at least six others. The stories from around the country are always the same: "another college shutting down machining courses, as there's no profit in wood machining."

Nobody can tell me it's a dying trade. Wood machining must now be more important than ever to production companies, if they are to remain

competitive. I am told the 'designer' and degree courses are flourishing. Where will the trades people come from, to make the designed articles?

John Lobb FIM wood T, Kent

We have come across some machining courses, but are always interested to hear of more, and to learn what is happening to apprenticeships around the country. **NG**

Hunt for 1/4in dowel

Gerald Jarrett doesn't mention what lengths of 1/4in dowel he needs (GW 10:62). However, if he only requires short lengths, why not use matchsticks or cocktails sticks? These can be tapped through a die quite easily to give 1/4in diameter. A small piece of steel, 1/4in thick or less, with a 1/4in hole drilled in it, makes a suitable die. Matchsticks should be slightly sharpened first.

W. Miller, Kent

Let us know how you get on Mr Jarrett. We are still looking for supplies of this dowel, so if anyone knows of it, please contact us. **NG**

A little knowledge can be dangerous

As a senior lecturer in charge of machine woodworking at Gloscat (Gloucestershire College of Arts and Technology), I found the article in your July issue on evening classes for machine woodworking enthusiasts very interesting (GW 9:4).

However I was also concerned that a little knowledge could be dangerous. The facts are that more and more people, from the keen DIYer to the self-employed person, are using woodworking machines.

On visiting some of these self-employed people, I was amazed by the range of machines in use and also at the lack of experience they had in using them.

Some criticism for this could be levelled at the manufacturers and retailers of these machines, who infer that little skill is

required to use their machines. Machines in themselves produce nothing – it is the skill of the craftsman who use the machines which is most important.

In September 1992, we began offering an evening class in the use of woodworking machines and two other evening courses on the use of portable routers. All were successful. By December 1992 we suggested running a day release course in machine woodworking for mature students, as well as the evening course for mature students. This course began in February 1993 and students can do one or both of these courses.

Both the machine courses and the router courses will be offered again from this September. For more information contact Gloscat on 01452 426570.

Considering John Lobb's experiences, this is encouraging to hear. **NG**

We train too

With reference to your article in the July issue entitled "Evening Class Critic...", I can assure you that the Bridgend Institute of Higher Education course is most certainly not the only one of its kind in the country, as suggested in the article (GW 9:4).

In fact, similar courses have been running here in Stoke on Trent for over 20 years and during the current academic year we enrolled over 40 students with ages ranging from early 40s to 73! I also know of at least half a dozen other colleges running similar courses.

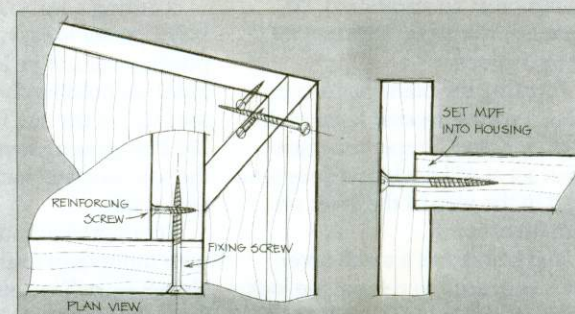
L. Allt, Head of Woodmachining Stoke on Trent College

It's an unfortunate fact of life that as soon as we say anything is believed to be the only one of its kind, hundreds more appear. Please contact us if you are one too. **NG**

Meths won't work

In the June issue of Good Woodworking you dealt with bleaching oak, recommending methylated spirits for neutralising

How to use screws in MDF



Rik Middleton says use reinforcing screws to stop MDF opening up

Further to Edward Hopkins' article on using screws (GW 9:62), may I suggest a straightforward technique to prevent screws from opening up the compressed wafer structure of MDF. (This may prevent constructors of Bruce Wilkie's child's workbench (GW 9:42) from coming to grief.)

The area around the screw hole must first be reinforced by screws through the MDF from the blind side. If two screws are put in from the unseen side of the job before drilling and screwing to the end, the likelihood of splitting the MDF is very much reduced. The reinforcing screws need to be 75 per cent or more of the thickness of the MDF.

Another useful technique is to set ends of MDF into accurately cut housings, where the structure makes this possible. This construction also obviates this kind of split. I also suggest that if Bruce Wilkie built up legs and cross-braces from separate strips instead of from one U-shaped piece, he would save a lot of waste in the construction of the bench without making the project any more difficult.

R.J. Middleton, Coventry

This is an excellent idea. There is always a problem when screwing into the edge of MDF. I favour housings, but butt joints do need reinforcing when you have to use them. **NG**

oxalic acid (GW 8:60). However methylated spirits is itself neutral and will not neutralise acid. For this purpose it would be necessary to use a weak alkaline solution – washing soda would work. I would also point out that oxalic acid is not as effective as our two-part wood bleach, which will bleach mahogany white!

Ronnie Rustin, Rustins Ltd

Bleaching often causes confusion, so thanks for the correction. **NG**

Planers and dust extractors

Referring to your question about adaptors to make dust extractors fit power planers (GW 8:76), I would like to offer my solution for the B&D DN750 (=SR600). I made a wooden former to the same cross-section as the outside dimensions of the dust outlet. I then cut a short length of 50mm (2in) outside diameter grey plastic water pipe and heated one end with a hot-air gun. While the plastic was soft I stretched it over the former to achieve the right shape.

The other end of the pipe needed reducing by gluing in segments of a smaller size.

Depending on the weight of the vacuum hose, this might need a securing pin for hand-hold use, but with the planer inverted on its bench stand this gadget works a treat! **Jeff Trimmingham, Norfolk**
Good idea. If anyone else has ideas for connecting extractors to power-tools or machines please write to us at Good Woodworking. **NG**

More on the logger

I recently received my prize of the AEG electric planer and thicknessing jig from the competition in GW 5:33. What a wonderful prize it is! I felt I must write and express my thanks to you for making it possible.

I am a purely amateur woodworker who makes toys and models for myself and the family, as well as small items of furniture. I have not doubt that this prize will enable me to broaden my horizons.

All power to your elbow for a first class magazine. I find it to be far and away the best for woodworkers at my level, and it helps me to improve my standards continually. The Back to Basics and Techniques items are invaluable. Yet you are also able to cater for the more

JULY COMPETITION RESULTS

Name the Grain

The grain on the cover of the July issue of Good Woodworking was YEWE. K.J. Aplin of Dorchester, Dorset was one of the many readers who wrote to tell us that, and he's the one who gets a copy of World Woods in Colour, published by Stobart Davies.

professional woodworkers among us.

Incidentally, I have just made the logging truck and trailer (GW 5:50). Instead of securing the wheels to the axles with wedges, I used screws with the screw-on dome heads, as used for fixing mirrors. With a suitable pre-drilled hole, the screws acted the same as a wedge and the screwed-on chrome dome gave a nice finish to the wheel centre. I thought this would be a good idea for other wheeled toys as the dome is not easy to unscrew once put firmly on. A little Superglue could even be put on the threads to help keep the domes on.

I also made the bandsaw fence (GW 4:70), but found the upright fence shown too high for cutting any fairly thin components, as the height of it prevents the blade guide being lowered below the 70mm (2 7/8in), leaving the blade room to wander. Needless to say I made my fence lower. I also fixed the mounting blocks at an angle to compensate for the angled cutting of the blade – a problem you referred to in GW 4:64. I now have no problem with the blade trying to skew to one side. Again, many thanks.

Bryan Marshall, Cornwall
Thanks. It is encouraging to hear your comments. **NG**

Give me the plane truth

First of all, I want to thank you for giving me the opportunity to

compete in your AEG planer competition (GW 5:33).

After receiving the planer, I wrote to Atlas Copco to ask why they had sent me model H750 and not HB750, as offered in your March competition. They answered by saying that it was an error on Good Woodworking's behalf, and that model HB750 is not available in the UK.

If this is so, I would be interested to know how you were able to test model HB750 and offer it in your competition.

Good luck with your magazine. I look forward to each new issue.

Howard Jenkins, Dyfed
The model that AEG should have sent us for the test was the HB750. This number was actually marked on the box it came in, so naturally I assumed the planer inside was this model. It was not until after the test that I found a tiny number on the machine itself – H750. **PD**

Dust mask blues

I read with interest your tests on dust masks (GW 10:20). Being a spectacles wearer and using the simple ribbed type of mask, I have problems with my specs misting up, particularly during sanding operations.

My son, who is a toolmaker, recommended I try the type he uses in his job. This is a Martindale thin metal type, with a replaceable filter element, similar to the Draper and Vitex ones in

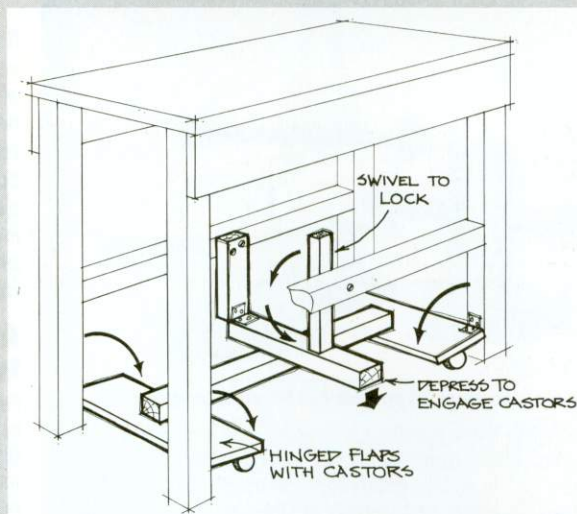
The simple way to get that workbench moving

Referring to M. Jones's letter about the lack of mobility of his workbench (GW 9:54), I too had this problem many years ago. At the time funds were limited and I had to adopt Heath Robinson tactics to solve my problem.

I obtained four strong casters from a scrap washing machine, and attached them to two boards which in turn I attached by hinges to the bench legs. I arranged the geometry so that when the boards were flat the caster wheels were about the 25mm (1in) below the legs.

An L-shaped peddle arrangement is used to press down on the caster boards to raise the bench up onto the casters. A cross-piece attached to the bottom of the L connects the L to the caster boards. Once the peddle is pressed, it is locked in place by a swivelling piece of timber attached to the back of the front rail.

Provided one gets the geometry and fulcrums correct, a bench weighing 2–3cwt can be lifted by pressing the peddle only gently with one leg. When the peddle is up the



Peter Bradley cannibalised an old washing machine and used the casters to make his bench mobile. The casters retract, leaving the bench rock steady

undercarriage retracts and the bench stands firmly on its legs. **Peter Bradley, Bristol**
An excellent solution to a tricky problem. Most of us aren't blessed with a large workshop, yet many jobs often need a bigger work surface than a Workmate provides. Moveable benches make a small space much more versatile. **NG**

your test. Though I have found it to be efficient at filtering out the dust, the problem of misting up is still there.

I have now contacted Moldex-Metric, who referred me to The Tennant Rubber Co. (☎ 0602 501112). Tennant Rubber supplied me with a pack

of three Moldex 2405, which up to now are working well and do not mist up. The cost, at £7.40 for three, is a bit more than I expected to pay, but I'll be satisfied if it eliminates the headaches and uncomfortable stuffed up feeling I've had.

Incidentally, Tennant Rubber informed me that the Moldex 2400 (without the air valve) is now obsolete. They also said that they are willing to provide a mail order service.

Can I add my congratulations to those of dozens of people who have already done so, on the excellent magazine you produce. I have bought every issue since the first one, and will continue to do so. What I find distasteful are the letters from people whose aim it seems to be to pick up on every tiny error or oversight in the articles instead of noting them and then adjusting them accordingly. Thanks. We hate making mistakes, but at least the discouraging comments you dislike so much keep us on our toes. **NG**

I can't read it

Heaven knows what your contributor Ian Wilkie had to say about the crazy layout of his Fighting dust feature (GW 10:22)! Unless it was intended as a joke (in very poor taste), why waste paper and space printing

information in a way that is totally unreadable?

R.F. Care, Dorset
It's a fair cop. In printing Ian's thoughts over a background of timber grain we knew we were pushing publishing technology as far as it would go. It seems this time we pushed it a bit far. Who dares gets angry letters. **NG**

Hot tip

It was interesting to note the construction of the bowsaw from Mr A. Buckley, being from the same era when a lot of our tools were home-made (GW 10:35). It may interest readers that blades for the bowsaw can be made from broken bandsaw blades, after cutting to length and drilling the ends for the pins. Drilling will be easier if the end of the blade is heated and allowed to cool to lose some of its temper. Pushing the end of the blade through a potato first will keep the heat to the required area. Otherwise the heat will creep up the blade, to its detriment.

Alan Clarke, Carlisle
Great idea! Add a knob of butter to the spud and you have your lunch. **NG**

More power to your router

Reluctant though I am to question the wisdom of your

NAME
THE GRAIN
BOOK COMPETITION

NAME the grain

Identify the timber on our cover – and you could win a definitive guide to world woods

What is the wood printed across the lower half of this month's Good Woodworking front cover? If you can name that grain you could win a copy of a classic book of world woods worth £25.

The first correct answer pulled from the bag on the closing date of 14th September will win a copy of World Woods in Colour by William Lincoln, published by Stobart Davies, of Priory House, Priory Street, Hertford, Herts SG14 1RN. This is a definitive 320-page hardback encyclopedia of woods, beautifully presented with 273 colour photographs.

Send your answer, with your name and address, on a postcard or the back of a sealed envelope to Good Woodworking, 30 Monmouth Street, Bath BA1 2BW by 14th September 1993.

THE ANSWER IS 1 Japanese horse chestnut **2** Walnut **3** Ellemen tree **4** Beech

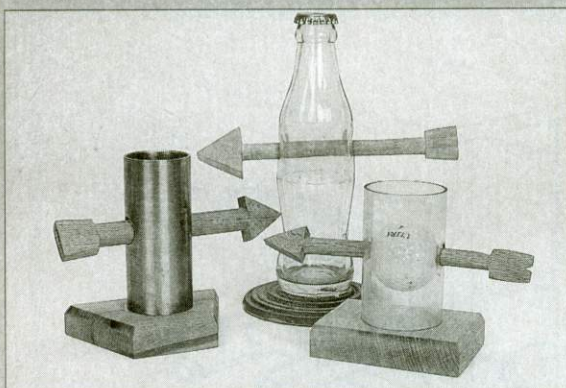


WATCH OUT FOR NEXT MONTH'S NAME THE GRAIN COMPETITION

Name The Grain, Good Woodworking, 30 Monmouth Street, Bath, Avon BA1 2BW.

POST
TO

Do you know the secret?



Little arrows everywhere: do you know how Derrick Miller does it?

I hope you find these puzzles fun to study. The arrows are made in one piece, from solid wood. Perhaps your readers can work out how the arrows got through the holes. Many people say I glued the arrow, or assemble the tube around it from two halves. Neither is right!
Derrick Miller, East Sussex
Well, do you know? Right and tell us if you think you have the answer. We cannot work them out. **NG**

a fantastic job. Keep up the Good Woodworking.

Andrew Womack
Sheffield

It is a good point. We have very little space for showing all the safety equipment you need, and tend to focus on essential tools for the job, but goggles and ear defenders are always important, and we will try to give such safety precautions more prominence. **NG**

A cool way to fight rust

Further to the Fighting Rust letter in Woodworking Answers (GW 9:53), I would like to make the following suggestion: To help prevent rust on tools kept in sheds, store the tools in an old (non-working) fridge. A fridge is virtually airtight and will keep tools dry and rust-free.

Tools stored in the basement of a chalet in wet mid-Wales have remained rust-free for 10 years!

However, if the fridge is large enough for a child to enter it must have its lock removed so that it is impossible for a child to become trapped inside.

S.M. Cottingham, S. Glamorgan
This is a good suggestion, but I would reiterate the advice about how essential it is to remove the lock from the fridge door. Even then, it would be safer still to make sure the workshop is locked

without sufficient power at his command, the operator becomes frustrated and inclined to step outside the safety parameters. This inevitably leads to damaged cutters, poor results and perhaps even injury.

Michael Burley, Essex

Yours is a very good point. Mid-range routers certainly offer new opportunities for home woodworkers. **NG**

What, no goggles?

One minor criticism I feel I make of Good Woodworking is on the subject of health and safety, whilst using power-tools in particular. In projects, power-tools are often specified as being required but I do not recall seeing safety glasses or ear defenders mentioned in the list of required equipment.

Does the magazine have a responsibility to its readership and should it stress general H&S issues, rather than just drawing the readers' attention to dangerous working practices? Perhaps I am over conscious of H&S issues since I am the Union H&S rep. in my college!

I have taken out a subscription to GW, my first ever to a magazine. I thought the games table (GW 6:10) was over the top, but otherwise the projects are well designed and thought out. The demystifying way of writing about woodwork is refreshing, and what is more you keep the thing topical with a fast-moving letters page which refers to the last issue. Your printers and production staff do

when you are not using it, to keep inquisitive little visitors out of harm's way.

NG

Take your time

I was surprised to read of the negative attitude of professional woodworkers towards John Walker's attempt to join them.

I was a ceramic tile fixer until I was made redundant. However, my employer recommended me to one of his friends who had a carpentry and joinery business, and I began the most satisfying career of my varied working life.

Workmates encouraged, supported, helped and guided me. I was made to feel welcome. In fact I experienced nothing but positive attitudes.

The phrase "if you've never made a mistake, you've never made anything" was a constant source of encouragement – and still is sometimes.

I have moved on in the business and can honestly say that for each company I have worked for I've gained experience and friendships, and never the negative small-mindedness which John Walker was subjected to.

Never be afraid to ask someone else's opinion on how to tackle a job. Most competent woodworkers love to talk woodwork. Advising someone less experienced and then watching them make a good job of something is a boost to anyone's ego.

I love my work, and after 10

years of it, I can nearly saw a piece of wood squarely. Remember to take your time: it takes just as long to mess a job up as it does to do it right.

Peter James, Norfolk

Thank you for your comments. In my experience most skilled woodworkers are usually willing to help novices. John Walker was particularly unlucky **NG**

Bandsaw test

Could you please advise me which is the best bandsaw to buy. There seems to be a wide range, and I have about £400 to spend. Thanks for your help.

Albert Miller, N. Yorks

Next month will be your lucky issue. We will be taking on the mammoth task of testing nine bandsaws just about in your price range. **NG**

Modern materials

Although I am an old-fashioned pre-war carpenter/joiner, trained at a time when all the tools used were hand powered, I am not adverse to using modern materials, hence I use PTFE dry lubricant to protect my lathe, tools, vice and others. It is available from Axminster Power Tools (☎ 0297 33656) and other tool suppliers.

C.Taylor, W. Sussex

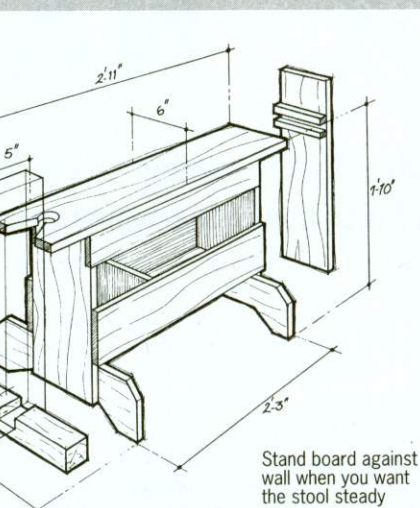
Yes, it's good stuff for smoother woodworking. **NG**

Build yourself a Scotch stool ... and hold onto it!

I seem to spend a lot of time these days thinking about the past, the tricks of the trade, and how things should be done. Something about getting old I suppose! Anyway, here is a tip that might be of interest.

The normal carpenter's/joiner's stool or sawing horse has its limitations as well as many uses. When on site (many years ago), we frequently found the Scotch stool to be more versatile. It was particularly useful for door hanging, lock fixing and so on (until, that is, the plasterers pinched it).

One of these stools is always very useful in the home, particularly for those odd jobs when you only need a few tools. The top is wide enough to sit on during the tea break, and for standing on when necessary. It is



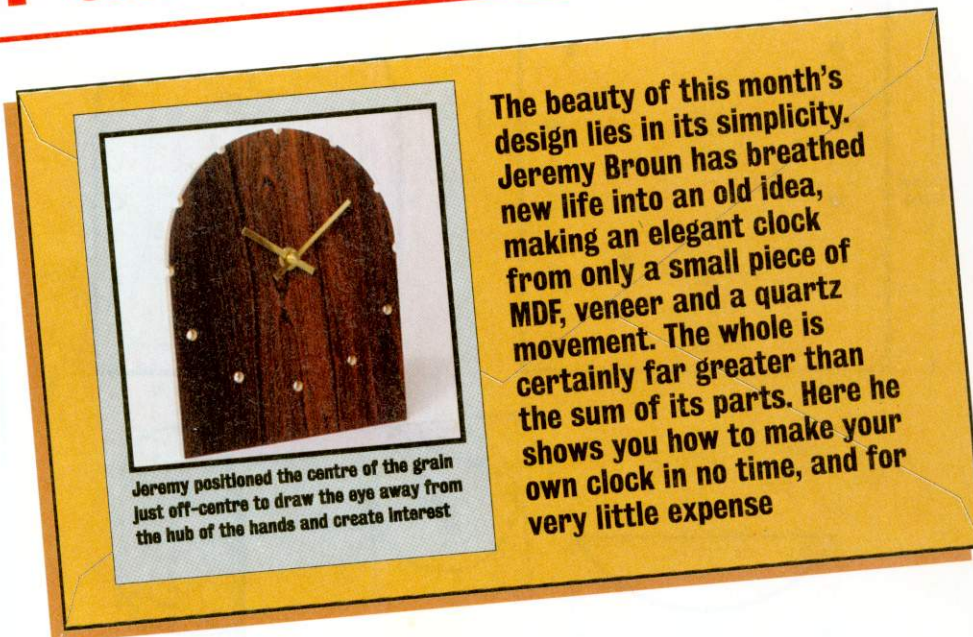
Ted's trick of the trade can be used for holding doors while you hinge them

easy to make from standard 150x25mm (6x1in) PAR softwood.

Ted Jenner, East Sussex

The old ideas are often the best. **NG**

Back of an envelope design



Jeremy positioned the centre of the grain just off-centre to draw the eye away from the hub of the hands and create interest.

The beauty of this month's design lies in its simplicity. Jeremy Broun has breathed new life into an old idea, making an elegant clock from only a small piece of MDF, veneer and a quartz movement. The whole is certainly far greater than the sum of its parts. Here he shows you how to make your own clock in no time, and for very little expense.



Jeremy Broun took a short break from woodworking this month, when he made a video about bungee jumping! (He didn't actually try it, mind you – the coward.) After that it was back to writing another book, this time about modern methods of woodworking.

TOOLS YOU WILL NEED

- COPING SAW
- POWER DRILL OR HAND DRILL

These will work just as well as a jigsaw and a drill stand

This month the brief from Nick (the editor) was to make a clock. He wanted me to design something that could be made within the weekend, while challenging me to think of something new. He added that the clock must not look out of place amidst older pieces, or even among antiques.

The design was essentially made possible by that marvel of the technological age – an inexpensive battery-powered quartz movement. This not only makes the clock simple to produce, but keeps the cost down so you can experiment with confidence. With veneer and MDF offcuts being used for the face of the clock, I was able to make it in a couple of hours.

I particularly wanted to produce something that could be made as easily with hand-tools as it could with power-tools. A coping saw and drill are as good as a jigsaw and drillstand.

Since I first started making clocks some 20 years ago we have become less reliant upon numbers around the dial of a clock. This gave

me more scope for calibration, and I quickly realised that round holes would make excellent digits.

By cutting through the top half of the dial, some of the holes become an edge detail adding interest. The arch reflects the classic shape of many mantel clocks, and is naturally familiar to the eye.

When it came to construction, the obvious, linear process would be to cut the body to shape and then add the decoration in drilling the holes. Though

you could file the edge details, this would be time-consuming, so I drill them first and cut through later.

The canting of the clock by about 1° backwards was a bit of an afterthought. I had considered that the weight of the movement might make it fall over, but was not sure if a rake was necessary. I cannot agree with those people who decry designing while making the piece. In this case it was essential. Had I decided to have no rake the clock might have fallen over,

and possibly have looked too upright. Had the rake been greater the effect of the flat face and stark outline might have been lost.

It is tempting to take decoration too far. In this case the design would probably be ruined by the those dreadful antique-style hands that you find in mail-order catalogues! The clean-lined, straight brass hands (sprayed to a colour if you like) will keep this clock ticking towards the 21st century. So often clean lines

WEEKEND WOODWORK



HOLD YOUR OWN WHEN CARVING

Readers' own projects
Page 27



THE EASY WAY TO HOLLOW SEATS

A jig the professionals use
Page 30



A BREADBIN FROM OFFCUTS

Make Pete Martin's clever design
Page 34



KNIFE BLOCK AND SAUCEPAN STAND

Two more simple kitchen projects
Page 36

Jargon Busting

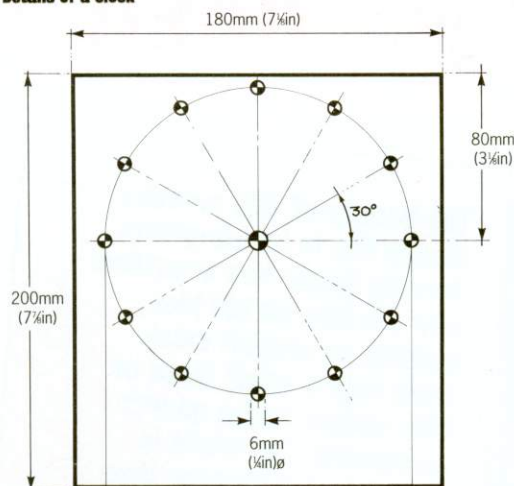
Linisher

Rotating cloth or mop attached to a grinder and usually used for putting a fine edge on cutting tools

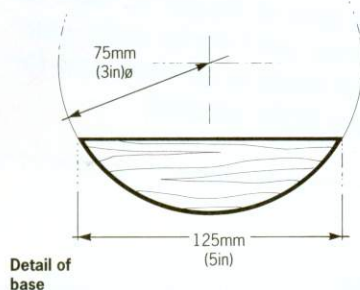
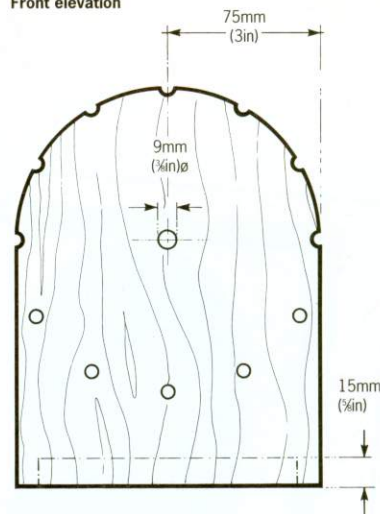
Rake

Backward slope. (Also used to describe the angle of saw teeth.)

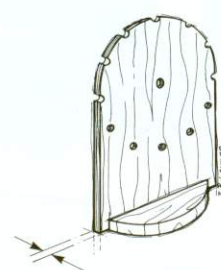
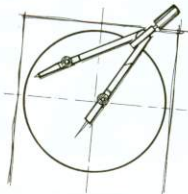
Details of a clock



Front elevation



Detail of base



are ruined by fussy fixings and bolt-on decoration.

Make Time for Yourself

1 Select a small offcut of 6mm MDF and cut a piece 200x180mm (8x7 1/4 in). Then

cut some veneer to size, using a marking knife, steel rule and backing board.

2 Apply Evostik impact glue finely to both surfaces with a purpose-made spatula

and leave for three or four minutes to go tacky.

3 Bring the veneer and MDF together, creasing down with your fingers. When all the veneer is on, tap it down

with a hammer and block to ensure a good bond.

4 Using a pair of compasses, a rule and a set square, scribe a 150mm (6 in) diameter circle on the veneer face. Extend the lines down with the set square.

5 Step off the digits (12, 2, 4, 6, 8, 10) with the compasses set as before. Then bisect the measurements to calculate the intermediary positions (1, 3, 5, 7, 9, 11) which are drawn by passing a straight edge from the bisected marking and through the centre point (for example, 1 and 7, 3 and 9, 5 and 11).

6 Check the collar diameter of your clock movement, and drill a centre hole of the same diameter (in this case 9mm/1 1/8 in) using a flatbit over scrapwood firmly gripped in the vice.

7 Set up the drill with a 6mm (1/4 in) flatbit and carefully drill the digit holes as marked out. Carefully cut the profile of the clock on the outside of the line, using a jigsaw set up with a metal-cutting blade (to avoid

MATERIALS YOU WILL NEED

■ OFFCUTS

Jeremy used rosewood veneer and a small piece of 6mm MDF

■ QUARTZ CLOCK MOVEMENT

Jeremy got his Junghans W738 movement from Southern Clock Supplies (☎ 0689 824318). You could also try the Clock Builders Showroom (☎ 0469 540901), South Coast Clocks (☎ 0202 681582) and Yorkshire Clock Builders (☎ 0742 550786)

Ten steps to making your own clock



1 Having cut the veneer to size, use contact adhesive, spread out thinly with a home-made spatula



2 Mark out the diameter of the dial to 150mm (6 in), making sure not to score the grain of the veneer



3 Mark off the subdivisions for the digits, which are each at 30° to one another, only marking the hole centres



4 Drill the centre hole for the clock spindle using a 9mm (3/8 in) bit. The collar will hold the mechanism on



6 When cutting the clock face to shape with a jigsaw, use a backing piece of chipboard to stop breakout



7 Having sanded the edges with abrasive and a block, glue on the base, planed to about 1° rake



8 Hole the base in a vice and sand the face flat with a sanding block, working down through the grades



9 We used a rosewood veneer on the clock face. It comes up a treat when finished with Danish oil

tearing veneer). Alternatively use a bandsaw.

8 Now clean up the edges with an abrasive block or a table-disc sander or finisher. Make a small semi-elliptical softwood support block and bond it to the rear of the clock face using a PVA glue.

9 When the glue has set (after about two hours) carefully trim the base edge and angle fractionally so that the clock sits back slightly. You can use the base block as a vice grip for finally cleaning up the clock face with an abrasive block.

10 Check that the clock movement fits with its spindle collar sitting in the hole. Then mark the required length of hands and carefully trim with sharp cutters or a chisel and mallet against a backing block. Finely sand the tips perfectly square. The movement is a Junghans W738 and the hands are called flat brass hands (Southern Clock Supplies ☎ 0689 824318). Finish the clock with an oil or lacquer appropriate for the veneer used. Rio rosewood takes Danish oil well.

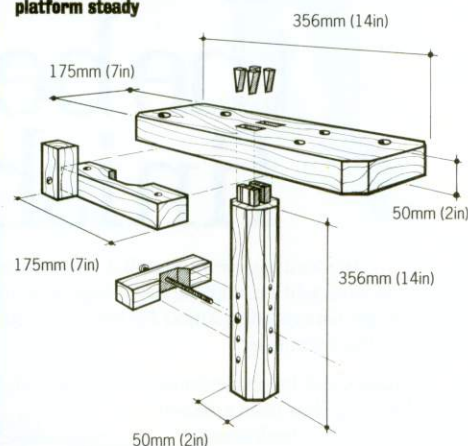
What readers have been making themselves

Like many other woodworkers, Ted Jenner of Bexhill-on-Sea likes woodcarving in the round. But he says that on many occasions he has found it difficult to hold the project block in the most convenient position. To solve this problem he made himself this carving platform. He says it's an adaptation of a similar unit made many years ago by his father, which itself was based on the type used by cobblers. The original ones were held between the cobbler's thighs, but this one is used in a bench vice. It is adjustable for height, angle and twist (the post is hexagonal in section and shorter than the cobbler's version). The project is secured to the platform by a carver's screw, bench holdfast or G-cramp. It may not be as versatile as the universal ball joint, but it is much cheaper to make. Not that the platform can be used in a number of dimensions, with the holes taking the stem of the holdfast. The chopping stop on top of the vice lets you hit a workpiece on the platform without any slip.

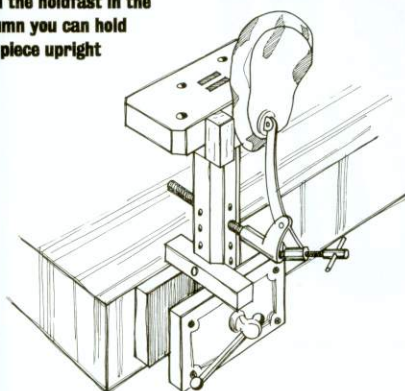


Ted Jenner's carving platform is best made of hardwood for the strength and to stop wear

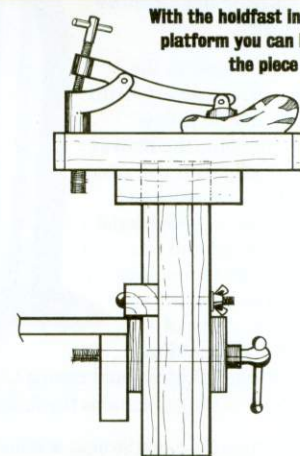
The wedges in the double tanons hold the platform steady



With the holdfast in the column you can hold the piece upright



With the holdfast in the platform you can hold the piece flat

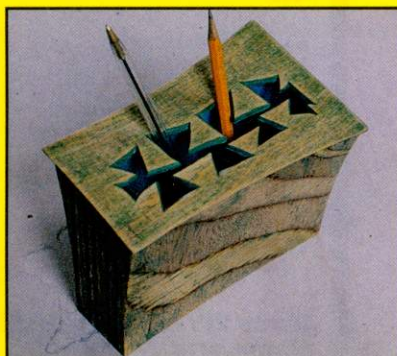


5 With a piece of chipboard stopping breakout on the back of the clock, drill the 6mm (1/4in) dia. hour holes



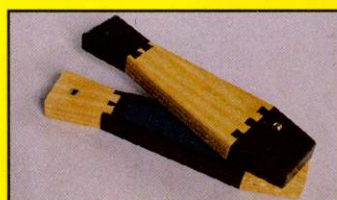
10 Cut off the hands to length with a pair of pliers, and sand the ends smooth. You might want to spray them

Students on boxes



Stained ply pencil box by Olibhe Madden

Last month we showed how Brian Kelly had used the dovetail as inspiration for an ornamental fly box (GW 10:38). Jeremy Broun had asked a group of students at The Furniture College, Connemara to make a box expressing the concept of the dovetail. Now we can show you how three other students tackled the project.



Geoffrey O'Grady's ash and walnut fly box



Dierdre O'Donoghue had done no woodwork before she made this ply jewellery box

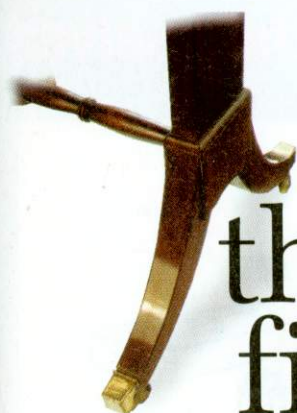
Ladislav Bohdanecky of the Czech Republic used Michael Burley's method of cutting twists (GW 1:46) to make these clock columns



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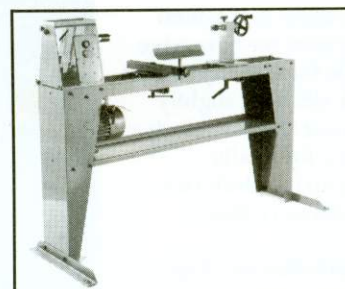
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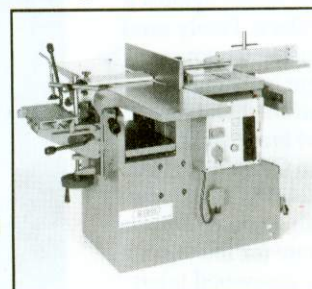
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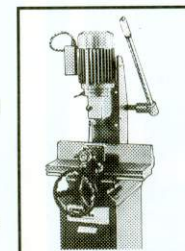


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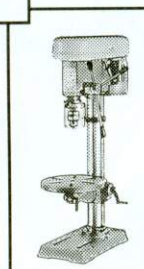
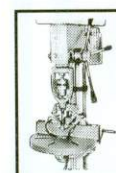


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Videos

Woodturning dominates the video market, so we are reviewing a collection of such films including three by the controversial turner, Mike Darlow

Cutting and Sharpening

BY CHRIS STOTT

Price: £10.50 inc. p&p

Contact: ☎ 0724 782052

Length: 34 minutes

This video seems to be fundamentally different from most turning films, in that Chris Stott slowly and clearly leads us, step by

step through essential techniques for developing a good skills. There are aspects of his method I'd do differently, such as using a good angle guide for grinding. Other complaints are as minor. Chris's methods are clearly explained, pleasant to watch, easy to follow and bound improve skill.



Reviewer: Tobias Kaye

Value for money

●●●●○

Overall content

●●●●●



Woodturning Workshop

BY REG SLACK AND ROY SUTTON

Price inc. VAT:

£20.56

Contact:

☎ 0742 449066

Length:

85 minutes

VIDEOS are increasingly being used as manuals or catalogues for tool manufacturers. Roy Sutton's latest video with Reg Slack sits just to one side of the fence that divides promotion and instruction, in that the film has been made in association with Record Power. Record products receive wide coverage, but neither determine nor obscure the techniques shown. The double act of Reg – a well-known turner – and Roy (acting the novice) works well, so the video is a good opener for anyone buying their first lathe and wanting to learn the basics of turning.

Reviewer: Nick Gibbs

Value for money

●●●●○

Overall content

●●●●○

THE PRACTICE OF WOODTURNING

BY MIKE DARLOW

Price: £29.95 each, £79.95 (set)

Contact: Lion Book and Tool Co.

☎ 0491 576113

Length: Seven hours for all three.

BEGINNERS will be confused by the barrage of theory and opinion that accompanies the action in this complete course of three videos. Unless, that is, they already favour Mike Darlow's academic approach.

Turners who have a grasp of their subject and wish to understand more will benefit from studying Mike's ideas. His approach seems to be based on the premise that anyone who cannot do as he does is inferior, but this does not detract from the usefulness of many of his theories and practices. Some of Mike's theory is so advanced that even his own practice does not

conform, and some is thin. He illustrates bowl design with the use of sketches, calling some good and some bad, but without explaining why they are so. When his theory is not

powerful enough on its own he resorts to abuse, calling other designs cowardly. Some of his design theory excludes work that I find beautiful. Even so this is a good series of videos, as it promotes thinking about what we do. It may even help you to do it better.

Reviewer: Tobias Kaye

Value for money

●●●●○

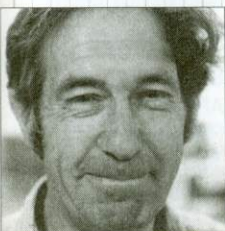
Overall content

●●●●○



How to make accurate jigs for better woodworking
No.3 Chair seat hollowing jig by Derek Bailey

steadfast



Derek Bailey is a joiner/turner/mobile sawyer. He makes country chairs, and has also done much work planking up storm-damaged timber on a mobile mill at Westonbirt Arboretum, Glos.

Making chairs is always difficult. Many furniture manufacturers shy from production in fear of the time and cost of having to cut angled joints and shaped seats. While never aspiring to mass production, Derek Bailey wanted to be able to make Windsor style chairs, without the hassle of carving out the seat with an adze. He considered an angle grinder, but wanted to avoid hours of cleaning up with abrasives.

So he made a jig. The aim was not only to accelerate his operation, but also to reproduce an even horse-

shoe shape on each of his seats. Derek turns many of his chair seats, and wanted to match the circular shape with a rounded hollow.

The idea came to him to fix the seat on a central pin below a router, which would run in curved channels. Guided by the channels the router cuts a shallow hollow. After each cut you move the seat a little further round. This produces a circular seat, with a circular hollow and raised centre, a little like a castle inside a round moat. Any reasonable turner could do this on the lathe.

But this is no good for



Derek Bailey has been able to make a series of country chairs with his chair hollowing jig, which creates a horseshoe seat, with little cleaning up needed

proper chair seats as the front of the seat must be 'open' for the sitter's legs. You need a horse-shoe hollow. The back of the seat has a semi-circular hollow, but the pommel comes right to the front. Derek realised that he needed to mount the router carriage, with curved channels, on a bar so that for the opening cuts the seat is kept still, and the router hollows the area for legs.

Once you reach the central point of the seat, you fix the position of the router but start revolving the seat bit by bit. You move the seat by only enough for the cutter to make a pass. This produces the rounded hollow at the back of the seat.

When the seat has been spun through 180° you fix it solid again and once more

move the router gradually along the bar, to rout out the other leg area. The result is a remarkably smooth chair seat, that needs some spokeshaving around the pommel, but only a little sanding. Indeed Derek often leaves the slight fluting marks and undulations from the router for effect. He finds, though, that hardwoods produce the best finish straight from the cutter.

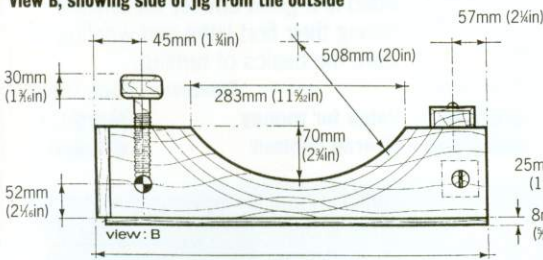
Making the Jig

1 Preferably use beech for the jig. This is close-grained, and wears well. Start by cutting out and planing up the two cheeks, to be grooved for the curved router bar channels.

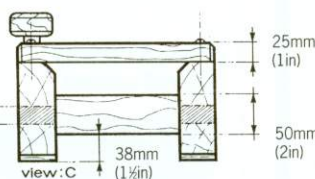
2 On this jig the radius of the channels is 508mm

Elevations and sections of the router carriage

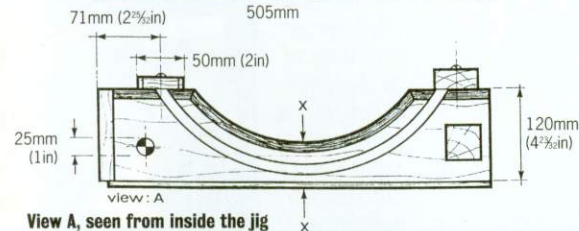
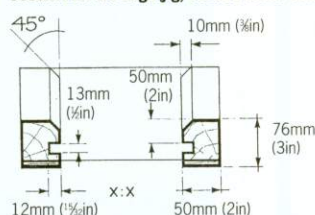
View B, showing side of jig from the outside



View C, showing end elevation of the jig from the 'open' of the jig



Section XX through jig, viewed from end



How to use the jig for making chair seats



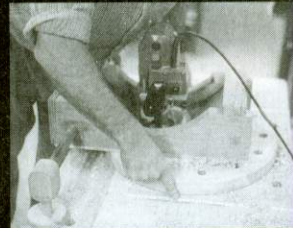
Having turned the seat – though it does not have to be round – Derek marks up the axis with and across the grain



Derek then fixes the seat to the jig. The hollow fixing unit allows him to hold the seat steady, or have it loose to rotate



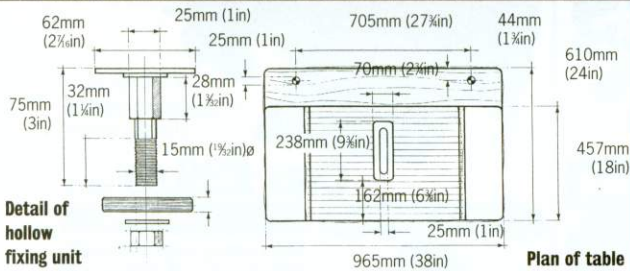
Having fixed the seat in place, you have to adjust the height of the jig so that it sits level across the seat



Line up the axes with the grid on the table so that you are working with the grain and holes correctly positioned

WARNING Do not try to take a cut the full width of the cutter when routing a chair hollow. Instead only cut with half of the cutter to reduce strain on the machine and tool.

Dimensions of table and fixing unit



(20in). Cut this with a router, and straight cutter, with the router fixed to a trammel bar. The top edge of each cheek is curved and chamfered to improve access for the router.

3 Drill the cheeks for the steel bar. Measure the router bars to find out how far apart the cheeks need to be, and cut up the stock for the rails. With access to thread cutting equipment Derek tapped a hole in the carriage for a screw to lock the carriage on the steel bar. You could easily do this by drilling the carriage and using a captive nut and steel threaded bar.

4 Likewise Derek cut his own wooden thread for the two adjustable columns that support the carriage. You need to be able to move these up and down to take any thickness of seat.

5 Derek has his jig fixed to a steel frame. This gives him access to the seat fixing mechanism. This is simply a piece of steel plate, welded to a short length of hexagonal steel bar, one end of which Derek has threaded. The mechanism is hollow so that you can push a screw through it and into the seat. The plate can be locked in position with a nut and large washer. You can then slacken

the screw so that you can revolve the seat.

Using the Jig

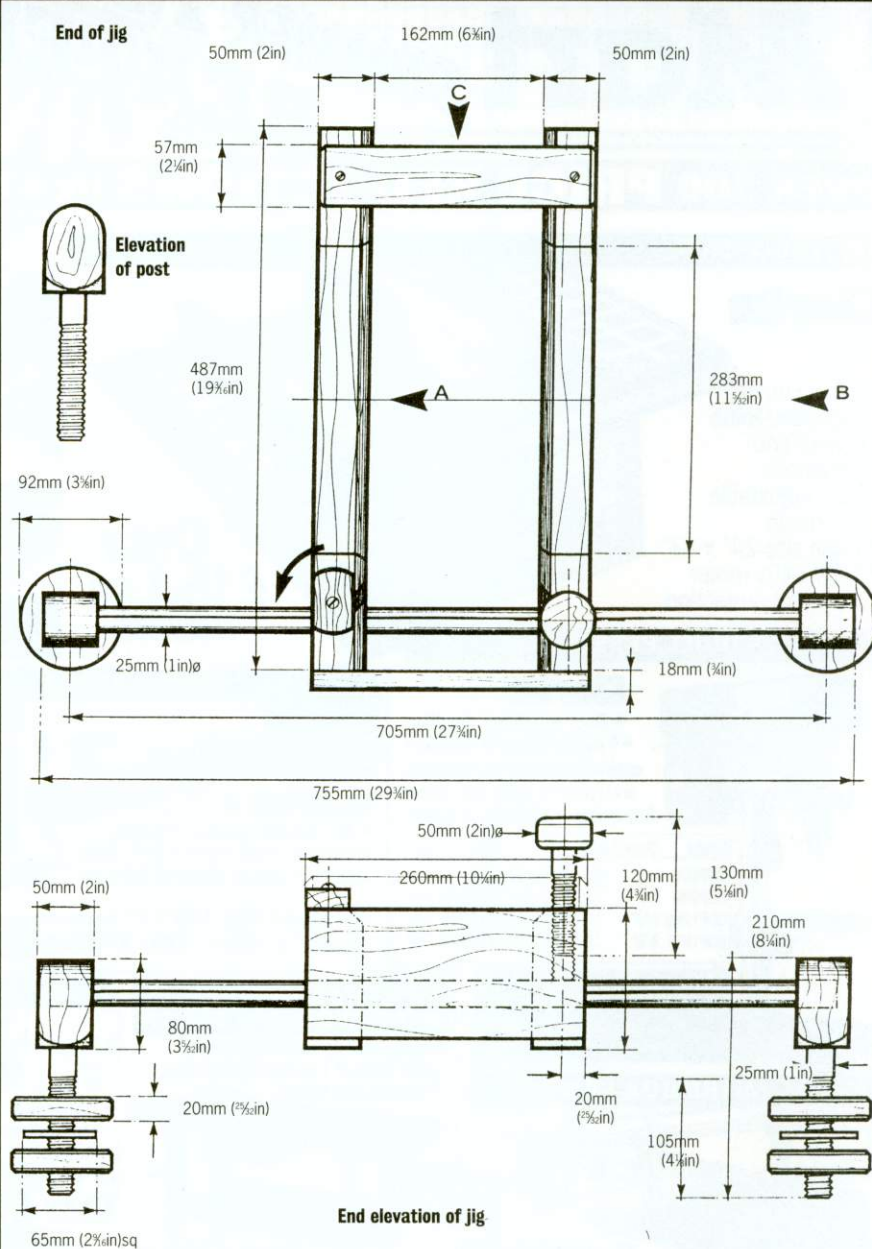
1 Cut out your seat, and turn if appropriate. Turn it upside down and draw axes at 90°. These lines will be important later for positioning the seat, so extend them a little up the sides of the seat blank. Make sure you know which way you want the grain to run in relation to the seat. It is best to have it running from front to back.

2 Screw the seat to the jig from underneath, positioning the seat on the grid lines, with the line of the seat parallel to the steel bar. The distance from the seat centre to steel bar determines the shape of the hollow, and you need to experiment to find the appropriate distance for the shape you require.

3 Adjust the bar so that the carriage is level on the seat, and fit the router in the grooves. You may need to loosen the router bars for an easy fit. Turn the safety button so that the router cannot come out of the grooves, and position to the far right of the bar.

4 Adjust the cutter depth till you are satisfied, and start cutting. You may need to make several cuts for each position. Work along the bar until the centre line on the

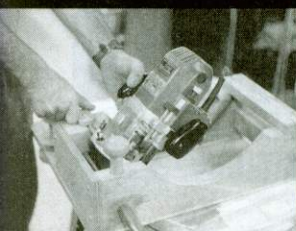
Plan view of the carriage and end elevation



carriage matches that on the base of the jig. Lock the router carriage at that point and loosen the seat holding screw so that it can revolve with no slack. Turn the seat half a cutter's width and cut with the router. Continue to turn and cut till you have

gone through 180°. Then lock the seat and loosen the carriage and cut the second leg hollow.

5 The finish is surprisingly good, and you will only have to smooth down the pummel with a spokeshave and a bit of sanding.



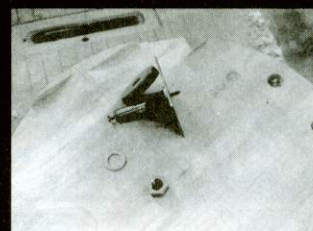
For the first entry cuts you hold the seat steady, and move the carriage pass by pass, half a cutter's width



Having reached halfway with the entry cut, fix the carriage and loosen the seat, which you then spin, cut at a time



Then fix the seat again, with the axes lined, and start moving the carriage out along the rod, till you finish the seat



The seat only needs a little cleaning up. If you do not have metalworking facilities make the fixing unit of wood

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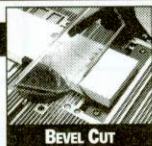
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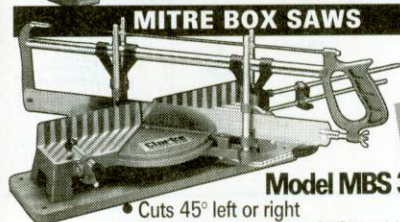
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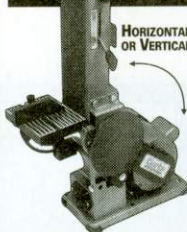
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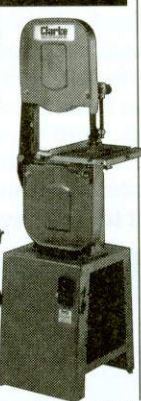
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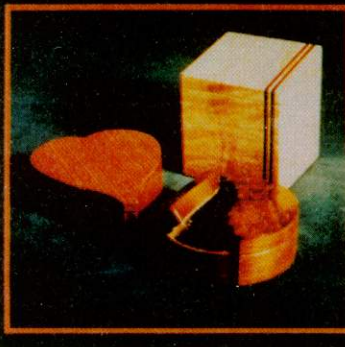
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MAKING LITTLE BOXES FROM WOOD



Making Little Boxes from Wood

BY JOHN BENNETT

Publisher: GMC

ISBN 0 9468 1939 4

Price: £12.50 (Softback)

Everyone seems to like decorative little boxes. They have a million-and-one uses, from holding jewellery to hiding the tissue pack. For a beginner to woodworking, they can provide a relatively cheap and simple entry into the world of making, with a grateful family always on hand to receive the fruits of his or her labour.

Anyone embarking on such a new hobby needs a handbook and for the novice woodworker it could possibly come in the form of John Bennett's little book. Written by a retired school crafts teacher, it deals with the love of his life in a simple, clear and precise manner. In the first section he introduces the amateur woodworker with little experience or few tools to the skills and equipment needed for most of the woodworking joints and operations involved in making a simple box. He finishes this section optimistically with the secret-mitred dovetail. Having done this he proceeds with a series of projects of ever-increasing complexity to try out the skills obtained, turning the box into a wide variety of shapes, sizes and decorative styles.

I found the book and the projects just a touch dated, but they are varied and well-designed with a simple straightforward style, introducing a variety of woods. I would have liked a little more information on the use of the router, and on lining the boxes with fabrics.

This is essentially – and unashamedly – a book for the student and older beginner. But even an old pro like myself could still find something new, in the form of a simple cramp to hold freshly glued mitred carcase while cutting slots for

keys. This technique has eluded me for years, and is welcome.

Reviewer:

Pete Martin
Furniture-Maker

Words

Photos

Drawings

Overall value

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Woodworker's Garden Projects

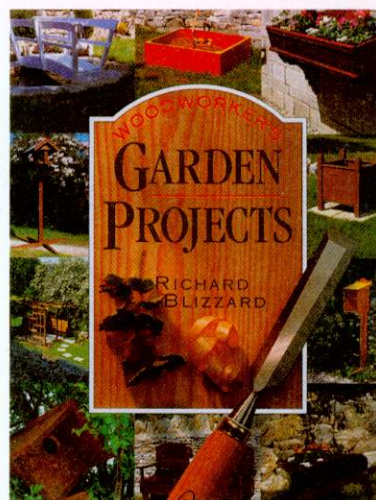
BY RICHARD BLIZZARD

Publisher: Harper Collins

ISBN 0 0041 2654 8

Price: £16.99 (Hardback)

Richard Blizzard is well known for his work on television, bringing the making of wooden toys to a wider audience. This book is aimed at the gardener who is interested in making items to "enhance the beauty of...home and garden," with very little prior knowledge of woodworking skills. Indeed, the aim is not to increase one's woodworking skills, but to complete projects in wood as



simply as possible in order to build up confidence. This renders some of the projects a little functional, rather than of true beauty. Richard introduces most projects by saying: "I have avoided the use of traditional methods of jointing...the whole thing is made up simply of lengths of wood, cut to size and shape, and glued and screwed together." This

brings them all within the scope of any owner of a saw, screwdriver, hammer, drill and some space to work in.

The instructions are clear and simple, including lists of tools needed, a cutting list and tips. This is a book for the novice.

Reviewer: Terry Sheppard
Joiner/Gardener

Words

Photos

Drawings

Overall value

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Making Toys in Wood

BY CHARLES HAYWARD

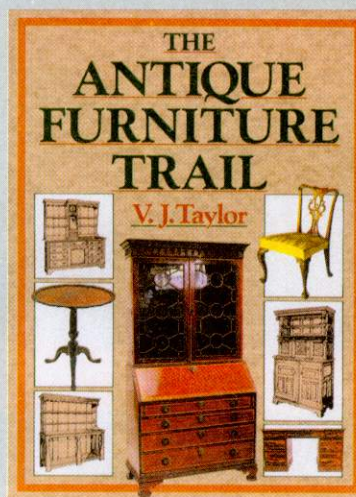
Publisher: Harper Collins

ISBN 0 0041 2910 5

Price: £7.99 (Softback)

Charles Hayward's books remain in high demand, and woodworkers search high and low for out-of-print copies. Now Alan and Gill Bridgewater have revised his book on toys. They talk of the original as a classic, that became the toymaker's bible. It features some great toys, among the 48, but many have aged. The lack of photographs emphasises

THE Good Woodworking CLASSIC BOOK



The Antique Furniture Trail

BY VIC TAYLOR

Publisher: David and Charles

ISBN 0 7153 0097 0

Price: £10.99 (Softback)

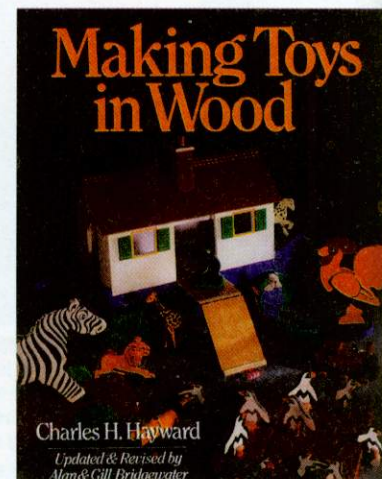
As he says himself, the trail Vic Taylor is following is one of many clues. I sometimes wonder what clues antique watchers of the future will be using to identify today's furniture. With so many individual styles it is difficult to see the common link. Perhaps modern glues only have a life of, say, 80 years, and suddenly, in the middle of the 21st century, furniture around the world will be collapsing. For current antique trailers Vic focuses on the shape and number of components for clues, but he has also drawn many individual pieces to illustrate styles through the years. I would have preferred to see more on the clues, and a more user-friendly chronology of antiques. The illustrations deserve better captions, placed more closely, and offering more ideas on the identifying details we are looking for. But as with all Vic's books, the information is there if you

Words
Photographs

●●●●○
●●●●○

Drawings
Overall value

●●●●○
●●●●○



this point. As the cover shows, toys beg for colour, which the contents fail to deliver. Plenty of ideas though, with lots of drawings, many of which have sadly not reproduced well.

Reviewer: Nick Gibbs

Words

Photographs

Drawings

Overall value

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TOOLS YOU WILL NEED

HAND-TOOLS

All three projects can easily be made with a plane, tenon saw, chisels, a drill and cramps

ROUTER

This will help for grooving the knifeblock

BISCUIT JOINTER

Useful for jointing the carcass of the bin and the three parts of the saucepan stand

MATERIALS YOU WILL NEED

OFFCUTS

All three projects were made from hardwood offcuts. Here's what you will need to make the projects from new timber:

BREADBIN

If you want to use PAR timber you will need 2.5m (8ft) of 150x ex19mm (6x $\frac{3}{4}$ in) timber plus a small piece of plywood

KNIFEBLOCK

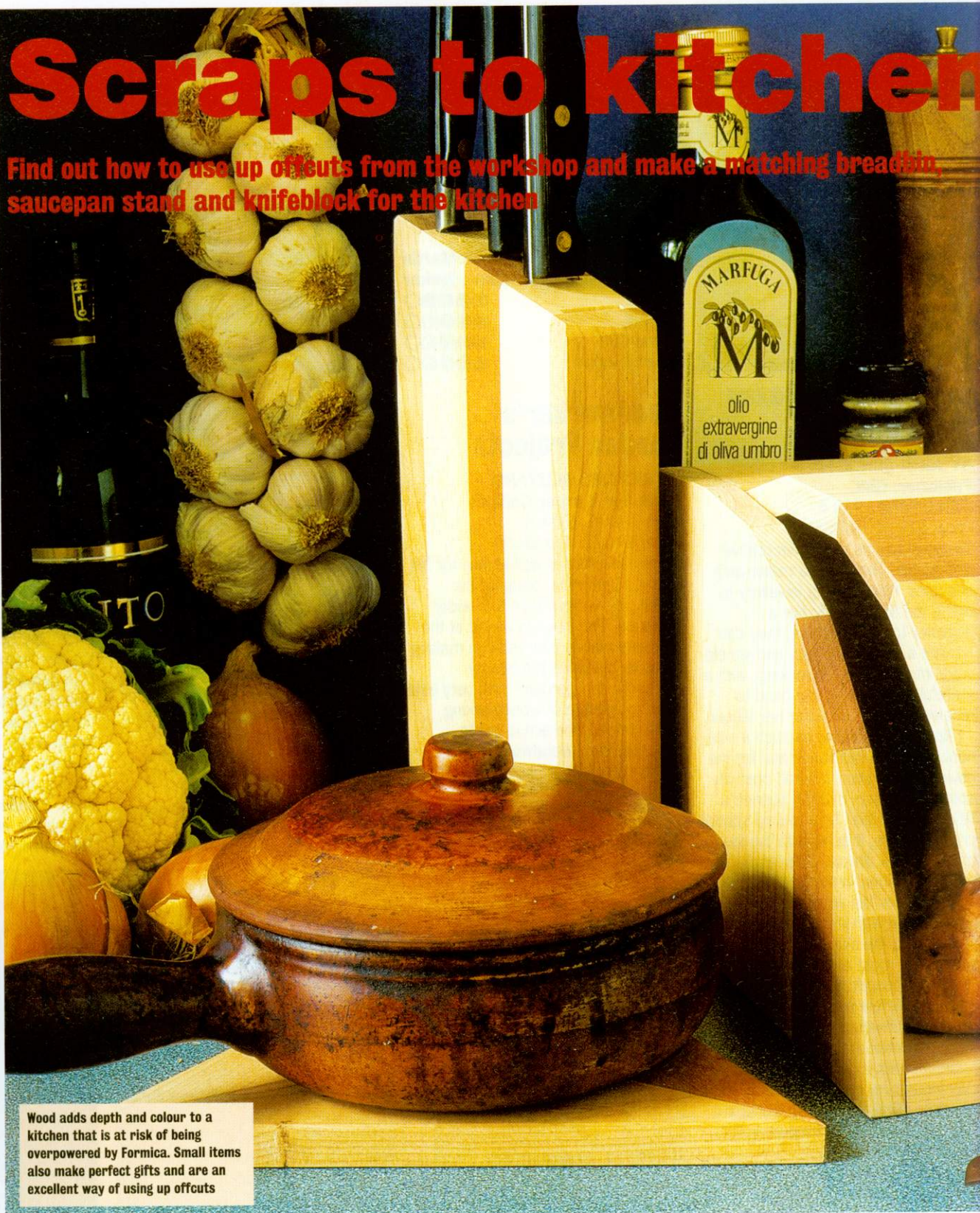
Use 1m (3ft) of 125 x ex25mm (5x1in) PAR

STAND

This is perfect for offcuts, but you could make it from 300mm (12in) of 150x ex19mm (6x $\frac{3}{4}$ in) PAR, with some ply for the tongues

Scraps to kitchen

Find out how to use up offcuts from the workshop and make a matching breadbin, saucepan stand and knifeblock for the kitchen



Wood adds depth and colour to a kitchen that is at risk of being overpowered by Formica. Small items also make perfect gifts and are an excellent way of using up offcuts

Formica habitually forms the overpowering feature of most modern kitchens, so the odd spot of wood here and there adds depth and colour. Not only do small items make perfect gifts; they are also an excellent way of using up offcuts.

The problem of matching pieces with the specific colours of your kitchen can

be alleviated by using a variety of timbers. By laminating them up you can make full use of the mass of small-section offcuts that most of us have cluttering up our workshops.

The theme of lamination can then be continued throughout the kitchen. We decided to make a breadbin, saucepan stand and

knifeblock, but the potential is there for breadboards, bowls and the various types of container.



The Breadbin

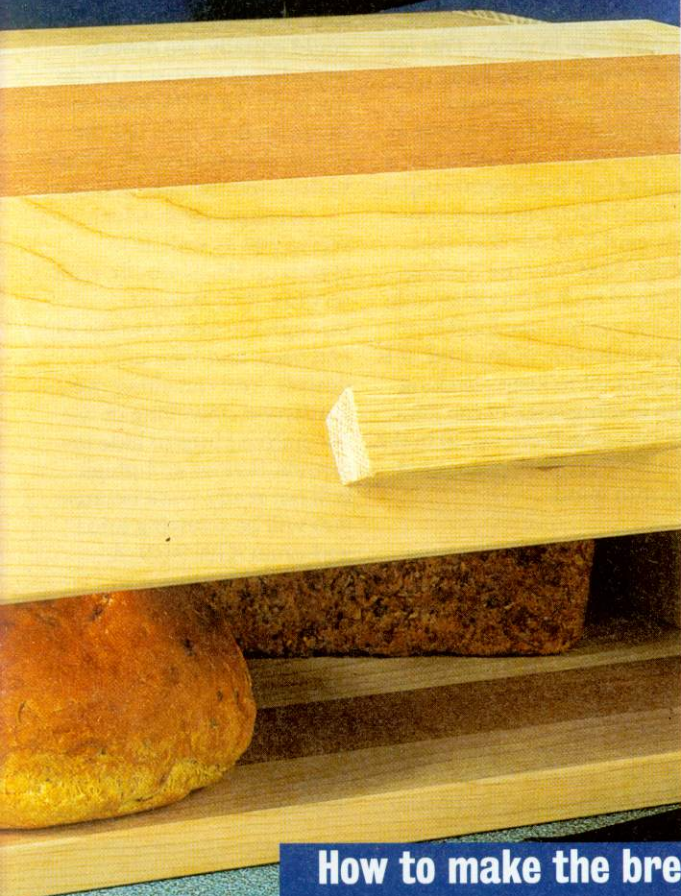
The most important quality of a good breadbin is that your favourite loaves fit. Use our bread guide to check what size of bin you need to make.

Naturally the determining dimensions are the interior width, depth and height. It may be worth developing a passion for crumpets and muffins, to make use of the space around the loaves.

There are all manner of ways to put a lid on a breadbin, from the simple drop-on top to sophisticated tambour. I felt that a

classics

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Cutting List – The Breadbin

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
A Lid laminate	Hardwood	5	347mm 13 ⁷ / ₁₆ in	57mm 2 ¹ / ₁₆ in	15mm ⁹ / ₁₆ in
B Sides and base	Hardwood	1	800mm 31 ¹ / ₂ in	66mm 2 ⁵ / ₁₆ in	15mm ⁹ / ₁₆ in
C Sides and base	Hardwood	1	800mm 31 ¹ / ₂ in	55mm 2 ¹ / ₁₆ in	15mm ⁹ / ₁₆ in
D Sides and base	Hardwood	1	800mm 31 ¹ / ₂ in	50mm 2in	15mm ⁹ / ₁₆ in
E Sides and base	Hardwood	1	800mm 31 ¹ / ₂ in	40mm 1 ⁵ / ₁₆ in	15mm ⁹ / ₁₆ in
F Back	Ply	1	365mm 14 ¹ / ₂ in	184mm 7 ¹ / ₁₆ in	6mm ¹ / ₄ in
G Top spacer	Hardwood	1	349mm 13 ⁷ / ₁₆ in	64mm 2 ⁵ / ₁₆ in	15mm ⁹ / ₁₆ in
H Handle	Hardwood	1	104mm 4 ¹ / ₂ in	25mm 1in	18mm ⁷ / ₈ in
J Hinge dowel	Hardwood	2	20mm ³ / ₄ in	6mm ¹ / ₄ in	6mm ¹ / ₄ in

Cutting lists always give the full length of a piece including the joint, but not wastage. Allow at least 25mm (1in) extra for length and 5mm (³/₁₆in) on the width and thickness of sawn stock

full-size end elevation on a piece of MDF from which I would be able to check the angles of the laminations.

It is important to consider that you want the laminations on the sides to match those on the front. Because of the coopering, the strips that make up the front have to be wider than those on the sides. You can use the rod to work out the widths of the side laminations.

I realised that the lowest two strips on the front would be nearing the vertical, so the side strips would have to be very narrow. For that reason I chose to make those lowest two laminations on the front from the same timber, so that

the corresponding side strips would not be ridiculously narrow, and out of proportion to the rest.

It needed a good bit of thought to work out the angles on the coopering. The front has to go through 90° from the top spacer to the base. To find the angle on each mitre you need first to work out how many strips you will be using. I decided five would offer good proportions, and fortuitously this made the calculations fairly easy.

The next thing to note is that the top and bottom strips are not square to the top and base. Because there are five strips, you need four



The angle on the edges of the strips is 9° for a 90° curve



The back of the breadbin is rebated into sides and top

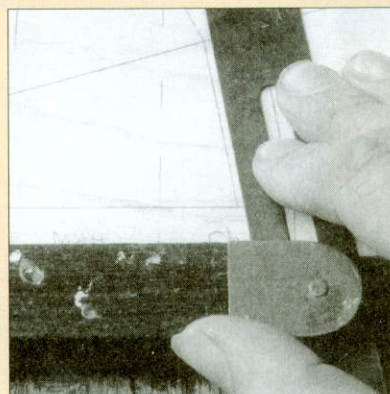


The lid is hinged on a loose dowel housed in the sides

How to make the breadbin in 10 steps



The breadbin is made from offcuts, with the hinging lid coopered to produce the curve through 90°. You could equally make it from PAR softwood



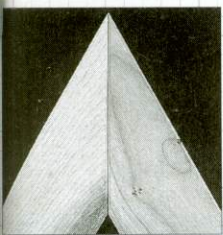
1 It is essential to draw up a full-size rod of the coopered front to show the angles. Use this to set your sliding bevel for planing the angles



2 Mark the ends and faces of the strips for the angle, and plane carefully. It is essential you do not taper the strips and put the lid in wind

coopered front would show the laminations well, and make good use of space. An alternative is to hinge the front down, doubling it up as a breadboard.

I discovered that it is essential to draw out the front, full size. I produced a



On a long mitre like this there is every likelihood that the joint will move. Rather than trying to produce a hidden joint, bevel the joint edges to make a feature of the mitre

mitre joints. That means eight angles. Add the angles at the top and bottom, and you have 10. Divide 90° by 10 and you have 9° for each angle. Thus the four mitre joints each form a combined angle of 18° .

The best thing to do is to draw out the front lid full size, and then work out the size of the sides, base and top spacer from that drawing. Doing it the other way round involves making some complex calculations.

If you want to alter the size of your breadbin to take particular loaves you may need to experiment a little first. Look at the relationship between the width and the number of laminations and

the mitre angles for sides of different heights, widths and shapes.

Making the Bin

1 Having drawn up your rod, plane the pieces for the front to width and thickness, but 50mm (2in) overlength. You need to bevel the edges of all the strips to 9° , except the top one. This will be rounded later, to match the spacer.

Set a sliding bevel at 9° and score the angle on the end-grain of one of the strips. Whether you are doing it by hand or machine there is no real necessity to mark the angle on each of the strips. If you have access to a planer, set the fence at 9° , using the

sliding bevel to check the angle. When using the planer for this sort of work I try to plane the edge with one pass. I am always a little concerned that with more passes the strips may taper a little along their length. Use the score mark on the end of one piece to further check the planer is set up correctly. If you are working by hand take the piece with the score mark, use this to set a marking gauge and mark the bevel on the inside face of each strip.

2 When it comes to cramping up the strips, do so in pairs. Glue up the two outer pairs and then make a cramping jig for gluing the centre strip in place. This last strip will hold the pairs together, with pressure coming down from above as well as from each side. Use a caul above the central strip to push it down, making sure the caul is wider than that strip. That way the leading edge of each strip either side of the central one locates on the underside of the caul. It is important to keep checking the leading edge of the joints as you glue them up, to make sure the coopering does not go into wind.

3 Use the end-grain of the coopering to determine the widths of the strips for the sides and base. Plane them all and glue them up in a length long enough for all three parts.

4 The base and top spacer are butt jointed inside the

Missing the point

Safety in the workshop

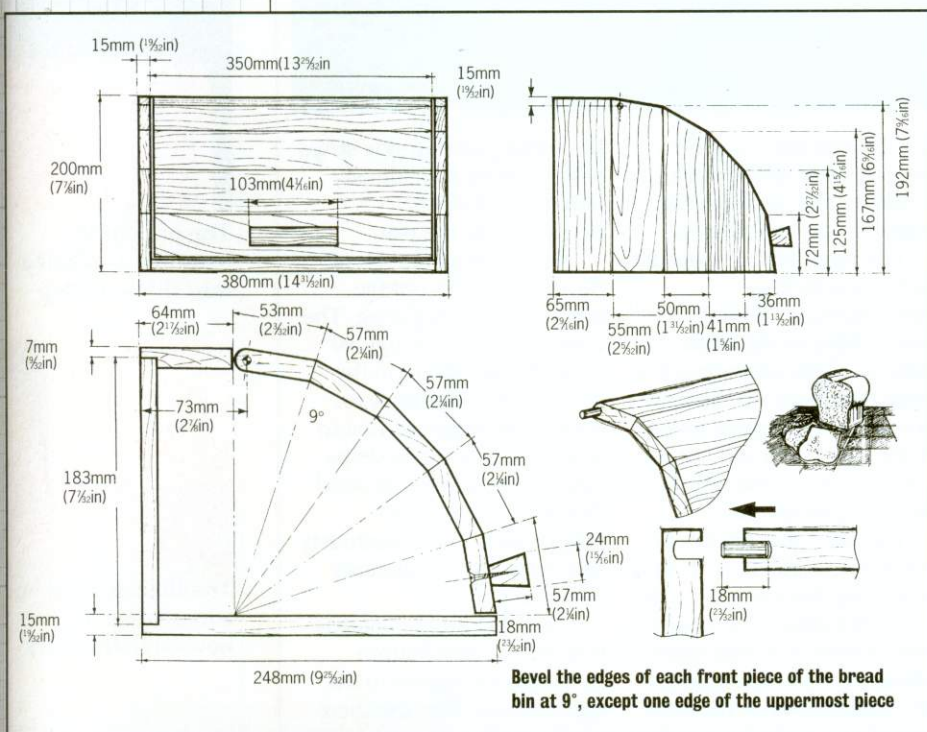
No. 6 Radial arm saw

The radial arm saw is great for cutting pieces to length, but it does tend to draw the work into the saw. For that reason it is particularly dangerous to have your fingers too near the blade. When you are cutting short pieces use toggle clamps to hold them down, either in a jig or from the fence.

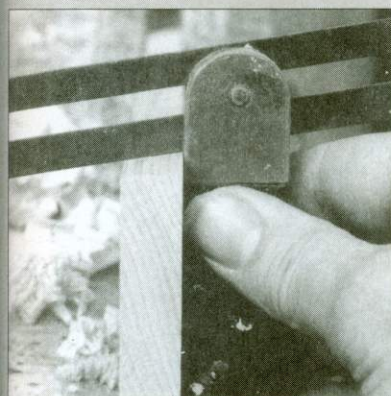
sides. I used biscuits to locate and strengthen the joint. You could equally use dowels, with dowel centres to locate the holes. Drill the holes in the sides first, then use the dowel centres to mark where to drill into the base and top.

An alternative, which works just as well, is to cramp up the assembly with no glue, drill straight through the sides into the top and base, and then use dowels. You can either use hardwood dowelling or use decorative plugs to hide the dowels. Screws and plugs will not really work because you will be screwing into end-grain (GW 9:62). A further alternative is to dovetail the base and top to the sides. This has the bonus of not really needing cramps.

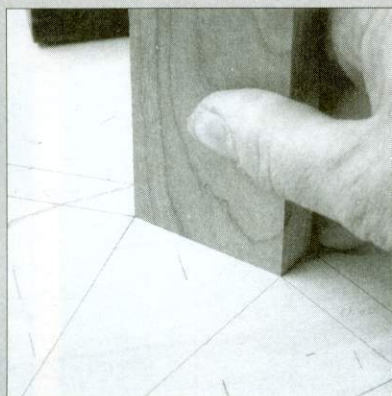
5 Whatever method you use – and we recommend the dowelled, butt joint – dry assemble the breadbin with



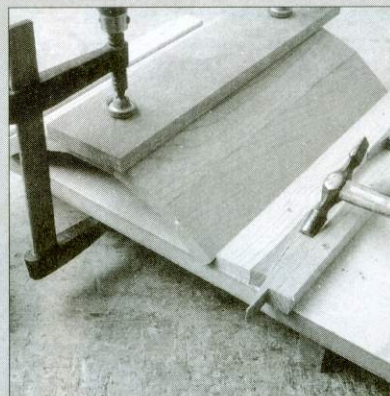
Planing up the lid components and hinging the front



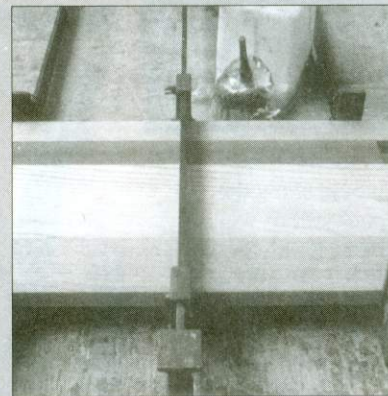
3 Keep checking the angle with your sliding bevel all along the strip. Any discrepancies will show up later, and weaken the joint



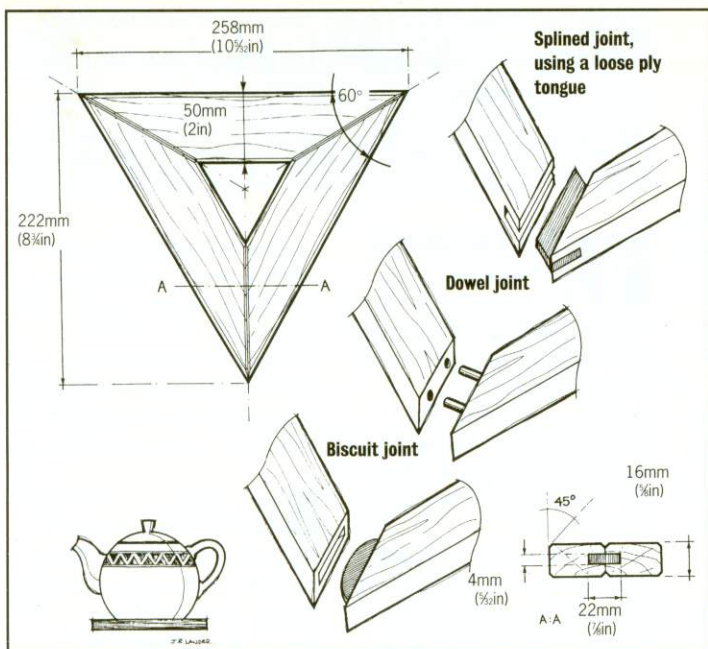
4 If your rod and planing are any good the strips will fit exactly. It is worth checking both ends as you go, just in case



5 First glue up the the lid in pairs of strips and then make a cramping jig, with folding wedges to assemble the whole. The cramp acts as a key



6 Glue up your offcuts for the sides and base. Note that the widths have to be adjusted to match those on the lid, for continuity



Cut the ends of each of the three components at 30°, to give an angle of 60° at each corner. If you use a mitre saw (GW 11:18 – this issue), you will have very little marking out to do

the front perched inside the sides. Use the front to pencil a line on the sides, following the shape of the lid. Cut the sides exactly to shape.

6 Both the top end of the front and the front edge of the spacer need to be rounded to a 6mm (1/4 in) radius. The lid and spacer will all but touch at that point. The lid hinges on a loose dowel. The hole for this is exactly in the centre of the

radius on the lid. To find the corresponding position on the sides measure 7mm (1/4 in) from the front edge of the spacer, along the sides. I used a 6mm (1/4 in) dowel.

7 Rebate the sides, base and spacer for the 6mm (1/4 in) thick ply back, with the rebates both 6mm (1/4 in) deep and 6mm (1/4 in) wide. Then you will be able to assemble the bin, keeping glue away from the moving parts (as

instructed in all the best Airfix model kits).

8 Make the handle. This is tapered across its width and thickness, a little like a dovetail, and screwed in place through the lid. Cut the taper with a tenon saw. Finish the bin with thin sunflower oil (GW 11:90).

The Saucepan Stand

The saucepan stand also involves simple calculations of angles. But in this case, because the pieces form a triangle, the angles must add up to 180°. The one I have made is an equilateral

triangle, so the mitre joints are each 60°. You therefore need to cut 30° angles on each end of the three pieces.

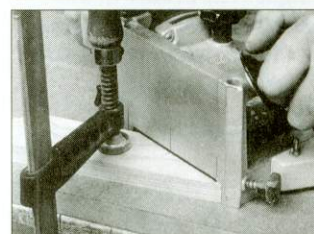
If you are just making the one stand it is easiest to do the job by hand, marking out each cut with a sliding bevel, from a protractor. For longer runs it is worth making a jig specially for whatever machines you own. A radial arm saw is perfect for this. However, for such short pieces it is worth fixing some toggle clamps (Trend □ 0923 230454) to the jig to hold down the workpiece.

I also have a biscuit joiner and can use butt joints with the biscuits for strength and positioning. The biscuit joiner is a wonderful machine for these jobs. It cuts

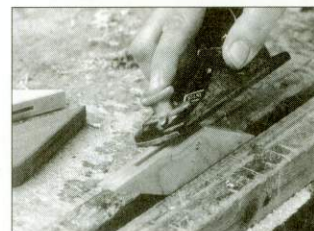
a small groove, into which fits a compressed beech biscuit. When you apply the glue the biscuit expands inside the groove, producing a very strong joint.

If you use dowels it might be a good idea not to close up the joints tightly. That way any crumbs and rubbish will not collect. When you join pieces end-grain to end-grain, as these are, it is worth working a slight bevel between them to disguise any inconsistencies in the

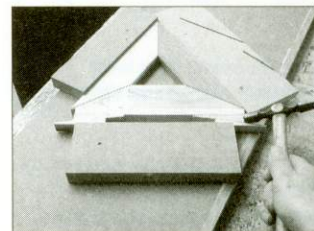
Potstand steps



Again we used a biscuit joiner, but you could join the pieces with a loose tongue



Chamfer the edges of each mitre to make a feature of the joint



Make a cramping jig with folding wedges for assembling the potstand

Angle plane

When bevelling the edges of strips for coopering it is best to plane up the strips first a little oversize. Score a mark on the outside face with a marking gauge to show the leading edge, and another on the inside face to the angle you need. If you plane the pieces first to width and then plane the angle to the inside mark, it is difficult to see if the leading edge has been planed away. It is for this sort of job that it really helps to have a marking gauge with points on each side so that you can set one for the leading edge and the other for the inside edge.

With a good number of angled edges to plane it is worth making up a special jig. All you have to do is take two pieces of 19mm (3/4 in) MDF, which will sandwich the pieces you need to bevel. Plane the top edges of the MDF to 9°, and hold in a vice with a little of the strip showing.

TIP

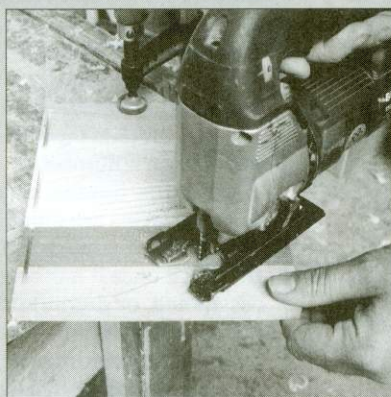
Cutting List – The Stand

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
L Side	Hardwood	3	257mm 10 1/8 in	50mm 2 in	15mm 1/2 in

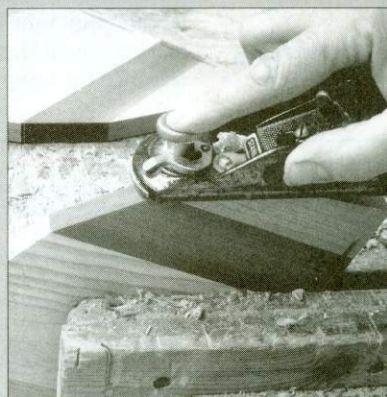
Cutting lists always give the full length of a piece including the joint, but not wastage. Allow at least 25mm (1 in) extra for length and 5mm (3/16 in) on the width and thickness of sawn stock



7 Cut the sides roughly to size and mark on the shape from the lid, with the whole breadbin assembled without glue and without the hinge



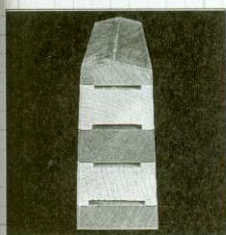
8 Cut the sides to shape with a jigsaw, bandsaw or simply a coping saw. We used biscuits to fix them to the base, but you could use screws



9 Clean up the lid with a block plane, down to your drawn line, always working with the grain. Watch out for breakout on the top spacer



10 Drill the lid for the hinge hole, half its thickness in from the end. Then round the end of the lid with a block plane



From the top you can see how the knifeblock is bevelled and how the slots are narrower towards the front

joint. However, the problem with this is that you have created a dust trap.

If you do not want to butt joint the three parts together you could use a halving joint or a bridle joint. On the former you overlap the ends, each to half thickness. The problem is that you cannot avoid seeing the end-grain. Likewise on the bridle joint (which is much like a through tenon, but open on three sides) you are forced to show end-grain.

The hand-tool alternative to a biscuit is a loose ply tongue. The beauty of this method is that it still allows you to use butt joints. If you do not mind seeing the

of any offcuts you have.

2 Cut the ends at 30°. If you have a mitre saw (a group of which we have tested this month GW 11:18), then you will need to do very little marking out. Otherwise use a sliding bevel and square, and cut with a tenon saw. You could make up your own mitre box with angles at 30°, for repetitive, accurate cuts.

3 For a stand held together with loose tongues, mark the grooves with a mortice gauge. Cut the cheeks with a tenon saw, and chop out the waste with a chisel. When doing this make sure the grain does not break out, by chiselling inwards. It is important that the tongue fits tightly in the groove, with no gaps. Cut back the groove a fraction towards the centre so that the tongue fits right to the bottom of the groove where it can be seen on the outside edges of the stand.

4 Make a jig for cramping up the stand. This simply needs a base, to which are screwed three pieces. The apex of the stand fits neatly between two of these, while the third is about 19mm (¾in) from the base to make room for two sets of folding wedges. These cramp up the stand. The jig is designed for a biscuited joint, and will not work so well for a loose tongue, unless the tongue is hidden, like a biscuit.

If the tongue is open, as we have suggested, you will need to make the sides of the jig shorter so that they do not interfere with the tongues. These are best left proud until the glue has set, at which point you will be able to plane them flush, and chamfer the outer edges.

solid fence. You hold the fence against the work and pivot or push the saw blade into the work. Used for strengthening and locating butt joints, with beech biscuits

Dry assemble

Check components and joints by doing a trial run without glue

Caul

Piece of wood used to distribute pressure for veneering. Often slightly convex to make sure centre of veneer is pressed down by cramps at the end of cauls

Bridle joint

An open mortice and tenon often used for angles less than 90°

Loose tongue

Only loose until it is glued in place, this replaces a biscuit. Used like a tenon, but more often for edge jointing when it is not possible to cut a tenon from the solid. Usually made of ply with grain at 90° to the joint

Toggle clamps

Cam action clamps that screw to a jig for holding. Screw thread on clamp head for fine adjustment

Cutting List – The Knifeblock

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
K Laminate	Hardwood	5	310mm 12½in	58mm 2½in	To suit



The Knifeblock

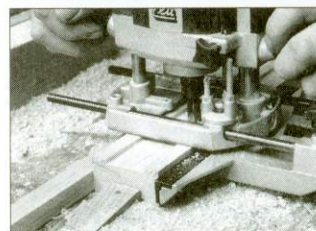
Of all the kitchen projects the block for holding knives is perhaps the simplest, but offers tons of opportunities for decoration and fun. The principle is that you laminate up strips of timber, having cut a wide groove in each to take the knife.

On this block I stopped the grooves short of the base by about 25mm (1in), but there is no reason why you cannot groove them the whole length. The stopped groove just keeps non-

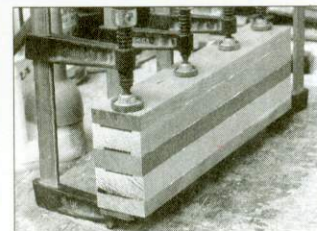
the same width, if possible. Make sure the timber you select for the front is the best grain, and that it is thick enough for the bevelling. You will probably find it best to alternate between dark and light coloured timbers.

2 Cut a recess on both sides of two of the laminates, stopping the groove short of the bottom. If you are doing this by hand, without a router (the obvious tool for the job) you may find it easier to cut the shoulder with a handsaw, and take the

How to make a knifeblock



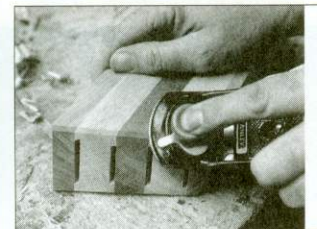
1 Rout out the groove on the laminates using a bench stop and batten to hold



2 Cramp up the laminates using PVA adhesive, and leave to set overnight



3 Plane the front edge first, before cutting the top on the angle



4 Having cut the angled top and tapered the side, chamfer the edges

woodworkers guessing a little longer. In fact I only had to groove two of the laminates, and then on both sides, because I found it quicker than doing them all.

This block is tapered or bevelled in a number of dimensions. But this is done after the strips are glued up. You could, if you want, turn the block once it has been assembled, or decorate the edges and faces with any number of mouldings or carvings to suit your taste.

1 Plane your pieces to any thickness, but keep them

groove the whole length of each piece. This will at least allow rubbish to fall through. Notice that the grooves get narrower towards the front, which is a design feature that reflects the tapering of the sides of the block.

3 Glue up the strips, making sure you keep glue away from the grooves. When the glue has set, cut the base off square and cut the top at an angle. Plane the bevels on the front edge of the block and then taper the sides. Finally clean up and chamfer the top edges with a block plane.

Jargon Busting

Mitre box

U-shaped channel, with angled cuts in the sides. Workpiece sits in channel, using one side as a fence. Commonly has 45° and 90° cuts, but you can cut your own to suit

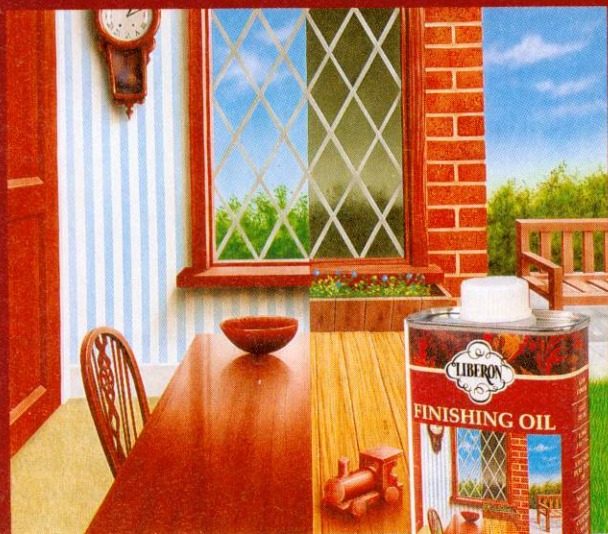
Biscuit jointer

Designed like an angle grinder. It has a small, thin circular saw, and



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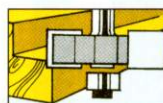
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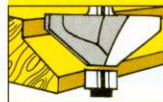
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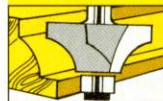
Rabbeting 3/4"



Chamfering 1 1/4" - 45°



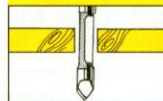
Cove 1/2"



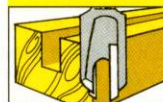
Roundover 3/8"



Roman Ogee 1/2"



Pierce & Trim 1/4"



Mortising 1/2"



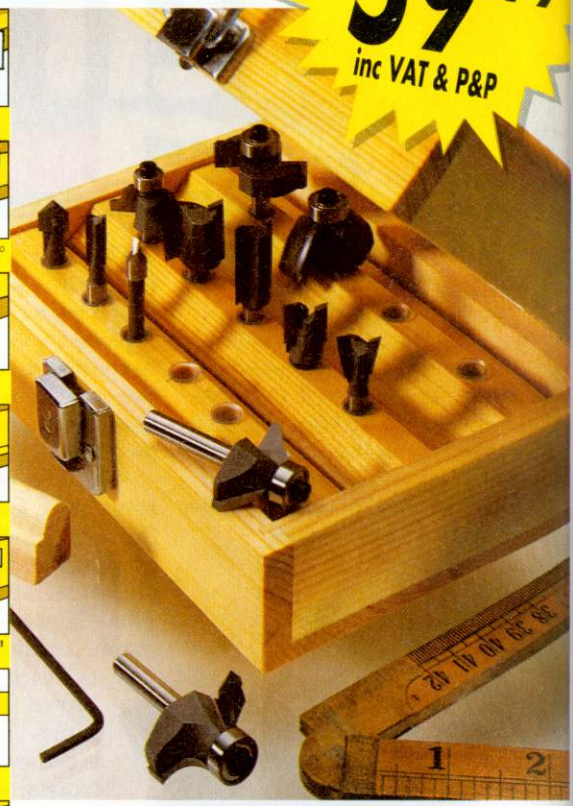
'V' Groove 3/8"



Dovetail 1/2"



Straight 1/4" ~ 1/2" ~ 3/4"



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GW

With The Grain

No.8 Ebony

All you need to know about your timber, by Peter Billingham

From the earliest times ebony has been used to make luxury furniture and musical instruments. Herodotus, the Greek historian, recorded that Ethiopia paid an annual tribute to Persia of 200 ebony logs. In those days most supplies came from India and Ceylon. It was probably first used in Britain in the 17th century, when Sheraton, the great English furniture-maker

(GW 7:55), wrote of it as being "a foreign wood lately introduced".

Ebony has been routinely over-exploited over the years.

According to the Fauna and Flora Preservation Society, there are no known sustainable plantations of the timber.

As a title, ebony is the collective name given to all the species of *Diospyros* which have a white or grey sapwood and a predominantly black heartwood.

About 20 species account for most commercial timber. Marbled ebony is a variegated grey and brown form found in the East Indies and known variously as coromandel or calamander.

Macassar ebony, from Indonesia, is even more variegated, and the most common type now.

Because of its hardness, ebony became popular in the form of veneers. In fact the French cabinetmakers acquired their name, 'ebenistes', from the wood. The Victorians tended to avoid ebony because of the difficulty of working it, and they soon developed the trick of ebonising, by which they stained other close-grained woods, such as pear, using dried galls in a hot decoction with writing ink. When polished with hot wax a fair simulation of ebony was obtained.

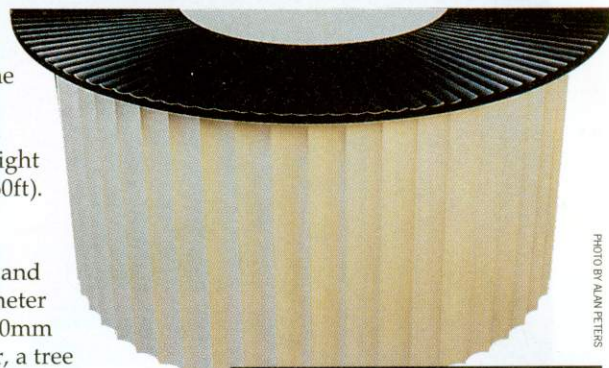
Where and How Big it Grows

African ebony grows in Ghana, Nigeria and Cameroon, and in the basin of the Congo River. East Indian ebony comes from India, Sri Lanka, the Andaman Islands in the

Indian Ocean and the Celebes in Indonesia. The tree is small to medium in size, growing to a height of 15-18m (50-60ft). The bole is generally short (4-6m/15-20ft) and its average diameter is only about 600mm (24in). However, a tree like this takes about 100 years to reach maturity and has little of the valuable heartwood until it is at least 50 years old.

Using it All at Once

We are constantly urged to save endangered large mammals, but the idea that a tree species can also become extinct has not yet made such an impact. Yet ebony is so rare and valuable that of the 475 known species, 15 have already been traded to extinction. These



Alan Peters' fluted fan table has a solid ebony top and an underframe of sycamore

have been mainly in Madagascar, and in Mauritius where a species unique to that island is now represented by a single male tree. Only through cloning could this species be saved.

The situation is almost as serious in India and Sri Lanka, where most of the mature specimens of *D. ebenum*, the major source of commercial ebony, have



Our own Technical Editor, Phil Davy, made this guitar head facing from Macassar ebony on a maple neck



Cecil Jordan's 6in long Christening rattle in coromandel ebony has a captive ring and hollow head full of small eggs



As well as ebony, Jon Shaw's record deck cabinet is made of ripple sycamore, pear and bird's eye maple

Missing the point

Safety in the workshop

No.7 Ebony

ne ebony dust can cause nose and lung problems, so a mask or respirator must be worn even during small jobs. The dust can also cause skin irritation between the fingers and fingernails.

en harvested. In Sri Lanka the species is now classified as endangered. In Thailand a number of the more important ebony species also appear to be in danger of elimination, for a strange reason: their seedlings, which could have helped sustain the supply, are being harvested to create bonsai.

The Indonesian government has moved to protect *D. celebica*, its most important trade species, by establishing a quota system.

However Macassar ebony is still readily available on world markets and there is concern that much of it may have been exported illegally.

The situation is made more difficult by conflict over the names of a number of trees and by the reluctance of some importers to disclose their source of supply. The fact that the trees may have been harvested long ago and been seasoned for as much as 10 years only adds to the confusion.

Major timber merchants are already taking steps to ensure secure supplies by buying only from sources claimed to be sustainable. These claims must be against the fact that conservationists in the West are aware of any plantations of *rosaperyros*. The pressure to exploit

these woods is so severe that for many species it is probably already too late.

The search for substitutes is well underway: laburnum and *Dillenia*, a species from south east Asia, are two promising timbers.

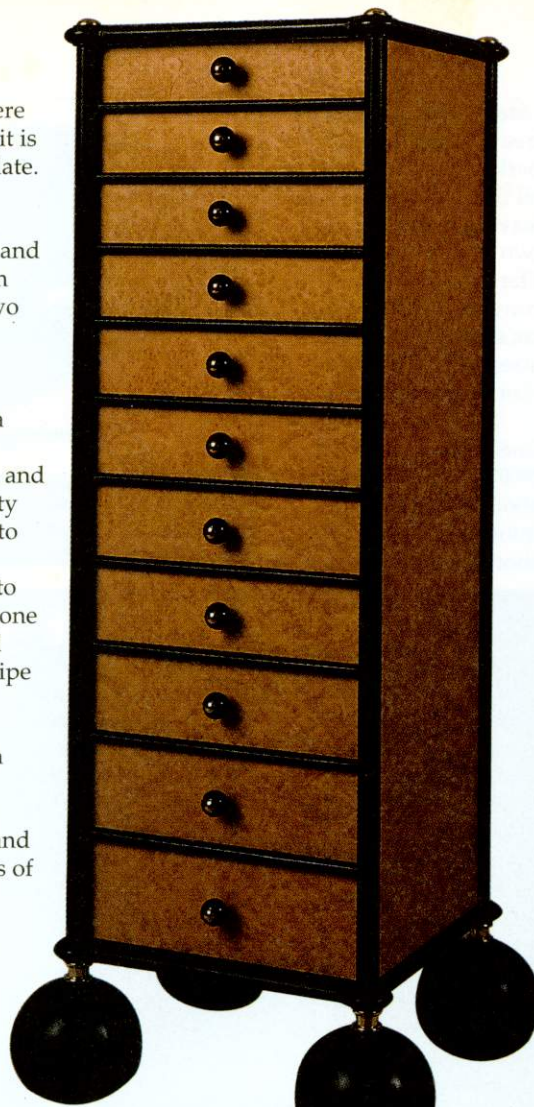
Uses for Ebony

Ebony has long been a favourite with wood carvers and sculptors, and its hardness and beauty have also endeared it to musical instrument makers. It was found to give a clearer crisper tone to baroque woodwind instruments and bagpipe chanters, while the makers of stringed instruments used it on all the stress points – finger-boards, tuning pegs and tailpieces – and for the sides and backs of top-quality guitars. The best castanets have long been made from ebony.

Its decorative qualities were exploited when it was used to make organ stops and the black keys of pianos, though these are increasingly being made from African blackwood, a member of the rosewood family.

In the field of furniture, ebony has been prized for luxury cabinet work, which has chiefly been executed via marquetry and inlaid lines and bandings.

Turners like to use ebony for tool handles, door knobs and billiard cues. Other small items often made from ebony include



This burr ash and ebony chest of drawers by Robert Ingham is 380mm (15in) high

brush backs, snuff boxes, combs and walking sticks. Engineers exploited its stability when they used it for facing T-squares, and a small amount is still made into veneers for use in the repair of such antiques.

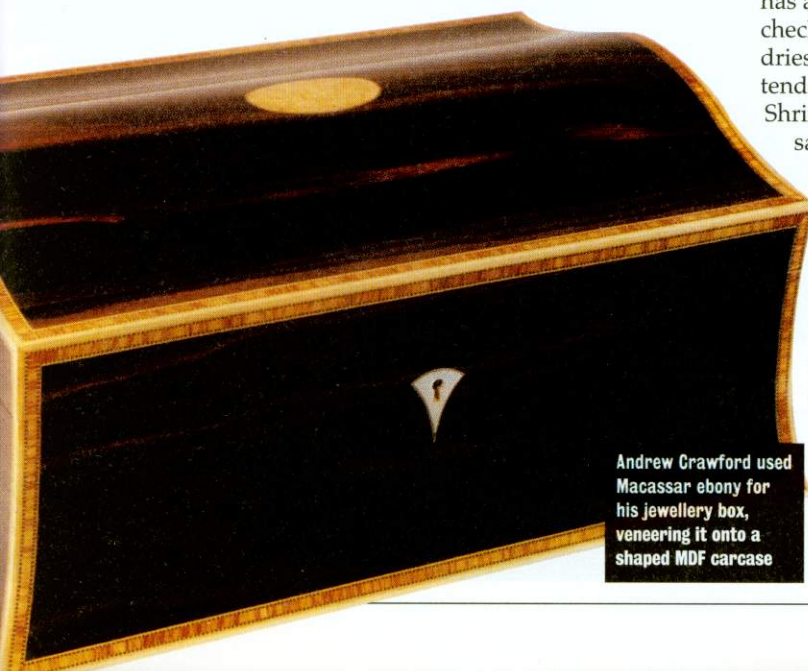
Timber Characteristics

It seasons quite readily in air but has a tendency to develop surface checks. In the smaller sizes, it kiln dries fairly quickly, with little tendency to split or distort.

Shrinkage is high but much the same in both radial and tangential directions, which accounts for the small amount of distortion.

The darker portions of East Indian ebony are reported to be difficult to season as they tend to develop long, fine, deep cracks, especially if they have been sawn into relatively large blocks.

D. melanoxylon is said to need protection against drying too rapidly. The best results reportedly have been



Andrew Crawford used Macassar ebony for his jewellery box, veneering it onto a shaped MDF carcase

Good Woodworking

TEAR OFF FACT FILE

Macassar ebony

It's not all black and white

Although the ebonies are characterised by their black heartwood and white or light grey sapwood, it's not always that simple:

D. ebenum, or Ceylon ebony, has jet black heartwood

D. crassiflora is almost completely black, marbled with dark brown

D. piscatoria and *D. mespiliformis*, black and dark brown heartwood

D. melanoxylon and *D. tomentosa* are Indian ebony. They are also black and dark brown but are sometimes found with an almost metallic lustre.

D. celebica, Macassar ebony.

This is medium brown with beige and black stripes, like a tiger skin in which the black stripes predominate.

D. marmorata is Andaman marblewood, also known as coromandel or calamander for its grey or brown mottling

D. virginiana or persimmon is the exception in that the heartwood is too small to be of value and it is the sapwood that is exploited. This is pale and straw-coloured.

Turn over for more about ebony

EBONY

Colour

The ebonies are characterised by their black heartwood and white or light grey sapwood, though the colour does vary considerably between species

Grain

Usually straight grained but can be slightly interlocked or curly. The texture is very fine and even.

Weight

D. ebenum 1190kg/cu metre (73lbs/cu ft)
D. mespiliformis, *D. celebica* and
D. marmorata 1030–1090kg/cu m
 (64–68lbs/cu ft)
D. crassiflora & *D. piscatoria*
 1030kg/cu m (64lbs/cu ft)
D. melanoxylon & *D. tomentosa*
 880kg/cu m (55lbs/cu ft)
D. virginiana 830 kg/cu m (52 lbs/cu ft)

Hardness

Dead hard

Stability

Very stable in service

Durability

Very durable. The heartwood is extremely resistant to preservative treatment. Classified as immune to termite attack, though pin-hole borer damage has been found occasionally.

Strength

Very high strength properties in most categories. The black portions of the heartwood are reported to be much more brittle than the lighter coloured wood.

Working properties

Difficult to work with both hand and machine tools as there is severe blunting of the cutting edges. It is also inclined to be brittle and needs a reduced cutting angle (20°) when planing the curly grain of quartered stock. Bends well in steam, though *D. mespiliformis* has a tendency to buckle if pin-knots are present.

Gluing

The heartwood requires care in gluing

Screwing and Nailing

Needs to be pre-bored for both screwing and nailing

Finish

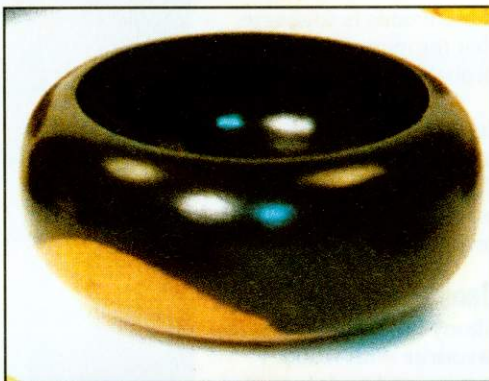
Can be polished to a beautiful finish

Price

African ebony appears to be readily available in small cut lengths at about 13p/cu in. Multiplied out it comes to about £225/cu ft, but this figure could be misleading. Sample prices found were: £6.17 for 305x50x50mm (12x2x2in) £1.55 for 305x25x25mm (12x1x1in)

obtained by girdling the tree (cutting through the bark and cambium layer all the way around) and leaving it to stand for two years before felling. The logs are then converted to the smallest permissible sizes and allowed to stand for six months.

The Fauna and Flora Preservation Society (☎ 071 823 8899) are about to publish an information booklet on ebonies and rosewoods.



Steve Knight's Sri Lankan ebony bowl has been purposefully turned to take advantage of the small area of sapwood near the base. The bowl begs to be touched, and the curves felt

How many ebonies?

African ebony

Diospyros crassiflora, *Diospyros piscatoria*, *Diospyros mespiliformis*

Ceylon ebony

Diospyros ebenum

Indian ebony

D. melanoxylon and *D. tomentosa*

Macassar ebony

Diospyros celebica

Andaman marblewood

Diospyros marmorata

American white ebony

Diospyros virginiana

Faking ebony: the green way to black wood

Today the truly jet black ebony is rare and expensive. Imitating it is an attractive alternative for those of us who have a conscience and a budget that is not limitless. But ebony has a blackness which goes right into the wood and it is hard to imitate. Traditional methods used to involve extracting dyes from logwood chippings.

However, ebonising a small piece of wood to repair an ebony item, such as a turned base for a piece of china, a small area of inlay or a chessman, is within the scope of most people. If you start with a suitable close-grained wood, such as English pear or holly (GW 7:55), you have a reasonable chance of success. You are looking for blackness in depth to reproduce the feel and look of ebony, and you have a number of options.

1 Black shellac polish.

This is available from a number of finishing suppliers in two types of ebony dye: spirit dye (for hardwoods) and water dye (for softwoods). Apply this polish with a fine brush and allowed it to dry for at least eight hours. When dry, rub it down with 0000 steel wool, almost back to the wood. Repeat this several times to give the polish depth. As with most finishing techniques, patience is needed between each coat and rubbing down. When sufficient coats have been applied, finish with a gentle wax polish: either Black French Polish (for a full gloss) or Black Patinating Wax (for a satin finish).

2 Staining. A wide range of ebony or black stains are available – water-based, spirit-based and acrylic. Each type has its own particular advantages: for example,

spirit stains tend to raise the grain of woods less than water stains; and acrylic stains do not have strong vapours and are easy to wash out of the brushes with water. It is worth experimenting to find the best type for your needs.

3 Make your own stain. If you can get hold of some old shellac 78rpm gramophone records (pre-1940, before the arrival of vinyl), make a black ebonising solution. Break the records into small pieces with a hammer and place them in a jam jar. Cover the pieces with methylated spirits and put the jar to one side. After a few days you will end up with 'the mixture'.



What better way to clean up the attic and recycle waste than to make a black polish from old 78rpm records using methylated spirits. This reproduces the depth and feel of ebony on a close-grained timber

Before using it, brush some ammonia onto the wood to help absorption into the surface and then paint on the witch's brew. Allow this to dry before rubbing down and repeating the process several times until you end up with a passable matt ebony effect. A gentle wax polish will produce a good result. (For the final waxing, Kiwi black boot polish gives very good results!)

4 Ink. Some black drawing inks can be effective for touching up small areas. Indeed some restorers always keep a felt pen in their pocket for just this purpose. However the permanence of this technique is open to question.

When repairing a very small damaged piece of wood, you need to take great care to make sure that you blend the repair in completely with the surface surrounding it. Good lighting, good-quality fine brushes and patience are the order of the day.

Ian Wilkie



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Mix with meths. Label jar and hide from kids

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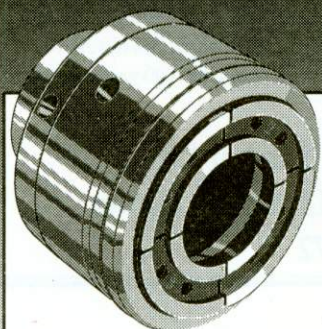
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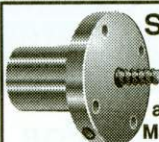
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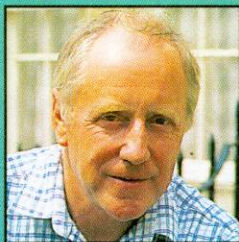
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Our In Focus team have diverged from chairs this month to study a unique wooden bicycle built by Laurie Wallace



Laurie Wallace is a carpenter-cabinetmaker living near Worcester. His early woodwork involved making kitchens, but he has since progressed through wooden briefcases and steering wheels to completing a bicycle made from wood this year.

in Focus

no:2

Projects that unite the interests of the maker regularly turn out the best. So it was that when Laurie Wallace united his passions for woodwork, cycling and sculpture, to produce a wooden bicycle, he could hardly have expected the results to be so good. Not only does it ride well (we tested it outside the office) but it also looks good and is structurally sound.

The story of Laurie's bike starts in the early 1950s, when his enthusiasm for wooden bicycles was fired by a remarkable bit of luck. In 1951 he was visiting a bike show and saw a bicycle, on display, made from wood by the Italian Vianzone brothers.

The pair lived in Torino, where one made snow skis and the other bikes. During the last war there was little demand for skis in Italy, and with supplies of metal drying up the brothers decided to make the bicycles from wood. Production continued beyond the war until 1949, but few survive.

At the time Laurie was a keen cyclist, even racing occasionally. Having studied furniture design, part-time, he was naturally impressed by the construction.

Two years later he was walking through Soho, in London, when he found the very same bicycle chained to railings. The miracle was that hanging from its frame was a for sale sign.

The £23 he paid for that Vianzone bike emptied his account, and represented the savings he had made for his forthcoming wedding. Family diplomacy may have suffered, but any discouragement was overcome. Today he describes his impulse buy as "The best purchase I ever made."

Laurie rode the bicycle for some years, but, fearing he might crash, it then became an object of desire, hanging from his living room wall. He now suspects that its inactivity explains its survival.

Only five other Viazones have been found to date, though Laurie plans a visit to Torino to find out how many were produced. The problem with such bikes is that the front forks were made from solid

wood, and taking so much strain – especially when braking – they must often have broken.

The frame was produced by bending. It has lots of flex and the glue bond remains good. During the 25 wilderness years on the wall it has never twisted out of line and needed no attention when Laurie took it down earlier this year to study its design.

If Vianzone idled for years, Laurie certainly did not. Having studied both furniture design and sculpture while working for his family glass business, he realised wood was more fun to work than glass and moved to Wales to become a carpenter/cabinetmaker.

He made wooden briefcases for a while, selling them through Harrods, and winning an Enterprise Award for his efforts in 1985. He then started to produce steering wheels for racing cars, sandwiching duralamin between marine ply rims. The sandwiching technique he used, and which could then be found on Lotus,

Porsche and Jaguar team cars, was to join the rims to the high-grade alloy with rivets and then carve the wood smooth. Later he refined the production process by turning the rims first to reduce carving.

A Bike of Your Own

The idea to build his own bike evolved as Laurie's enthusiasm for bicycling was rekindled. He returned to the saddle some eight years ago, joining the Veteran Cycle Club, open not to veterans but to the owners of old, or distinctive cycles. He had been mulling over the idea of a bike for some time, forming a good picture of its shape in his mind's eye.

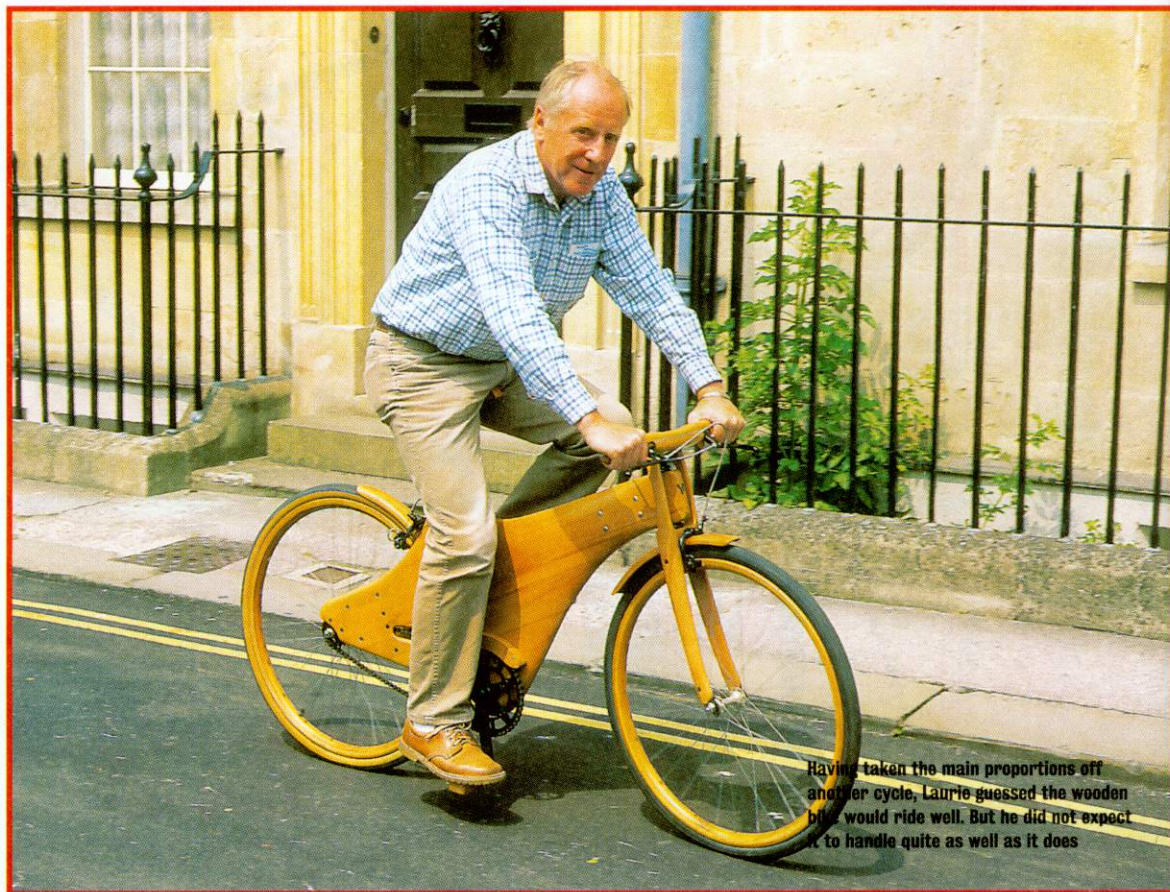
When it came to making the bike, its figure followed with remarkable accuracy the lines he first imagined. The shape seemed to be, he says, the most natural form for a wooden bicycle, and its evolution supports the maxim that "what looks right is right".

Laurie's first step was to take the main dimensions off another

bicycle. He had to be sure that the pedals would not hit the front wheel. He then cut out hardboard templates of sections through the frame to work out how much timber he needed, and where.

The bike is made from 150x50mm (6x2in) beech, bought from Timbmet (☎ 0865 862223), with the planks glued and biscuitied (using an Elu biscuit jointer) face to face. The frame was built in two halves so that Laurie could hollow the inside for the bottom (pedal) bracket, the wheel arch and to reduce the weight. The templates helped him bandsaw the laminates to a rough shape before gluing and assembly.

Laurie used an Arbortech Woodcarver (☎ 0494 681772) on an angle grinder for hollowing the inside and carving the outside. Then, having adapted bike parts for his design he took the creation, in crude form, up his drive for a test. It is now no heavier than many metal bikes, and as he found, handles very well. ➤

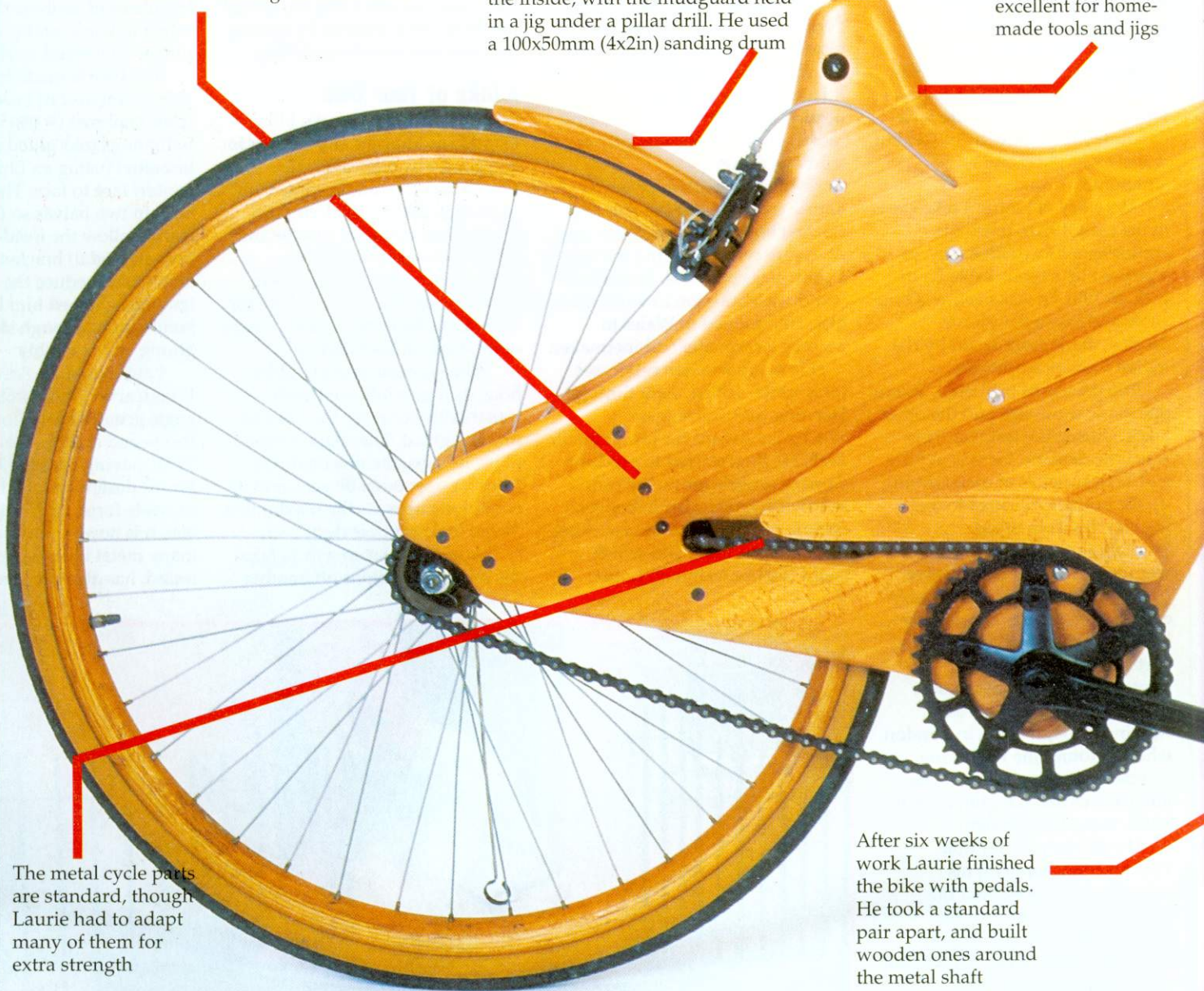


Having taken the main proportions off another cycle, Laurie guessed the wooden bike would ride well. But he did not expect it to handle quite as well as it does

The rear axle bracket is held in a routed recess. Having carved out the inside of the two frame parts as thinly as he could, Laurie planed the inside faces square. Once he was satisfied that they were flat he glued them together with Cascamite, using bolts and cramps. The partly shaped outside was difficult to cramp, and Laurie says that another time he would do that after assembling the main frame

The mudguards are cut from solid beech. The length was controlled by the width of the 150mm (6in) wide planks. Laurie expects you could use a cutter for fielded panels for the inside, with the mudguard held in a jig under a pillar drill. He used a 100x50mm (4x2in) sanding drum

Laurie used beech for all the wooden parts, because it is close grained and easy to work. For that reason it is excellent for home-made tools and jigs



The metal cycle parts are standard, though Laurie had to adapt many of them for extra strength

After six weeks of work Laurie finished the bike with pedals. He took a standard pair apart, and built wooden ones around the metal shaft



The front forks take most of the weight, so he inserted a thin metal plate into the top 100mm (6in) or so by laminating the forks in two halves



From underneath you can see how the frame had to be hollowed before assembly, with the axle bracket located in a routed recess



Laurie was particularly pleased with the join between the front forks and handlebars, with four screws through the forks and metal plates



Another important consideration was how the chain would be fed through the main frame. The bolts hold the rear axle bracket in place

When Laurie biscuit-jointed the main frame together in 50mm (2in) thick planks, he was no sure how the outside would be shaped. As a result some of the biscuits (which he made himself from beech) are now visible

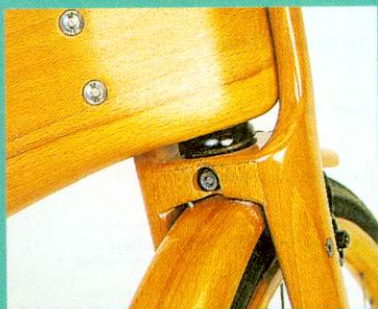
Realising that rubber brake pads would mark the wooden rims, Laurie initially used shoe leather, from a local cobbler. But this quickly glazed and he fell back on traditional cork ones he already owned but was saving. These work well but are difficult to obtain now



The long trail that took Laurie Wallace to making a wooden bike started with the remarkable purchase, in 1953, of an Italian wooden bicycle he'd first spied at an exhibition two years earlier. If anyone has more information on wooden bikes – and Vianzone models in particular – or wants details of the Veteran Cycle Club please contact Good Woodworking, 30 Monmouth Street, Bath BA1 2BW

The real problem with the forks, other than the reinforcing metal plate laminated inside them, was ensuring the fork tube was accurately positioned in the frame. Indeed the most difficult part of the whole project was making sure all the brackets were running in the same planes, as there were few reference points from which to measure

The rims for Laurie's bike were off his original Vianzone. You can still pick up wooden rims for about £50, though they do have metal spokes.



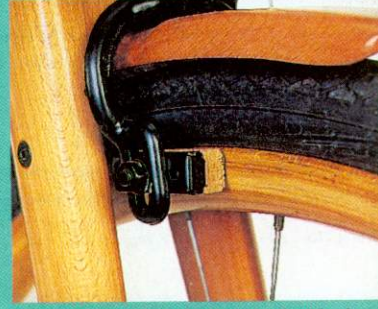
As with all the other brackets the fork tube is held between the two frame halves with an extending metal plate for strength



The saddle tube came from another bicycle. The top block, into which the tube was fixed, was added to the frame last, and is especially neat



The technique of sandwiching duralamin between wood, with rivets and Araldite, came from Laurie's steering wheel days

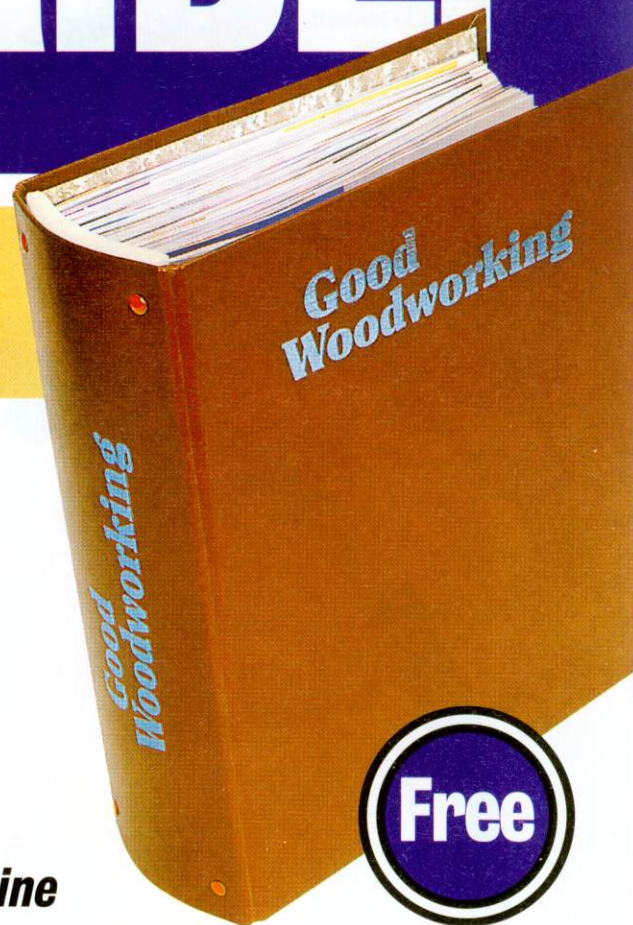


Initially Laurie tried adapting standard brake shoes with leather, to reduce wear on the wooden rims, but he finally chose cork

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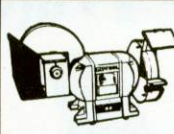
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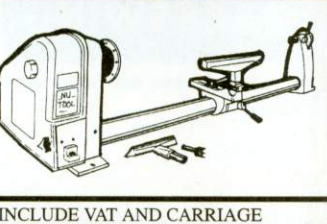
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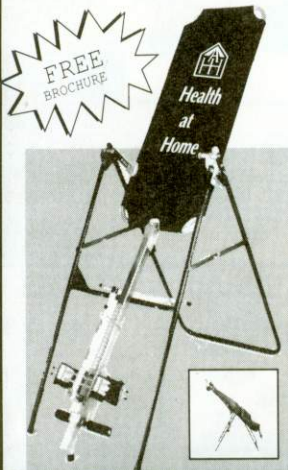
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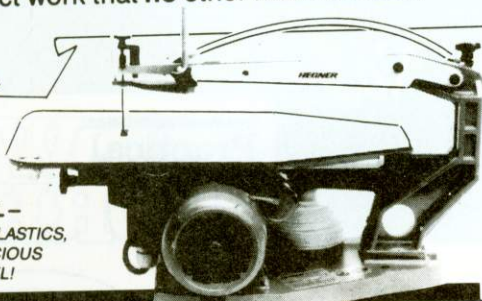
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Beautiful Bedheads

.....
PROJECT GUIDE

DIFFICULTY: Advanced

TIME: 25 hours each

TYPE: Furniture



Edward Hopkins is 'resting' from renovating his old malthouse. This month he's been adding a vaulted stone staircase to an old outhouse, making what will be a conservatory



Besides making the bedheads, Richard Green has been busy replacing the oak beams in the roof of a 300 year-old barn, on the old farm where he lives

Edward Hopkins tells you how make three bedheads and focuses on grooving techniques, using loose tongues

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**MATERIALS YOU
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The Tent

The chamfering on the tent version widens as it reaches the pinnacle to enhance the pavilion impression

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The Classic

The Box

While good design gives the maximum return on the minimum effort, this project is perhaps deceptive. Each of these bedheads is a simple jointed board involving not a lot of timber and no peculiar skills. Yet if you screw any one of them to the end of a bed-base it will immediately make the bed more appealing. Put the bed in a bedroom and it will establish the tone of the whole room. What other piece of furniture could boast such an effect?

Morticing Methods

One thing you will have to master in order to make this project is the long thin

mortice and tenon, especially for the tent-like headboard. The difference between performing this type of joint by machine and by hand is about as big as the cost! Morticing machines are not cheap and you would need a fair turnover of work to justify buying one, but once installed they instantly become indispensable.

The next step down, if you're amazingly lucky, is to pick up an old cast-iron morticing machine. These operate a heavy chisel on a lever which simply chomps into the timber almost regardless of how hard it is.

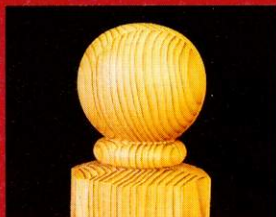
Buying a morticing attachment for a pillar drill,



The haunch is visible on the top of the leg on the tent bedhead. You can use a hidden haunch (GW 11:60)



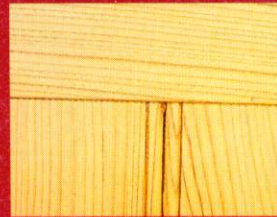
The top piece on the classic bedhead needs the support of a brace to ensure it stays still



A timber like cedar of Lebanon can look better laminated, because of its distinctive grain pattern



The box bedhead boards fit in the groove. The boards and groove are the same width as the rail tenons



The boards are beaded on both edges, and joined with a loose tongue, which hides any gap

TOOLS YOU WILL NEED

MORTICER

Either a morticing machine or a pillar drill, or drill and drillstand with a morticing attachment fitted. Use a mallet and mortice chisel if you don't have any of these

TABLE SAW, RADIAL ARM SAW OR BANDSAW

For the tenons. Alternatives: spindle moulder, router table or tenon saw

TIP

Groove a board before cutting it to its final length. The little extra wastewood might save the day if your method of grooving skids or hiccups as it begins.

or a stand for a power drill (GW 9:72), is more feasible. As the machining on such attachments becomes necessarily lighter, they will become less accurate and reliable. Whenever possible, test drive this sort of attachment before committing yourself.

Morticing by Hand

The traditional method of morticing is the least expensive. First mark out the mortice and stamp lightly around the rectangle with a chisel, to form a groove into which the paring chisel can take its final cut.

Bore away most of the waste with a pillar drill or a drill in a stand, and clean up the mortice with a chisel. If you do not have a drillstand and have to drill by hand, be sure to keep the drill perpendicular to the work. While wonky holes might be correctable, they do make life difficult. It is, however, hard to hold a drill and check its angle in both axes. If no-one is around to sight one axis, line the drill up with a standing square.

For shallower mortices, a plunging router will remove the waste while remaining, of course, dead square to its sole. The drawback is the depth of plunge. Some extra long cutters are available which will extend the depth of the mortice, but check this out before work begins.

While we are on the subject, and if you are considering a combination machine (for which there is a lot to be said in a small

workshop), remember that the morticing attachment here will drill the waste; it moves sideways to produce a round-ended mortice. Check the visibility and easiness of this approach.

Tenon Techniques

The tenon is a bit easier to cut. Again, large machinery like a table saw or a radial arm saw will make light work of spot-on tenons. A good bandsaw can cope, while a spindle moulder will polish them off before breakfast. Also, a router table can be set up with a sliding cross-fence over a protruding fluted-cutter, although this would be better for just finishing off, having

TIP

Wherever possible, in most pieces of joinery, grooves are cut first, right through the length of the component. But sometimes, as here in the lower leg, the rebate is stopped. A router is ideal for this, leaving a rounded end which can be finished by chisel. The job is possible using a rebate plane and chisel, but if you choose this route you need to allow extra time.

and it is by far the cheapest. Ensure the saw is sharp and take your time. Saw from both sides, following the squared line down the edge and meeting at the top. This can be difficult as any, so don't expect the uniformity of a machine-cut joint.

Tongue and Grooving

The other feature common to all the headboards is tonguing and grooving. It is

tongues continue around the top of the boards in the box-bed version. Grooving the end-grain is not a problem for most of the machines mentioned, including a router in a table or with a jig.

Making any of the models will involve cutting tongues. The boards of each bedhead are jointed into the legs and will shrink as they dry. If the boards were just glued together, this line would shear eventually, so the boards must be able to flex independently. The tongue holds the boards together but because it is not glued it does not inhibit separation.

Cutting Tongues

The best way to cut tongues is to plane a board so that its thickness equals the width of the tongue you need. Square up the leading edge. Saw the tongue away and re-shoot the edge square. Continue in this way until the board becomes all converted to tongues, or becomes too narrow to handle.

A machine saw can be set to the final thickness of the tongue. Allow a little extra for sanding or planing down to size. It is possible that a thicknesser could finish them to size, but it depends on the machine. Some will make melodramatic bangs and

How to fit the bedheads

Drill and screw the bedhead to an existing bed frame. For added rigidity, cut and screw a spacing block to the back so that, as you sit up in bed reading, the weight of your head and shoulders is transferred directly to the wall.

removed the bulk of the waste in some other way.

Failing all that hardware, there is the faithful tenon saw. As with morticing, the old hand way is probably as good as any in the long run,

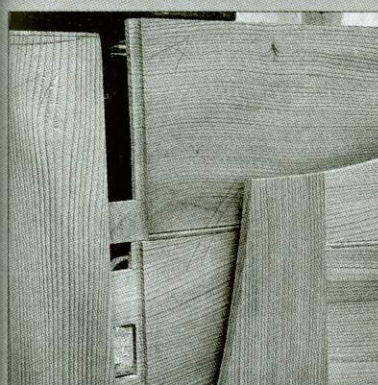
easier to groove two boards and put a loose tongue in than to cut a tongue-and-groove joint. Alignment is easier, and decoration more easily applied.

The grooves and loose

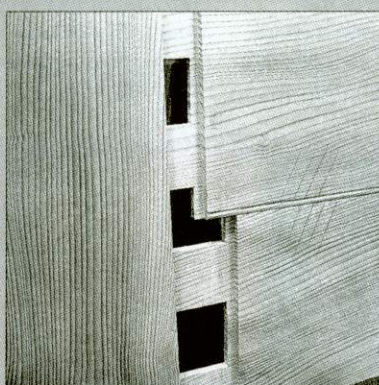
Doubling up

All these bedheads can be expanded to fit a double bed. Draw the pattern out to scale, maybe on graph paper. Be sure that you will accommodate two bedtime readers, not one in the middle! A double bedhead will definitely require clear decks for all the work on the boards and assembly. You will also need 1.5m (5ft) sash-cramps or some other method of pulling the frame tight.

Details to make the tent-shaped bedhead



1 It is easiest to cut all the joints and glue up the bedhead 'square' before shaping it. Note the single tenon on the top rail

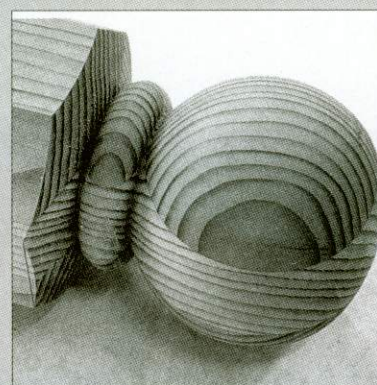


2 Mark the boards with identifying pencil marks to show which grain match is best and where the joints have been cut to fit

How to make the classic bedhead



1 You could of course plane the chamfers on the edges of the boards on the classic bedhead, but it is quicker to use a router table



2 If you do not have access to a lathe simply chamfer the tops of each leg to match the section. Dowel a ball on if you have a short lathe

crashes and give you the tongue back in bits. It is worth fixing a false table to the thickener for machining thin stock (GW 1:43).

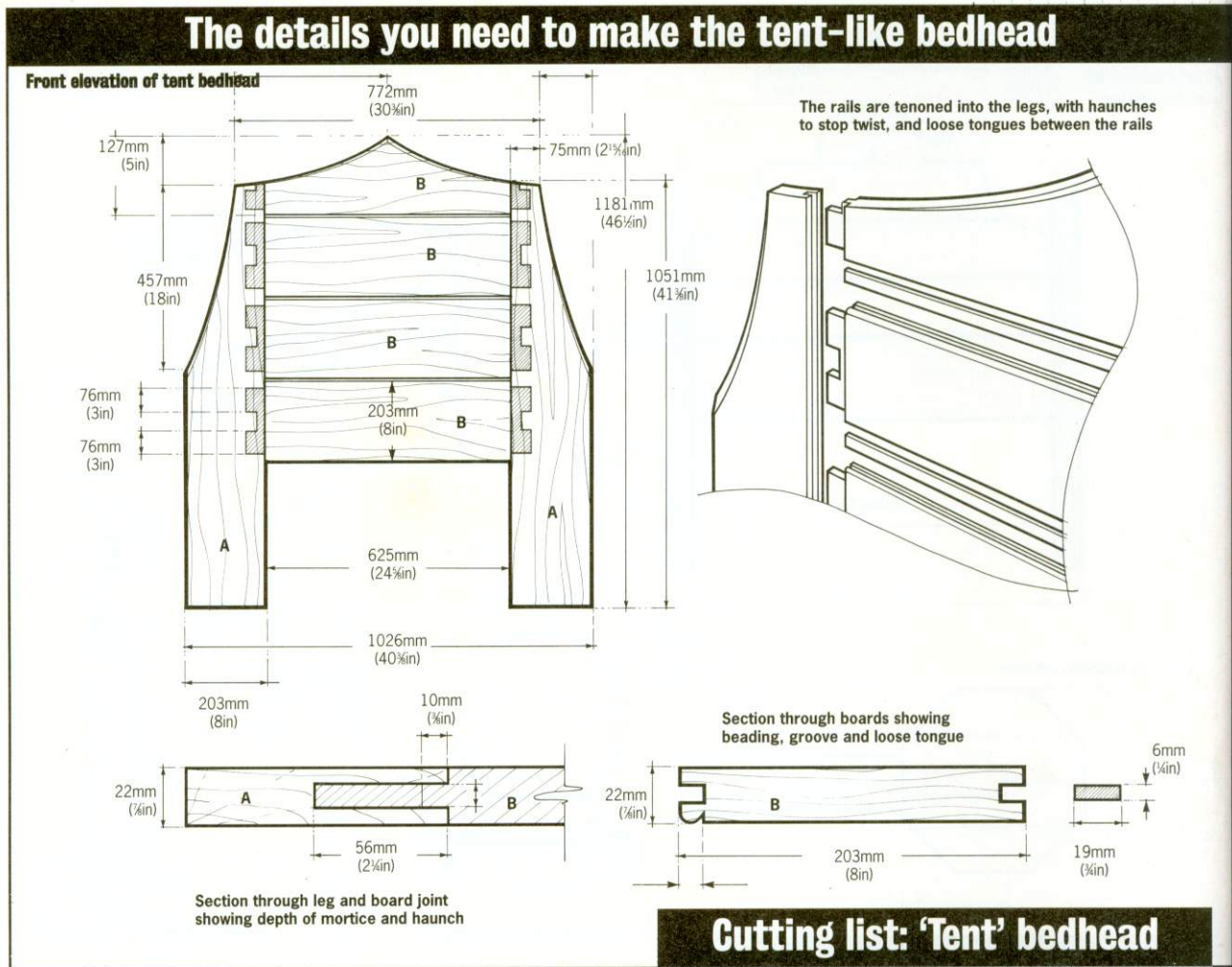
The edge of the board is decorated in some way on each of these projects. The simplest is a chamfer on one or both sides, while a bead is more interesting. These (and others) distract the eye from the join between the boards; even if the join has opened up slightly it will be lost in the shadow.

You can, of course, mix and match the various design elements in our three bedheads. We used three legs: the tent-head is a board, the box-bed square, and the classic version an octagonal column. This last one is made by laminating three pieces of prepared 25mm (1in) timber together. This is a laborious process, and you do need a good plane or planer and lots of cramps, but the result is stronger and more stable than if it had been solid. Use one fat lump of timber here only if it is clean, straight-grained and thoroughly dry.

How the boards are arranged or cut away between the legs is up to you. A bandsaw or jigsaw will cut the curves. Clean up with a spokeshave and sandpaper.

Assembly

Lastly there is the business of putting the frame together. Whichever one you make, it's going to be big (especially if it's for a double bed). Clear the decks and arrange sash cramps that are long enough. Make sure you are able to



Cutting list: 'Tent' bedhead

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
A Leg	Cedar	2	1092mm 43in	203mm 8in	22mm 7/8in
B Board	Cedar	4	737mm 29in	203mm 8in	22mm 7/8in

Cutting lists always give the full length of a piece including the joint, but not wastage. Allow at least 25mm (1in) extra for length and 5mm (3/8in) on the width and thickness of sawn stock

forever sliding out of place at critical moments.

1 Prepare your timber overlength but to final

turn the cramped frame over to check progress and deal with problems. And counter cramp from the other side to equal out the pressure.

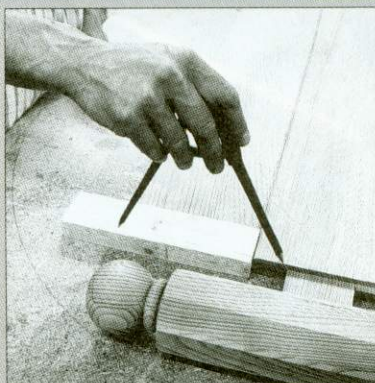
Most importantly of all, run your assembly through a dry fit and cramping unless you are fully confident that all the joints will pull up tight at the same time.

The Tent Bedhead

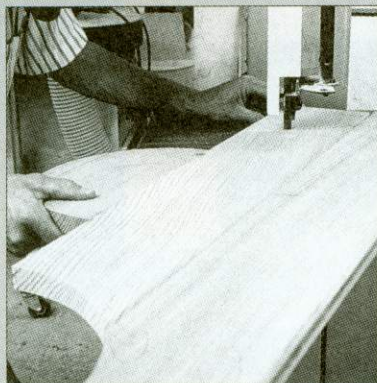
This is the simplest yet the

most unusual of the three. The boards are mortice-and-tenoned to the leg boards, glued up and then cut out to a 'pavilion' shape.

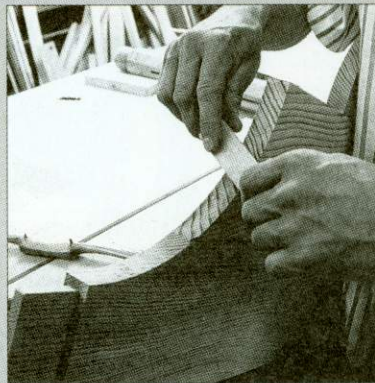
When cutting the top mortices take care that they will not be exposed by these curves. Cramp the legs and rails up uncut. It is so much easier to cramp square surfaces, and cut later, than to try to arrange shaped cramping blocks which are



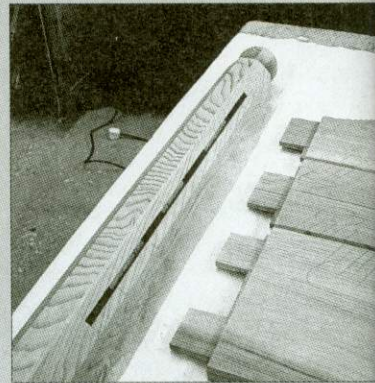
3 Dry assemble the bedhead and use a large pair of compasses for marking out the curve. Note use of spacer to find the centre



4 If you do not have a bandsaw, cut the curves with a jigsaw. It is best to cut the top piece to shape before assembly

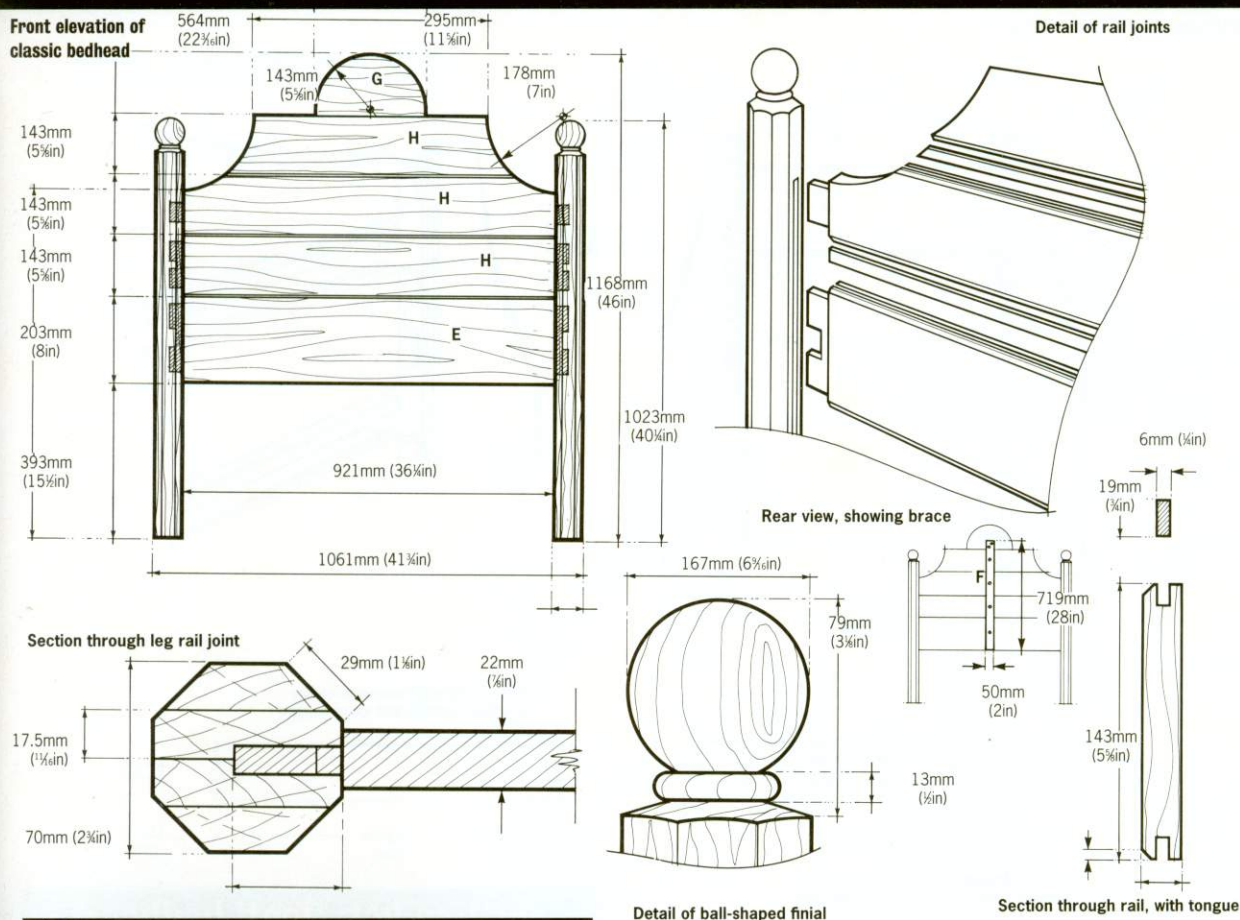


5 Use a spokeshave to clean up the curves. You will need a spokeshave with a convex sole, and may have to make your own



6 Note the arrangement of the tenons to take account of the curve. Likewise stop the tongue groove short on the top two rails

Use our plans to make the classic bedhead with our plans



Cutting list: 'Classic' bedhead

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
D Legs	Cedar	four laminates each	1023mm 40 1/4in	70mm 2 3/4in	17.5mm 1 1/4in
E Bottom rail	Cedar	1	921mm 36 1/4in	203mm 8in	22mm 7/8in
F Brace	Cedar	1	719mm 28in	50mm 2in	25mm 1in
G Top piece	Cedar	1	295mm 11 1/4in	143mm 5 1/2in	22mm 7/8in
H Rail	Cedar	3	921mm 36 1/4in	143mm 5 1/2in	22mm 7/8in

width and thickness. Remember that only one side of it will normally be seen. Mark the best faces and arrange the boards (B).

2 Groove the legs (A). There will be a row of mortices down each one, set in a shallower groove that restricts warping. (Each tenon is therefore effectively

a haunched tenon.) Cutting the groove first helps align the mortices.

3 Cut the mortices. Ensure that they are a little deeper than the length of the tenon, so that there is no chance of the tenon being pushed out, and so that there is room for a little excess glue. Pay particular attention to the

bottoms of the mortices, so that you cut them clean and square, with no loose chips.

4 Check that all the boards will join flush together, and make adjustments if necessary. Groove the boards with a hand plough or router unless you have a spindle moulder or table saw.

5 Prepare the tongues along the edges of the boards, then cut the tenons. All tenons are haunched. One tenon on either end is enough to secure the top board, but the other boards need double tenons. Dry assemble and cramp the piece. Adjust if necessary.

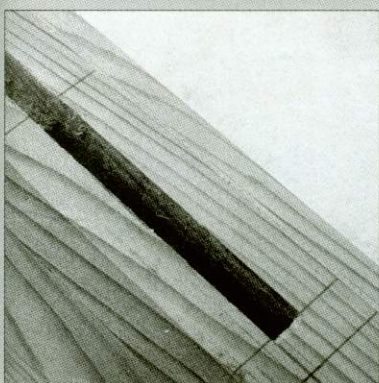
6 Apply the moulding bead, or chamfer, on one or both sides of each board join. If you are using a bead, do not cut too deeply or you will part the bead from the grooved edge. Glue and cramp up.

7 When the glue is dry, mark out and cut the curves using a bandsaw or jigsaw. Finish off the curves with a spokeshave and a sanding block. Sand and clean throughout. Apply a coat of soft neutral wax and buff it up.

Making the Classic

There is more work involved in making, shaping and turning legs on this bedhead, but the centre boards (H) are much the same as those on the tent version. Because the top board (G) is unsupported

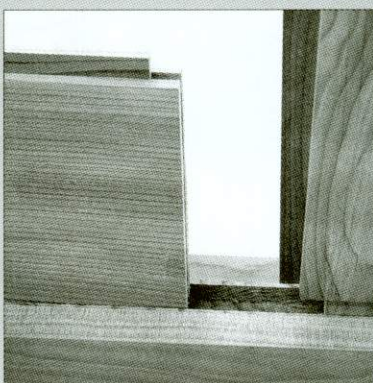
How to make the box bedhead



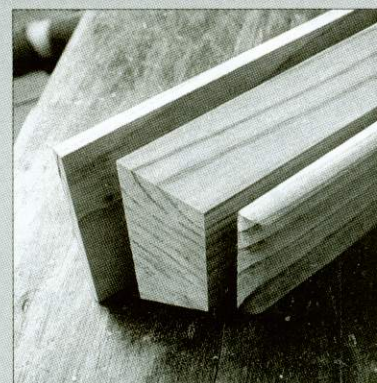
1 Groove the legs for the haunches and then cut the mortices. The groove acts as a guide for the mortices, and the haunch stops warping



2 The boards on this bedhead are held together with loose tongues. Your best bet for these is to use 6mm (1/4in) thick ply



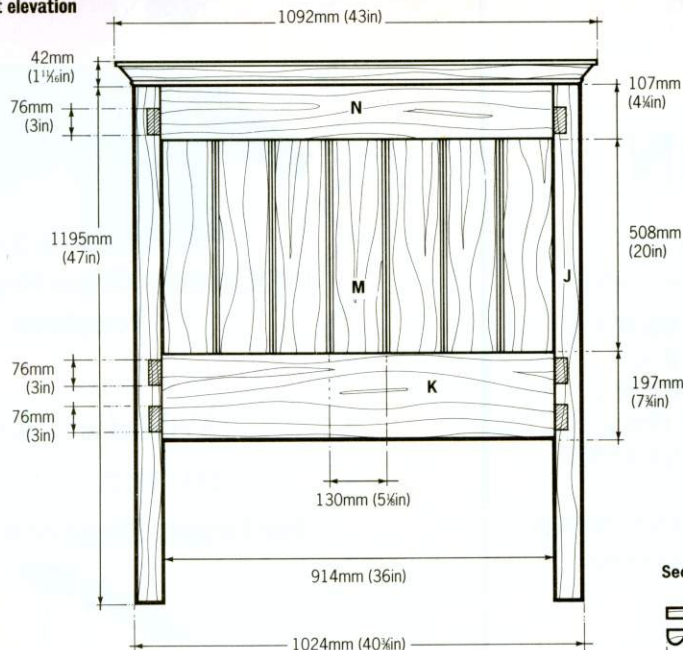
3 The rails are tenoned, and fit into mortices the same width as the groove. The groove is as wide as the vertical boards are thick



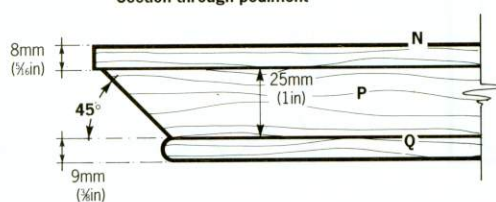
4 The pediment is made up of three pieces, to reduce the thickness and make fitting to the top rail easier. The top strip hides fixing nails

Elevations and details for making a box bedhead

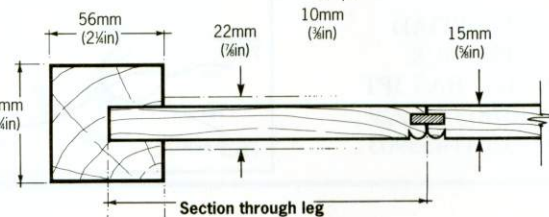
Front elevation



Section through pediment



Section through board



The beauty of the built-up pediment is that you can fix it easily to the top rail and then hide the nails with the top strip

Cutting list: 'Box' bedhead

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
J Leg	Cedar (laminates)	2	1195mm 47in	56mm 2 1/4in	56mm 2 1/4in
K Bottom rail	Cedar	1	990mm 39in	197mm 7 7/8in	22mm 1in
L Top rail	Cedar	1	990mm 39in	107mm 4 1/4in	22mm 1in
M Board	Cedar	7	508mm 20in	130mm 5 1/8in	15mm 1/2in
N Pediment	Cedar	1	1092mm 43in	89mm 3 1/2in	8mm 5/16in
P Pediment	Cedar	1	1092mm 43in	82mm 3 1/4in	25mm 1in
Q Pediment	Cedar	1	1042mm 41in	63mm 2 1/2in	9mm 3/8in

Cutting lists always give the full length of a piece including the joint, but not wastage. Allow at least 25mm (1in) extra for length and 5mm (3/8in) on the width and thickness of sawn stock

rails to length and tenon the ends, full thickness. Dry fit the frame and measure the length of the infill boards as accurately as you can. Groove the boards (M) and cut them to length. Continue the groove along both ends.

3 Prepare the tongues. Disassemble the frame and reassemble it with fitted boards. Apply the moulding to the boards as in stage six of the tent bedhead project. Glue and cramp the main frame, but apply glue only to the rail joints.

4 Prepare the pediment. This is made from three strips of timber, shaped individually and assembled as if from the solid. This is the easiest method of producing this shape, unless you have large moulding planes or a spindle moulder, and it offers a simple method of fixing to the top rail.

The lower two parts of

the pediment (P and Q) can be glued and nailed into the top rail (L). Then the last thin strip can be glued on top (N), covering the nail holes. This one strip is easier to glue and cramp (using sash cramps and masking tape) than a rigid solid would be.

The mouldings return around the ends of the pediment. Cramp a piece of wastewood to the far edge when working end-grain to stop the fibres fraying away when the router cutter (or the moulding plane) ends its cut.

5 Finish as in the way described in the tent bedhead project.

Cedar of Lebanon

We chose this light, easy and fairly cheap timber, because of its great workability and lovely colour, and above all because it has a quite delicious fragrance. You will probably have to plane it yourself because it is usually available unplanned, as sawn stock. Cedar is often used for drawer bottoms because, like the more exotic camphorwood, it keeps moths away.

and liable to be weak, it is reinforced with a vertical batten (F) screwed down the centre of the back.

The legs (D) are a bit long for some lathes. Check your maximum distance between centres and redesign the bedhead if needs be. You could of course fix a separate finial on the top of the legs with a dowel. Alternatively, scrap the turning altogether and finish off with chamfers at the top. If you get really enthusiastic, this would be a good place for a spot of carving of leaves or the like!

1 Prepare timber and laminate the legs (D), slightly fat and square, and plane them to size when dry.

2 Plane or rip the heavy chamfers on the legs from the corners, so that you end up planing the legs to a regular octagonal section. Turn the finials for the beads and balls that will go on the tops of the legs.

3 Arrange the legs so that the edges of the laminations are at the sides, and mark them for identification. Joint and fit, following the grooving, morticing and tenoning stages of the tent bedhead project. It will be easier to shape the semi-circular top board before gluing it in place because internal corners are always awkward to get clean.

4 Fit the back re-inforcing batten, and finish as in the other bedhead projects. We just used furniture wax.

The Box Bedhead

Of the three, this is the one that would benefit from a smaller version fitted as a tailboard. Even by itself it feels like an old panelled bed.

1 Follow steps one to three from the tent bedhead for grooving and morticing the legs (J). The groove is the same width as the thickness of the boards (M), which simply slide into the legs (J).

2 Groove the rails (K and L) to accept tongues that also fit in the boards. Then cut the



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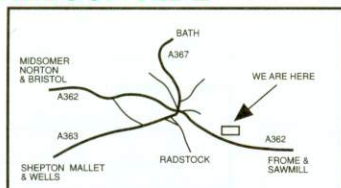
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Woodworking Answers

Find out how to burn as you turn, to stop boards cupping and oilstones hollowing. Our experts solve your problems

Cupping boards

I have several 225mm (9in) PAR pine boards which I intend to make into a bookcase. Unfortunately one of the boards is badly cupped. Is it possible to straighten it?

Mick Hudson, Notts

Apparently these boards arrived like this from the timberyard. Clearly planing the one board that is badly cupped across its width would leave it thin, and therefore I suggest you cut it up into small sections for glueblocks and the like. Buying wood unseen is always risky. It is

subject to climatic changes and can be affected by the way it is stored. But if you really do not want to waste the wood the best thing to do is to cut it into strips 25–50mm/1–2in wide and glue them back together, alternating them so that the grain goes in opposite directions. This will help to keep the board flat, and with pine you ought to be able to achieve a good finish, with the glue lines hidden.

Ian Wilkie

Hollow oilstones

Over the past 30 years I have used a honing guide for sharpening plane irons. The

outcome is six combination oilstones rendered unusable because of a central depression worn by the guide roller. Can the stones be redressed to the flat?

D. Loxley, Kent

An oilstone can be resurfaced by rubbing the face on glass sprinkled with carborundum powder. Use water as a lubricant. If you cannot get this powder try silver sand.

Phil Davy

Burning sensation

At a recent woodturning exhibition one of the demonstrators showed how to

make burn marks in V-grooves when spindle turning. It looked like he was using string or nylon to produce the friction burn, for decoration. I have tried these, and wire, but cannot reproduce the effect. How is it done?

George Whiteman, Essex

You were on the right track with the wire, but you probably tried using the galvanised type. This is too hard and rough and will bite into the wood without burning it. Cheesewire is what you really need. It is available from kitchen shops and good hardware stores. The idea of the burn mark as a design feature is to draw the eye, and it can be used instead of shapes. It is a useful technique to emphasise a foot or possibly the lid of a box, but it is best used sparingly. Try it out, look at the result and work out where it enhances the piece and where it diminishes the effect. There is potential for using it like a texture, with a series of black rings about 8mm (3/4in) apart, on a white wood box or bowl for contrast.

Tobias Kaye

Radial question

I have seen many advertisements but never an objective report on the Triton multi-function saw table. I am just about to buy a radial arm saw, but the Triton seems to offer many of the same functions, perhaps with less convenience but probably better ripping performance. I need a new portable electric saw anyway as mine has just expired. Any advice would be welcome. **B. Manning, Berks** Your decision is not an easy one to make. We have already tested radial arm saws (GW 7:80) and also discussed their merits compared with sawbenches (GW 3:79). We concluded that for anyone expecting to do a lot of

Ask the Good Woodworking expert team



Tobias Kaye
Woodturning



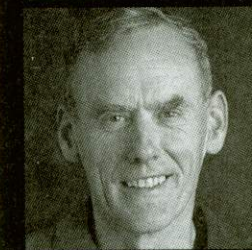
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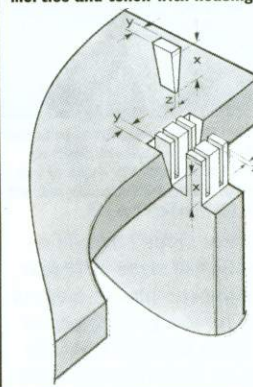
Joint of the Month

No. 4 Twin housed mortice and tenon with Jeff Gorman

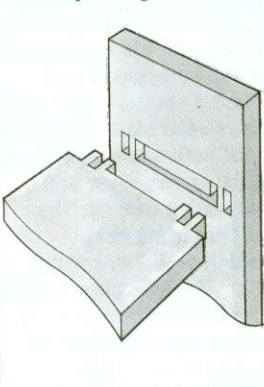
Hints for cutting

- 1 You will probably not be able to mark up the joint with a mortice gauge. You will have to use a straight edge. When you do gauge a line to position the tenons, do so from the face (GW 11:70) and back edges, so make sure the shelves and sides are the same width, and therefore parallel.
- 2 Chop the mortices, removing the waste with a jigsaw or coping saw if they go through, then cut the housing as a shallow mortice. Remove waste with a drill or router (with a fence cramped across the work) and clean up.
- 3 Cut the tenons. Make sure the central part of the shelf does not foul in housing.
- 4 Cut wedges (GW 8:59), splay mortices and knock home the wedges at same time.

Mortice and tenon with housing



Cut-away of wedged tenons



Uses

- 1 For shelves when sides extend below the bottom shelf or above the top shelf
- 2 For carcase construction when ends extend below the bottom or above the top

Advantages

- 1 Twin tenons give a larger gluing area
- 2 If cut through the sides the ends of the tenons can be visually attractive
- 3 The housing helps to restrain warping and covers possible long-term shrinkage in the thickness of the sides

Disadvantages

- 1 Long-term shrinkage could make the through tenon project slightly

Comments

- 1 Since the tenons are likely to be short, through joints are recommended
- 2 Wedge the tenons for strength

ripping the sawbench is the better option. We will be testing the Triton soon, compared to other multi-function workcentres. In our experience such machines are rarely as good at the individual tasks as the relevant dedicated machines. However they do offer a wide range of uses. You therefore have to weigh up whether you can afford the time and effort of changing from one function to another on the Triton. I have seen some wonderful work produced with

that workcentre, but you do need a flat floor for it to stand on as it is relatively light. This is an advantage for mobility but not for stability.

The radial arm saw can offer you the option of an overhead router. This can be used as an alternative to the router table facility offered by the Triton.

The radial arm will probably offer more permanent accuracy, as you can leave it set up in the one mode. Your purchasing decision comes down to how

much ripping you hope to be doing, and if that is substantial you must estimate if the benefits of the Triton's versatility make up for the time needed in changing from one function to another.

Nick Gibbs

Saw washers



I have a portable circular saw, for which I have bought a new rip blade. The trouble is that I cannot find a suitable washer for the new blade. Do you know where I can buy one? My second problem is that the dust comes out of the saw at the top corner. Is there any way I could fit a bag to the saw to collect the dust?

K. Garnett, Humberside

I am sending you two washers for your circular saw. They were kindly supplied by Pen Tools of Hereford. One washer is slightly larger than you say that you require, and the other I have turned down to the exact diameter you state you need. I think your Black and Decker saw must be quite an old model, which is why you may have difficulty in obtaining a suitable washer. I hope you will now be able to use the rip blade. As regards fitting a dust bag to your saw, I do not think this would be possible and I doubt if you would be able to collect very much of the dust. Indeed there is a risk the bag and blade would become jammed up with dust. You really need some form of vacuum cleaner or extractor to take away the dust. This is likely to get in the way of the saw. I do, however, suggest you wear a good dust mask, and you will hopefully find our test in the August issue on dust protection of interest (GW 10:18).

Ian Wilkie

Pilots and blades



Thank you for your excellent magazine. Is there a simple way of finding out the appropriate size of pilot screw to suit particular screws? I also need to know what blades I need to use for cutting through sheet metal (copper, silver and brass) with a fretsaw. The ones I am using keep breaking on 0.7mm sheet.

Maggie Laing, London

We published a list for working out which drill bit to use in the December issue of Good Woodworking (GW 2:79). We

What is it?

Can you please identify and explain the use of the tool I have discovered in my workshop?

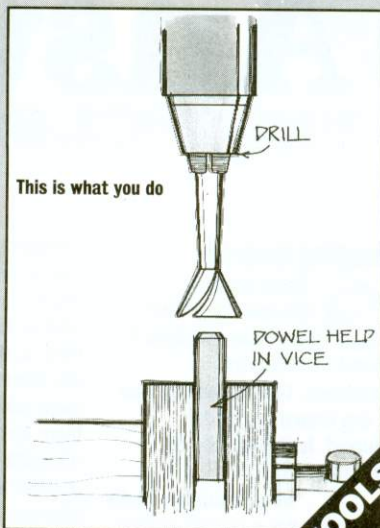
D.G. Muir, Belfast

Much has been said in Good Woodworking since our launch about the making of dowels. This tool is used for bevelling the ends of pieces of dowelling for dowel joints. When cramping up a dowel joint the bevelled ends guide the dowel into the corresponding hole. The bevel also provides some space for excess glue at the bottom of the hole.

Nick Gibbs



If you found this tool how would you use it?



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**POST
TO**

Unfortunately I am not knowledgeable enough to challenge the supplier. Does this timber come in varied shades, or have I bought the wrong type of wood?

Kenneth Smith, Manchester

You are right in questioning the consistency of American white oak. I have experienced a wide range of colours, and grain patterns, within one board. This may depend upon your supplier, as a furniture manufacturing friend of mine was extolling the virtues of this wood to me only the other day, explaining that he finds American white oak the most consistent of the oaks. However the kitchen doors I was making at the time ended up with light stiles and much darker rails, after plenty of careful selection of light and dark planks, and other, inconsistent, boards.

We think that you have probably bought American red oak. As you say, your sample piece is pinker than your other purchases, however, contrary to our timber classification books, the medullary rays seem to be longer and more pronounced.

It does look very much like the red oak John Paul Jacques used for his dresser in the July issue (GW 9:44), and from a quick poll of any woodworkers going through our office we think that you have inadvertently bought red oak.

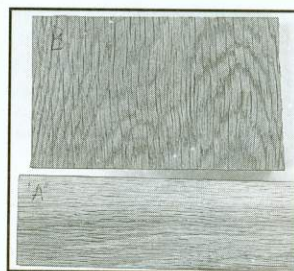
You have not necessarily been ripped off as it costs much

gave clearance and pilot hole diameters for softwood and hardwood, for No.2 to No.12 gauge screws. If you want information on back issues ring that department on 0458 74011. With regard to fretsaw blades, these are widely available for metal cutting, with both Draper (0703 266355) and Hegner (0323 442440) offering them with as many as 28 teeth per inch.

Nick Gibbs

American white oak

For some time I have been doing some woodworking projects in what I understood to be America white oak. For



Which is which? These pieces of timber were both sold to Kenneth Smith as American white oak. For those of you viewing in black and white, we suspect the top (B) is in fact red oak

my latest piece I bought a collection of sizes of timber, including two planks, both of which have a pinkish colour. The grain pattern is not the same as the white oak I had been using previously.

the same as the white oak, and often more.

Nick Gibbs

Domestic extraction

In your June edition of *Good Woodworking* (GW 8:72) you tested various dust extracting machines. Although you did not recommend domestic cleaners, my wife has a Vax 121, with a 1000W motor that appears to conform to some of the specifications of the cleaners tested. Can this Vax be used, and if so how can the extensions and adaptors be fitted?

Alan Bowers, Lancs

Yes, it is possible to use a reasonably powerful domestic vacuum machine such as the Vax in the workshop for light and occasional work. Clearly it would not be suitable for continuous work because there is a risk of it overheating and it would soon fill up with dust and may get jammed. I use a similar machine in my workshop just to collect the dust, not the shavings and chippings, which I sweep up. I always use a paper filter bag inside the machine, which improves its filtering efficiency and makes it easier to empty. You will find that the bags fill up rather quickly and your wife will probably demand that you buy your own separate supply as they are not cheap. There are a wide range of extensions and adaptors which will fit your machine. If you have difficulty Axminster Power Tools (☎ 0297 33656) have a catalogue listing all the necessary fittings you would require.

Ian Wilkie

Grinding angles

Are you likely to be comparing the Tormek type of wetstone grinder with the horizontal Japanese type? Which is the most suitable for sharpening other items such as scissors, kitchen knives as well as chisels and bench plane irons? I would also like to know if you can use the laminated beech worktops sold by IKEA and the like for making a workbench? Could I dowel or biscuit them together to make the top thicker and produce a well?

Graham Burford, Bucks

Taking your second question first I suspect the beech countertop board would be perfect for a

Ten tips to improve your lathe

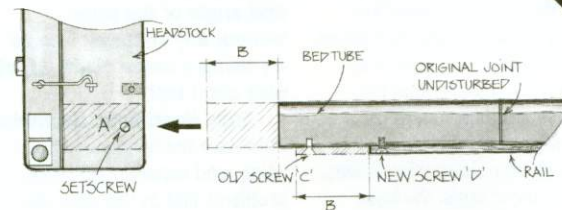
Regarding F. Faima's problem with a NuTool NWL12/37 lathe (GW 9:56), or one of its many clones, I have found ways of not only shortening the lathe, as he requires, but also have 10 tips for improving this excellent starter lathe. I still do wonder what the hole (X) is for. Does anyone know?

- 1 Throw away the dreadful V-belt supplied, and get a properly cut one from Halfords. The vibration disappears like magic.
- 2 Discard the clumsy bolt which holds the pulley cover shut; pop-rivet in its place a quick-release clip, or hasp and staple. That way you can change speeds easily.
- 3 Turn and fix, with a drawing pin, a half-round button onto the plastic cover of the no-volt release switch. This makes it much easier to find in a hurry through a pile of shavings.
- 4 If your drive centre is not quite central, spot mark it and the spindle so that you can always replace it in exactly the same place, then true it up with an HSS tool from a metalworking lathe, clamped to your toolrest (which is easier than it sounds).
- 5 Smooth, straighten and re-profile the tops of the toolrests on a sheet of emery cloth stuck to a piece of MDF.
- 6 The spindle locking pin is too short and needs strong fingernails to disengage it. So drill and tap M4 and screw a short M4 screw into the end for a better grip. If you use this feature it is also worth marking the headstock pulley to indicate the position of the stops you wish to use for square, hexagonal dishes and so on. Colour coding is ideal.
- 7 To avoid rusting of the bed, always clean off every speck of shavings at the end of the day. Wipe or spray lightly with silicone fluid weekly.
- 8 Do buy the best chuck and turning tools you can afford. You can always transfer them to your next lathe, and they will enable you to get so much more from this one.

workbench top, if a little expensive. You do not really need a double thickness of the beech board, so we suggest you screw two pieces of the beech board to a piece of 18mm (¾in) ply, to create the well near the back. You do not really want to glue the top down as you may need to remove it at some time, but make sure the screws are

well countersunk, and possibly even counterbored and plugged. You are better off using 75mm (3in) square softwood for the legs and 75x50mm (3x2in) softwood for the rails, all morticed and tenoned together. Notch a captive nut into the rails and then use that to pull the rails and legs together with a bolt through the legs and tenon on

Front elevation of NuTool lathe for shortening the bed



Six steps to a shorter NuTool lathe

- 1 Remove the bed from the headstock by releasing the setscrew (A).
- 2 Mark the length (B) of the bed to be removed at B1 on the bed tube and B2 on the locating rail underneath the bed tube.
- 3 Drill countersink and tap the bed and rail to suit the screw (C) at the new position (D).
- 4 Re-fix the screw in the new position, using Loctite, making sure it is right first!
- 5 Cut off the rail at B2 and the bed at B1.
- 6 Clean up all the edges, reassemble and re-align the centres. Tighten the screw (A).

9 It is worth spending some time aligning the two section of the bed tube to avoid a nasty step as you slide the toolrest holder or tailstock over the joint. Use shims and/or judicious filing to ensure a smooth joint.

10 As with all lathes, it must be well bolted to a flat, rigid and heavy bench at the right height – the toolrest needs to be roughly elbow high – for best performance and safety.

Bruce Manning, Berkshire

the rails. That way the bench can be taken apart, and the joints can be kept tight.

The debate over wetstone grinders centres around the bevel they produce. The Tormek (☎ 0926 493389) produces the hollow bevel that is so popular among woodturners, but for chisels and plane irons this is not necessary. I am sure some

traditionalists prefer the flat bevel that a horizontal grinder produces (Lion Tool Company ☎ 0491 576113).

One benefit of the horizontal grinder is the larger area you can use for grinding. Exponents of the vertical type will argue that this means the wheel is more difficult to dress when it begins to hollow. The alternative

The Good Woodworking Supply Service

Please can you tell me where I can purchase 10mm (¾in) MDF with pastel rainbow colours on one side for making shapes and name signs.

W. Sangster, W. Lothian

You will not be able to buy pre-coloured MDF. That is for the moment. We know that there are moves to manufacture such products, but as yet they are not available. Some companies offer a painting service (for instance Color-Board ☎ 0992 712041) but it is expensive, costing about £5.60 a coat. If you want to use MDF for outdoor signs you will need to buy Exterior Grade MDF, made by Medite, who recommend the use of exterior wood sealers of the polyurethane, vinyl or acrylic types. You must finish both front and back of your signs to prevent warping, expansion or buckling. You will need more than one coat, denibbing in between. Once the MDF is prepared, you can apply an external paint. If you need more information or technical

advice contact Medite (☎ 0702 619044) or the Wood Panel Products Federation (☎ 081 751 6107).

Ian Wilkie

We have had a number of enquiries about fittings for snooker cues and tables. We can at last say that BCE (☎ 0272 425717) produce such items, but have a minimum order of £75. They have everything you need to make a snooker table, mainly because they make and sell tables themselves. If you are building a table you will probably be spending more than £75, but if you only need a few parts they will supply you with the address of their local stockist. We have already found a sports shop in Bristol (☎ 0272 264852) that supplies the parts. We have also just heard from Maurice Howard of Cirencester that spring clips are available from Bar Billiards Ltd (☎ 0344 26244).

Nick Gibbs

Can you tell me who produces Centrix

lathes? I bought one recently at a car boot sale for £30. It has No.1 Morse taper nylon bearings and an alloy frame, with a 9tpi Whitworth spindle. Do you also know of a UK supplier of Cool Blocks for bandsaws?

Brian Sugg, Chelmsford

Unfortunately our research into Centrix lathes has led us up a number of grainless planks. Can anyone help? Currently no-one is importing Cool Blocks, but I am told that will change soon. Until then you can try Garrett Wade in the US (☎ 0101 212 807 1155). We are currently testing bandsaws for next month's issue, and were intrigued to discover that the APTC one (and possibly more) is fitted with Cool Blocks.

Nick Gibbs

In answer to G. Gadsden's request about flock spraying, we have heard from Mr Kendall of N. Yorks that Spray Technique of Warrington (☎ 0925 813453) will do it.

argument is that with a wider grinding area the horizontal wheel needs to be re-dressed less often. You can also buy more grades of horizontal wheel.

The Tormek system may well cost you more than the horizontal grinder but it has a wide range of extras, including many jigs for sharpening knives, blades and chisels. We have tested bench grinders in the past (GW 2:60) and are planning to look at alternative wetstone systems in the future.

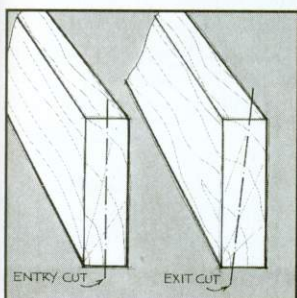
We have also been asked by J. Dawson of Tyne and Wear to compare the Tormek 1204 wetstone grinder and the Creusen NS5215TS bench grinder (☎ 0297 33656). Mr Dawson was particularly interested to know if he might suffer from the 30 minutes rating on the Tormek. This means the grinder can be used for 30 minutes in every hour. The Creusen has the same rating. The next rating is continuous. You'd have to be a rare woodworker (doing fairly little woodwork) to need to sharpen your tools for half an hour at a time, let alone continuously.

If you are a skilled sharpener of tools you will probably find the Creusen more useful. The Tormek is popular because it ensures the metal does not overheat, and you do not lose the temper. It also has the advantage of the jigs for holding tools to the correct angle. However the downside is that the quantity of metal you can remove with the Tormek is limited, and if you want to use the grinder for reshaping of tools the Creusen is a better bet.

Nick Gibbs

Bandsaw angles

I have a problem that I would like to pose to the experts of Woodworking Answers, in that I have a bandsaw that does not seem to cut straight. I am using a 10mm (3/8in) blade, but when I recently tried to cut 125x25mm (5x1in) boards in half to produce 125x13mm (5x1/2in) strips



they ended up wedged shape. I have tried altering the rate of feed, tension on the blade and angle of the wood, without any success. I could try using a wider blade. What else can I try?

Andy Heathfield, Grampian

I too have the bandsaw you are using, and experienced similar problems just as you describe when I first bought it. A demonstrator at a show quickly convinced me that it was not the machine's fault but my own. When cutting wood of the dimension you quote I use an 18mm (3/4in) hardpoint skip tooth 6tpi (teeth per inch) blade. Before starting I always check that the hardwood guide blocks above and below the table are true and close to the blade. The tension should be as normal. I always keep an 18mm (3/4in) blade for jobs like this. There is a tendency to hope that hardpoint blades will last forever, and if you are cutting various materials such as ply and MDF you will find that the edge of the blade soon becomes blunt and as a result slicing thick sections of wood may not be easy. If you follow these guidelines and use a sharp blade you should have no further problems.

Ian Wilkie

Disc sanding lathe

I am currently making a disc sander from a lathe, by fixing abrasive discs to the faceplate. The trouble is that I have been able to obtain 150mm (6in) diameter Velcro-backed sanding discs but cannot find the matching discs onto which I can stick them. Who supplies these?

J. Durigg, Dorset

This is an intriguing question as the Velcro backed discs may not

actually be the best ones to use. The advantage of the sort of disc sander you intend to build, with a platform that can tilt, is that you can use it for trimming accurate joints, and especially mitres. One could say that the softness of the Velcro discs will reduce that accuracy. Therefore you may prefer to choose sticky-back abrasive discs. We know that you can buy pressure sensitive adhesive discs that you can replace, but have not found a supplier.

Nick Gibbs

Laburnum veneer

I have been given a piece of laburnum, 125mm (5in) in



diameter. How should I dry and slice it for veneering?

S. Fullerton, Fife

I suggest you seal the ends with paraffin wax, aluminium paint or gloss paint, leaving the bark on. Stack the log on its end, off the ground to dry, in an airy location out of direct sunlight, for at least two years. Make sure that it is not standing in water or under any drips or broken gutters! It may have seasoned for some time already, so find out when it was felled.

Check the wood from time to time for any signs of decay and turn the log upside down.

When the wood is dry (if you have a friend with a moisture

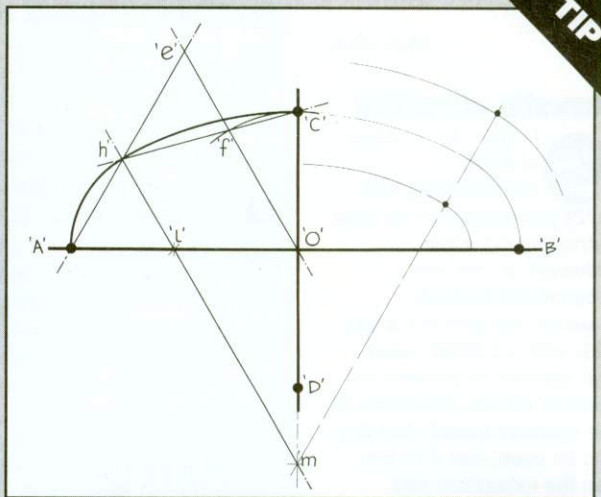
meter it really needs to have a moisture content of no more than 12 per cent), cut the log across the grain, either square or at an angle. This will produce discs, with circular or elliptical grain patterns. Trim the pieces square, and lay them side by side for the patterns often found on old furniture.

For cutting the discs use a bandsaw or a large circular saw with fine-toothed blade, but do take care. Cutting round sections can be dangerous as machine saws tend to bite the log. You may find it helps to make yourself a jig with V-shaped channel for holding the log while you cut.

Ian Wilkie

A further way to draw an ellipse

Many of your readers, including Mr Badcock (GW 6:73, 10:63), may like to know of a relatively simple construction for an approximate ellipse, using compass drawn arcs. The method seems to be little known and it would be good to share it with a wider audience as ellipses are obviously of interest. It is worth noting that the figure can be drawn using a 30°/60° set square since EO and HM are at 60° to the major axis, or alternately using a compass to construct the equilateral triangles AOE and AHL using intersecting arcs.



Follow J.H. Kille's five steps to drawing an ellipse with a compass. The ellipse can be made as large or small as you like, as a template for further work

- 1 Draw major and minor axes, AB and CD and construct an equilateral triangle AOE on half the major axis.
- 2 With compass point O and radius OC, strike an arc to cut OE at F. Join CF and continue the line to cut AE at H
- 3 From H draw a line parallel to EO to cut the major and minor axes (which are extended) at L and M respectively.

- 4 With compass point L and radius LA strike an arc. Then with compass point M and radius MC strike another arc.

- 5 Repeat step 4 from the mirror image points L and M to complete the figure. Note that point H is the common tangent point of the arcs and that if needed, larger and smaller concentric figures can be drawn using the common centres L and M, and so on.

J.H. Kille, Surrey

Good Woodworking's Anything Planned

Does anyone know of a book of Wendy house plans? I am after another of pine furniture plans in traditional styles, as well as information on bird boxes.

T. Kieran, Hertford

Where can I obtain plans to make a scale model of a Triumph TR4 in wood? Thank you for a very enjoyable magazine.

D. Pollard, W. Yorks

Can you tell me if there are any books on carving lovespoons or other novelties?

T. Oxley, Co. Durham

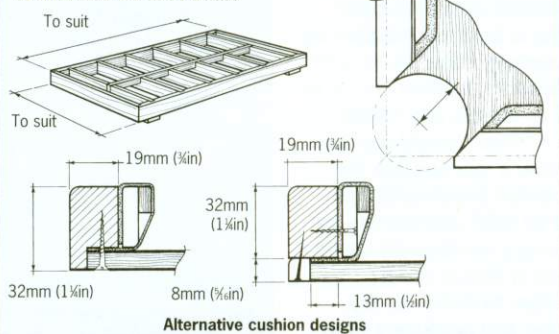
We have not heard of any such books, but you might like to visit the Lovespoon Gallery (☎ 0222 231742) in Cardiff if you are ever in the area.

Please could you put me in contact with anyone who can help me with finding plans and information on early wind instruments. I am a music lover (and reader of your sister magazine, Classic CD) and woodturner.

David Sith, Berks

The Early Music Shop in Bradford (☎ 0274 393753) sell plans, kits and wind instruments of that period. **Phil Davy**

You do not need to make a frame as thick MDF will do as a base



Here after many requests are some rough plans for the making of a snooker table. I was having a look at a small sized one made by our contributor Derek Bailey recently. He used green felt instead of baize and hollow rubber tubing for the cushion projection. The dimensions depend on the size of balls you are using. The ball hits the pockets above its centre

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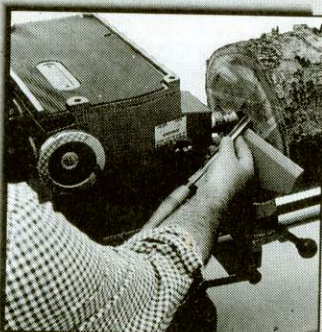
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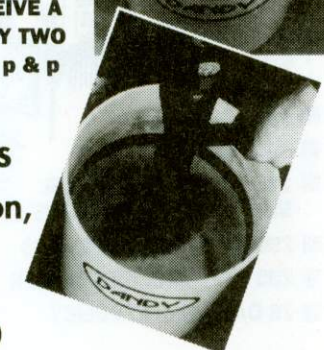
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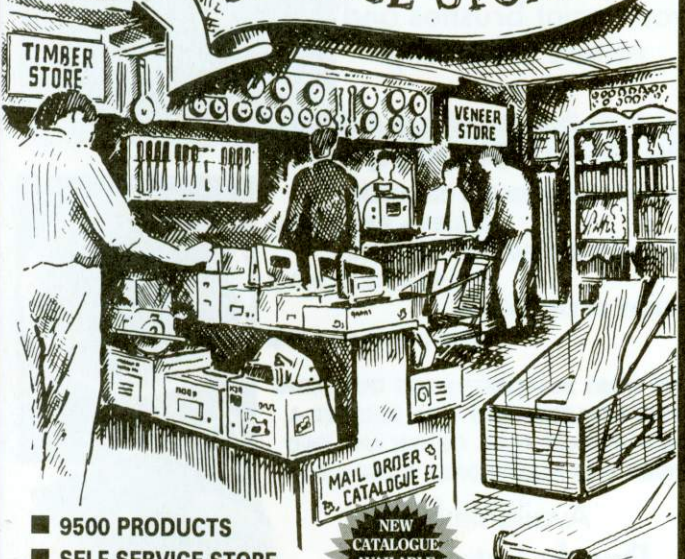
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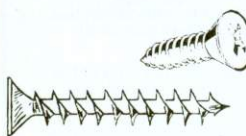
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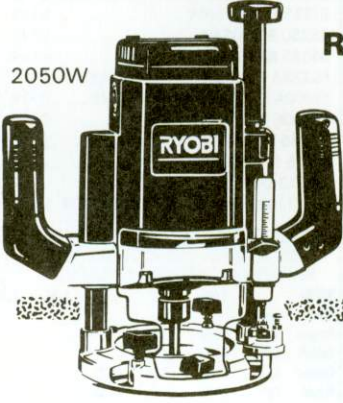
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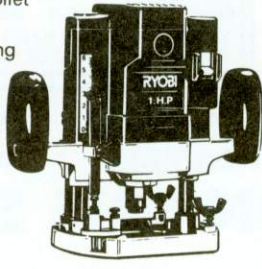
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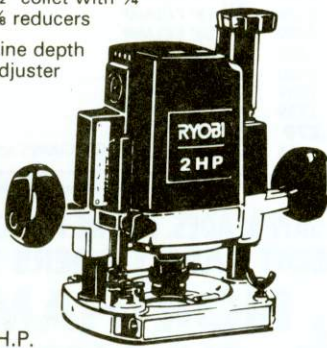
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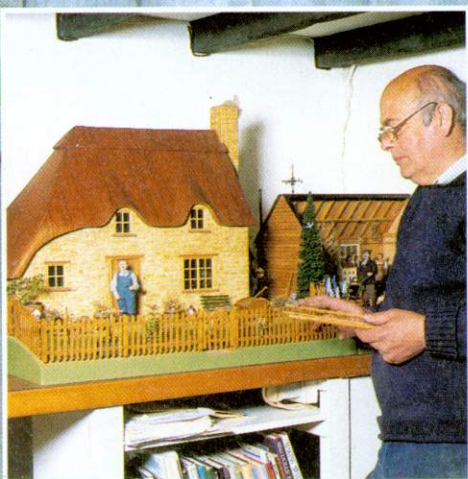
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An open door to workshops and their owners. No.11 Brian Nickolls

workshop angles



Brian with a thatched farmhouse in 1/4th scale. The thatch is produced with teak veneer on a built-up ply roof



Brian uses lime for much of his lipping – as on this Dutch shop – because it is indistinguishable from birch ply. Lime is easy to use in small dimensions, and it is stable



It is remarkable how many woodworkers seem to have spent some time making boats. But few can have moved as far from one extreme to the other as Brian Nickolls. He trained in Cornwall as a boatbuilder and now makes miniature buildings in Devon. In between he

made furniture for houses and gardens, working from an old barn in the New Forest.

In 1971 a chance opportunity changed life for Brian and Jenny, his wife, when Julip Model Horses of Salisbury asked them to produce equestrian buildings. After



Among the most useful things to have in your workshop must be an adjustable stool for sitting at the workbench



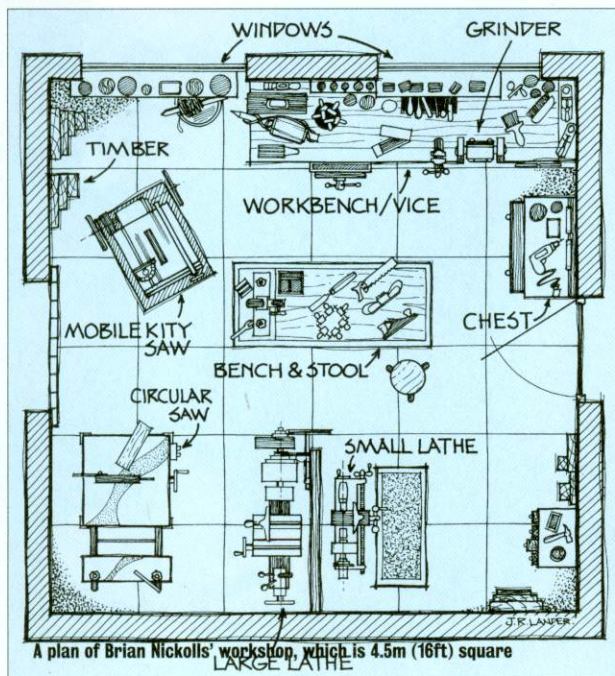
As if he were using the dentist's tooth picking tools for their true purpose, Brian employs them for scratching out stonework, and repointing dolls' houses

a frantic weekend of trial and error they succeeded, and Dolphin Miniatures was born as a result.

In 1987 Brian was judged to be Britain's best toymaker, and shortly afterwards he was commissioned to write *Making Dolls' Houses in 1/24th Scale* (David and Charles), which has sold very well.

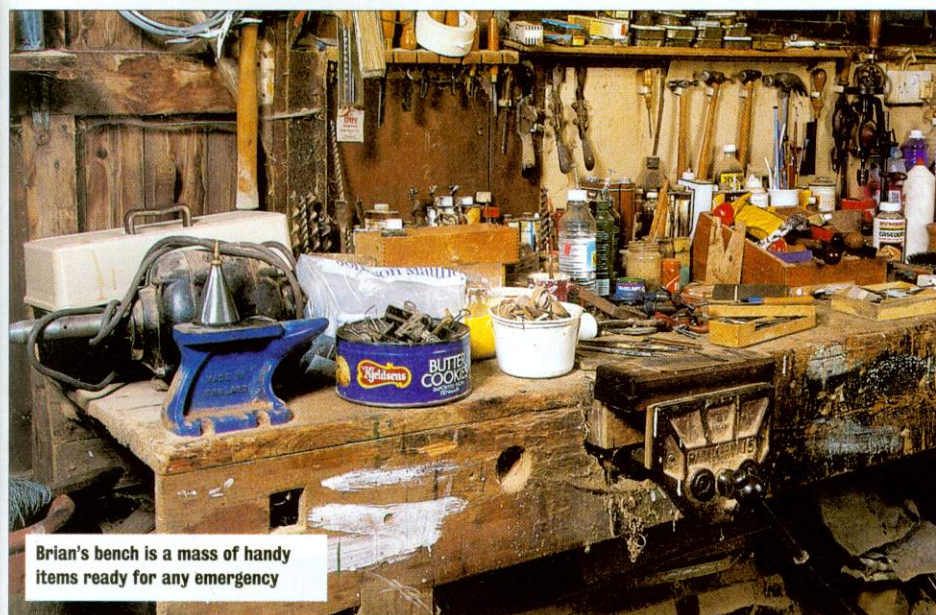
His workshop is now in a converted poultry house, which is 4.5m (16ft) square and houses a mixture of old and new tools. Two lathes of unknown antiquity sit alongside a modern Bosch router, while tiny tools for producing fine detail are kept close at hand on a busy workbench.

Brian has made many of his own miniature tools, including a set of Lilliputian chisels produced from old files. He uses an



old iron as a flat surface, and he has even found that discarded tooth-picking

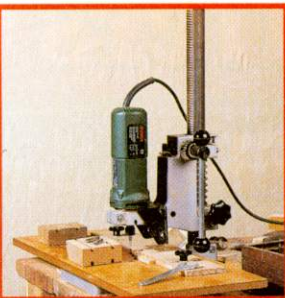
implements donated by a dentist are ideal for making miniature furniture.



Brian's bench is a mass of handy items ready for any emergency



Normally Brian does not copy the houses he makes to commission but in the case of this Dorset farmhouse he kept the price of the first down by making four more, one of which went to Japan



With the Bosch router working overhead, Brian can watch the cut



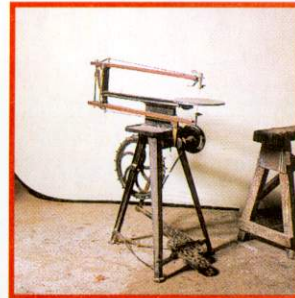
The bottom of an old iron is used as a gauging surface for chair legs



Making the tiny tools is easier than you might think: the hammer heads are cast, the brace is made of piano wire and most blades come from craft knives



Brian's small lathe is an E.W. Stringer Convertible. Was it made for wood?



Brian prefers this Hobby A1 fretsaw for its stroke, accuracy and bite



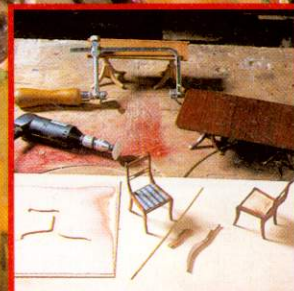
Once a turner, Brian cut away part of the bed of his lathe for bowls



"Sod's Law says a machine will be in the wrong place." Hence wheels



Bulldog clips, crocodile clips and rubber bands make good cramps. He uses bamboo skewers for dowel



Brian makes up chair side frames in three parts, puts them in the template and sands them flat

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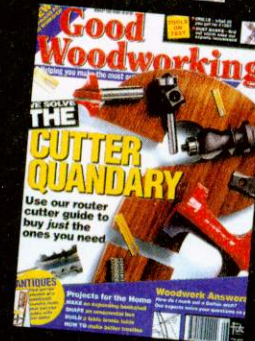
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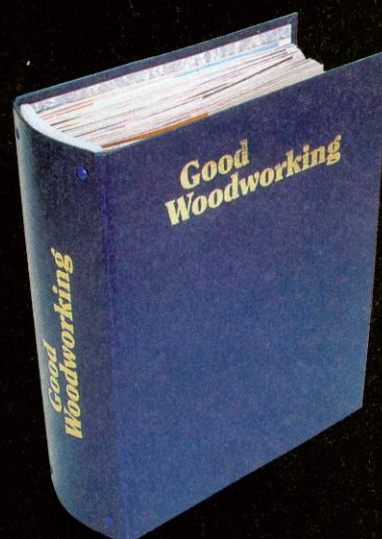
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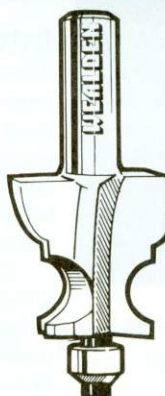
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Back to basics

No.11 Marking out by Edward Hopkins

Woodworkers are never properly dressed without a pencil lodged behind one ear. It's the only place to be sure of finding one. Waste even five minutes rummaging around on the bench and you'll be converted.

The inexperienced might of course forget that the pencil is behind their ear and rummage regardless; there's no easy answer to this. But at least the pencil won't be lost for good; it will turn up when your head hits the pillow. Be thankful it's not a knife or a marking gauge.

Ordinary HB pencils cope with most marking out. If you have big ears, you could use a carpenter's pencil, which has a heavy rectangular lead in a stout wooden case. It can be sharpened to a wedge-shaped knife point and used to score marks, and it

confusion. Work to the wastewood side of the line. The line should remain just intact when you have sawn or planed to it.

An H pencil is a better bet for hardwoods, although some darker timbers will require a darker and therefore softer pencil. The harder lead will hold a point for longer,

WARNING A folding rule, however well constructed, must never be used as a straight edge.

helping your lines to be finer and marking out to be more accurate. However, with this hardness comes a reluctance to mark, and you may need to press harder. If the marks must be removed for finishing later, take care not to score the timber. In other cases,

can be deadly accurate. It also provides a slot for the chisel for its final paring. Remove wastewood from, say, a dovetail, to within a bristle's breadth of the line and then pare with a razor-sharp chisel located in the marked groove. One of the few places where lines are not removed is on the dovetailed side of a drawer.

Marking Gauges

Lines parallel to an edge can be made with a marking gauge (GW 6:18). This scores the timber, so use it to mark a line to which you can saw or plane. Avoid using it to mark, for instance, the line at which rounding over might begin, because the groove will not be removable. Instead, hold a pencil as you would to write and move your remaining fingers back to imitate the fence of the gauge. Although with practice this can be very accurate, it is not normally used for precise marking.

Cutting Gauges

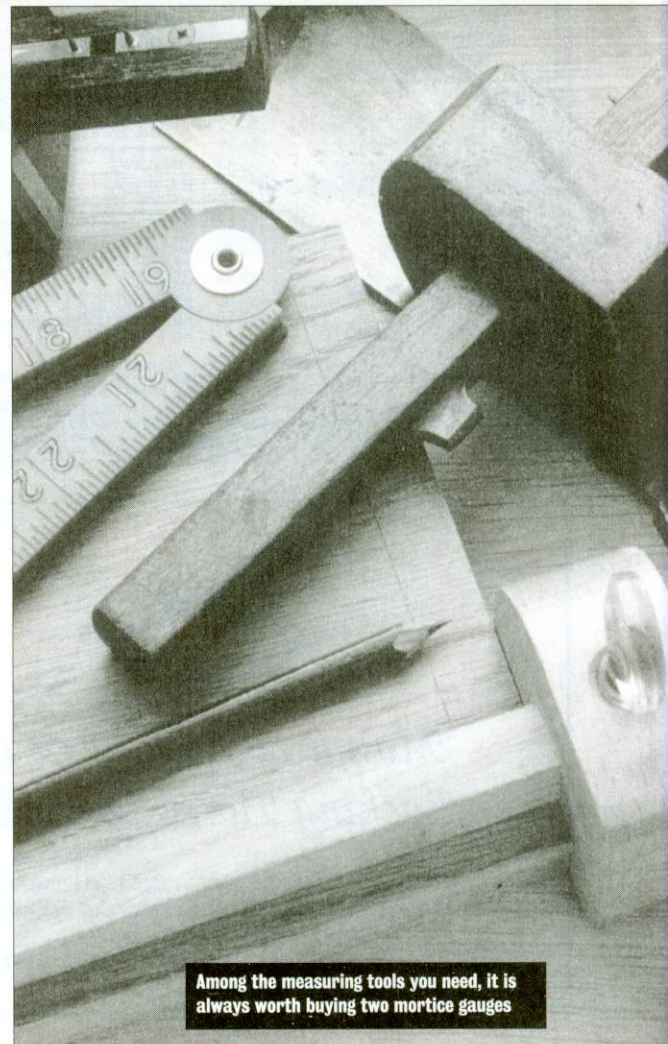
The marking gauge will tend to tear the fibres if used across the grain: here use the less-common cutting gauge (GW 6:19), which has a tiny knife instead of a pin.

Extra-long marking gauges are called panel gauges (GW 6:18) and are used for marking parallel lines across wide sheets. These are useful in panel work, but something of a luxury: you and I can usually manage with a rule and a straight edge.

Mortice gauges have an extra adjustable pin so that both sides of a mortice or groove can be marked at the same time.

Keeping Accurate

It is a good idea to buy



Among the measuring tools you need, it is always worth buying two mortice gauges

several gauges so that some can remain permanently set throughout a job. The fewer chances error has to creep into your workshop, the better will be your results.

Error is not always your fault. Tape measures and rules do not always agree on how long a piece of wood is. Cheaper imported tools sometimes stretch the truth or shrink it. You might get away with this if you use just one consistently inaccurate device, but using several inconsistent examples spells trouble. Tape measures play similar tricks, especially those that have a loose end that pulls in and out to read outside and inside dimensions. I never trust them. As the tape gets worn – after it has been retracted a few times too quickly – it becomes unfit for fine close work.

If you only have a tape, start precise measurements at, say, the 100mm or 1in point, remembering to

subtract that amount from the reading at the other end. A folding wooden rule is preferable because of its rigidity and its definite square end. Again, buy the best for accuracy, and either check other measures against it or just stick to the one. Hold the rule on edge so that the markings meet the timber and can be pencilled off directly.

Straight Edges

A folding rule, however well constructed, must not

Benchmarks

Edward Barnsley

Edward carried on the work of his father, Sidney Barnsley. He developed it, using slender uprights and curved outlines, inlaid with sycamore banding. Although he used machines to eliminate the labour of preparation, the same care and craftsmanship exercised by Gimson and Sidney Barnsley is still apparent. He took over Geoffrey Lupton's workshop at Froxfield, Hampshire, and trained a new generation of furniture makers. For information about exhibitions ☎ (0730) 84329.

comes in several grades: hard for hardwoods, and soft for softwoods.

Sharpening a pencil with a chisel is a minor act of woodwork itself, and the first ceremonial stage of a project. Keep it sharp: you need to draw a line of no width, not a thick band.

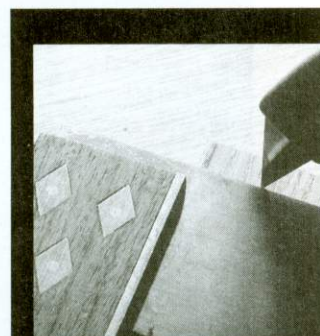
When you have measured and marked (using a square or a straight edge), hatch across the wastewood or mark it with a large rough X to avoid

however, scoring might even be an advantage.

Using a Knife

Joints which will need cleaning by chisel are often scored with a knife. A marking knife used to be a standard piece of kit, but it has been largely superseded now by the multi-purpose craft knife. For extremely fine work you might choose a scalpel.

The knifecut has practically no width and



Use a knife for making marks across the grain, especially on hardwoods. Pencil marks will smudge

Keeping to a line – 11 top tips for straighter sawing

Along with knocking a nail in straight, sawing is one of the most embarrassingly difficult jobs on the woodworking list. Here are a few tips:

1 Mark the line that you are going to cut along the face and the edge of the workpiece.

2 Always keep your saw as sharp as possible (GW 3:22; GW 5:06).

3 Use the right saw if you can. The size must match the size of the job. Use a saw with small teeth for fine work, and vice versa. Teeth set widely are good for fast cutting with the grain and in soft or wet wood. Use a saw with them set narrower for dry hardwood and cross-cutting. The teeth of a fine dovetail saw are not set at all.

4 Hold the workpiece firmly, against a bench-hook, in the jaws of a vice or on a Workmate.

5 As you grasp the saw, point your index finger along the side of the handle and blade. This will help to keep the saw aligned with your arm.

6 As you grip the workpiece, keep your hand close to the line and cock your thumb so that the saw runs against it. It will act as a guide.

7 Remember which side of the line to cut! Shading the waste wood with a pencil will help you avoid mistakes.

8 Draw the saw backwards to start the cut. It's always easier to pull than push and this will give a small cut that is exactly on target.

9 Keeping the saw in this first cut, saw gently, lowering the blade along the face line. When one line is complete (and safely accurate), lower the blade further down the edge line. When this too is complete, you will have cut half way through.

Continue at the same angle with the blade held in place by these face and edge cuts.

10 Don't force the saw. Unless you are well practised, this will twist both the saw and the cut and make the action more difficult. Feel the air in your armpit: do not hug your arm tightly to your side.

11 Don't let anyone watch you saw. Prying or admiring eyes can put off even the most proficient sawers.

some old dry, straight and even-grained timber, and take time to plane it (or have it machined) dead flat. Sight along it from time to time to check that it hasn't moved. Keep it hung up and for this purpose only.

Identify your Timber

Distinguish between constructional marks, which are lines to which you work, and identifying marks that tell you which component is which. The latter lines never need to be

identification marks are the face mark 'F', which runs over a face to the edge mark, which is an inverted 'V'. These signify the datum faces – the surfaces which are taken as true and from which other surfaces and lines will be marked.

Even if a component is machined to a square section, you must still identify its face and edge because, as a brilliantly exact maker once enigmatically told me "then you know so much more about it". Certainly if your timber preparation is less than perfect, you will save discrepancies later if your known square faces and edges can be arranged to marry up.

Wherever possible, identify components in places which will later be obscured, for instance within joints. Use pairs of numbers or letters for both

members of a joint. Do not mark on areas which might then be covered, trimmed or worked away!

When you are joining boards, either of uneven

paper. The handiest pencils are therefore those with little erasers clipped on their ends.

Pencils are like Biro's in that they can dematerialise

TIP

Mark drawers under their fronts so that they can be relocated in the runners to which they have been fitted. Traditionally this is done with neatly chiselled Roman numerals: I, II, III, IV, V and so on.

length or to an irregular shape, draw a line across the join when you have decided on its final position. On a second join, draw two lines together, on a third, three and so on. Such lines must be big enough to be unambiguous; in the sweat and panic of a large gluing job it is reassuring to see at a glance that everything is in order.

Pencil marks can be scraped or sanded away as part of the normal finishing procedure, but they can also be erased as if on

at will. They also, of course, erode quickly as they are sharpened. Buy 20 at a time when you see a good deal or even a whole box if you are being particularly kind to yourself.

Even then, within a week or so they probably won't be where you want them. You'll be pacing around, staring at completely unlikely hiding places and making fruitless snatches to the side of your head. Woodwork can be very frustrating. Just try not to start muttering.

be used as a straight edge: this is a different animal altogether. An engineer's straight edge is a precision

TIP

Buy several gauges so that some can remain permanently set throughout a job. The fewer chances you give error to creep into your work, the more professional your results will be.

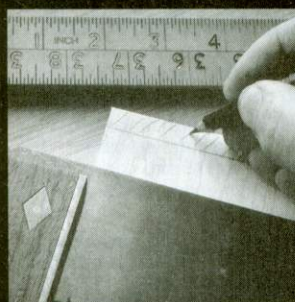
tool which must be kept well protected and certainly cosseted all the time.

The woodworker is less particular but still needs to mark long and very straight lines. Keep a look out for

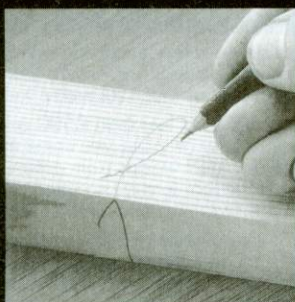
marked heavily and will almost always have to be removed, so keep a B pencil for light marks.

Face and Edge Marks

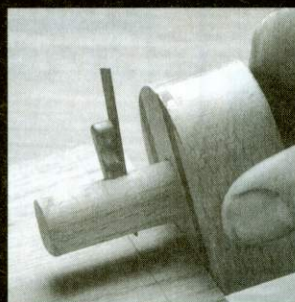
The commonest



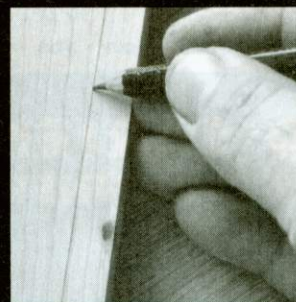
Shade any waste so that you are in no doubt about what has to be go, and to which side of the line you must cut



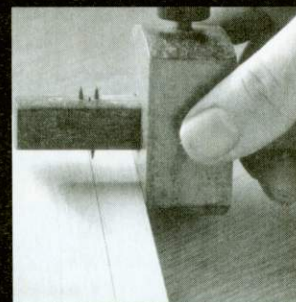
Your face side and face edge marks become your constant reference, but do not score the wood with the pencil



When accurately marking across the grain with a gauge it is best to use a cutting gauge because it doesn't tear



When you want to mark along the grain without leaving a groove, use your fingers as a gauge



For marking a groove with the grain use the point of a mortice gauge or marking gauge

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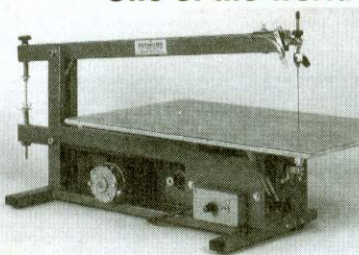
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The turning column



WITH TOBIAS KAYE

GLASS MOULDS
Tobias Kaye studies glass mould turning

HOST OF TIPS
Tools, sanding sharpening

TOOL TEST
Firmager hollowing tool

TECHNIQUES
Internal shaping

PROJECT
A mould to make a jug

DESIGN
A study of O'Donnell bowls

FINISHING
Sanding wet wood

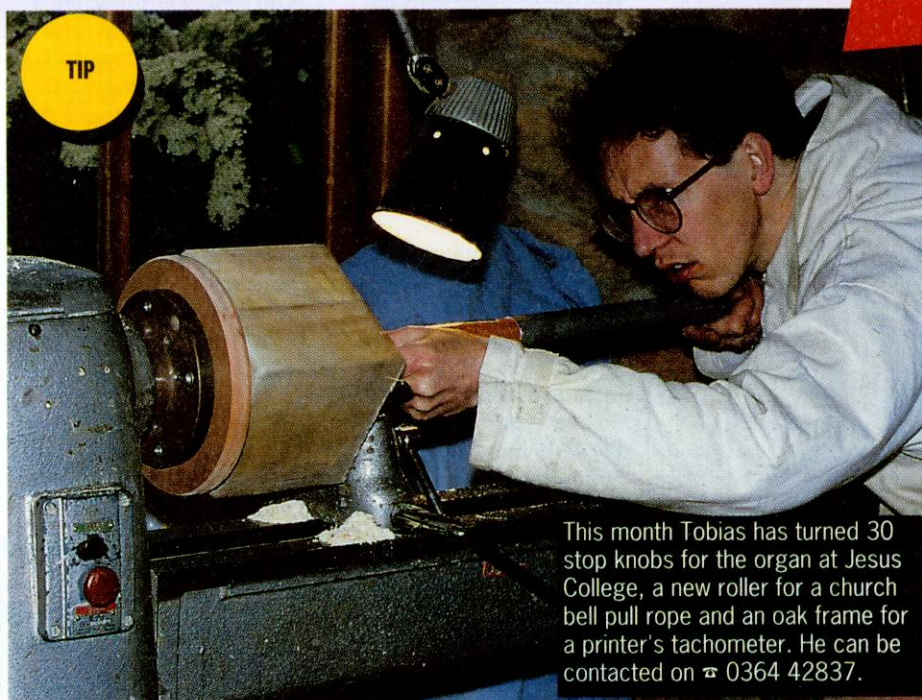
Making moulds for glass blowing is the ultimate test of a woodturner's skill, as well as a potential source of income. This month Tobias tells you how it's done

Woodturners have always played an important part in developing the accoutrements of our way of life. And I'm not just referring to furniture and architectural work.

Who do you think turned the lignum vitae pulley blocks that held the sails on ships that made the political and geographical maps of the world? Who do you think made the shafts and bearings for mills that ground the corn or looms that clothed the people who made this country what it is, for better or for worse?

Glass Moulds

Collectors of antique glassware may only be dimly aware that the shapes they so admire were made by woodturners. Until fairly recently in the history of blown glass, wood was the only mould



TIP

This month Tobias has turned 30 stop knobs for the organ at Jesus College, a new roller for a church bell pull rope and an oak frame for a printer's tachometer. He can be contacted on ☎ 0364 42837.

For greater control it helps to have a long handle on your turning tool, so Tobias extends his with a piece of hollow tubing, with the handle five times the tool length. He attaches an extractor to the lathe to suck shavings from the mould

material available and woodturners were the craftsmen who formed the

moulds into which the blowers blew the glass. Woodturners in their

turn are and were dependent on toolmakers who were dependent on

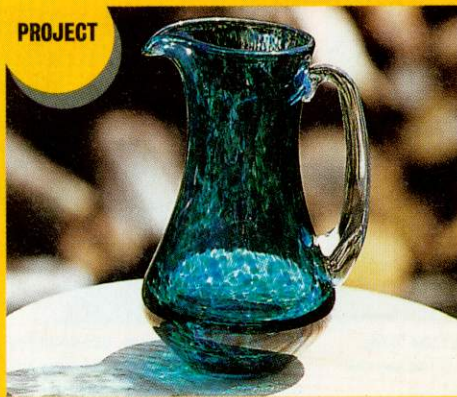
miners and charcoal burners, among others. Our sense of independence in life is often inflated.

Most blowers these days work into carbon composite moulds. These are turned on engineering lathes that follow a former with a probe or finger and reproduce that shape inside the mould. The moulds are then soaked in water – as are wooden ones – ready for blowing. The water forms a steam jacket so that the glass, which is at a temperature of more than 1000°C, hardly touches the mould at all. (Despite the fact the steam separates the glass from the mould, a wooden mould leaves a better finish on glass than the carbon ones do.)

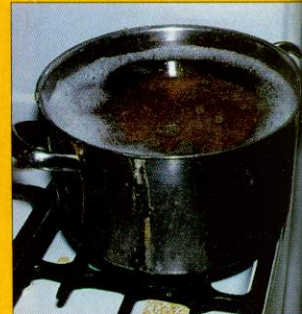
Wooden moulds are also used wet. The wood

How to make a glass mould for pleasure and potential profit

PROJECT



This mould is for a glass jug. Once the jug is blown, part of its rim will be formed into a lip and a handle will be fitted. Both the top and the bottom of the mould are open and the block will be divided at its widest point to allow tool access. This still leaves a depth of nearly 150mm (6in) from the widest point to the rim, and I wondered about dividing the two halves again, but decided against it. The two blocks are divided up the middle, which I think is an easier technique to follow than cutting the full mould in half later. You will want to turn both portions on the faceplate, as it is easiest to work from wide to narrow, then join them.



1 Boil the timber for an hour for every inch of thickness, and leave it to cook in water for double that time

must be waterlogged and stored in water when not in use, but this does not stop the molten glass burning the inside, forming a layer of carbon inside the mould. This is called "burning the mould in". After this stage the shape will be relatively stable and usually around 5000 glasses can be blown into one wooden mould before the shape is lost.

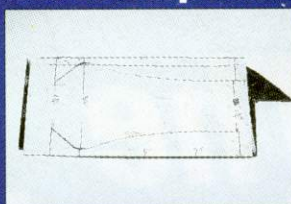
One advantage of wooden moulds is that they cost far less than the carbon ones, which can easily fetch £1000. Carbon moulds will blow many times more glasses without loss of shape. Often a small studio

will use a wooden mould for the first few thousand of one shape, to test the market, and then have a carbon mould made if the product proves popular enough for more.

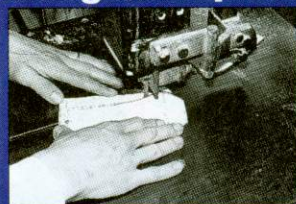
My First Mould

This reasoning lay behind my first order. A famous local glass company approached me for a massive wooden mould. They wanted to make a vase 900mm (3ft) high and 400mm (16in) wide at the lip. This was really throwing me in at the deep end and with more experience I would like to

Three steps to making a template for a mould



Draw out your shape on paper and stick it to a piece of hardboard



Cut out the shape with a handsaw, leaving a little excess outside the line



Use a belt sander to shape to the line. Keep the paper as a record of sizes

think I would make a better job of it now.

The company explained that as the glass is blown, the blower rotates it slowly within the mould. Thus knots or vertical ridges are not a real problem but horizontal ridges and rings will show in the finished piece. Turning into a log and controlling the shape so accurately at three foot deep was out of the question, so I suggested dividing the mould into three 300mm (12in) sections screwed together.

The problem in that instance was that if the joint was not spot on, it would cause a ridge. To guard against this, we agreed to include mating registers so that each part would fit into the next. Even so, hollowing 300mm (12in) deep with a requested accuracy of one hundredth of an inch was folly and now I would build the item up in 100mm (4in) sections.

That particular company has its own mould-making works and had only come to me because the large diameter of this item was beyond their scope. Thus I heard no more of glass mould

making until I met John Tuck, a very fine turner who also makes a number of moulds for a glassworks in Norfolk and abroad, including work to produce glasses for the champagne makers, Moët & Chandon. After meeting and talking with John, I approached a local glass works to offer my services as a mould maker, mentioning the fact that I had done some work for their rival. Some time later their head blower contacted me about making moulds for experimental lines. It is by following this experience that you may be able to earn a little more from your turning, or just to try a new technique.

Boiling the Wood

John has done a lot of development work on glass-mould making

but he is not sure of how much he is duplicating history and how much is new! I have gratefully adopted some of his techniques. One of these is to boil the wood before use to make sure it is really wet. Hot glass going into wet wood steams or boils the wood thoroughly, so to do it first can only help to ensure a stable mould.

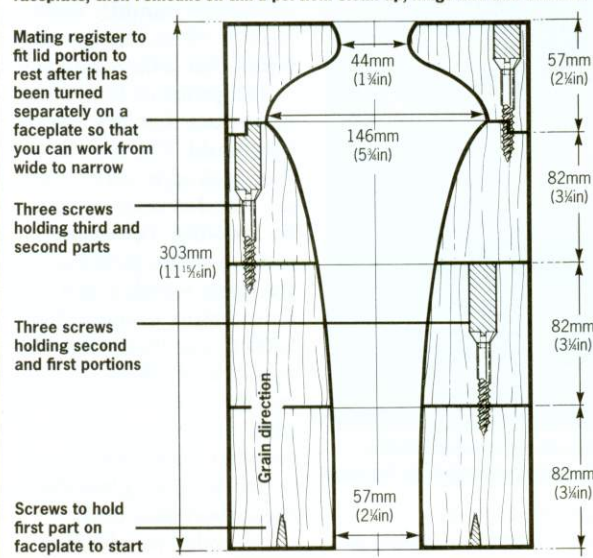
If a mould was made from seasoned dry timber it would warp beyond usability quickly when wetted and heated.

Boiling the wood also means you are not limited to using wet or fresh sawn timber; even dry wood can be re-waterlogged this way.

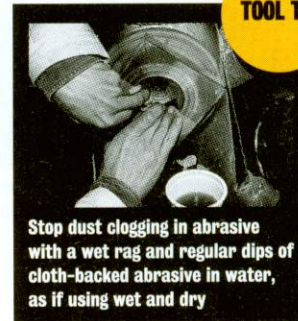
The technique is to boil for one hour per inch of thickness then allow it to cool, still in the same water and still fully submerged, for two hours per inch of thickness. This ensures that the contracting air in the wood draws the water right through its length. The wood will now sink. (If it doesn't, boil it again.)

Apple wood is said to be the best for mould making. Nevertheless, John has used many close-grained hardwoods

Section through a glass mould for a vase shows how the mould could be made in four portions and in half along its length for hinging. Boil up four 175mm (7in) square blocks 89mm (3 1/4in) long in water for four hours, and cool in the water for eight. Fix one block to faceplate, then drill through with a 50mm (2in) bit, and flare out to pattern. Turn down to 82mm (3 1/4in) long and flatten leading face. Fix second part to first with three screws. Drill through with 50mm (2in) bit, flare to meet first and sand. Again turn to 82mm (3 1/4in) long and flatten leading face. Repeat for the third portion, but make a register on the end, and finish to vase length. Turn the lid on a faceplate, then remount on third portion. Clean up, hinge and add handles

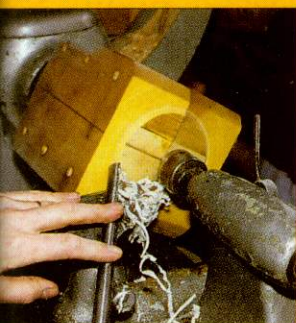


TOOL TIP



Stop dust clogging in abrasive with a wet rag and regular dips of cloth-backed abrasive in water, as if using wet and dry

Turning a register and producing the body of the jug



1 Turn the blank between centres and cut registers on each end to fit a wooden plate on a faceplate



3 Fix a wooden plate to your faceplate and cut a mating register to match that cut on the initial block



4 Cut a short section off the block. This will be the base of the jug, and will be fitted to the mould last



5 Use a shear scraper, having drilled the core and then removed the bulk with a skewed, straight-ended scraper



6 Use the pattern to check the shape, pencilling areas that need more work. Copying pencils work best, not HB

successfully. Some people have suggested that a high starch content is also a good thing.

Which Way to Turn

Generally I believe it is best to have the grain running along the length of the pattern. This makes turning easier and might contribute to a more even burning over a long run of work. The pattern must be split

for use to remove the finished glass, so boiling two blocks and screwing together for turning is quicker than using one and sawing later. But the blocks must be over-length enough to allow for loss in the turning of mating rings and other features.

Fix the two blocks together with several screws placed to miss the internal shape of the mould

by a good half-inch. I prefer to keep things as accurate as possible so I first turn the block at one end only, between centres, to create a flat and a centring ring. I use this ring to centre the block onto a faceplate. If the mould is a simple open-topped glass, one mounting will do.

Often the blower likes to have a lid that reduces the entry diameter to

condition his blob of glass immediately before blowing. For this or any other secondary mounting my next step is to turn another centring ring on the top end and then cut this off at the requisite length. If the mould is deep, this process may be repeated.

Glasses that have a flat base, like mugs and jugs do, have a hole at the bottom of the mould and the mould is stood on a flat base for use. For this type of mould I mount the block on a wooden plate between the faceplate and the mould block, so that I can drill and turn the full length without having to worry about any of my tools fouling on the metal faceplate.

Drilling to remove as much waste as possible is useful, especially in deep moulds. Use a Forstner or saw-tooth bit if you have got one, but any bit that will not wander and will take out the wood is a help.

Shaping the Mould

The shape you require is usually supplied as a drawing from the blower. Paste this onto a piece of hardboard or something similar and cut and file or sand to the line. Refer to this frequently during the shaping process. Also use it as a guide to where you ought to position the blocks to make the turning easiest.

Scrapers cut wet wood beautifully, especially when you are hollowing into end-grain. I use three types of scraping action:

1 for large quantities, I use

Best mates



On this vase the top is turned on a faceplate, and mated to the body

To locate segments of a moulding block on each other – as they are often turned separately – turn mating registers on them both for an accurate fit.

a wide edge or long radius curve with the tool flat on the rest;

2 for shape control I use a smaller radius; the more control I want the smaller the radius needs to be;

3 to remove any ridges or for final delicate shaping cuts, I use a lightweight large-radius scraper held at an angle to shear the shavings off rather than scraping in the usual way.

Remember with all types of scrapers that the angle between the wood above the cutting edge and the tool should be less than 90°.

Right-Through Tricks

I have developed a technique to make turning right-through moulds (for flat-bottomed vessels) easier. I drill through the blank and mount my dust extractor so that it sucks the shavings from the scraper down this drilled hole, through the hollow lathe spindle and away. I have found that this is quicker

Turning book review

**BOOK
REVIEW**

Woodturning – A Foundation Course

BY KEITH ROWLEY

Publisher: GMC ☎ 0273 477374

ISBN 0 9468 1920 3

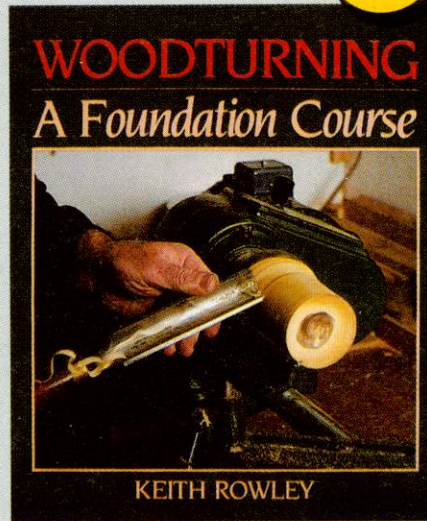
Price: £14.95 (Softback)

Keith Rowley has drawn on his experience as an officer in the CID to organise his knowledge of woodturning into simple-to-follow compartments. Each one builds on what has gone before to create a systematic increase in the reader's ability to understand what she or he is doing or should be doing at the lathe.

The strength of this book is in its simplicity and clarity. Some apparent contradictions that arise from reducing three dimensional skills to monologues are highlighted and re-explained for greater clarity. Each point is clearly illustrated with photographs and drawings.

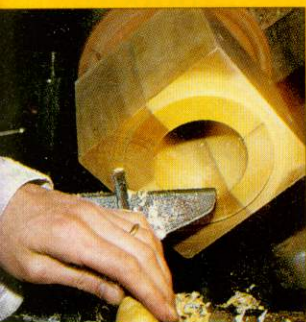
The weakness of this book is that advanced techniques are not covered. Where there is a choice between easy and difficult methods, and the latter works better, Keith explains only the easier one. Indeed some useful techniques like shear scraping and rotary tenon peeling are actually forbidden in that they contravene Keith's six basic laws of woodturning.

Of the several projects described, all



are good steps in developing skills but none are aesthetically inspiring. Despite an appeal for people to consider the need for trees and do their bit for the future, throughout the book he suggests little things – like rosewood handled tools and using mahogany to make a lamp – that contradict the effect of his appeal. This book would serve a complete beginner well but will need supplementing with something more advanced before long.

Text	●●●●○	Photos	●●●●○
Drawings	●●●●○	Overall	●●●●○



7 Having sanded the inside as far as you can go, turn a register that will fit in the register on the faceplate



8 You need to reverse the block on the faceplate to be able to sand through the narrow hole that will be the jug top



9 Adjust the mating register on the faceplate to take the second part of the mould for the jug base



10 I found that a gouge is best for truing up the sawn surface of the second part for fixing to the first part



11 Use the template to gauge your progress in turning the shape of the mould base

than cleaning out the hole with a finger! Better still the shape is clear to see as I make it; at no point is the cutting surface obscured by a snowdrift of shavings.

The different cuts now make and finish the shape. If any ridging is left from the shear scraping, I go in with a piece of 100 grit silicon carbide or aluminium oxide cloth-backed abrasive. To stop this clogging (which it will quickly do on wet wood) have a pot or bucket of water handy; dip the abrasive in this, and keep the surface running in water with a small, wet

piece of cloth (75mm/3in square is about right) held in your free hand while you are sanding with the other. This will remove the dust in a slurry.

If the mould you are making is deep and you have elected to stack it up, you could simply screw the next piece onto the first part once that is finished, turn through it and gently turn it to meet the first bit and, of course the pattern. However, it may be that a small top hole is required (say for a vase) and turning the shape through that would be tricky. It is best then to turn the next piece

the other way around, on a faceplate first, using the pattern and calipers to ensure a close match when you come to screwing it on the top of the other parts.

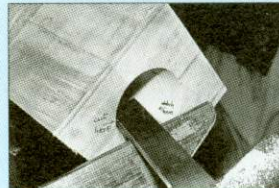
Get it Together

The question now is how to make sure that the two halves go together in exactly the right position and stay there while screws are fitted and tightened. The only way I know to do this is as follows:

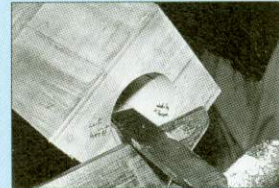
1 When the first portion is finished, flatten the top surface carefully; this will be the mating surface

Watching skew scrapers

When hollowing with a skew scraper watch the far edge – rather than the cutting edge – to chart your progress. Use the long point for heavy stock removal, and the short point to follow a belly-like curve.



Watch the far side of the cut to see how you are doing on the hollowing



Use the long point of a skew for heavy stock removal

so check the flatness with a straight edge.

2 Turn the outside of the block away to leave a ridge all round as a mating surface, about 3mm ($\frac{1}{8}$ in) deep and 13mm ($\frac{1}{2}$ in) or more wide, so that the inner part of the mould block is proud of the rest of it by 3mm ($\frac{1}{8}$ in). Leave that ridge square-edged.

3 Before you turn the mould shape in the second part, turn a depression of exactly the same diameter and slightly less than the same depth of the ridge in it (say 2mm/ $\frac{1}{16}$ in). This should fit the first part so tightly that you have to push them hard to make it fit. These two form a mating register. Turn the shape in the second part, just as you did with the first.

Check that the pattern goes to the correct depth, and that the shapes meet up, and that the diameters at the point of meeting match to within a hundredth of an inch.

4 Fit and screw the two parts together so they never have to part again.

The Ultimate Test

Run your finger over the junction. If you can feel a ridge, go in with the abrasive and smooth it away. Do the same for any change in curvature that coincides with the junction.

The smoothness of the curve will really show up on a glass. This is your chance to find out how good a turner you are. It is not a good idea to apply for mould-making work until you are proud of your control of internal curves.

If you have elected to make your mould in halves, as I recommended earlier, along its axis, as well as in short portions you will face getting the vertical divide to line up. I have been very cautious, and always turn mating registers on any faceplates or joins in the mould.

You will find it easiest to turn from the widest part to the narrowest. So if you were producing a brandy

Turning tool test

Melvyn Firmager Hollowing Tool

These tools are designed for hollowing vessels through small holes. Spherical bowls such as those pioneered by David Ellsworth and vases such as those by John Hunnex (GW 10:69) cannot be hollowed with gouges alone. Thin walls under steep shoulders are particularly hard to get at.

The Firmager tool consists of a shank about 480mm (19in) long with two short steel fingers fixed at 80° to the end. The lower of these two cuts while the upper one rubs against the cutting surface. This unique configuration means that if the tool is twisted by the force of the cut the upper finger causes the cutting edge to disengage while it rubs safely on the spinning wood. Initial cuts into the workpiece are made with a drill and conventional tools. The hollowing tool slips into this cavity and is used to create the shape, while controlling the wall thickness of the finished piece. The control obtainable with this tool is exceptional. The action of the upper finger makes the tool



cut smoothly both on push and pull cuts, allowing the tool to be used in awkward corners without fear of major digging in. The two-fingered principle is a major advance in hollowing tool design, and is pleasant and easy to use. It is worth serious consideration.

Ease of Use

Quality of Construction

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Price:

£28.00 + £2.50 P&P

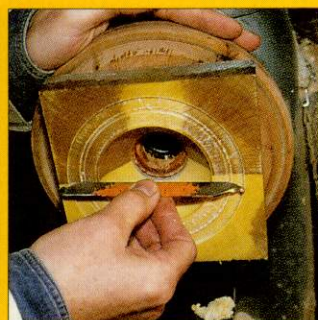
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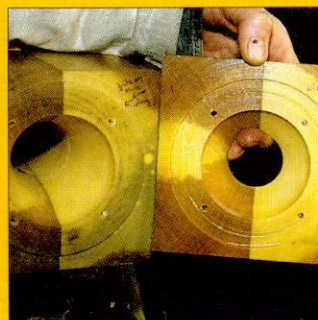
Preparing the mould for blowing glass



12 Once you are satisfied with the shape, check the register and adjust with a mini-scraper to 0.25mm



13 Use a straight edge to check that the mating register is flat, with no ridges or bumps to affect the bond



14 Wash the two parts, and mark and drill the screw holes. Screw together and sand the join inside



15 With the screws holding the two longitudinal halves in place, screw the hinge and separate the halves



16 Screw handles to the mould and part. Check the shape, and store the mould in water until it is needed

GLASS
BLOWING

Blowing hot stuff

Glass-blowing is hot work. The molten glass is gathered from the furnace onto a hollow tube at more than 1000°C and then blown and rotated into the mould (remembering not to suck!). The moulded shape is annealed (toughened) in an oven and cooled overnight, and then finished in the cutting and polishing shop.

Some of the glass will inflate above the rim during blowing, producing a 'balloon' of glass above the shape required. The mould therefore needs an extra 25mm (1in) or so at the top to produce a neck that allows irregularities to be trimmed.

Cup-shaped glass moulds need no lid, because the blown article can be lifted out. Those with a return will need to be hinged so that the glass can be removed.

John Tuck



Removing glass from the furnace ready to use in Tobias's jug mould



The mould has to be wetted first to produce a steam jacket for blowing



Insertion in the mould is a two-man job, with the mould hinged



With the mould closed the blower stands on the block and blows



Teign Valley Glass (☎ 0626 835358) will blow your mould if it's suitable

glass in two sections it would be best to turn the lowest first (the stem is welded on later). Instead of screwing the second section directly to that and continuing to turn, turn the narrowing rim on a faceplate and then fix it the other way round to the first part of the mould.

Chuck Warning

A word of warning about chucks. Even the best mechanical chuck will allow more vibration in the workpiece than a faceplate. Additionally, the wet

wood, shavings and sand slurry can take ages to clean out of a chuck and will seriously corrode it if left in over a weekend.

The lathe bed and any other machine or part that has got wet will need cleaning. Usually a wipe down with a dry cloth and then an oily one is enough, but for a really good job follow the dry cloth with a piece of fine Scotchbrite pad or steelwool, soaked in furniture wax.

Fitting the Hinge

After all this is

done it only remains to fit a hinge and handles. Before fitting the hinge, plane the surface smooth so that the block opens and closes true.

The handles are simply two sticks. Some blowers have foot-operated machines to open and close the moulds for them and will not need handles. But they might want you to turn or shape the outside to fit this machine instead. The blower may also ask you to drill vent holes right through to stop the steam pressure building up. All moulds have these, but their position can be critical and the blower may want to drill them.

It might be a good exercise to draw a wine glass from your own collection or to visit a local glassworks, draw some of their glasses, and create a mould for making a similar but original one when you get home. If it works out well, take the pattern and mould to the works and offer your services.

If you want to make a mould to your own design Langham Glass of Norfolk (☎ 0328 830511) have offered to blow them for Good Woodworking readers, if they can then use the moulds for their own production of glassware.

Make a shear scraper

To make a shear scraper, take an ordinary round-nosed scraper, 19mm or 25mm (¾in or 1in) across, and grind the end to a longer bevel of about 45°. Extend the cutting edge down one side (the left-hand side for over-the-bed or standard rotation work), equivalent to the width of the tool or up to 50 per cent further.

Grind the same side underneath the steel so that the corner is well rounded-over and smooth this rounded part on abrasive cloth so that it rolls and slides on the rest easily. When using this tool, ensure that the wood approaching the cutting edge is closer than 90° to it.



When working with a scraper start by removing the old burr



Pull the tool towards you, swinging as you go for an all-over burr

TOOL TIP

Tobias Kaye's monthly look at shape and form

Turning by design

No.6 O'Donnell Bowls

DESIGN

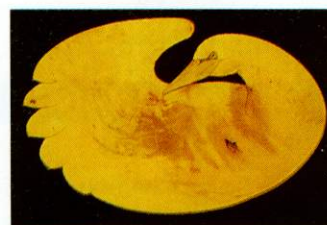
Both these pictures show work that has been extensively changed by decoration. On the one hand, the decoration is figurative, creating from a piece of turned work a beautiful bird, so recognisable that anyone knowing their birds could pick up a gannet from a heron among Liz and Mick O'Donnell's work.

The extent of the afterwork here disguises the excellence of the turning. A cheap and simple local wood has been transformed into a delicately curved, evenly thickened, perfectly finished bowl, even before any cutting, burning or colouring. The same is true of the other pieces. A delicate egg-like curvature makes beautiful objects of these bowls first, and then the whole surface is coloured and lacquered to a high sheen and the edges burnt and broken. One might imagine these to be phoenix eggs from which a burning hot bird has burst out.

This sort of work demands finesse. It would be easy for them to look contrived or misplaced, more suited to a glass blower than a woodturner in the case of the coloured bowls. Some people compare arts and crafts, saying that the job of the first is to impose a vision upon the material and of the second to bring out the best in the material. On the other hand the great 19th century philosopher-architect John Ruskin held that any decoration that made one material look like another was inherently a distraction from beauty, which for him had to be more than skin deep.

Personally, I like to see sensitivity to the material in a person's work. For this reason I feel that the bird bowls have that bit more than the coloured bowls, which could equally well be spun metal or blown glass.

If you would like your pieces to be the focal point of this column on design, or if there is other work you'd like to read about, please send in slides for us to consider.



This gannet bird bowl in sycamore is 4in tall and has a diameter of 17/4in



The egg shape of these bowls is emphasised by the broken and burnt rims, and their colouring, though they could be made in metal or glass

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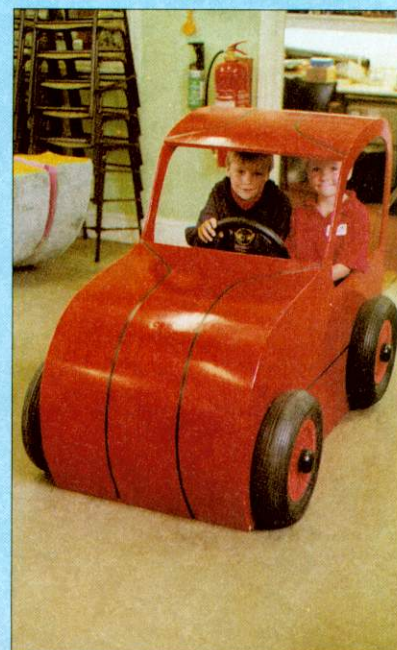
CASE STUDY

PROJECT SURVIVAL
KINGSWOOD
SCHOOL
BATH
ANALYSIS

In the second of our studies of school projects we visit the school in Avon whose examining board set a theme of toys and games for the GCSE major project



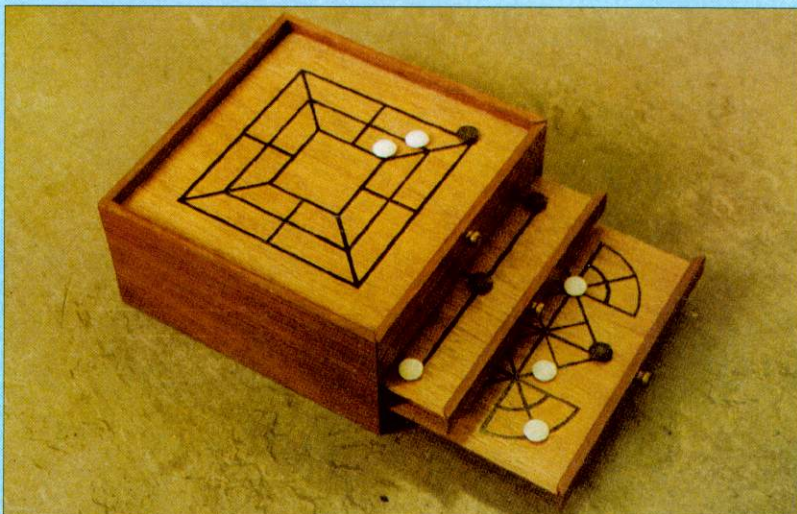
For a first year GCSE project, the course tutor, John Allison, asked his pupils to make a mechanical toy based on the theme of human activity. Edward Ramsey depicted his worst nightmare, with motors and figures



As part of the research for the games project a number of pupils at Kingswood School visited a nursery group. Alex Adlam decided to make a car for children. Through his research he discovered that a moving car might well be dangerous. The analysis of what he saw at the nursery drew him towards a stationary car, but he realised that it would need to be moved for access, with limited space. So he started to design the car so that the front wheels touch the ground. When adults raise the back they are able to move the piece on the wheels. His study of other toys showed he could make it from MDF



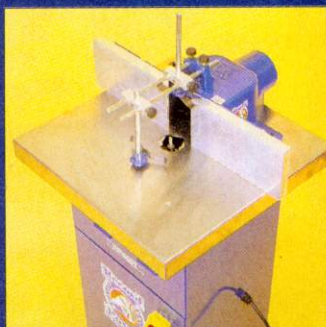
Many of the pupils chose to make games for their GCSE major project. In this case the maker was intrigued by the idea of using two materials, with acrylic board and veneered lid



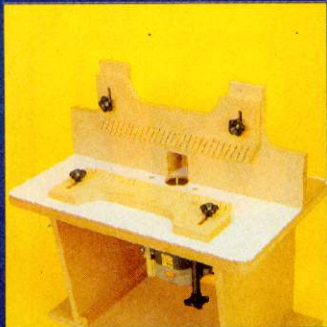
Joe Gibbs researched West Indian games before making this box. He found that the games are often presented in multiples, so he designed a layered case. He has squeezed six games into the box by drawing one on each side of each layer. Mitred corners are evidence of woodworking skills

GROUP TEST

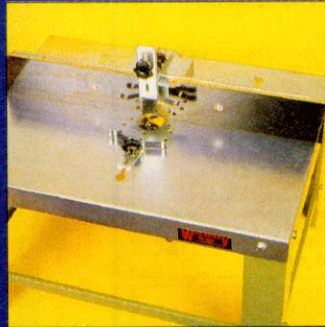
Router tables



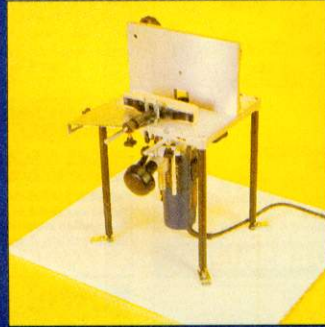
The Record RPR60T is as near a spindle moulder as you'll get and costs £276.62



The Roy Sutton table is for first time router table enthusiasts, costing £69.00



The Woody FB600 has good access and table size, and will cost you £233.83



The Elu E40900 may look small but it has plenty of accessories and costs £126.90



The Good Woodworking Workbench Test

Router tables on test

ELU E40900
RECORD RPR60T

SUTTON ROUTER TABLE
WOODY FB600

Which is top of the router tables?

Why bother with a router table? If you own a portable router you can use it for grooving, rebating, moulding, and jointing among other jobs, quite easily by hand.

Mounting a router upside-down beneath a table frees both hands to guide the work. With less chance of damaging the work if the router slips, using a

table can lead to more accurate work and greater safety for the user, allow you to use jigs for speeding up operations.

If you have a large router with 13mm (1/2in) collet, some of the cutters can be fearsome to use. In last month's router cutter guide (GW 10:28) we looked at the variety now available. Using some of the profile cutters, in particular the handrail cutter and some of the horizontal panel cutters, in a hand-held machine is a scary prospect! However, in a router table fitted with adequate guards, even these cutters can be tamed and used

safely. A router mounted upside-down under a table becomes a small-scale spindle moulder.

The safety factor of hiding the cutter under the work can work against the router table. Some woodworkers (for instance modelmaker Brian Nicholls, the subject this month's Workshop Angles on page 65) prefer to see what is going on and favour the overhead router.

What Tables are Available?

It is possible to buy a combination table, or workcentre, that will accept a circular saw and jigsaw as

well as a router. These tables can be quite sophisticated and are capable of handling a much wider range of work than one dedicated solely to the router.

Workcentres are produced by Triton (☎ 0753 500805), Power-Rig (☎ 0656 734064), Wolfcraft (☎ 0787 880776), and Trimtramp (☎ 0494 681772). We will be looking at these in a future issue, but in this test we decided to stick to those dedicated to the router.

We tested four tables that differ considerably. Only the Record RPR60T is a free-standing unit. Its table height of 876mm

RECORD RPR60T

The British-made Record RPR60T is closer to a full-size spindle moulder than any of the other tables tested. As it is free-standing, bench-mounting is not necessary. The cabinet is built of heavy-gauge steel with a stainless steel table, the lower edges of which are sharp. You really need to run a file along these edges to make them more comfortable. To mount a router, the front panel is lifted out to gain access. This panel and the sides of the cabinet are vented to reduce the chances of the router overheating.

You can fit any make and size of router. Two large clamps are situated below the table and they can be quickly adjusted with a pair of hand-wheels. The router base is securely held in place by this system.

You plug the router's mains lead into a socket inside the cabinet. An external power switch is well-positioned on the front of the cabinet so that the router is easily turned on without having to reach inside. Positioned at

knee-height, you can quickly shut off the power in an emergency. A padlock can be fitted to prevent unauthorised use of the machine.

The heavy cast-aluminium hood is, again, similar in size to an industrial spindle moulder. It has a 100mm (4in) diameter dust take-off hole, and the locking knobs are easily adjustable.

Both infeed and outfeed fences are made of 18mm (3/4in) ply faced with 3mm (1/8in) aluminium. Although these fences are substantial, on the test model one of them was not flat. Checking them with an engineer's square I found both were not square to the table, and packing was necessary. By using a straight edge, we found that fence alignment was out at the top edges when in line at

the bottom. The outfeed

fence can be set independently in front of the infeed fence, and both can be adjusted towards the cutter itself.

Pressure guards are mounted on a pair of horizontal steel rods attached to the rear

hood. However, the whole set-up is not rigid enough. I found there was too much play when machining small section timber. It was tempting to remove the guards altogether, making the table unsafe.

The Record table is easy to set up with any router, but the fences and pressure guards need improving. The router clamping is easiest of all, the switch is the best, and the stand a bonus.



VERDICT

Safety & Instruction

●●●●○

Comprehensive instructions and an excellent safety shut-off switch

Construction quality

●●●●○

Heavy steel and aluminium, but fences are not square to table

Ease of use

●●●○○

Pressure guards not rigid enough for feeding small work

Extras & accessories

●●●○○

Split adjustable fence, pressure guards and router screws standard

Value for money

●●●○○

OVERALL

●●●○○



(3/4in) means the workpiece is fed into the cutter without the operator having to stoop. The remaining tables all need to be mounted on a bench or Workmate. The Elu E40900 is the smallest and you can leave it permanently set up on a baseboard. Its small diameter steel legs are notched at the base to allow it to be screwed to a board.

The Roy Sutton table is heavier than the Elu and can simply be cramped to a work surface. It can be screwed through the base for more permanent fixing. Rubber feet are provided on the Woody FB600, stopping it from sliding across a bench.

Materials used in the construction of the four router tables vary. The Elu has a cast aluminium table and fence with steel legs. Roy Sutton's table is built almost entirely of MDF, while the Woody and Record tables are made of heavy gauge steel.

Do All Routers Fit?

Three of the machines we tested work by clamping the router's baseplate beneath the work table.

All you need to know about router tables						
Make	RRP inc.VAT	Weight Kg.	Table size	Table height	Router hole	Warranty
Elu E40900	£126.90	3.6	240x210mm (9 5/8x8 3/4in)	280mm (11in)	35mm (1 3/8in)	1 year
Record RPR60T	£276.62	36.6	508x508mm (20x20in)	876mm (34 1/2in)	60mm (2 3/8in)	1 year
Roy Sutton router table	£69.00	14.2	597x400mm (23 1/2x15 3/4in)	387mm (15 1/4in)	55mm (2 1/8in)	1 year
Woody FB600	£233.83	17.0	650x500 (25 5/8x19 1/2in)	365mm (14 3/8in)	55mm (2 1/8in)	1 year

The router you own can affect your choice of table, however. There's no point buying the Elu E40900 table, for instance, unless you own an Elu MOF96/96E, 69, MKF67 or AEG OFS450S router.

Because the base is clamped with the fence rods supplied with the tool, no other router we tried will actually fit, so check before you buy.

Roy Sutton's table works by inserting countersunk machine screws through the top and into the router's base. It comes drilled for the Elu 177E router, but extra holes can easily be bored for any

size of machine. In contrast you use steel clamps to grip the router below both the Woody and Record tables. As a result any size router can be attached to those two tables, though the Record is quicker to set up, having two hand-wheels that are rotated to lock. A spanner is necessary to adjust both the clamps on the Woody.

Adjusting the Cutter

Few things are as important as the ease with which you can change a cutter with the router mounted under the table. It does depend on what router you use, and whether

it is equipped with a push button spindle lock, or if you have to use a pair of spanners.

Adjusting the cutter depth can be a pain. If you have no fine adjuster on your router it's a matter of trial and error getting the correct depth. However, the fine adjuster can obscure the collet and may slow you down. The return springs are pretty powerful on some of the bigger routers, and releasing the plunge can be exciting under the table!

Rigid or Adjustable Fences?

Every router table has a fence of

ROY SUTTON ROUTER BENCH

The Sutton table was designed originally for the Elu 177E router, and is also drilled to accept the Elu 96/96E and 131 versions. It is made in Britain from 18mm (3/4in) and 25mm (1in) MDF. Coming in flatpack form, it has to be assembled using a drill and screwdriver, but you do need cramps. Pre-drilled hardwood corner blocks are supplied, but the holes were too close to each other in a couple of places. The instructions leave a lot to be desired and could do with some tips about using the table.

The top of the table is covered in plastic laminate, and this does make it easier to slide wood over the surface. The corners of the table are well rounded for safety.

No clamps are provided for router mounting, but some holes are provided in the table for bolting a machine in place. If your router does not fit you will have to drill and countersink extra holes in the table. You may even have to drill through the router baseplate if no holes are

provided. The Sutton table is supplied with a side and a top pressure guard, both kerfed to create a featherboard. However, the slots are too far apart to be flexible. There is very little give, and as the guards are MDF cutting the kerfs closer together might weaken them. Solid timber guards would be better to give an increase in flexibility and improve pressure.

Two pairs of holes are drilled in the table for alternative guard positions, but the front pair did not quite line up exactly with those in the guard itself. Tightening the guards could also be better. Although substantial locking wheels are provided the bolt heads tend to rotate on the back, and you have to use a spanner when locking them. Recessed slots in the back of the

fence and under the table would cure this problem.

The fence is one-piece MDF and is square to the table. A hole is provided for dust extraction and the fence is enclosed at the back to guard the cutter. Once you have



bolted the router in place, cutter changing is fairly easy, with good access at the front and a dust port at the back.

The Sutton router table is solidly built and is simple in design, but the pressure guards and their adjustments need improving. For first time routing enthusiasts this table will perform as a good platform from which to develop considering its sturdiness and low cost.

VERDICT

Safety & Instruction ●●○○○
Assembly instructions could be improved to include tips

Construction quality ●●○○○
Heavily built, with plastic laminate top. Slots in table are limited

Value for money ●●○○○
OVERALL ●●○○○

Ease of use ●●○○○
Router is easily accessible, but guards awkward to adjust

Extras & accessories ●●○○○
Side and top fence standard

some sort to guide the timber past the cutter. To adjust the cutter's position in relation to the work either the fence must move or the router itself.

The Elu table has a one-piece rigid fence. The router can be moved itself on its own rods, but travel is limited. An adjuster screw fitted to the baseplate makes fine setting easy, if a bit laborious.

On the Sutton table the one-piece MDF fence is adjustable backwards and forwards by releasing a pair of locking hand-wheels. Both the Woody and the Record have a two-piece fence. The beauty of a two-piece fence is that the outfeed part can be adjusted to account for the stock you have removed, to keep the workpiece steady. Equally they can be moved close together, if, for instance, you are using a 6mm (¼in) straight cutter. If the gap between the infeed fence and the cutter is too great, the workpiece can tip. A larger diameter cutter means that the fences will have to be moved outwards to suit.

Split Fences

Being able to move the infeed and outfeed fences on the Woody and

What else is on offer at the extremes of router table technology?

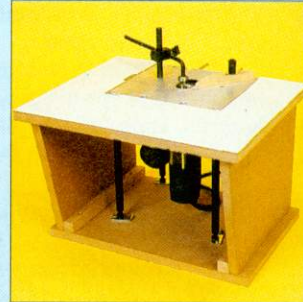
At opposite ends of the spectrum are the Roy Sutton extension table for the Elu E40900 and the free-standing Titman router stand. As the Elu has a small surface area of 240x210mm (9½x8¼in), large workpieces can be difficult to support adequately. Roy Sutton has designed a stand that surrounds the Elu table on three sides. It comes flat-packed and the laminate must be glued on and trimmed before use. It is necessary to pack up the Elu's steel legs so that both table and extension surfaces are level. The Sutton extension stand sells for £29.90 inc.VAT, plus £5.50 postage and packing.

Unlike the other router tables the Elu E40900 can be used for curved work without buying extra attachments or making jigs. In the photo it is set up for copy following, a guide bearing positioned above the cutter. Adjusting the bearing alters the size of cut, and virtually any cutter can be used in this set-up.

At the other end of the scale is the Titman table (☎ 0255 220123). As well as mounting a router underneath the table it can be positioned overhead. To control cutting depth a foot pedal is

used, freeing both hands for guiding the work. A hand lever overrides this pedal if required. Guide pins line up below or above the cutter, depending on how you have mounted the router. The pin allows templates to be used for advanced routing.

The Titman table will take the Makita 3612BR, Hitachi M12 series, Elu 177E and Ryobi routers. Priced at £781.38 inc.VAT, this is a machine designed for the professional woodworker.



The Sutton extension table makes a firmer base for an Elu table



The Titman table can be used overhead, and is for professionals

the Record tables in and out, independently, is a big advantage. When you are machining the full edge of a piece of timber there will be no wood left after machining to slide against the outfeed fence. On

a full-size spindle moulder you would normally pin a strip of timber to the outfeed fence. Unless you were cutting a simple rebate, this strip would ideally be shaped exactly to the shape of the cutter

and support the work as it travels past the cutter.

A time-saving alternative is to bring the outfeed fence forward to support the timber. This means, in theory, that you don't have to

WOODY FB600

Made in Sweden, the Woody arrived flat-packed and needed bolting together. Instructions are in the form of diagrams and it was easy to get one of the legs in the wrong place. No spanner is supplied for the bolts. The 2mm (⅜in) rigid steel table is a decent size for routing, although it must be bench-mounted for machining at the right height.

Two sizes of clamps are provided for different routers. Using a spanner was tedious on the clamps, but access to the router is good. Cutter changing is easy. Ten holes are drilled in the table for alternative bolting of the router.

The steel hood has a 60mm (2¼in) dust extraction spout. Attached to the hood are the infeed and outfeed fences. The fences are faced with lacquered 11mm (⅞in) ply, so I had to drill out the bolt recesses to allow the heads to sit flush with the surface. These facings would be better with two bolts through each piece, instead of only one. They tended to move slightly at the

outer ends. I would drill and mount extra bolts to increase stability, and possibly use thicker MDF instead.

One of the ply facings was chipped on one corner, and when machining, chips tended to get stuck under the ply. Chamfering the lower edges should help alleviate this problem. The fences are not completely square to the table. Both fences are simply adjusted with locking knobs. Running in slots in the table, the whole hood and fence assembly can be quickly lifted clear of the top.

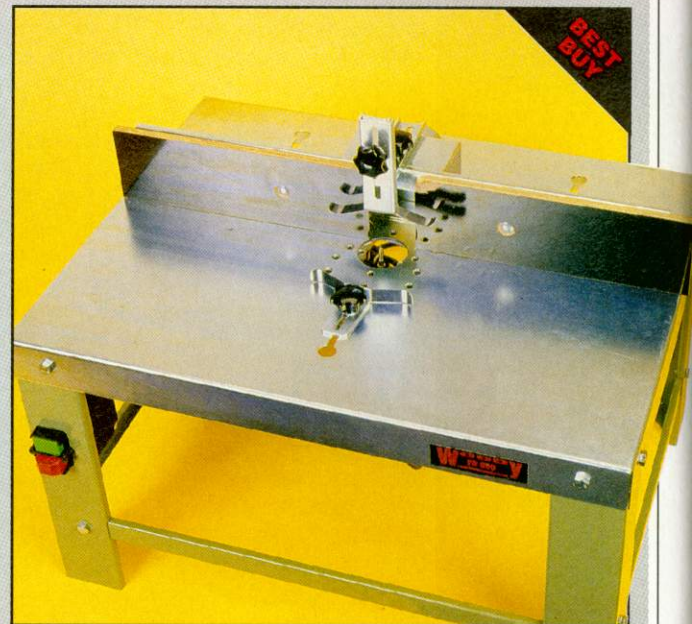
Side and top pressure guards are fitted and are simple to adjust. Like the fence, the side guard also runs in a slot in the table, and can be removed without fuss. You do not need to unbolt the guard, nor the fence, to remove it as the bolt head

can fit through a enlarged end of the slot. This reduces fiddling around under the table.

The Woody is fitted with a power switch on one of the front legs. Unfortunately it has a 2-pin European plug and socket, which have to

be cut off for use with our standard plugs. The switch is however well positioned for easy access, in emergencies.

The Woody FB600 is a well-built router table that is easy to set up and use, even if the fence facings needed some attention. Router access is good and the table size means that large workpieces are well supported. Good for the serious home woodworker.



VERDICT

Safety & Instruction

●●○○○

Clear diagrams but no written instructions

Construction quality

●●●●○

Heavy steel construction with large table area

Value for money
OVERALL

●●●●○

●●●●○

Ease of use

●●●●○

Pressure guards quick to adjust and router easily accessible

Extras & accessories

●●●○○

Split adjustable fence, pressure guards and router screws standard

fiddle about making strips of timber to match the cutter profile.

In practice it means lining up both fences again with a straight edge when you have finished routing, though the Record does have a sliding index stop for quickly resetting the outfeed fence. It was, however, difficult to line up the fences accurately on both the Woody and the Record. When correctly in line at the base

they were not necessarily lined up along their top edges. If you are passing deep timber across the table it can foul on the top of the outfeed fence if not

aligned properly, knocking the wood and ruining your rhythm.

Effective Pressure Guards

Each of the router tables has guards of some sort to keep the timber tight against the rotating cutter. They are also there to prevent your fingers getting too close. The Elu has a single guard that can be mounted horizontally or vertically. An adjuster screw allows you to vary the pressure on the workpiece. A second guard is available as an extra.

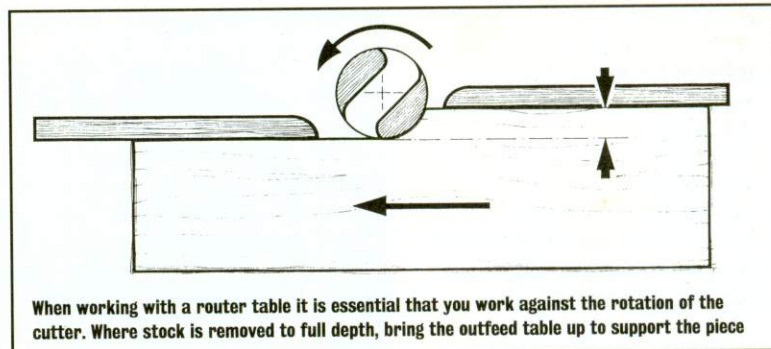
Record and Woody both have top and side sprung pressure guards. Those on the Woody are quicker to adjust than the others.

Final verdict

Each of the router tables is very different. If you already own a router and it is not a small Elu or AEG, your choices are restricted to the Woody, Record or Sutton tables. The Record RPR60T is heavily engineered but the pressure guards are not substantial enough.

Because the fences and guards are easy to adjust and router access is good, the Woody FB600 wins on overall performance. The only real niggle is the router clamping bolts which are slow to adjust.

The Elu E40900 is excellent value for money, even though router choice is limited. The kit allows extra routing techniques to be tried out.



When working with a router table it is essential that you work against the rotation of the cutter. Where stock is removed to full depth, bring the outfeed table up to support the piece

As the guards on the Sutton table are 18mm (3/4in) MDF, it is difficult to vary the pressure on the workpiece. Although the guards are slotted to act as a featherboard, on the sample we tested these didn't flex enough for ease of use.

Safety Switches

When you are using an inverted router it is usually difficult to reach the power switch in a hurry. The Record and Woody tables come equipped with a switch on the front. On the Record table the router is plugged into a trailing socket inside the cabinet. An external lead then goes to the mains via the switch. As the router stays plugged into the switch unit,

operation is far easier and safer than without such a device.

The Woody table has a similar switch, but as it was fitted with two-pin connectors we were unable to test its efficiency. Neither the Sutton nor Elu has a built-in switch, but if you wanted to fit one they are available from Trend (☎ 0923 249911), Wolfcraft (☎ 0787 880776) and Roy Sutton (☎ 0227 373297) from about £29.

Who to contact

Roy Sutton	0227 373297
Elu	0753 511234
Record Power	0742 449066
Woody (Luna)	0908 262262

ELU E40900

Made in Switzerland, the Elu E40900 kit is specifically designed for the Elu MOF96/96E, MOF69 and MKF67 routers. I found the AEG OFS450S machine will also fit. The router is mounted in the table by clamping the fence rods that pass through the baseplate. Instead of moving the fence, which is rigid, the router itself slides backwards and forwards.

No instructions were supplied, although Elu say that a new manual is being prepared. Assembly of the components is straightforward, although it helps to look at a catalogue if you are not sure. Parts are well-engineered and fit together well. Steel legs are screwed to the table and need to be fixed to a baseboard for stability. Clamps and screws are provided.

The Elu has a smaller table than the others tested and is made of cast aluminium, ribbed underneath for strength. A rigid, non-adjustable fence bolts on to the table, but this was not completely square. Unlike the other tables, it is

possible to position the router on its side for machining wide timber sections. You do this by inserting a pair of clamps through holes in one edge of the table. The fence can be removed to allow the table to be used as an extended baseplate for a router, though that use is limited to trimming laminates without tipping.

Once the router is in place cutter changing is still possible, but access is restricted. A fine adjuster screw allows movement of the router and accurate cutter positioning, but is slow to set. Approximate router positioning is easy to carry out by releasing thumbscrews beneath the table which clamp the rods.

A single pressure guard is provided, and this can be positioned to act sideways or above the work.

The guard is adjustable for pressure and is faced with a hefty beech block. This is contoured to allow timber to pass through easily. More than just a table, the Elu kit comes with several extras. If you remove the fence you can machine curved



work. A copy follower is bolted to the table and consists of a guide-bearing that is positioned above a suitable cutter. A beech thrust block is supplied to guide the work into the cutter.

Circles can be easily cut using the trammel bar. Although restricted to use with certain routers, the Elu is more versatile than the other tables and is more compact, and is especially worth consideration if you are short of space.

VERDICT

Safety & Instruction

No instructions supplied, but a guide is available as an extra

Construction quality

A compact, sturdy table but the fence is not completely square

Value for money
OVERALL

Ease of use

Router is moved to position cutter. More portable than the others

Extras & accessories

Pressure guard, fine adjuster, copy follower, trammel bar standard

●●●●●
●●●●○

Second opinion by Jeremy Broun

Record RPR60T

Remarkably like the Elektra Beckum spindle moulder, but less robust, this sheet steel table is not what one comes to expect from Record. The somewhat flimsy stainless steel table flapped about under the pressure of my fingers giving a discrepancy of more than a millimetre. The light fabrication also makes it an ideal sound chamber for a noisy router, but there is plenty of scope for installing sound deadening material. Several brands of router can be clamped and changed with ease by the hand-knobs, and the size of the table is ideal. The independently adjustable infeed and outfeed fences work well, but were slightly out of square. The plywood backing to the sheet aluminium facing does not help and could be fine tuned by the owner. The extraction take-off is excellent but what lets this table down are the hold-down devices. Value for money ●●○○○ Overall ●●○○○

Sutton Router Table

Using melamine-faced MDF for a router table is novel and certainly has a nice feel to it, absorbing some of the router's sound. But is the MDF moisture resistant, and shouldn't the melamine be counterbalanced to prevent bowing? I noticed a slightly concave table top. The simple concept of this table is let down in detail. The small slots on the hefty pressure guards restrict the size of material you can feed in. The hand-knobs are frustrating to use because the nuts, with their tiny washers, require a spanner to stop them slipping. You would need several hands to adjust the vertical pressure guard. The feathered pressure device does not really work as the sawcuts are too wide apart, and in the wrong direction on one of the boards. With the machine screws holding it in place, the router is slow too change. I wonder if toggle clamps would not suffice for the task.

Value for money ●●○○○ Overall ●●○○○

Woody FB600

This is an attractive table, of generous size, simple design and adequate construction. The pressed steel top, because of its generous size, is subject to slight deflection but not seriously so. Unfortunately the wrong switch connectors were supplied for our test, but the addition of an external switch is welcome. The independently adjustable fences are easy to use, although slightly out of square and the simple, sprung hold-down devices are very good. I think this is an important design aspect as the firm guidance of the workpiece over the cutter without it wandering is a prime safety consideration. Both hold-down devices are quick and easy to operate with good capacity. A wide hole in the table allows the horizontal hold-down to be easily removed. The router fits under the table easily with two clamps, but they do need a spanner.

Value for money ●●●○○ Overall ●●●○○

Elu E40900

This is a useful table despite its small size. It is very well made, in cast aluminium, with a quick-change, fixed fence which is deep but in our case slightly out of square. The router itself is adjusted horizontally by moving it on its fixing rods. With eight knobs in all it could be confusing as to which four you have to use to change the position of the router. The pressure fences have fine screw adjusters and ancillary clamps allow this table to be used on its side. It takes some of the small router and is an excellent mini-spindle moulder.

The stout rod feet are anchored onto a manufactured board base by designated clamps, which in turn can be clamped to the bench or secured in the vice with an added batten. Cutter and router changing are relatively easy. It is clearly the best-quality table in the test, and includes a few useful extras.

Value for money ●●●○○ Overall ●●●○○

During the test we discussed at length what you need from a router table. Jeremy Broun (as author of *The Incredible Router*) offered years of experience, and was happy with the small table area of the Elu. Both Nick Gibbs (the editor) and I favoured the larger working surfaces, offering more support, especially when working on frames. We agreed that good guards are vital and cutter changing must be easy.

PD

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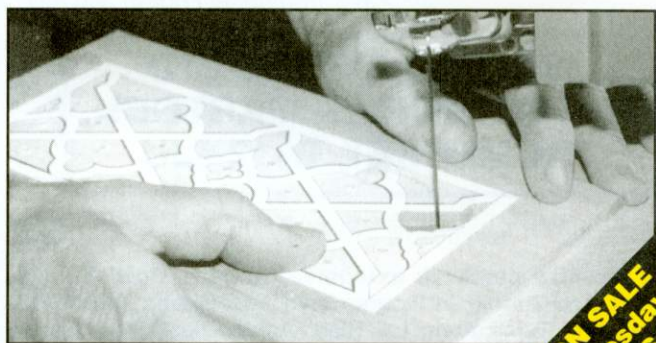
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- Fretsawing made easy
- What finish is that? Our guide tells you the difference
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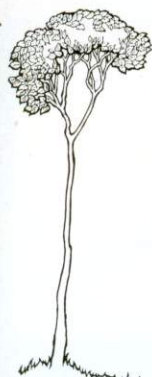
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In the spring we got a very large oak tree from the garden of a merchant banker in Ham. With Adrian's help we extracted the old dry oak planks from the bottom half of the drying shed and replaced these with the new wet planks. Then we shored up the top half with wedges and whacked in about 15 tonnes of dry planks. Similarly with ash, beech, sycamore and cherry.

All sorts of interesting turnery lumps were revealed and duly stacked on shelves, to which we added a largish laburnum, plus another lot of cherry and a large hornbeam tree plank 2' x 3'. Then we got a large tulip tree plank 2' x 3'. A very large walnut tree 55" across the butt yielded fully 100 cu ft of first class planks and blanks.

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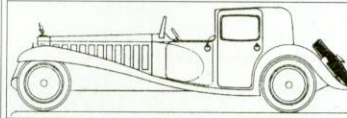
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Finishing touches

practice now often abandoned.

Linseed been used for centuries not only to oil furniture, but also as a constituent of paints, inks, putty and many varnishes.

The oil can be used raw or boiled, the latter drying more quickly, but not so hard. Raw oil provides a more successful finish. Heating the raw oil reduces its viscosity, allowing greater penetration of the wood. This is useful for the first coat or two, though these can be simply thinned with turpentine. Be careful heating the oil as it is flammable, and preferably use a double boiler.

Work the oil into the timber with a cloth, making sure to remove any surplus. This might impede drying. Allow to dry between coats. The surface lustre can be improved by rigorous rubbing with a piece of felt or lint-free cloth. Both raw and boiled linseed oil had a darkening effect on timber; in particular the walnut was turned a very dark brown.

Linseed oil is best suited to internal use, though it is resistant to water and alcohol, making it ideal for table tops. Care, however, must be taken in the disposal of rags, which need to be dried out flat as they can spontaneously ignite when rolled up in a ball.

Catskill Craftsman Fair Oil

This is a proprietary brand containing linseed oil. Because it is fairly thin in consistency, you need to apply several coats to build up a finish. This oil produces a pleasing natural colour, that will develop a lustrous finish with good wearing properties after regular

applications. It is intended for use on butcher block tables, cutting boards and internal woodwork. The oil is flammable, and cloths must again be dried flat.

What is Tung Oil?

A pale yellow oil obtained from the seeds of the tung tree (*Aleurites fordii*) which is found in China. The oil is suitable for interior and exterior use, being hard wearing and weather resistant. It is highly resistant to alcohol, food acids and water, and pure tung oil is non-toxic and therefore an ideal finish

finish, that can be brought to a shine with wax or further coats.

Rustins Danish Oil

Danish oil is a blend of tung oil and other ingredients, including driers, giving it the characteristics of a pure oil but with improved drying times (four to eight hours depending on temperature and humidity). Two or three coats is sufficient to provide a tough finish, resistant to heat, water and alcohol.

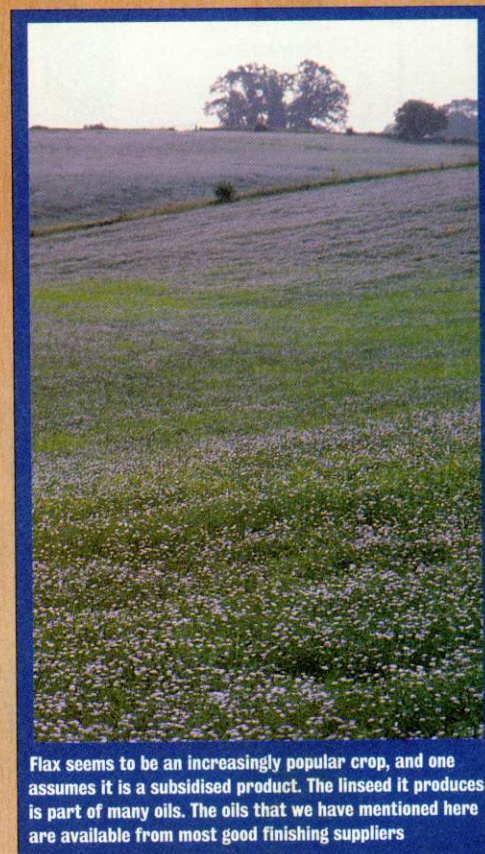
Apply the oil by brush or cloth, wiping off surplus after a few minutes. Use wirewool or a Scotchbrite scouring pad to apply the final coat. Danish oil has less of a darkening effect than most oils, and builds up a surface lustre more quickly. It will accept other finishes and can be used as a primer for paint or varnish, but remember that it is flammable, like linseed.

Liberon Teak Oil

Also known as Furniture Oil, this is a blend of oils and white spirit. It is similar in nature to Danish oil, although it gave a slightly deeper colour to the woods tested, and it did not produce a surface lustre as quickly. Suitable for interior or exterior work, the oil needs to be rubbed well into the wood using a lint-free cloth. Wipe away excess after 10-15 minutes. As with other oils, do not leave any surplus as it can become sticky, preventing penetration of further coats. It is flammable.

Olive Oil Has its Uses

Edible oil is suitable for salad bowls and other items that come into contact with food. It takes a while to dry, and is best applied sparingly. I am looking for a way to apply this for quicker drying.



Flax seems to be an increasingly popular crop, and one assumes it is a subsidised product. The linseed it produces is part of many oils. The oils that we have mentioned here are available from most good finishing suppliers

for kitchen surfaces and utensils, as well as toys.

It is easy to apply with a drying time of 24 hours in good conditions. It deepens the colour of the wood a shade or so, and again this was more pronounced on the walnut than any of the others. Tung oil produces a soft lustrous

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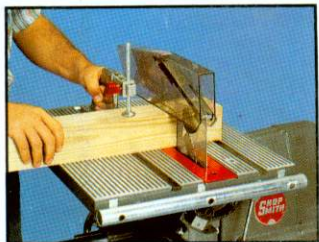
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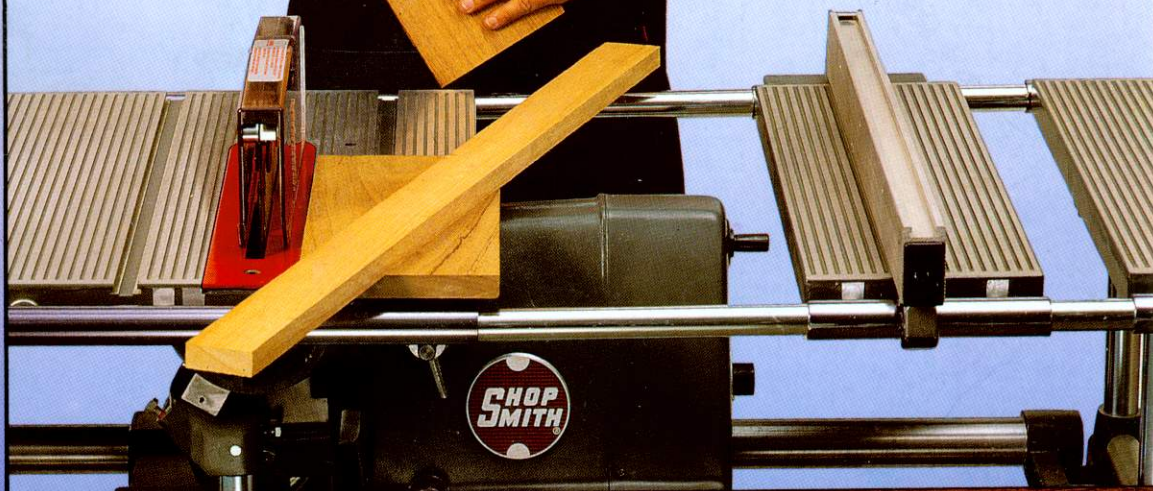
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