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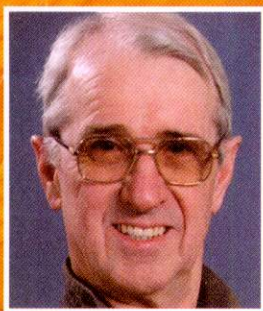


Working with Walnut

Make a stylish cabinet
using that classic wood

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Are you a Bold or
Cautious Dovetailer?
Jeff Gorman helps
you choose on p.74



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I HAVE two Workmates. Actually I have one, a tatty old model with simple crossed legs, because my father has my swish up-market version on loan as a stand for his bandsaw. This doesn't worry me too much as I haven't the space for both, and am happy to leave the older one outside.

At the Good Woodworking Show in November I tried out the latest Workmate, with the vertical jaw. I was most impressed. Things have come on a bit. And the competition has stiffened, with a variety of clones available, as you can find out in the group test (p.80).

Last month we tested honing guides. Don't despair, though, if you missed the issue because on p.55 you can find out how to make your own version using a decorator's seam roller.

And on p.65 you can discover the benefits of our **FREE** Hermes anti-static abrasive. You'll also find a chance to win some more by sending your own sanding tips.

Nick Gibbs

Contents

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PROJECTS YOU CAN MAKE

4 Wall cabinet in walnut

Make a classic wall cabinet using walnut

39 Carving board

Turn a meat carving board from offcuts

40 Pull-along toy frog

Make a new wheeled toy to delight your children or grandchildren

41 Earring stand storage

Surprise your wife with a neat earring stand. She never has to lose another earring

66 Turned barrelled pens

Make your own pens by following our simple step-by-step instructions



Turn propelling pens p.66

TECHNIQUES

14 Burr Challenge

Tobias Kaye reviews the burr bowls from the Burr Challenge Competition

55 Purely Planes

Learn how to make a honing guide

70 Working order

Be more efficient in your workshop

74 Cutting dovetails

Two different approaches to cutting a dovetail. Are you a bold or cautious dovetailer?

90 Finishing MDF

Find out the best products to use on MDF



Burr Challenge review p.14

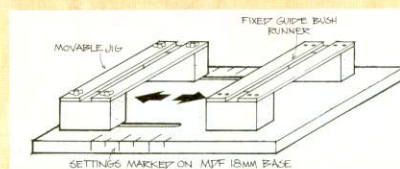
YOUR QUESTIONS AND TIPS

43 Hints and Tips

Win a prize with your workshop tip

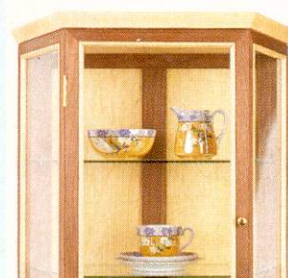
61 Woodwork Answers

Need help to finish that project or get started, just ask our experts



Good
Woodworking

MARCH 1995 ISSUE 29
ON THE COVER



Working with walnut 4
Make a stylish cabinet using the classic wood

Perfect dovetails 74
Are you a Bold or a Cautious Dovetailer?

Workmates 80
We put six of the best to the test

Weekend Wood 39
Turn a carving board 39
Make an earring stand 40
Pull-along frog 41

Turning pens 66
Make propelling barrelled pens on your lathe

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Subscriptions page 48
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TESTING

18 On Test

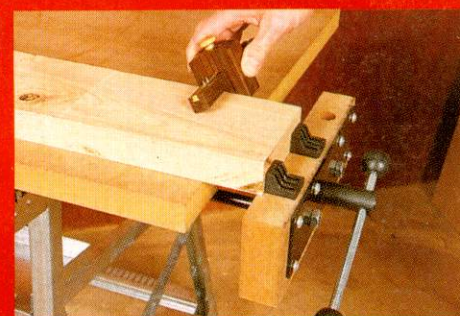
This month we test Meber bandsaw, Roberts & Lee saws, and O'Donnell grinding jig

49 Book reviews

Discover *The Secrets of the Doll's House Makers*, and learn about *Making Antique Furniture Reproductions*

33 Clothing in your workshop

Bright smocks, boiler suits and aprons on test



80 Workmates on test
Technical Editor Phil Davy puts portable workbenches to the test

MATERIALS YOU WILL NEED

■ WALNUT

I bought a 10ft length of 8½x1in sawn walnut, and had a fair bit left. I bought about 0.6cubic foot and used about 0.4, at a cost of about £15

■ MAPLE

So little you ought to be able to scrounge offcuts

■ PLY

Little pieces of 16mm for the bottom and top, and 3mm for the back panel

■ GLASS

3mm for the panels and 4mm for the shelves

■ FITTINGS

A knob, two hinges, two ball catches and two hanging plates

TOOLS YOU WILL NEED

■ HAND PLANE

Over and above the standard hand-tools the plane is the most essential tool for this project

■ BISCUIT JOINTER

This is very useful for this sort of project for assembling the panels to one another, but for cutting slots for splines across mitre joints it is not essential



Wall cabinet in

walnut

EXCLUSIVE
design

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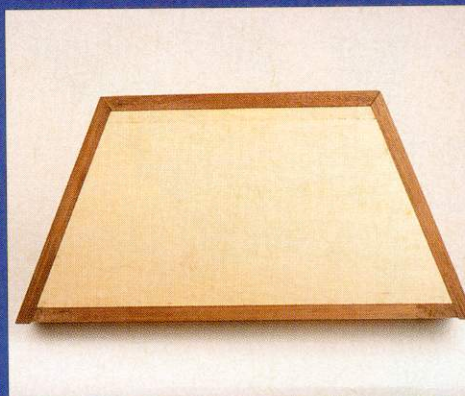
The details you need to make the cabinet



The mitre perfect for this joint because it emphasises the delicate lines, with the corners meeting at a point at the front



The mitres are strengthened with walnut splines. Assemble these frames before you plane the long bevel on the stiles



From underneath you can see how the angles work out. You can see why it is important that the stiles are wide enough to take account of any wood lost in bevelling



The back panel has two stiles on either side, a rail top and bottom and a central dividing stile

Pete Martin looks at the pros and cons of using walnut in the construction of a classic wall cabinet that you can make with his instructions

English walnut. Now there's a timber. A veritable magnet to woodworkers. It remains a mystery, though, how furniture-makers can distinguish the creak of a falling walnut from that of any other tree. Anyone who's had a walnut fall down in their garden will confirm that the woodworking bush telegraph brings a stream of offers for the wood within moments of the fall.

As a result those of us with less sensitive ears, little time to hunt and only

meagre resources turn to the American walnut, sometimes disdainfully referred to as American black.

It is indeed darker than the English or European species, but is a sensible and effective alternative. In fact American walnut is one of very few options if you are looking for a dark wood, of sustainable origin, as I was for this wall cabinet.

The aim of making this cabinet is to explore a few complex operations. As an exercise in mitring it is essentially simple, the mitre

PROJECT GUIDE

DIFFICULTY: Advanced

TIME: 50 hours

TYPE: Furniture

being an uncomplicated joint. However cutting and constructing mitre joints that fit neatly is surprisingly difficult, and takes practice. At least though the project can be made with the minimum of tools.

The angles of the cabinet add a complexity to the design. But oh how clumsy it would look squared off. The glass sides and taper towards the front draws your eye neatly to the centre, and lightens the visual load.

I like shaped work, though it does drive me

crazy in the workshop. Angles are, really they are, simpler to work with than you might imagine. The key is to draw out a full-size plan of the piece first. Elevations are irrelevant in comparison.

I did consider adding a pyramidal roof. It was part of the initial brief and design. Somehow it got lost in the translation. Not only was it going to take ages to make, but it would have changed the style of the piece completely. A slanting roof would have needed a bracket on the bottom of the unit as balance. A pyramid base would have given it a space-age look.

Working with Walnut

There are very few dark hardwoods that are both politically correct and readily available. American black walnut is generally believed to be sustainably grown, in plantations. This is true of most American hardwoods, and explains, in part, the popularity of their cherry, maple and oak.

The Americans have a reputation of planting as they chop. I read something recently that Americans have increased, yes increased, the amount of forested land over the last 50 odd years.

Unfortunately American black is generally only sold as 1in boards. It is however usually straight-edged, so reducing the wastage. Boards tend to be between 6in and 9in wide.

It's not all sweetness and

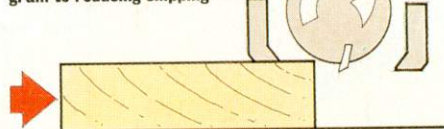


Pete Martin has recovered from a spate of kitchen building to make us this cabinet

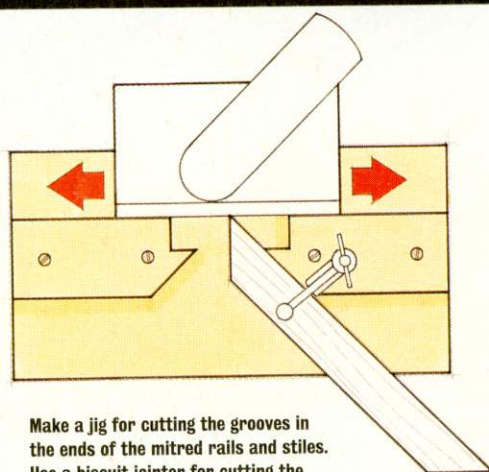
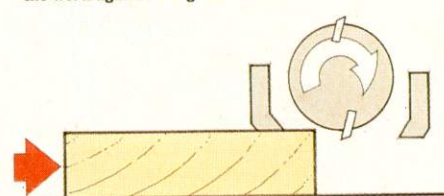
TIP
The trick to making anything with angles is to draw up a full-size plan first and use that to mark up the parts.

Tips for better machining and jointing

The normal way to use a thicknesser is with the grain to reducing chipping



Maple is terrible for chipping, and sometimes you can find it better to feed the work against the grain

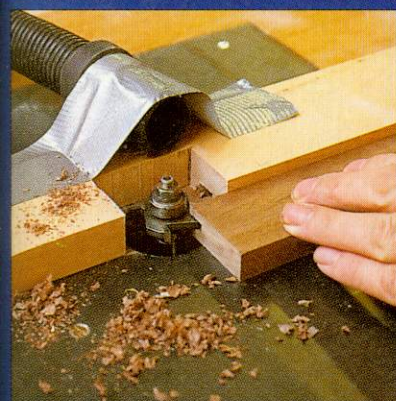


Make a jig for cutting the grooves in the ends of the mitred rails and stiles. Use a biscuit jointer for cutting the slots and a toggle clamp for holding

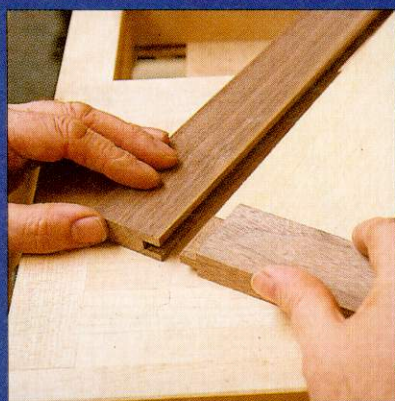


The side elevation shows the positioning of the hinges

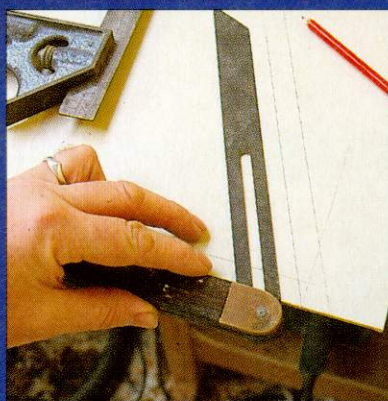
How to make the walnut cabinet



1 If you have the machinery, groove the rails and stiles for the back with a slotting cutter. A straight router cutter will do as well



2 The rails and central stile of the back panel has short stub tenons that fit into the groove in the stiles for the two plywood panels



3 The trick with any angled work is to draw up a full-size drawing or rod on a piece of card or hardboard. From this set your sliding bevel



4 I biscuit jointed the top and bottom to the back. You could alternatively use loose ply tongues, routing out the groove

light. American walnut has a tendency to grow large knots, which are weak and chew up something chronic. I was able to cut around the knots for this cabinet, but they can be a real nuisance on thin sections as the knotted grain is short and brittle, and particularly prone to chipping.

You have to watch out for the light sapwood, which is

featureless and dull. It's worth taking a block plane to the mill to check boards, which are normally sold sawn and not prepared.

Of course the light sapwood is a characteristic of English walnut. Nick Gibbs told me recently how he once attended the milling of a vast walnut butt at Bucks College in High Wycombe. As the first few slices were removed all that could be seen was useless sap, until gradually a

dark and curving streak of heartwood appeared. "It was a bit nerve-racking at first, said Nick. "Even once the band mill had cut halfway there was a wide border of sapwood on either side."

American walnut is otherwise pretty easy to use. It is relatively stable; at least I've never had any problems with movement. It does have a distinctive smell and a fine dust that crumbles like stone. This can be a bore when

combining walnut with a light wood, as I have done here with maple. The fine dust tends to stain the grain of the lighter wood.

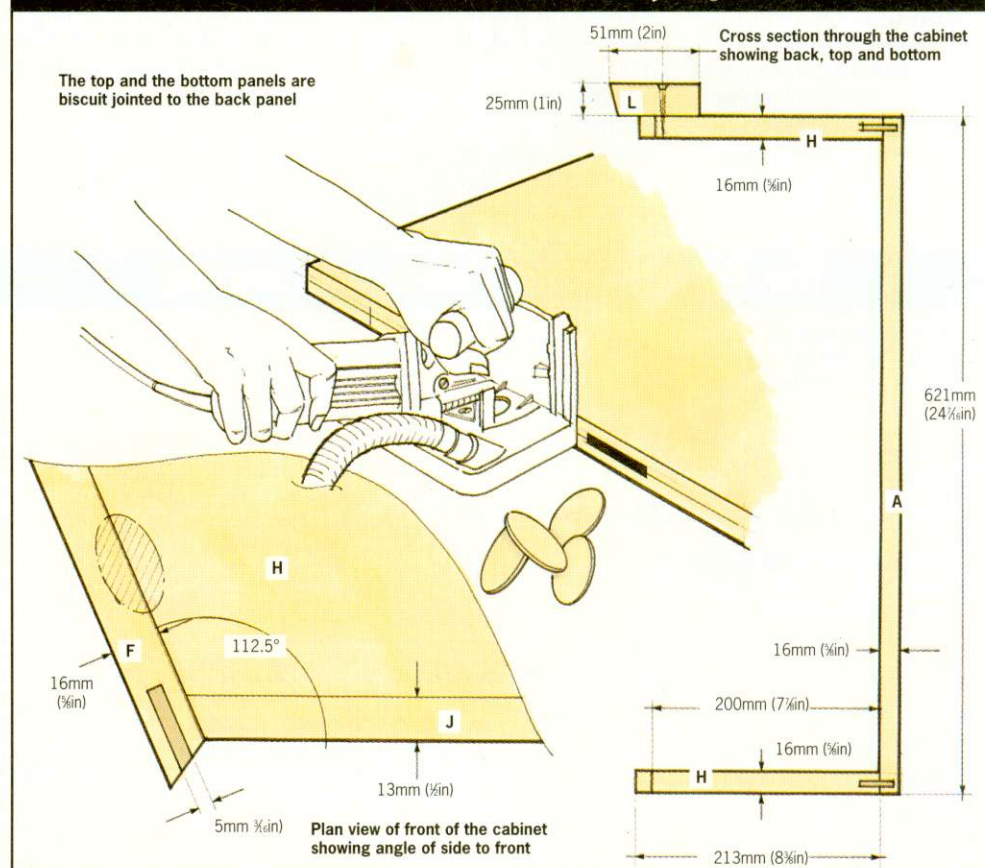
The denseness of maple reduces the staining effect, however you can have problems with open-grained, light-coloured woods like oak and ash. The trick is to do as much sanding as possible before assembly. If you have to sand them together I suggest vacuum

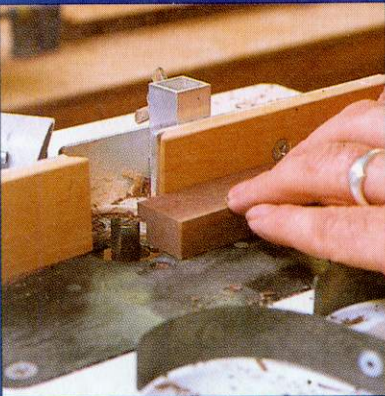
Cutting List

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
A Back panel stile	Walnut	2	621mm 24 $\frac{1}{2}$ in	45mm 1 $\frac{1}{2}$ in	16mm $\frac{5}{8}$ in
B Back panel central stile	Walnut	1	559mm 22in	45mm 1 $\frac{1}{2}$ in	16mm $\frac{5}{8}$ in
C Back panel rail	Walnut	2	404mm 15 $\frac{7}{8}$ in	45mm 1 $\frac{1}{2}$ in	16mm $\frac{5}{8}$ in
D Back panel	Maple-faced ply	2	559mm 22in	404mm 15 $\frac{7}{8}$ in	6mm $\frac{1}{4}$ in
E Stile	Walnut	6	621mm 24 $\frac{1}{2}$ in	30mm 1 $\frac{1}{8}$ in	16mm $\frac{5}{8}$ in
F Side panel rail	Walnut	4	265mm 10 $\frac{3}{8}$ in	30mm 1 $\frac{1}{8}$ in	16mm $\frac{5}{8}$ in
G Door rail	Walnut	2	300mm 11 $\frac{3}{4}$ in	30mm 1 $\frac{1}{8}$ in	16mm $\frac{5}{8}$ in
H Top and bottom	Ply	2	457mm 18in	200mm 7 $\frac{7}{8}$ in	16mm $\frac{5}{8}$ in
J Floor and ceiling lipping	Maple	2	286mm 11 $\frac{1}{4}$ in	13mm $\frac{1}{2}$ in	16mm $\frac{5}{8}$ in
K Beading	Maple	1	5.2m 17ft	10mm $\frac{3}{8}$ in	8mm $\frac{5}{16}$ in
L Cornice front	Maple	1	318mm 12 $\frac{3}{4}$ in	51mm 2in	25mm 1in
M Cornice side	Maple	2	279mm 11in	51mm 2in	25mm 1in

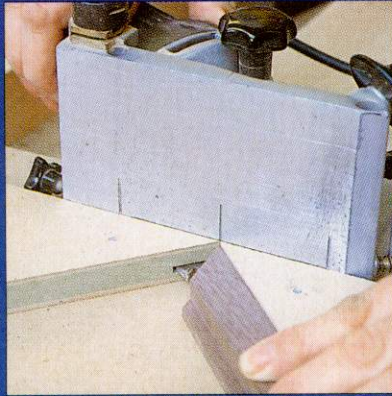
Cutting lists always give the full length of a piece including the joint, but not wastage. Allow at least 25mm (1in) extra for length and 5mm ($\frac{3}{16}$ in) on the width and thickness of sawn stock

Cross section and details of back, top and bottom

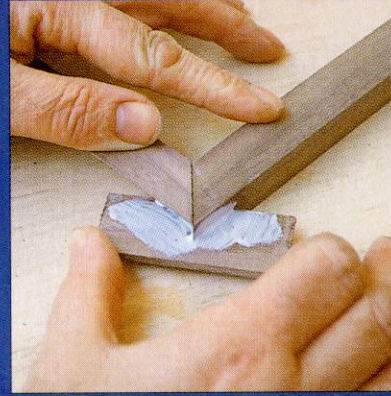




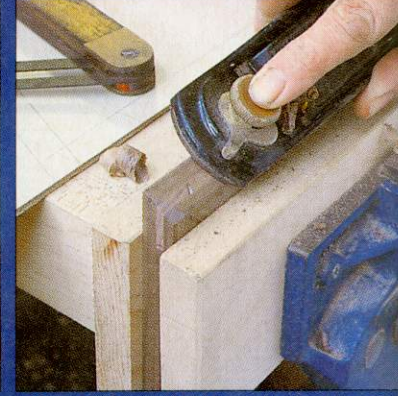
5 Rebate the components for the front and side panels. Preferably use spring clamps on a router table to keep the wood against the fence



6 Make up a jig for slotting the stiles and rails for a spline with a biscuit jointer. You can make a similar jig for a circular saw or router



7 Slip the spline into the slot with some PVA. Have the grain running across the joint. This might be tight enough without cramps



8 Once the frames have been glued up trim off the splines and bevel the stiles with a plane, marking off with a sliding bevel

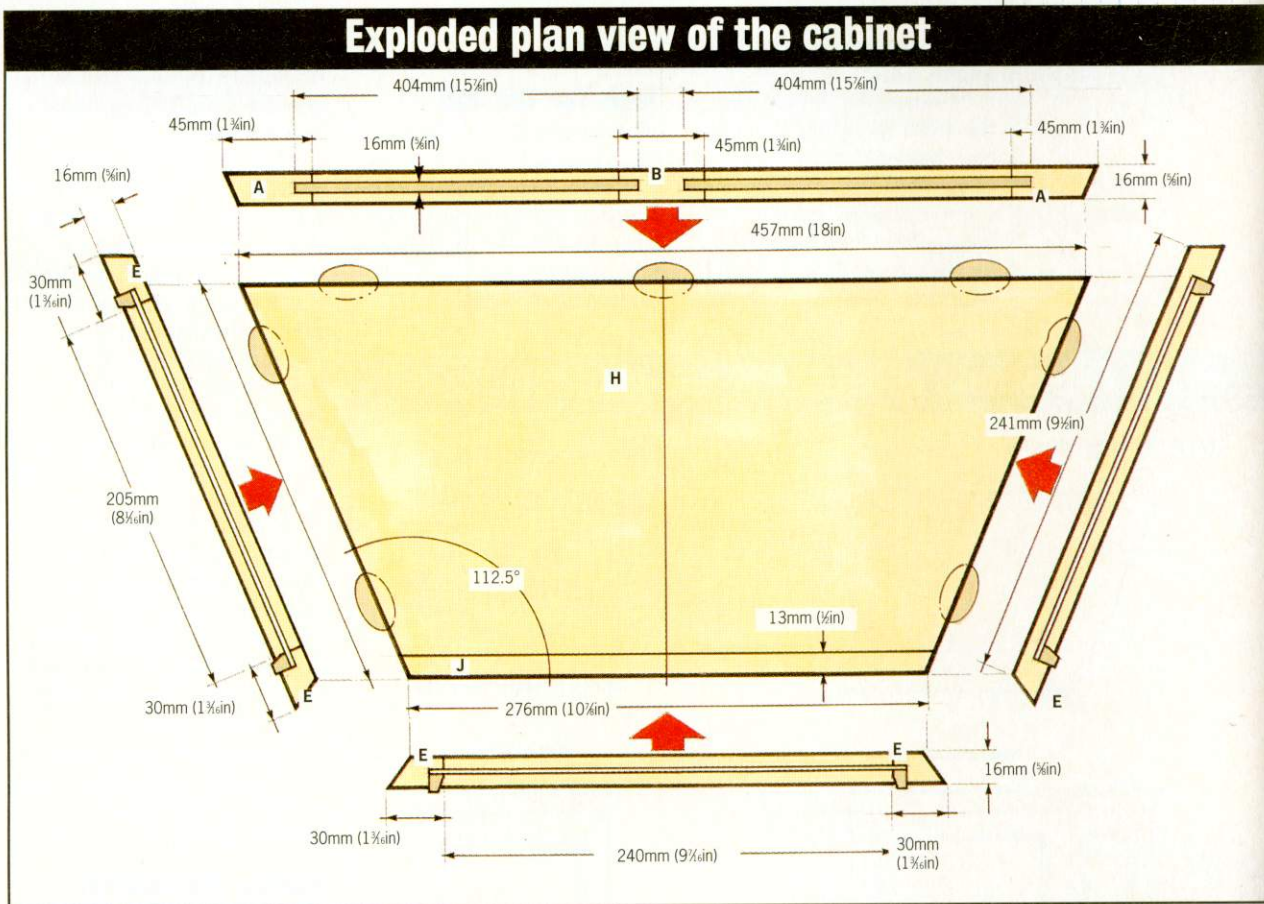
away any dust very carefully before finishing.

American walnut planes well enough, but it is wavy so the grain can change direction with little notice. It tends to chip a bit, so you need a sharp edge and must take a bit of care. Compared with maple, though, walnut is a joy to use.

Maple is hard, and when it starts to chip you really know about it. It is a devil to work. It chips terribly on a planer, especially if there is any ripple. I have found that you get a better finish, with less chips and ridges, using a thicknesser for the final skim. I've also discovered (though I don't know why) that you can chip less if you feed maple into the thicknesser against the grain. Normally you want the grain dipping down towards you, but for maple I have had success with the grain rising up towards the front edge.

Unfinished the American walnut has a grey tinge. It actually comes up much darker when you add a finish. I used a thin coat of varnish (diluted 50:50 with white spirit) and then wax. Oil also does well in bringing out the brown in walnut.

The price differential between American and English species is significant. I paid about £30 plus VAT per cubic foot for the American black (needing a little less than half a cube for the wall cabinet). A quick poll in the *Good Woodworking* office put English walnut at



no less than £45 a cube. One thing to remember when specifying walnut for a project is that you may find it difficult to buy walnut-faced ply or MDF for panelling.

Of course you could veneer your own or make solid panels, but if speed and economy are essential you may have to rework your design with contrasting panels. To that end maple-faced sheet materials are widely available. You can even get away with birch ply

for less conspicuous parts without being too obvious.

Finding Proportions

I don't think I even measured the size of the cabinet during the design stages. This is pretty common in my work. As I've mentioned already you have to sort out the plan first, but I then guessed the height and width. The cabinet was actually designed on the front of an envelope for once!

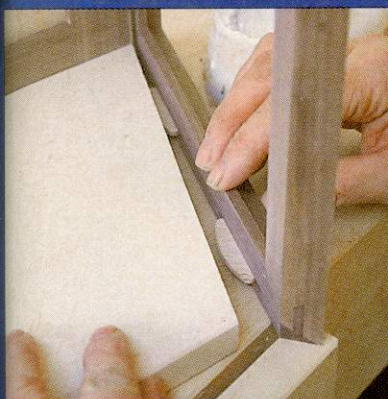
In plan the piece is based

on angles of 22.5°. To make things easy you start by framing up the back panel. Then you move onto the sides and the door.

I probably would have used mortice and tenon joints throughout for the glazed panels had I been making the cabinet for shop fitting. That style of furniture needs to be sturdy, but can be relatively crude. I chose mitres instead because of the delicacy, and because my

TIP
When making a delicate, glazed door, you might find it easiest to cut the hinge recesses before assembling the frame.

Assembling the cabinet and adding the fittings



9 If you can, biscuit joint the sides to the top and bottom. Notice how the ply top and bottom are lipped with maple as the front edge is visible



10 Produce the glazing bead and mitre the corners to fit into the rebate. Note that the rebate is in the front of the frames



11 There is a strong argument for cutting the hinge recesses before you assemble the frames. Butt hinges are the tidest



12 I've used brass ball catches. I'd prefer to have used something a little less aggressive, but magnets are a bit conspicuous

6mm morticing chisel had broken. Mitres really suit the angles better.

Choose the dimensions of the stiles carefully. Note that they have to be bevelled along one edge. You are removing a fair amount of wood. The front stiles must be wide enough for the shelf supports, taking account of

the glazing rebate in the front of the stile.

Tools for the Job

How you make anything often depends upon the tools you own. This cabinet can be made relatively easily with basic hand-tools, though you will need to be able to plane accurately. Cutting or

planing the long bevelled edges of the stiles is the most obviously difficult part of the construction. You can do this in a number of ways.

The most economical technique is to use a sawtable with a tilting arbor. With the blade at an angle you can easily cut the bevel, needing the faintest of skims with a plane. Alternatively you could make a jig for the thickness, but feeding it through the machine so many times would take ages. If you can remove wood with a cut do so.

Of course there is no reason why you can't take out your smoothing plane, and work down to gauged lines. It's best though if you can cut off some wastewood on a bandsaw, by tilting the table, beforehand.

Otherwise all you need is a mitre saw for the joints, and a router or similar for the glazing rebates.

Making the Cabinet

1 Start by drawing out the plan, full-size onto hardboard or similar. Draw the back panel, and then the sides at 22.5° to that. Work out how deep you want the cabinet to be, and draw the door parallel to the back. From that you can work out the angle between the sides and the front, by bisecting the angle.

2 Now start making the back panel. As you can see from the cutting list the majority of parts are 16mm (5/8in) thick. You might as well

plane these to thickness all in one go. The rails and stiles for the door and sides are all that thickness, and all 300mm (11 3/4in) wide. The back components, however, are 45mm (1 3/4in) wide.

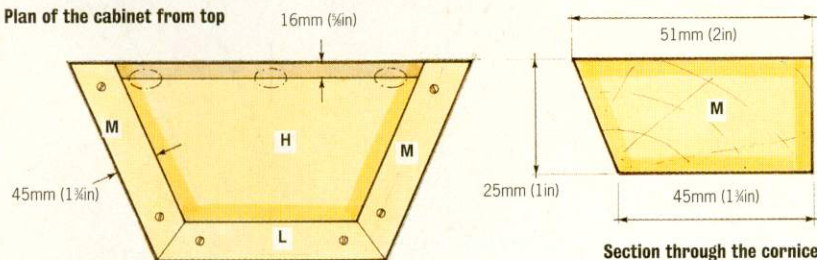
3 All the back parts are grooved, 12mm (1/2in) deep, for the 6mm (1/4in) thick ply panel. The central back stile (B) is stub tenoned into the groove in the top and bottom rails (C). Likewise the two rails (C) are stub tenoned into the stiles (A). That should be plenty of strength for this sort of panel.

4 The outer edges of the back panel are planed to 22.5° to take the glazed side panels. Because the panel will need to be cramped up, you'll find it easiest to assemble the back first and then plane the edges. Once the back is secure offer it up to the full-size plan to mark off the angles. Use a marking gauge to show the angle you need to plane.

The best way to plane a long bevel like this by hand is to hold the panel low in a bench vice. I really discovered the benefits of having the back jaw of my vice flush with the front of the bench when making this cabinet. It means you can hold one end of a panel in the vice and clamp the other end to the front of the bench (GW 26:64). Otherwise you will need to use a packing piece between the panel and the workbench. I have fitted softening pads permanently

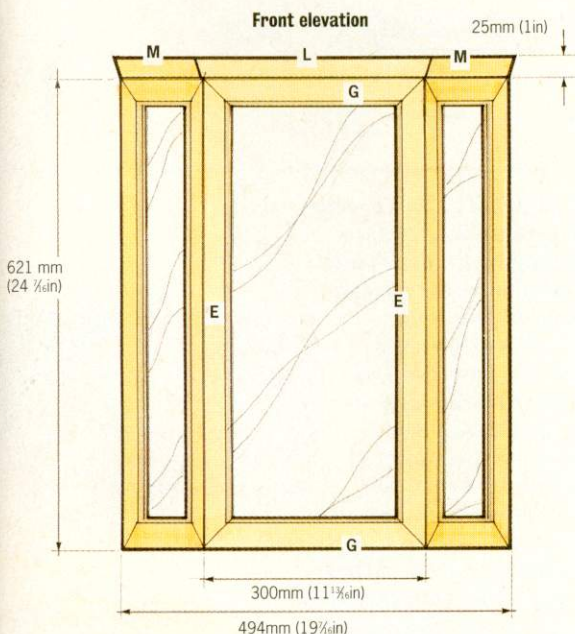
Elevations and plan of the cabinet

Plan of the cabinet from top

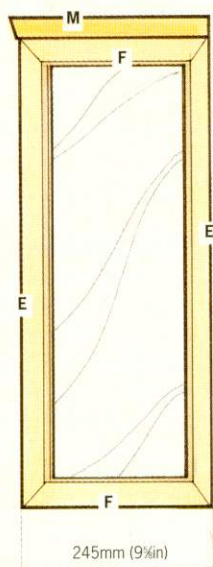


Section through the cornice

Front elevation

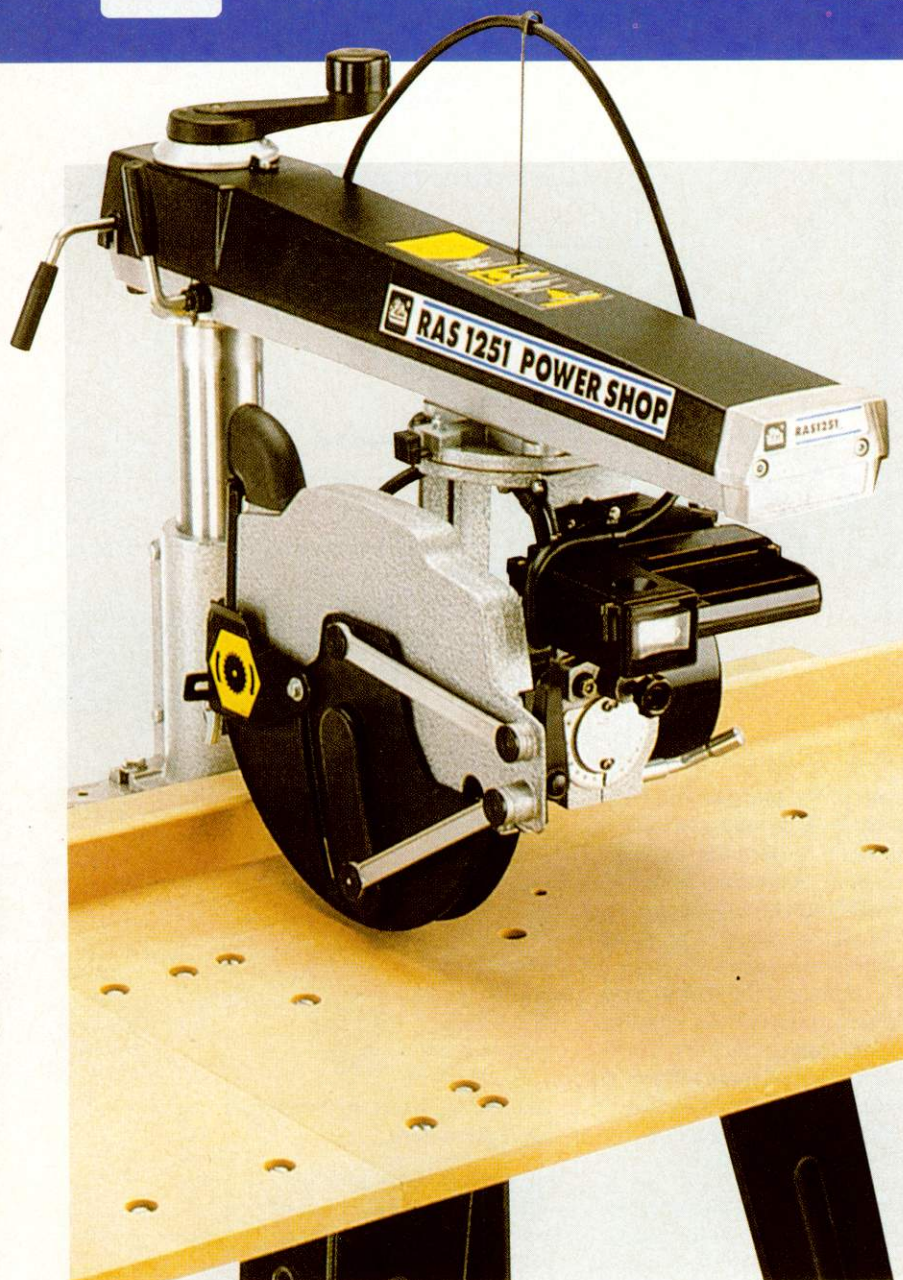


Side elevation



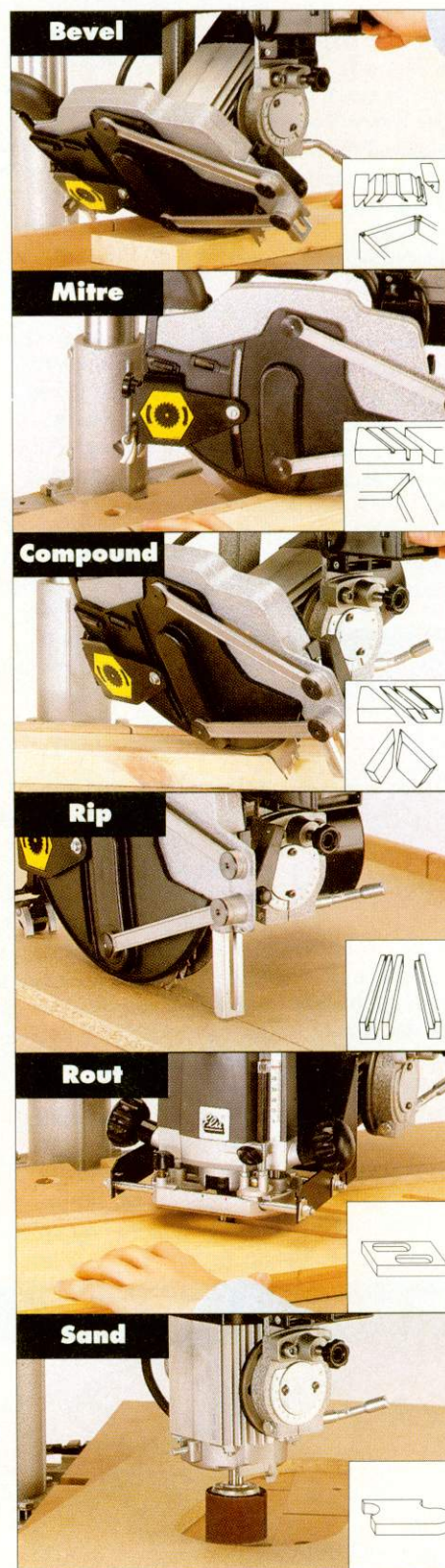


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Woodwatch

News Editor Claire McCullough reports on the world of woodworking today



RECONSTRUCTION

BUILDING an Eskimo kayak is not something undertaken lightly (GW 17:4). Violin maker Michael Morgan gave it a go. "The kayaks were pieces of excellent craftsmanship and pieces of art that deserve to be recorded and reproduced in this world of plastic, fibreglass and mechanical reproduction," writes Michael.

"The technology behind the making of a kayak is basic. The Eskimos used drift wood split out with stone axes and wedges, lashed together with sinews. What evolved from this primitive technique was a superb hunting machine capable of withstanding the stormy waters of their seas."

So in spring 1994 Michael started collecting the material he needed, working from plans drawn up from an ancient kayak. "The boat comes together with little woodwork skills. The Aleut had access to much better timber than I could lay my hands on, but eventually I found some clean pine for the gunwales and carved up some maple for the thwarts. The willow ribs were split in two with a knife and needed a particular knack to completely half a four foot sapling without the split coming out to one side; a technique

The reconstruction of a legend kayak

which I learned from a basket maker. I stopped short of splitting out the 16ft gunwales from a log, but for my next replica I will attempt this somewhat daunting task.

"The Eskimos would use wood for the inwatts that was grown in the shape of their proposed piece and would forgo aesthetic properties for something structurally sound.

"Once lashed together, the frame was treated with linseed oil; the result has to be seen to be fully appreciated. Supple and light with 5000 years of development behind it, the kayak

looked exciting and eminently sea worthy."

Were there any unexpected problems? "The problems needed to be solved along the way. A-level students helped with the project, but they found many of the tasks beyond them. Knots would fall out and have to be redone. I was constantly thinking of the apprentice of old who might be assigned a task only to fail and have to restart the whole frustrating process.

"But it made me think about our education system. Even in craft and design, little if any traditional skills are taught or explored. However these pupils were able to use sharp spokeshaves and knives and properly set planes in a controlled environment. They seemed to enjoy the experience and hopefully took some ideals of this working away with them.

"Then came the skinning with 15oz cotton canvas. A wonderful material, a little removed from the traditional



"The Aleuts created a kayak that was supreme and a circulation, the like of which the Arctic may never see again," said Michael

skins perhaps, but never the less the material complemented the oiled wood beautifully. The stitching took an age and resulted in swollen and sore fingers, but the skin, taught and gleaming white over the golden frame was beguiling. "I have paddled this boat now and it is a real delight, a totally different

experience from the rigid unflexing and unsympathetic fibre glass counterpart.

Michael's workshop is at Model House Craft and Design Centre in Llantrisant, Mid Glamorgan (☎ 0443 237758). "I would be pleased to offer help with any one tackling a similar project," says Michael.



Paddling the finished kayak is a delightful experience compared to its modern counterpart

ENVIRONMENT

Friends of the Earth boycott mahogany

THE Environmental organisation, Friends of the Earth are asking you to boycott mahogany. They are reinforcing their request between the 11th-18th February when they will be running a week of activities and events to "bring home the facts about the mahogany trade and the role of the UK" using the slogan 'Mahogany is murder - don't buy it'.

"The week will highlight how the trade in mahogany is responsible for death and destruction on a large scale, particularly in Brazil where the largest tracts of tropical rainforest remain," claim Friends of the Earth. "Mahogany is

one of the main tropical timbers traded in the UK, its exploitation is a major environmental problem. Most UK mahogany comes from Brazil where timber companies logging for mahogany are destroying vast areas of tropical rainforest and devastating local Indian communities."

Director of Friends of the Earth, Charles Secrett said: "Whenever you buy doors, window frames and furniture made of mahogany, it's likely that it has been made from timber stolen from Amazon Indians. The message is simple: if you don't want to deal in human lives

and rainforest destruction, don't buy goods made from mahogany."

The organisation are insisting on a total boycott. "It is nearly impossible to distinguish between mahogany from unacceptable sources and mahogany that may be from acceptable sources. Until we are sure that any given mahogany product is from an acceptable source we want a total boycott to continue."

For more information you can contact Friends of the Earth at 26-28 Underwood Street, London N1 7JQ, (☎ 0171 490 1555).



Mahogany boycott: the edge of an Amazonian rainforest shows the destruction of trees

Tribute to Cecil Colyer

THE art of spinning silver into fine shaped vessels is similar to woodturning in that it relies on the fine lines of its curves for beauty, *writes Tobias Kaye*. In a discipline in which no fancy grain can distract the eye, Cecil Colyer excelled.

Also as a woodturner Cecil was renowned. Apart from the production of beautiful pieces Cecil was constantly pushing at the borders of his craft. Notably he developed a hand-held nesting tool capable of producing five or six bowls from one piece of wood with the largest one being more than 18in diameter.

Rare amongst craftsmen, Cecil combined his work in silver and wood to produce the most exceptional mazers (drinking bowls) and presentation pieces. Combining silver and wood is an art in itself, not least due to the tendency of wood to move with the weather, which can leave the silver looking poorly jointed.

Such was Cecil's precision with this that his work was held as the best in the land, being presented to the Lord Mayors of London, and being sought by the discerning in cities as diverse as Tokyo, Sydney and New York, as well as in continental Europe.

I first saw his work during an exhibition at Parnham House and was immediately taken with the subtle precision with which he made the two materials combine, technically and artistically. All of Cecil's amazing



Mazers in burr maple and silver. Cecil's work is artistic and functional

pieces are also functional. He would not have been content to be classed as merely artistic. His work is extremely beautiful and useful, seeking in this the highest goal of craftsmanship.

Cecil was committed to his craft to the last. Always keen to learn more he still attended a course if he thought he could learn from it and was always discussing his ideas and innovations in both disciplines with other practitioners.

He died in November after a short illness, with recent work thronging his workshop and office. His life and body of work has been a significant contribution to craftsmanship.

Symbolism in woodcarving



Symbolic carving: the tricycle has no handlebars to steer with, but merely wanders around as chance directs

traditionally used for bows and arrows and is his weapon against the world. "The Idealist likes to put on his mask of wisdom but a mask indicates deception," said Ian. "It is made of apple wood traditionally symbolising immortality through wisdom."

Once a month Ian will be holding courses in his studio in Cheltenham. They are designed for students of all abilities, from beginners to the more experienced. The courses will deal with the aesthetics of design as well as the more practical and technical skills. Further details are available from White Knight Gallery, Painswick Road, Cheltenham, Gloucester (☎ 01242 238582).

AFTER working in the Mediterranean and the USA, woodcarver Ian Norbury is back in the UK preparing for his next exhibition in 1996 in his refurbished gallery.

His work concentrates on meaningful symbolism, exploring all areas of life using wood as its main medium. 'The Impersonator' and 'The Idealist' are such pieces.

Ian used walnut, pearwood and mixed materials to create The Impersonator, which stands 40in high. Standing six inches higher is The Idealist.

"I see an idealist who believes there is a right way to do something and that he knows what it is," says Ian. "His ideal is his guide to life, giving him a code of behaviour like religion."

The 46in man is built using a variety of materials including English walnut, European boxwood, thuya root, burr, apple, ziricote, lignum vitae, copper, gold, brass, jade, MDF, acrylic paint and gold leaf. Hanging from The Idealist's shoulders are a book containing his writings and theories, and a mask. The book is made from yew wood,

News in brief...

118 YEARS OF SERVICE

A letter from a retired rural craftsman in the Lake District had staff at Sheffield tool manufacturer Spear and Jackson reaching for their calculators. Mr Matthews was



congratulating the company on the performance of his Spear and Jackson woodsaw given to him at the start of his apprenticeship in 1931 when the saw was already 54 years old.

Mr Matthews received the saw, a rip cut type, from his father who had been given the saw when new by his father in 1876. The saw is still cutting timber today after 118 years of daily service in the family's joinery and wheelwrighting business.

Neill Tools presented Mr Matthews with a selection of new Spear and Jackson products. Mr Matthews' tips for caring for your saw include keeping it clean and rust free by wiping with an oily cloth, sharpen with a file and always saw straight, never buckle the blade.

WOODTURNER'S CLUB

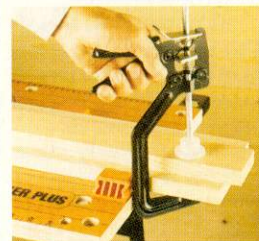
The Shropshire Association of

First Sight
We bring you news of the latest woodworking products before putting them to the test

CLAMPING

The new Clampmate

THE new Black & Decker G clamp, the Clampmate, allows you to clamp with one hand, leaving the other free to grip the workpiece. B&D claim it is light yet robust and features a trigger action and a



time-saving quick release mechanism. The Clampmate claims to clamp wood while you drill, saw and sand. It works at an angle so it is particularly effective for clamping irregular shaped objects, for holding wood at unusual angles and when you need to clamp more than two pieces of wood. It costs £5.99. For more information ☎ 0753 500805.

DRILLS

More drills at Meddings

MEDDINGS have introduced a new low budget Popular range of 13mm and 16mm capacity bench and floor drills to complement their selection of drilling machines.

Three models are available, a 13mm capacity bench drill and 16mm capacity bench and floor drills. All are suitable for general purpose drilling jobs. Prices start at £200. For more information contact the Sales Department, ☎ 01752 893277.

Woodturners was formed only two and a half years ago, and since then has averaged a membership of about 70. They hold monthly meetings where they have nationally known speakers and visits from suppliers of tools and equipment. Anyone interested in attending their monthly meetings or want more information could make contact through the Shropshire School of Woodturning. They have held their annual show with 300 visitors during the two days, some coming from as far away as Canada. For more information ☎ 01743 850129.

FINISHING SUPPLIERS AWARD

Salford based wood finishes supplier, Granite Surface Coatings plc is to sponsor the award for the Living/Dining cabinet of the year for the third year running. The company, which produces environmentally

friendly surface coatings, will present the award at the annual Furniture Industry awards which take place during the furniture show at the Birmingham NEC Metropole Hotel. For more information ☎ 01732 377245.

COURSES FOR WOODWORKING

Get to grips with French polishing, furniture design or simply basic woodworking skills. London Guildhall University are offering courses for beginners and advanced woodworkers. For further information contact Karen Marney in the Short Course Unit, ☎ 0171 320 1434.

CATALOGUES GALORE

Isaac Lord's new catalogue is now available, with added sections on safety, finishing and fastening products as well as their range of cabinet fittings and handles. All the

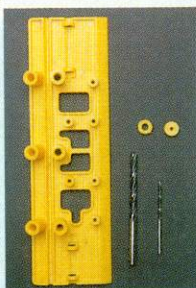
DOWEL JIG

DACHIT for flush finishes

HUBERT Long Distribution have launched the dowel and concealed hinge alignment tool (DACHIT). It allows you to "create built-in furniture that fits properly into your home," they claim, and produces a professional flush finish on shelves and cupboards.

The product provides drill bits and depth gauges, plus instructions. The DACHIT costs £8.99 (inc P&P and VAT), and is available from Hubert Long Distribution, 6 Sun Street, Hitchin, Herts SG5 1AE (☎ 01462 438938).

DACHIT



PRESERVATIVE



Water off a ducksback

STOP and think before you rush out to paint the fence or shed. Check that the product you are going to use does not have a bad effect on your garden. Cuprinol have produced Ducksback Decorative waterproofer. They claim that it is the modern equivalent to creosote and harmless to plants and pets. Their tests proved that Ducksback contains 10 times more active water repellent than any other water-based shed and fence treatment so that rain comes off the wood like water off a duck's back. It is also meant to combat the growth of green algae on exterior wood. Choose from Harvest Brown, Forest Oak, Rich Cedar and Forest Green, or clear. For information ☎ 01373 465151.

MALLETS

Carving mallet for the professional

A PROFESSIONAL carving mallet for the craftsman and professional user is now available from Chesterman Marketing Ltd. With a head of solid polished brass and a turned padauk wooden handle, they claim that the mallet has been designed to produce maximum performance by controlling tapping of the carving chisels with the minimum of effort. They also claim that the solid compact cylindrical brass head provides more power than wood. The mallet weighs 925 grams and costs £31.10 (inc. VAT). For more information ☎ 01785 50341.



STEELWOOL

Finer steelwool



LIBERON have launched a smaller pack of steelwool for the DIY enthusiast and the homemaker. Up to now it has only been available in 1kg and 250g packs. They claim that the extra fine quality will make it ideal for jobs around the home where less fine steelwools would scratch, including removing paint from glass, polishing metals, applying wax polishes and cleaners. For more information contact Liberon ☎ 01797 367555.

items shown are available in bulk trade packs or smaller sizes. Details are available from Isaac Lord, ☎ 01494 459191.

For a free copy of Leigh Industries Ltd 1995 catalogue write to Leigh Industries (UK) Ltd, FREEPOST SN2106, Chippenham, Wilts. It contains information and prices for the Leigh dovetail jigs and their accessories.

The Garrett Wade Tool Catalogue from GMC is also available. For your copy write to Garrett Wade Company, Inc, 161 Avenue of the Americas, New York NY 10013. For details contact GMC ☎ 0273 477374.

CELEBRATING CRAFTSMANSHIP

You could be part of the summer exhibition 'A Celebration of Craftsmanship'. It is a follow up from the British Craftsmanship in Wood exhibition in 1990 when 96 craftsman

and woman took part. Items sold ranged from a long case clock at £8500 to a small turned pot at £15. For more details contact Betty Norbury, who is organising the exhibition, at The White Gallery, 28 Painswick Road, Cheltenham, Glos, GL50 2HA, ☎ 01242 238582.

GREAT YORKSHIRE COMPETITION

Entry forms for the Woodturning and Woodcarving competitions at the 1995 Great Yorkshire Show are available from the 1st March from The Yorkshire Agricultural Society, Great Yorkshire Showground, Hookstone Oval, Harrogate, North Yorkshire, HGW 2PW. Return your entry forms to the same address by mid May.

Each competition has five prizes with £900 in cash and gift vouchers donated by the Yorkshire Agricultural Society, John Boddy's, Ashley Iles, Henry Taylor and Robert Sorby. Entry



is free and is open to novice and experienced woodworkers.

BRIWAX 10TH MILLION TIN

A silver plated tin was presented to the Bolloom company to celebrate the production of the 10th million tin of Briwax polish. The company began to manufacture specialist paints nearly 40 years ago.

DIARY

IN THE KITCHEN

11th January-26th February
Carved and painted contemporary wooden house ware by Emma Richards-Ward is on display. The collection includes tables, mirrors, pots and jewellery. Hand mirrors shaped into peacocks, and intricately carved tables and pots reflect the artist's oriental influences. Model House Craft and Design Centre, Bull Ring, Llantrisant, Mid Glamorgan, Wales.
Open Wed-Sun 12-5, admission free, ☎ 01443 237758.

THE ARTISTS KITCHEN

28th January-25th March
Craftwork inspired by the kitchen, including furniture by John Lowday. Country Works Gallery, Broad Street, Montgomery, Mid Wales.
Open Wed-Sat 10-5.30, admission free, ☎ 01686 668866.

ROUTES TO THE SOFT WHITE LIGHT

30th January-4th March
Drawing and sculpture in woods, inks and fibres. Beau Monde, 43 Lexington Street, London W1.
Open 10.30-6.30 (closed Sun), admission free, ☎ 0171 7346563.

CONTEMPORARY FURNITURE

2nd February-2nd April
The exhibition profiles the excellence of craftsmanship of contemporary



The shape of things at the contemporary furniture exhibition

furniture. It features a mixture of chairs, benches, and tables. Crafts Council, 44a Pentonville Road, Islington, London.
Open 11-6, 2-6 Sun, closed Mon, admission free, ☎ 0171 278 7700.

FREE DEMONSTRATIONS

18th February
Woodcarving with Peter Berry
19th February
Pyrography with Mo Reardon
25th February
Portable Power Tools with Leeds College of Art and Design
26th February
Woodturning with Harry Middleton
4th-5th March

Marquetry with Harry Jackson
11th-12th March
Woodturning with John Shepherd
18th-19th March
French polishing with Alan Waterhouse
25th March
Woodturning with Phil Reardon
26th March
Precision fluting with Tiny Bunce
Fine Wood and Tool Store
Schoolroom, Riverside Sawmills, Boroughbridge, North Yorkshire.
Open 10-3, ☎ 01423 32370.

CRAFTS IN ACTION

19th February
Crafts, demonstrations. Licensed lunches and light refreshments. Dunham Massey Hall, Altrincham, Cheshire.
Open 10-4.30, admission free, ☎ 0161 928 9146.

ELU DEMONSTRATION

24th-25th February
Elu Power Tools demonstrations. The Old Stores Turnery, Wistaston Road, Willaston, Nantwich, Cheshire.
Open 10-4, admission to be decided, ☎ 01270 67010.

BRITISH AND CONTEMPORARY ART

24th February-1st April
"Colourful, dramatic, intriguing... these words go some why towards describing this inspiring exhibition." Contemporary Applied Arts, 43 Earham Street, Covent Garden, London.
Open Mon-Sat 10-6, Thurs 10-7, admission free, ☎ 0171 836 6993.

INTERNATIONAL FAIR

25th-26th February
A wide selection of crafts, gifts and textiles from the UK and overseas on offer. Hagley Crafts, Warwick Arts Centre, University of Warwick, Gibett Hill Road, Coventry.
Open 9.30-5, admission £1.50, concessions 80p, ☎ 0156 777014.

SCOTTISH WOODWORKING

17th-19th March
The Scottish National Woodworking Show. Workshops and demonstrations, hands on opportunities, professional craftsmen, and advice, manufactures and retailers. SECC, Glasgow.
Details to be decided, ☎ 041 248 3000.

CRAFT IN ACTION

18th-19th March
Crafts for sale and demonstrations. Lunches and refreshments. Deer park, National Trust shop. Dunham Massey Hall, Altrincham, Cheshire.
Open 10-4.30, admission free, ☎ 0161 928 9146.

FINISHING TALK

23rd March
Finishing by Ronnie Rustin. The Berkshire, Hampshire and Surrey Fellowship of Woodworkers talks and demonstrations. Mytchett Centre, near Frimley, Surrey.
Open 7.30pm, contact Peter Guyett ☎ 0252 542901.

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



WITH
TOBIAS KAYE

BURRS ON SHOW

The Burr Challenge competition results

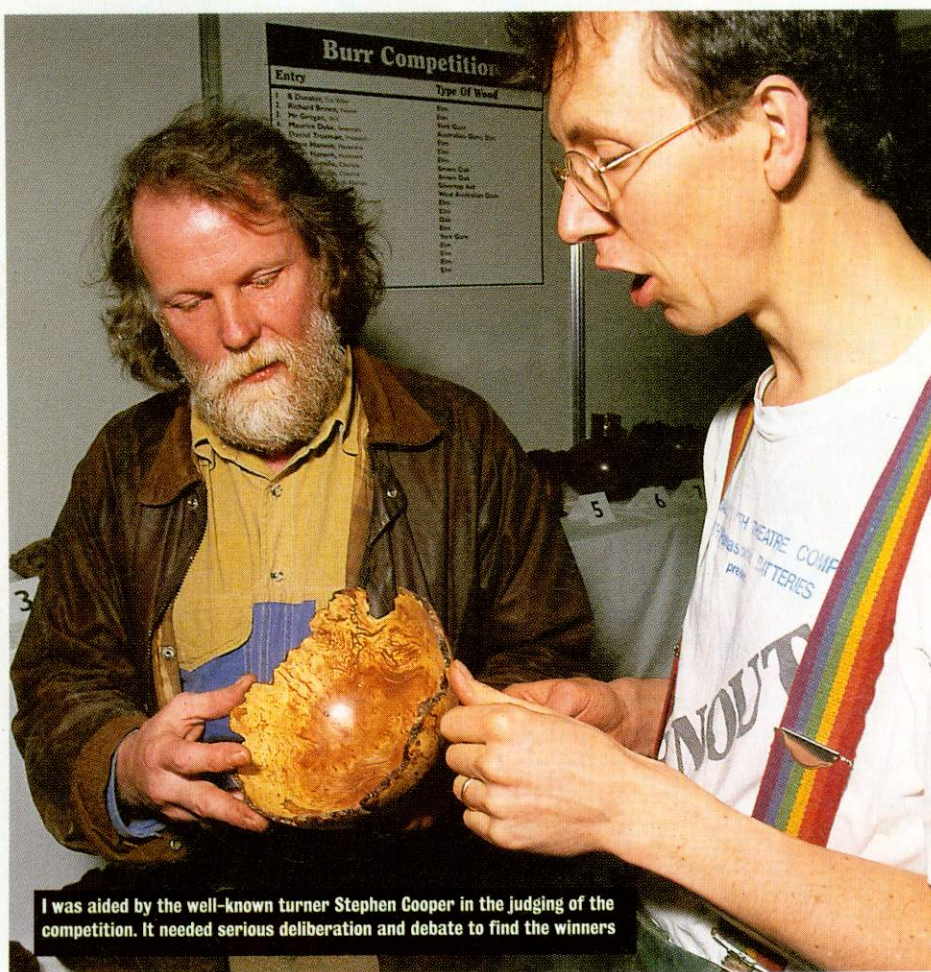
The Burr Challenge Competition produced a wide range of work displaying a high level of skill.

Tobias Kaye takes a closer look at some of the burrs on show

This month I am devoting the whole column to design issues. The Burr Challenge yielded such a crop of varied and carefully worked pieces that the Editor, Nick asked me to comment on as many as space would allow.

When Nick saw the number and quality of entries for the Burr Challenge competition he phoned me to say that this was worth an article in itself. Here he said is a body of work showing a wide range of skill and approach. A look at each design, with its strengths and weaknesses, would make an interesting article.

Judging and commenting involves two distinct processes. On the one hand you sit back and appreciate everything that is good about the piece. On



I was aided by the well-known turner Stephen Cooper in the judging of the competition. It needed serious deliberation and debate to find the winners

the other, you have to look closely at what might have been better, be that an oversight of technique or a question of design and visual balance.

In the last instance your opinion is always subjective. Whatever rules design may have, it is equally true that some

pieces work brilliantly well by breaking these rules.

Words of Advice

If there are any generalisations to be made about the range of work submitted my first one would be to suggest a less glossy finish on most of them. If you are using a

hard finish like shellac, friction polish or cellulose you could cut this back to a more silky finish with wirewool and wax. Waxes like Fiddes Robjo or just straight candle wax are less glossy than many makes.

If you are using an oil finish be careful that it hasn't gelled in the tin. A

partly set oil can act like a varnish. Danish oils usually contain polyurethanes for strength and unless used really fresh come up thick and glossy. Avoid this by decanting a quarter tin at a time into a jar so that the tin is only opened four times in its life.

Choose a small jar like a mustard jar and store it upside-down to avoid air leaking in. Replace any oil that is not still thin flowing. I prefer Nutshell Oil (☎ 01803 762329) which contains larch resin. This gives it a satin sheen, an aromatic smell and a natural durability.

The next most common observation would have to be on the sanding. I shall devote an article to sanding technique in the future, but for now I will say that unless you have a good work light that can be shifted around at about one foot distance from the work, you do not have a hope of spotting the problems that polish and bright lights will exaggerate and display.

You also need perseverance and a critical eye. Tooling ridges and patches of broken grain were evident on most pieces in the show, which is a pity because the design of very many was excellent and all had good things about them.

FULLY TURNED ENTRIES



1st

3



Third prize in the fully turned section was taken by a piece in burr oak ① by a young turner, Sean Costello. The grain was well chosen and beautiful. The rim would have benefited from a more definite shape, and the base could have been thinner to match the delicate walls or vice versa.

② Second was a bold piece with strong inclusion markings

by P.R. Patrick. The flying saucer design concept matched the wood in its boldness. Such a design in which every curve is concave is potentially

very light. A smaller base would have enhanced this effect. For the interior of the bowl I would have liked to see more curvature on the sides, starting in steeper and curving more. As it was, the inside gave a slightly conical impression with all the curvature in the centre. I would also prefer a more matt finish.

③ First prize went to Maurice Dyke's delightful bowl in a gum wood burr.

The fine detail of the rim over the main bulge is very nice indeed. Slightly more lift could have been given to the design by making the lowest third of the exterior curve almost straight with no foot detail. This one stood out for its quality of finish, beautifully sanded and a deep silky lustre.

2



2nd

1



3rd

BARK EDGED BOWLS

1st

5



Many of the bark-edged bowls had a remarkably good shape, such as the one that took third prize. ① Having been made slightly wet

Steve Hanson's burr has wrinkled the surface as it dries. Occasionally this effect is very pleasing. However in this case the overly glossy polish causes the light to catch in every wrinkle, distracting the eye away from the grain and form.

④ First and second prize in this category were more discussed than any other distinctions. If it had been a shopping trip two of the judges would have bought Mike Candlish's bowl, which took second prize before the winning bowl by Maurice Dyke, because of the overall strength of its design. It appeared to have been polished with black wax, emphasising the grain in harmony with the blackened rim. A good flowing curve added to its attractions.

⑤ With a well-managed area of softer spalted wood Maurice Dyke's bowl took first by a small margin. Both pieces had a slight ridge below the rim's highest points showing where the heel of the gouge bevel had ridden up onto the rim. The curves of Maurice's bowl were excellent and the fine detailing just nudged it into the top slot.

Maurice Dyke's bowl (above) just won first prize, though the judges loved Mike Candlish's oak burr (right). Steve Hanson was third (below) with a bowl noted for the wrinkled surface



2nd

4

Some bark-edged pieces, while being technically well executed, fell into a trap common with bark-edged designs, by having a marked change of curvature where the natural edge starts.

② The elm burr piece by Mr Mackin of Bury, in which you can see a marked corner on the inside, was otherwise well made. This piece has a very pleasing

finish that allows the eye to rest on the grain comfortably.

③ At first glance from above I was taken with Mr Mackin's other bowl in burr oak. A beautiful interior curvature and even rim of pleasing thickness were let down on closer inspection by the wide and heavy foot. The bottom was also a bit thick. I still liked this piece for its beautiful interior.

Mr Mackin's two bowls are worth mention as they are well turned. The elm burr (right) has an obvious corner on the inside, while the oak (below) has a beautiful interior shape, though the foot is a bit heavy



2



3rd



3



NATURAL EXTERIORS

1st



The competition entries in the wholly natural exterior class showed both the difficulties and joys for the woodturner of interpreting a strong form, already provided by nature.

1 The baseball



4

glove shaped piece might have done better if David Reaney had seen that its vaguely right-handed, palm up shape could have been exploited. The description baseball glove only occurs to me now as I sit in front of its photo.

A ball in its bowl with this title, or even just working with the idea during turning, like the ripple of the bats' wings, could have made something more of this piece. As it stands it is a beautifully grained, lopsided bowl.

The indentations on

both edges faced its maker with a difficult choice, whether to make a small central bowl with two large different rims or a larger one unevenly.

A master of technique might have put two bowls in, such that one large double-lobed interior resulted. Alternatively I might have made a larger bowl centrally with holes resulting in both walls.

2 Third prize went to a dark gum burr piece by Paul Gregory that at first glance I would have rated higher. The wood was well chosen with a nice shape

3

2nd



Australia (above) by Ron Green even mimicked the famous Pinnacles landmark Down Under on the natural exterior. Paul Gregory came second and third with his bowls (left and right)

3rd



2

OTHER OBJECTS

It was in the Other Objects category that I had most fun. The bottle 1 by Steve Hanson I like very much. It has a strong presence and has obviously involved great skill in the making. Its

uncomplicated shape, being a well formed sphere and tube, has no details of any kind to distract the eye from the wealth of natural features. Being made wet it has distorted with the characteristic unevenness of burr.

The base however let this piece down. The underside of the sphere has been sanded away in an obvious afterthought

Paul Gregory's owl-like clock won Best of Show, but I think that I would have used a plug to hide the mechanism in the back

1st



3



about how to make it stand up or how to remove the chucking ring. This has been done inaccurately so that it stands slightly crooked. With this experience Steve may next time turn a simple ring or such for it to stand on.

The base, coupled with the fact that Steven Cooper and Nick Gibbs, the other competition judges, did not like this piece as much as I did, kept it in third place.

2 The Bat, by Richard Brown, which was moved from Natural Exterior Bowls to Other Items, really had its success tied to its name. Naming turned works may seem frivolous but the effect in this case, and partly so with Australia is to put the whole work into a different context.

If you can imagine looking at this piece flat on a table with no name you might ask yourself "What is that for? Why the funny undulating surface?" You might then notice that it did look somewhat like a bat but put that

2

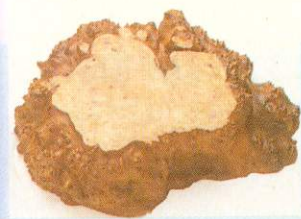
2nd



The Bat by Richard Brown begs to be hung on a wall

down to chance. If however you know from its title that the maker had seen a bat in it before he started work, you could readily associate the undulating surface with furry bodies and moving wings. If you saw this piece hanging on a wall and asked what it was, the answer "a bat" would likely bring a smile of recognition to your face. Such is the power of ideas that find a proper relation with matter.

3 Winner in this section was the clock by Paul Gregory. This piece is beautifully shaped, an excellent usage of the shape of the wood. The bowl shape of the dial adds class and the cover at the back is carefully book matched. Attention



from top and bottom, but I felt that the turner had made the recess too large by half an inch or so, resulting in the rim fading out in places. A wider rim would have given the piece more definition. More careful sanding so that the rim had an even slant to it, would also have strengthened this aspect. I liked the hole in the side but could imagine it would also have been enhanced if a wider rim had caused it to close over at the top.

3 Paul's small piece from pinkish gum burr also took second prize by reason of its careful execution. Sanding had been done well and the holes in the base were undetectable to all but the most expert eye. I was unsure about whether the rim could have had more presence. I often feel



David Reaney's bowl, which reminds me of a baseball glove, is a memorable piece that could have exploited that theme had David noticed the resemblance. It was a difficult piece to turn but the base sanding is a bit harsh

this way with my own work in small burrs.

4 First prize was clearly with *Australia*. This bowl in Australian gum burr, by Ron Green was well placed in the wood and nicely picked out by the rim detail. The finish was a mite on the shiny side for my taste, but better than many.

Parts of the curve at the edge of the top were undulated by heavy sanding, but such work is often necessary as the sapwood can often break down on these delicate

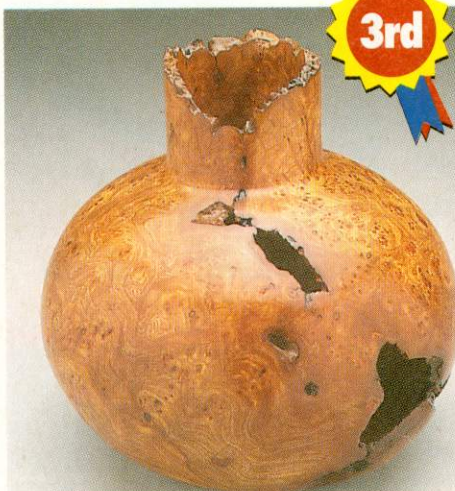
edges. The pedestal underneath was well executed but its moulded detail distracted the eye from the laboriously well finished undersides.

Where the pedestal fitted into the base, more of the burr had been turned away than was absolutely necessary. If the pedestal had been of minimal impact I think this piece would have taken the Best of Show Award. Its perfect analogy of origin, shape and name give it added weight as an artistic unity.



to detail is good throughout and every screw slot aligned. Hour marks were black filler in drill holes. A black wood or stained

black dowel might have been that touch neater, but the general effect is smart. The owl shape of the block is enhanced by the hollow face resembling the big-eyed look of that bird. The finish is even, well sanded and glossy, and does not look out of place. I would have done something different on the back. Maybe a push fit plug into the mechanism hole with a natural surface. Without having seen the original bit of wood it is difficult to know whether the resources limited the choice of treatment.



3rd

1

Third prize went to Steve Hanson's bottle, which I like for its strong presence. It is let down by the base



Overall View

On first scanning of the display of competition pieces my eye stopped on the clock. Being the only clock helped it to stand out. *Australia* would have taken Best of Show if the pedestal base were more subtle.

It was a close run between these two and in the end we agreed that the owl clock showed equivalent craftsmanship to *Australia* and more imagination.

Even when three judges compare notes to produce winners it is a subjective affair. Everything I have written here is personal opinion. The fact that more than 30,000 copies of my opinion are now in people's houses and workshops does not change the fact that someone else would have offered a different judgement, or that by next year I may have learnt enough to alter my opinion.

The upshot of that is that your opinion of your work and of pieces you look

at is what matters in your work. Maybe something you have read has helped you to develop your ideas, but it is these views that effect the quality of the work you produce. This is why I am sharing my opinions.

By sharing what we have we all benefit. This principle, launched into woodturning by Albert LeCoff, is the prime mover behind the Association of Woodturners of Great Britain (AWGB).

Associations encouraging this principle have been founded in many countries. Each time the result has been a boom in woodturning affecting quality and variety of work, the market, availability and choice of equipment as well as clubs, demonstrations and seminars.

Anybody can become a member of the AWGB. All you need to do is contact Len Grantham, 1 Duncan Court, North Berwick, East Lothian EH39 4RJ.

Robert Sorby Ltd



In winning the Best of Show award for his clock, Paul Gregory (above left with Nick Gibbs) gained himself a £225 bowl chosen and donated by Future Publishing. He also won £250 worth of Robert Sorby tools. Many thanks to Robert Sorby for their help in

sponsoring this competition and to Stephen Cooper for adding a further opinion to the judging panel. Watch out for more competitions at this year's Good Woodworking Show (23-26 Nov.) at Alexandra Palace, London



On test

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 rigorously test all products sent to us and not to reprint press releases

Plasplugs DCS410 Master Sharp



IF YOU only use chisels and planes occasionally you probably cannot justify the expense of a wetstone or bench grinder. At some stage you will need to regrind edge tools that become rounded or chipped. The British-made Master Sharp system from Plasplugs could be the answer. It not only regrinds common woodworking tools, but drill bits, knives and scissors.

The Master Sharp is a modular system, revolving around a workstation. This incorporates a small 0.75A motor running at 2400rpm. A rocker switch on the top is easy to reach.

Less than 6in square, the workstation is small enough to store without taking up too much space. You can screw the workstation down, but it does have rubber feet. I found there was no vibration when the machine was running.

A 49mm diameter grinding wheel is directly driven by the motor. An additional wheel is included for grinding masonry bits. There is no indication of grit size or speed on either wheel. A plastic wrench is used for changing over.

There are four modules that slide into place over the wheel,

each one is plastic, and would not stand up to heavy use. There is storage space for two modules on the workstation sides.

The chisel and plane module is adjustable from 20° to 80°. A plate supports the tool and slides back and forth across the top of the wheel. A magnet helps you position the tool. I found there was some flexing of the plastic support when regrinding a chisel. The grinding wheel size means you end up with a deep hollow on the bevel. On a conventional 6in diameter bench grinder this would be less. A 2in wide plane iron will not quite clear the edge of the wheel as you slide it across.

You can grind HSS drill bits from 3mm to 10mm on the drill module. Twenty holes are provided, and you simply rotate the dial to select the correct size. This function works well.

Masonry bits are tipped and not the easiest of items to sharpen. The adjustable Master Sharp module enables you to present a bit to the wheel at the correct angle. It is cleverly designed and suitable for occasional grinding. If you do not need the masonry bit module the system is available without it.

Changing modules takes only a few seconds. The scissor and knife sharpening module is simple and safe. Guarding is adequate with each operation, and the grinding wheel is almost completely enclosed most of the time.

The Master Sharp is not really suitable for serious woodworking. It is limited for plane irons but worth considering for occasional use.

A 30 minute video is included with this package. The

diagrams in the instruction leaflet are excellent, which is something that is sadly lacking with some woodwork equipment manufacturers.

GW VERDICT

PERFORMANCE	●●○○○
VALUE FOR MONEY	●●○○○
RRP inc VAT	£39.99
PLASPLUGS	☎ 0283 530000

Roberts & Lee Saws



NEW from British manufacturer Roberts and Lee are a range of Dorchester gent's saws and a jeweller's saw. You cannot beat a small back saw for fine work. If you cannot afford a dovetail saw, then a gent's saw can be used instead.

There are three sizes of gent's saw, with blade lengths of 152mm (6in), 178mm (7in), and 203mm (8in). All have turned, American black walnut handles. The gloss lacquer finish detracts from the overall quality, and I would prefer a satin finish. Not that handle comfort or grip is affected, though.

With a 14mm deep brass back on the 8in saw, cutting depth is 52mm (2in) and there are 21tpi. A plastic blade guard is supplied.

The jeweller's saw comes with a 152mm (6in) blade length. It has a brass back 12mm deep, and a blade depth of 22mm. Teeth are so fine I was cross-eyed counting them! The lacquered beech handle fits the hand nicely. My favourite is the biggest gent's saw, which cuts smoothly.

GW VERDICT

PERFORMANCE	●●●●●
VALUE FOR MONEY	●●●●○
RRP inc VAT Jeweller's	£9.05
6in Gent's	£11.75
7in Gent's	£12.34
8in Gent's	£12.93
ROBERTS + LEE	☎ 081 363 6452

Loctite Super Attak



THERE are plenty of cyanoacrylate glues on the market, but the problem with many of them is the nozzle clogs up. If you do not keep it clean you can end up throwing the bottle away.

You can get Loctite Super Glue 3 (now called Super Attak) in a clog-free bottle. A pin is moulded into the cap and this keeps the long nozzle clear.

Like most superglues you can glue metals and plastics as well as wood with Super Attak. I tried it on pine and oak and it performed well. Keep a bottle handy in the workshop. It is ideal for small repairs and miniature work.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT 3gm	£2.09, 5gm £2.77
LOCTITE	☎ 01707 331277

Patina



CLEANING OUT brushes is a pain when you have been using varnish. Now you can use a finish similar to polyurethane that is simply applied with a cloth. Langlow's Patina was around some years ago, but has recently resurfaced at Craft Supplies (☎ 01298 871636).

It looks rather like scotch glue in the tin, with the consistency of jelly. It contains alkyd resins, and the tin claims Patina will replace shellac, varnish, sealers and wax. That may be expecting a bit too much, but I did get excellent results with little effort.

You apply Patina with the grain, rubbing it into the wood until touch dry. The consistency makes it a bit difficult to work into deep pores. After four hours you can apply a second coat without even rubbing down. A respectable sheen is easy to achieve, but you need quite a few coats to build up a gloss. Try some and see, but dispose of the cloth carefully.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT 320gm	£5.75
LANGLOW	☎ 01494 784866

Meber P320 Bandsaw

IF YOU did not know about them already, new European regulations came into force on January 1st 1995. These are designed to improve safety standards on woodworking machinery. Something that has to be good news for woodworkers. Every machine has to carry a CE mark, meaning it meets the new standards.

The new Meber P320 bandsaw is the first machine we have tested to comply with these regulations. When I came to examine the saw it made me question the wisdom of those that dream up such legislation. We'll be looking at this in the near future.

The P320 is the smallest bandsaw from Italian company Meber. Multico have reintroduced the range to Britain after its absence for several years.

The P320 is a single-speed, bench-standing bandsaw. Holes are provided in its base to bolt it in place. You can buy a legstand for an extra £41.13.

Steel is used for the casing and frame. Of welded construction, edges are nicely rounded with no sharp corners. Weighing 58kg, the Meber is certainly heavier than several similar-size bandsaws. Build quality is generally pretty high, apart from the plastic locking knobs. Some of these are roughly finished.

Upper and lower steel doors are welded together with a single plate. I would guess that before the CE

is 284mm (11 $\frac{1}{4}$ in) and there is a cutting depth capacity of 165mm (6 $\frac{1}{2}$ in). Blade length is 2190mm (86 $\frac{1}{4}$ in). The heavy cable is impressive. At 6.4m (21ft) it is much longer than that on many bigger bandsaws. A rugged plug-in connector at the rear of the saw makes life easier if you want to move the machine.

The NVR switch is easy to reach on the pillar of the saw. Push buttons are rubber shrouded against dust. The off button is not as easy to find in an emergency as some bandsaws, and could be bigger. One of the positive points of the CE regulations is the spring-loaded hinged flap. You can padlock this flap up to cover the switch to prevent unauthorised use.

A $\frac{3}{4}$ hp motor is bolted to the rear of the casing. The lower bandwheel is directly driven by the motor so there are no belts to change. Both wheels are die cast aluminium, 317mm (12 $\frac{1}{2}$ in) diameter. A brush is bolted inside the lower half of the casing to clean rubber tyre on the bottom wheel. Ideally there should be one for the upper idler wheel too.

The cast iron table is 380mm (15in) square, with a groove for the sliding mitre guide. A steel L-section bar across the front underside of the table adds rigidity. Three thumbscrews hold this bar in place, which is removed when blade changing. A box section alloy fence slides along the bar and is locked in place by a cheap-looking thumbscrew.

You can adjust the table by releasing three locking knobs. It will only tilt to about 20°, which seems odd. One of the advantages of using a bandsaw is its ability to cut timber at 45°. If the bandsaw is your only powered saw then this could be a major drawback.

Fitting a new blade is fairly straightforward. A horrible blade tensioning knob is situated on top of the machine. Adjustment could be smoother. An excellent feature, unusual on a bandsaw of this size, is the tensioning indicator. A steel cable is connected to the tensioning mechanism. It moves a pointer mounted on the pillar. This indicates blade tension. Depending on the blade you have fitted you simply adjust the tension knob until the correct blade size is reached. It is graduated from 6mm to 16mm. Maximum blade width is 20mm.

Blade tracking is carried out with a wheel and locking lever behind the casing. I found it difficult to get the blade to track centrally on upper and lower wheels simultaneously. This is a problem with many bandsaws and certainly not peculiar to the Meber. You just have to reach a compromise when setting up the saw.

Guide assemblies are cast alloy and there are upper and lower thrust roller bearings. The guides themselves are square section dense plastic. When cutting deep hardwoods these can wear quickly. I would replace them with a close-grained hardwood such as maple.

The upper guides are easy enough to set with an Allen key. Adjusting the lower thrust wheel and guides is awkward. Blade guards now must feature rack and



pinion rise and fall to comply with the CE regulations. On the Meber there are locking and height adjuster knobs. A 60mm diameter dust take off is provided.

The aluminium mitre guide supplied has a steel bar to run in the groove on the table. This bar is rather short. When crosscutting timber over 140mm (5 $\frac{1}{2}$ in) wide the guide kept tipping backwards. Annoying, and easily remedied with a longer bar.

I cut a variety of timbers using different blades. Oak about 4in deep was easy to cut, but the Meber struggled when ripping 6in ash. It was perhaps expecting a lot of the saw, and with patience you can do it.

The Meber P320 is a rugged bandsaw that should cope well in a small workshop. It's a pity about those plastic knobs, though.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT	£668.58
MULTICO	☎ 01293 820250



regulations were introduced each door could be opened independently of the other. A micro switch at the top of the casing means the saw cannot be activated with the door open. Four steel hinges with brass washers are more substantial than those on many similar bandsaws.

You unscrew two small plastic knobs to release the door. These do the job but could be larger. Throat width

O'Donnell Grinding Jig



MANY woodworkers use a bench grinder for their edge tools. A problem with some can be the tool rest. Few grinders have a rest that allows you to slide a chisel or plane iron across the wheel while maintaining the angle precisely. Now Michael O'Donnell has designed a jig that can be used in conjunction with any 6in or 8in bench grinder.

It is important to follow the instructions carefully when positioning the jig. The base is cast iron with an enamelled finish. Other components are steel, precisely engineered.

An opening in the base accommodates a sliding, rectangular section bar. This bar is used to

compensate for wheel wear. As the wheel gets smaller you simply adjust the bar. A handwheel locks it in place.

A gauge slips between wheel and tool rest to check the setting. It is fixed to a chain to stop it getting lost.

The substantial tool rest is welded to a second bar. This is the one you adjust to suit the tool you are grinding. It is calibrated at 15°, 25°, 30° and 45°. You simply slide the bar until you reach the right angle. Two wheels lock this bar in place. A series of countersunk holes on the bar mean the locking wheels locate accurately. Handwheels are plastic.

A 90° guide slides horizontally in a groove in the tool rest. You hold your

edge tool tight against this and away you go. The grip needs a bit of getting used to if you have never used a similar jig. An extra £8.17 buys you 60° and 90° guides, and a spare bar. A diamond dresser costs £17.57.

The O'Donnell grinding jig is not cheap but it works a treat. It includes a three year warranty.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT	£46.94
O'DONNELL	☎ 0184 785 605

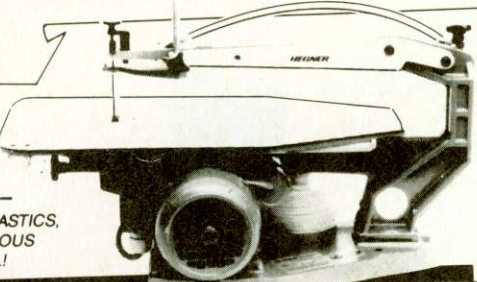
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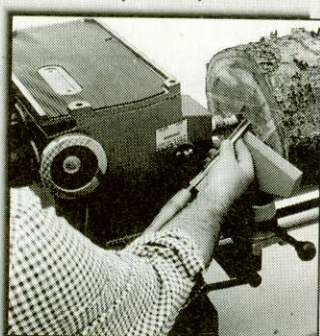
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FREE**NEW
Anti-static
abrasive**

Try out this revolutionary new abrasive designed by Hermes to reduce clogging when sanding by hand or power.

● See inside for more details and instructions on how to use Good Woodworking this product.



Our guide to your free abrasive

Find out more about the free sheet of abrasive on the cover this month, and discover a way of winning a trial pack for further sanding jobs

Woodworking demands specific requirements of an abrasive, especially when used for machine sanding. The one-third sheet we've given you free this month has been designed for working with all manner of sanders, not to mention working by hand.

A good abrasive needs a strong backing, bonded with a resin that can survive the build-up of heat associated with sanding operations. And, of course, the grain must be sharp, particularly for smoothing lacquer, hardwoods and varnishes. It is important that the top coating over the abrasive helps to reduce the clogging of the dust.

Your free sheet is a sample of the latest development in abrasive technology. The combination of pink aluminium oxide grain, widely spread, and a synthetic anti-static bonding agent prevent premature clogging. Therefore there is less scratching and quicker stock removal.

This black abrasive product (BW114) was initially developed by Hermes to overcome the clogging caused by resins in pine. It has

been just as successful for resinous hardwoods, and its suitability for all woods and finishes is now being realised.

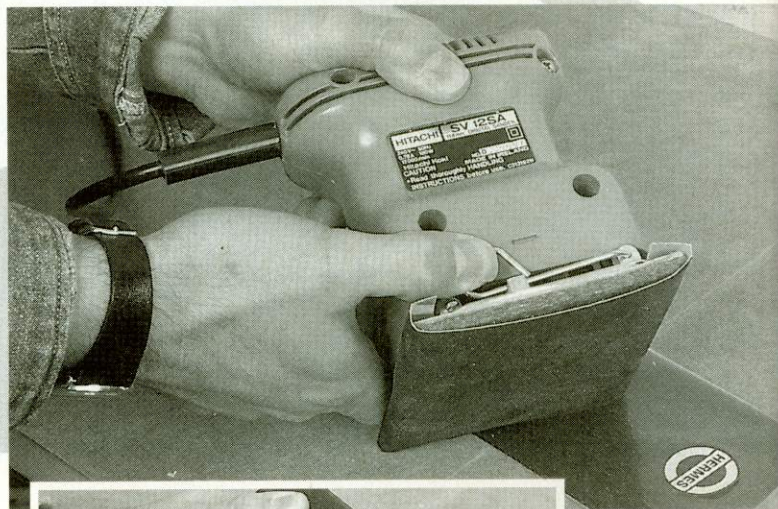
Hermes claim that BW114 reduces the electro-static charges that sanding generates by up to 80 per cent. This allows dust extractors to work to their full potential and reduces the dust deposits left on the surface when using extraction. It's still worth using a tack cloth to remove the last vestiges of dust. Otherwise you can ruin the finish.

Hermes products are available from CSM Trade Supplies (☎ 01273 559660), 6 Peacock Lane, Brighton, E. Sussex BN1 6WA

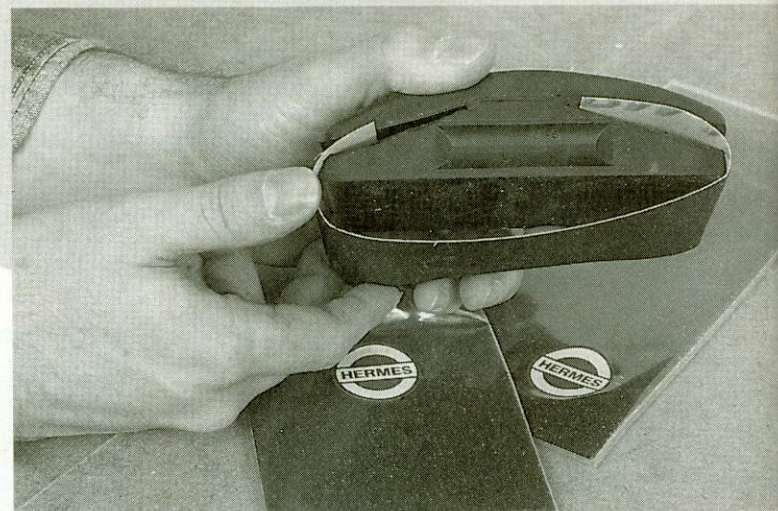
Abrasive by Any Other Name

Such has been the success of BW114 that it is now available in belts, rolls and Velcro-backed discs. Such sizes are now available for you to buy, and Hermes recommend you buy 90mm rolls for third sheet orbital sanders and 115mm rolls for half sheet use.

Woodturners will be pleased to hear that a special version of abrasive sheet has been produced for them. This 302-J Flex Antistatic is backed with a soft flexible cloth, with its obvious advantages for woodturning work.



The Hermes abrasive comes in 90mm width. It can be used with a rubber or cork sanding block, and is also suitable for powered sanders. Give your free sheet of abrasive a go and then send in your sanding tips to win a trial pack

**WIN**

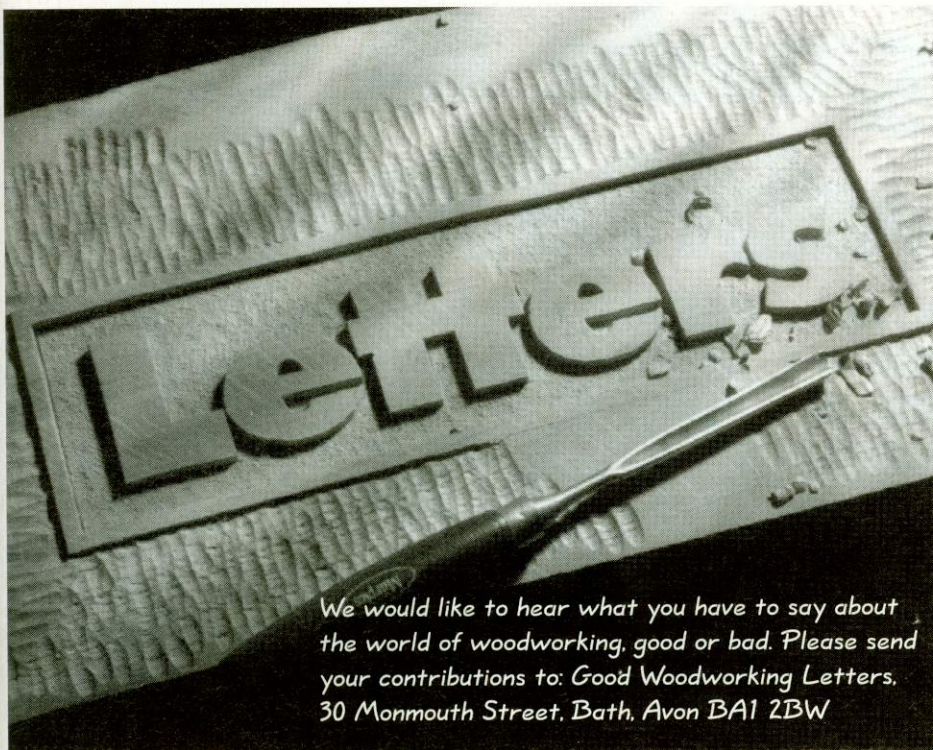
Once you've tried the abrasive on the cover we expect you'll want to buy some more. The quick way is to ring CSM Trade Supplies (☎ 01273 559660), who can sell you what you need. But with the help of CSM we've devised a plan that could win you a trial pack of BW114 abrasive (worth £9.95) free. All you have to do is send in any tips you have for sanding.

Your tip might be for storing, holding or using abrasive. The top 10 entries will win a pack that

gives you 5.5 metres of abrasives of varying grit, all 115mm wide. It also brings you Velcro-backed discs, a Webrax hand pad and an explanatory leaflet. Send us your tips by the end of March.

Send your tips to:

Hermes Sanding Tips,
Good Woodworking,
30 Monmouth Street, Bath BA1 2BW.



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

Inca jig search

As well as subscribing to your most excellent publication I also indulge myself by subscribing to an American journal which has frequent advertisements for the Inca jigs. They look extremely robust and accurate. Are you aware of any agent in this country who imports these goods? It may be that they are too expensive for our market and thus not imported.

May I say how saddened I was to read the opening paragraph in John Brown's article (GW 25:34). Having been married for 40 happy years I still feel distressed to learn of marriage failures in others. Please pass on to John Brown my very best wishes for the future and I hope he will be able to continue contributing his most enjoyable articles.

K.E. Spittlehouse, Kent
The Inca jig used to be imported by Woodworking Unlimited (Shopsmith). They have now been taken over by Craft Supplies. It is now available from Tilgear (☎ 0707 873545). NG

Green appreciation

I have been meaning to write to you for a while to let you know what a brilliant job I think you are doing with *Good Woodworking*. Your magazine is now head and shoulders above the rest, exciting to buy and read. In the early days of buying your magazine I bought it solely for the John Brown column which is fantastic, but over the past few months you have printed so

many good articles, written in a vibrant and interesting manner.

I have just built the budget MDF workbench (GW 24:60), many thanks, and bought the APTC CH16 drill press (GW 21:70) following your test. I also appreciate your concern for the use of wood from sustainable sources. You seem to be the only magazine which has any awareness of this issue.

Any articles you print on chairmaking, green woodworking, pole lathes, hand-tools and their techniques, traditional woodland crafts or great woodworkers from the past is fine by me. The only thing you haven't got is Jack Hill.

May I wish you every success. I am looking forward to reading *Good Woodworking* in 1995. **Paul Brindley, Surrey**
Thank you for your kind and encouraging comments. I have noted the articles you'd like in the magazine, though I'm afraid one chairmaker a month is enough! I'm glad you are such an avid reader. Do send us photos of the budget bench. We are always pleased to see what readers are making. NG

Forest issues

I was pleased to read your article about the problem of deforestation (GW 25:37). My own opinion is that while the demands of paper mills, the construction industry and third world agriculture are destroying forests at such an alarming rate, woodworkers should not feel too guilty about using relatively small quantities of timber. We must

ensure that the timber is harvested sustainably for each species, without damage to the local ecosystem and to the benefit of the indigenous population. From what I have read, companies like Craft Supplies are addressing these points already, although I would like to see their claims independently audited and commented on by environmental experts. We should not forget what is going on in our own back yards; for example, can I use European oak without fear of criticism? I hope *Good Woodworking* will provide a forum where such matters can be discussed.

I would like to see the scope widened to include other environmental issues. What is the environmental impact of the finishing material we use? What

harmful chemicals and processes are used in their manufacture and what is their effect on the atmosphere?

I have had a concern for environmental issues for 20 years, and feel that it is important that we all realise the impact on the world that our activities have. My interest in woodworking has only developed seriously in the past few years, but to such an extent that I hope soon to earn my living from it. I want to run my workshop on environmentally and ethically sound principles. Hence my interest in seeking answers.

Derek Andrews, Berks

I suspect that there are many woodworkers who share your concerns, and are frustrated by the lack of reliable information. If anyone out there has worthwhile facts and figures do please contact us. Thanks. NG

Latecomer to wood

Having bought a copy of your magazine, the December issue (GW26), I wonder why I had not started earlier. I am retired but still like a used wood lathe and small sawbench? I am also fascinated with twist turning. I was a tool master so lathe work comes easily in spite of my 78

Turning involuted



I have done some involuted turning. The one on the left is the first one I attempted, in pitch pine, with my last attempt in the centre. The hardest ones to do are from softwood, and I find the denser the timber, the easier it is to get a crisp clean edge to the "windows".

I have just renewed my annual subscription and look forward to many more hours of interesting reading.

Fred Russell, Blackpool

If you too want to do some involuted turning, Tobias Kaye wrote about the technique in January 94 (GW 15:73). NG

years, but I admit woodturning is a different kettle of fish. I notice that a video is available on twists but can I obtain a book on some?

V. Fordred, Oxon

Your best bet for second-hand machinery is to keep a look-out in our Workshop Sale page each month. I'm afraid that I do not know of a video or a book on making twists. Hopefully another reader will be able to help NG

Shove ha'penny

We would like to say how much we enjoyed the *Good Woodworking Show* at Alexandra Palace in November. Thank you for your amusing demonstration, making the shove ha'penny boards. We were very impressed. The problem now is that the boys think all their projects need to be finished in under nine minutes.

A. Birch and The Boys at Muntham House School

It was great to meet the boys. I'm glad to hear they enjoyed the show and the making of the boards. The poor boys will now think woodwork is quick. Tell them that most projects I make take at least twice the time I predict. But as we all know woodworking time goes faster than normal time. NG

Show success

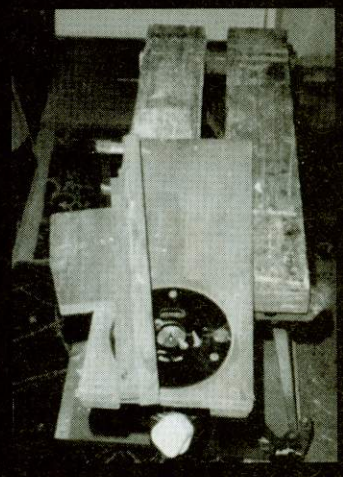
As you now know I did manage to get to the show after a long wait and several telephone calls for the advance, and so called cheap tickets. It was nice to

Making a router table

I have made my own router table. The construction is straight forward and being made from scrap timber it is cheap to make. I use it clamped in my Workmate. and I use it for making mouldings and picture framing and for table and cabinet tops. I also found it useful for shaping legs.

Kenneth Jackson, Norfolk

If you are making a router table ensure there are guards. NG



meet you. Your photographs in the mag did you justice as I recognised you at once.

I enjoyed the show as did my son and friend. We were all very interested and each bought an unusual item not available in this neck of the woods. I trust that the show was a success, it certainly seemed so.

I managed to see Ian Wilkie and Tobias Kaye and thanked him for the coffin enquiry. Would you advise him about a book I have now seen, *Undertaken with Love* by Jane Spottiswood published by Robert Hale Ltd.

Next year can you overcome the long walks from the car park with no shuttle service?

Ted Jenner, Sussex
It was great to meet you at last at the show. Thanks for the info on coffins which I will pass on to Tobias. I note your comments about the car parks. The show will be at Alexandra Palace again (Nov. 23-26), but I have already spoken to the organisers about shuttle buses from the car parks and I am confident that they will be laid on next time. NG

Mortice update

Thank you for the test report on the Charnwood W304 morticer. However there were a couple of points which we feel were misunderstood. In addition since the machine was sent to you we have launched a new version which addresses some of the limitations you mention.

In the test the fence slide (part No.4) was put on back to front, which limits the backwards travel. With the Kipp handle at the rear the capacity is 80mm.

The new version is the W304/2. The main alterations are that the twin pillars have been lengthened and the fence unit modified to increase the timber capacity. The spring on the pillar has been removed which makes operation easier and the vertical travel smoother.

Our current promotion includes three free chisels 1/4in, 3/8in and 1/2in and a bush to fit metric sized chisels if preferred.

Richard Cook, Charnwood
We have now tested the updated fence which does give more capacity, as does fitting it correctly. Sorry. NG

Router cutting

I was pleased to learn from the December issue that my choice of an Elu 96E router was a good one (GW 26:14). The twist grip plunge lock knob is a bit confusing. Why the makers didn't have a different shape from the knob on the other side I don't know. My solution was to paint the plunge lock knob red, making it a lot easier to identify the right

knob to turn. Would it be possible for some kind soul to write a short article on how to cut mortice and tenon joints with the router? Bear in mind that I don't have a router table and 1/4in bits (cutters) are not made with long shanks. A first class magazine, keep it up.

E. Howell, Warwickshire
The article has just been written. In Back to Basics last month we looked at cutting a mortice, with a small portion explaining how to use a router (GW 28:70). NG

Routering points

With reference to your router test (GW 26:14) I would like to add an opinion from the perspective of a regular user of the Festo and other routers. The saying 'familiarity breeds contempt' can be reversed, in that familiarity also breeds affection. This familiarity often blinds the casual user to advantages of unfamiliar equipment. As a dedicated fan of the router, and in particular the Festo 900 E, I would like to point out several features of this quality machine missed by your testers and indeed not featured by the manufacturers in their sales strategy.

The design of the body of the jig, although unorthodox, is extremely effective. The low overall height provides a low centre of gravity, and this added

to the wider base dimensions creates a much more stable tool.

The balance of the router is such that all the weight can easily be taken in the one hand whilst the other hand is only required to guide the router. This in turn means that the plunge locking knob does not risk being loosened accidentally.

The other important and unique feature of the Festo 900 is that the cooling air from the motor is ducted sideways from the motor body. This eliminates the down draught common to all other routers which exhaust their cooling air downwards through the base of the motor housing directly into the dust around the cutter, causing it to blow upwards into the operator's face.

The FS guide plate, so briefly dismissed, provides the most satisfactory method of housing or moulding as the lateral control is such that the router will always produce a perfectly straight cut whether the router is operated in a forward or reverse cut mode without the risk of climbing or wander.

These few examples are enough to illustrate the many virtues that are not always apparent on a brief testing acquaintance, but which put the Festo 900 E in a class of its own and way ahead of the rest of the pack. In spite of these comments I would still like to

compliment you on your comparative testing articles which are not equalled elsewhere in the woodworking press.

Ramon Weston, Wilts
We were struck by the Festo, and had very much liked the guide fence with their circular saw. However it does not seem to work as well with the router, which is beautifully produced. The radical shape does take some getting used to. NG

Name plates

I wish to manufacture name plates in various hardwoods and need some advice. These are for house names and numbers. The writing can be in different styles. Do you know where I can buy the equipment for doing the letters? I am not good enough to do it freehand with a chisel, and it is too time consuming. I wish to make this a paying hobby.

Andrew Thompson, Glasgow
The best way to produce name plates quickly is with a router. All you need do is make a template of the name you want to produce. You then use a guide bush in the base of your router running against the template. Alternatively you can draw the name on the plate and use the router freehand. Does this make sense? NG

Chisel talk

Many years ago my mother used

to borrow my beloved chisels for all sorts of things. One was cleaning the paint off the windows after painting. It used to mess up the edge, and leave me with a chisel that needed a lot of honing. I later found from basic reasoning that if the bevel side of the chisel is used at 45°, the action of the friction on the glass is to hone the edge. Far less damage is done, if any.

James Kendall, Birmingham
There's nothing worse than finding your tools have been used creatively! NG

All change

I had to write as it would appear that no-one else noticed how beautiful Phil Davy looked in Mini Test (GW 23:16). That hair, words; fail me as I have a lot less than him. Can he give the secret? Is it something he mini tested and is keeping to himself?

I met Phil and other members of the GW staff at the show (missed Claire though) at Ally Pally. Great show. Next year perhaps a few more craft stalls just to keep the wife happy while I drool over all the things I can't afford.

John White
Others have noticed the amazing growth of Phil's hair but no-one had sent an amusing comment. We are certainly looking at the possibility of having craft stalls at the show next year. Watch this space. NG

Five point star

Could you or a reader illustrate how to draw a five-pointed star please?
E. F. Foster, Hants
That's foxed us. NG

Deserved praise

May I add to the praise already heaped upon your publication. The opposition still hasn't woken up to your invigorating and enlightening style. You seem to have successfully broken away from the anorak tendencies so prevalent in the woodworking press.

Chris Moor, Leeds
Thank you for your kind comments about the magazine. You seem to have picked up on what we are attempting to do with Good Woodworking. NG

Puzzle baffle

Would you be so kind to tell me where I'm going wrong? In your November issue (GW 25:22) you gave details of how to do the golf ball in the cube. I have made 10 attempts and every one a failure. I carried out your instructions precisely. For the cube I used hemlock. Could this be the reason for all my failures? If so will you please tell me what kind of softwood I will need? My

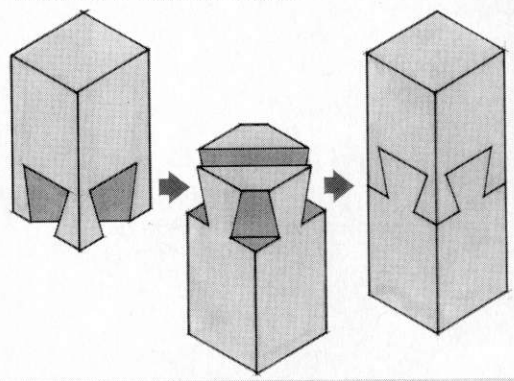
The dovetail puzzle

I like the way the odd wooden puzzle sneaks its way onto the pages of your mag. How about testing your readers with this one: The Butt Dovetail. To my knowledge this is original. Close-grain hardwood is a prerequisite, and contrasting timbers enhance the final appearance. Readers will probably find out it is easier to make that to draw!

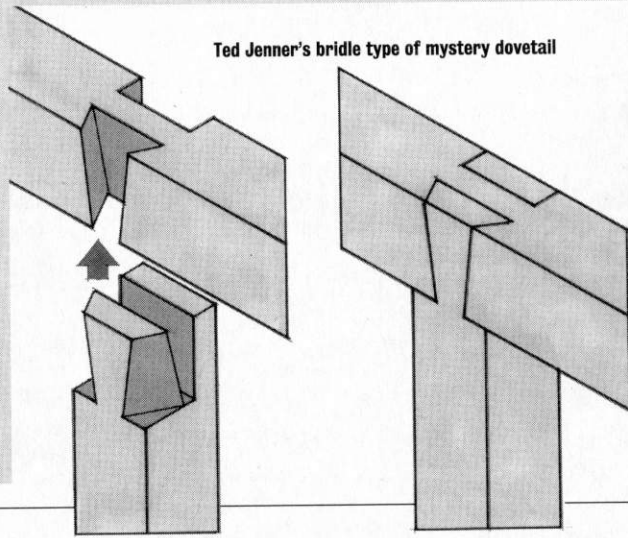
G. Mellor, Cheshire
Just to confuse the issue a little more on Deceitful Dovetails (GW 22:55) you can make joints with dovetails on all sides or as a kind of bridge joint. Very accurate setting out is necessary, preferably with a knife and an engineer's square. I have used 3x3in material for the four-sided dovetail, as 2x2in material is too small with the lower ends of the tails too flimsy.

Ted Jenner, E. Sussex
Thanks for your letters. Perhaps our dovetail feature this month will be a source of further inspiration. Shown in the article are some of the Japanese dovetails by Alan Peters. NG

G. Mellor's four-sided dovetail puzzle



Ted Jenner's bridge type of mystery dovetail



wife says it can't be done, so I can't wait to show her.

R. Mavers, Merseyside
It can be done, 'cos I have one in front of me. I think it is to do with boiling the wood first (having drilled the holes) and then forcing the ball into the cube. NG

Birdbox design

Re birdboxes (GW 24:23) I was pleased to see that you are making some effort towards providing the bird life of our country with somewhere to nest. As we have so many keen woodworkers in this country there are few trees mature enough to sport a hole big enough for any birds to nest in, so in a way woodworkers have a moral obligation to make a nesting box.

However horror upon horrors, the designs, materials and dimensions were wrong! The plastic drain pipe would be a virtual death trap for any fledglings of the bird stupid enough to nest in it. The plastic pipe has no insulation properties, so high or low temperatures would kill the fledgling straight. If they survived, how do the young ones get out? Try climbing up smooth plastic walls using only your fingernails. The log box

starts off OK but the hole size is incorrect for tits as 1 1/4in would allow most birds in! 1 1/4in is adequate for tits and the ply base allows no drainage, and insulation is lost to the back and base. Woodpeckers would make short work of plywood to devour the young.

Timber should always be used, the thicker the better. Use 1/2in or even 1in depending on site and species. Never ever put a perch on it, as this an open invitation to predators. Cavity nesting birds are quite able to alight on the entrance to a box without a perch.

Designs and dimensions for boxes are available from the RSPB or you might like to print the attached plans which show a simple seeding free of expensive hardware, easy to clean and maintain. The plans are taken from an American publication *The Country Journal Book of Birding and Bird Attraction* by Alan Pistorius.

All bird boxes should be sited well before spring to attract early pairings and to allow the box to weather. Please don't paint it. And do not nail it to the tree, you will spoil future timber (should I have to tell a woodworker this?). Drill holes in the box and tie the box to the

tree. The tree can still grow and you re-tie when necessary. I like your mag, first one I bought, first letter I've ever written to a mag as well. **Lewis Bates, Somerset**
Thanks for your comments. I can only hope our endeavours have not harmed any birds. NG

Club thumbs up

I agree with reader D. Taylor that there is a need for a woodworking club. Members would find it to their advantage in the following ways. Trading post, that is tools, and machinery for sale or wanted; a discount from local traders; monthly meetings with a speaker; if possible the use of all the power equipment in the woodwork dept of a local school; parties to visit woodworking exhibitions demonstrations etc... I know where there is a minibus and the HGV licensed driver is a woodworker. I have met a number of keen woodworkers but they do not have an unlimited bank balance and would welcome this club.

Phillip Bunn, Norwich
I do not want to get involved in starting a club for woodworkers, however I am considering a page in the magazine on which readers can promote the events

of their club. Perhaps then your ideas could be spread around the country to regional organisations. NG

More mini projects

Could we please have some more projects on 1/12th scale furniture from Ian Wilkie? He helped me with a few problems and I know there is a big following. Thanks to your good self all my chisels are razor sharp now. PS Great show

J. Salter, London
I'm glad you enjoyed the show. Certainly I will contact Ian about miniature furniture. I am sure he will have more ideas we can use. NG

Project let down

As an occasional reader of your magazine I bought the November issue for the main feature displayed on the cover, Clockmaking, all you need to know to make your first clock. This was a complete let-down for myself as it was not a main project guide with detailed plans, instructions or even timber selection as suggested on the cover. There were many pieces of information which were totally irrelevant, like the birth of the domestic clock, and the rise and

fall of clockmaking. Why not try again? In comparison, your Round Pedestal Table project guide, which was excellent, contained all you need to know but had no mention on the front cover. **M. Fallows, Stockport**
I am sad to hear that our clockmaking article disappointed you. I am sure we will cover the subject again in the future and we will study your criticisms to make sure we get it right. Thank you though for your praise of the table project. NG

Instrument cases

I have made musical instrument cases for many years, so may be of help to Lawrence Parfitt of Kent (GW 23:63). For a one-off case, two pieces of ply to the shape of the violin case with 4in of thin card tacked or glazed to them will provide a base. You then glue pieces of veneer or sugar paper until a thickness of about 1/4in is achieved, then you can cut the bottom and lid from this. To make a number of cases, make a timber mould (male) and fibreglass female mould. You make repeated cases in fibreglass from this.

S. Wolohan, Lancs
Thanks for sending in ideas on how to make the violin case. NG

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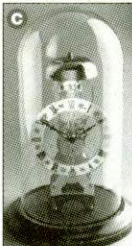
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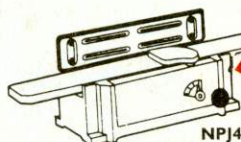
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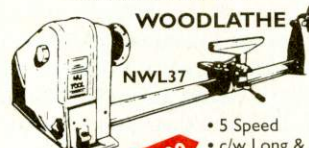
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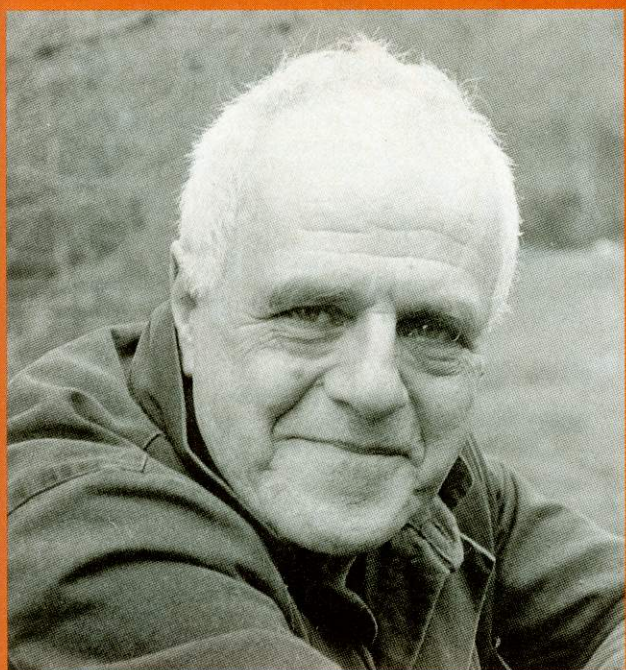
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Having completed his second chair at the new workshop, chairmaker John Brown concludes his saga on the uphill struggle of selling chairs successfully

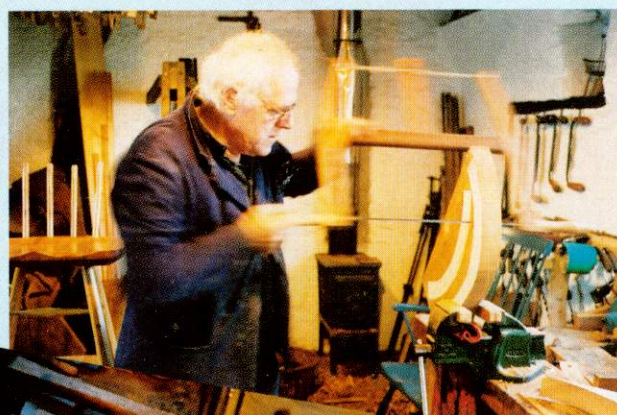


1 I have marked the arm pieces from patterns, modified to suit the width of seat. For clarity I coloured them in with chalk. The elm board is 2in thick

2 Cutting out the two pieces for the arm took 20 minutes. The cutting operation is accurate enough

3 Now the part of the arm with the handhold is cut into two equal pieces, each will finish just under one inch. Here I am gauging it to mark the cutting line

Making a library chair



4 I am cutting out the arm with a bowsaw. Note I am using the whole of the blade. It is important to concentrate and 'think' the blade square to the surface or an angled cut will be the result



Last month I wrote of my experiences in trying to sell my chairs. I am always loath to refer to my life as a business, but I suppose that is what most people call it. After travelling the length and breadth of Britain attending all kinds of functions, all the while spending lots of money on petrol and food, and losing valuable chairmaking time, I had found this lovely gallery in Lowertown, Fishguard. The owners, Jon and Lel Cleal agreed to show my work. This was an immediate success, and over the years they have sold every chair I have shown.

There was a conclusion to be learned from this saga. I thought it was important to be where the crowds are, or perhaps to go where there are other craftsmen. Not so. My experience at Covent Garden and Camden Lock had proved this (GW 28:78).

Recognition Takes Time

I spent a couple of months working in the public eye in a hole in the wall at the Bristol Craft Centre. All these efforts lacked the one necessary ingredient: continuity. People do not buy expensive hand-made articles on impulse. Time is an important element. You were there yesterday, you are there today, and if they believe you will be there tomorrow, you have crossed a credibility gap.

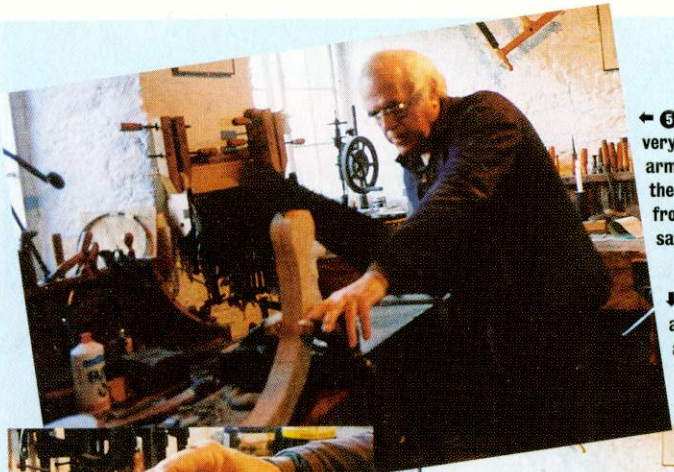
The word is confidence. So it seems to me if you have a comfortable place to live and work and intend to set up a one or two man operation, stay where you are, from Lands End

to John O'Groats. It doesn't matter but you must keep making and hang on. An icy nerve and some money to buy the groceries is vital.

When Bernard Leach returned from Japan to set up a studio pottery, the last place to go should have been St Ives in Cornwall. There was no wood to fire the kilns, no clay of the right type for 50 miles, and it was about as far away from the perceived market as was possible to get. In those days there was no tradition, no artist's colony in the area, and studio pottery was a new thing. He succeeded because he was fired in his imagination and he believed in what he was doing.

Remember this, if somebody travels to see your work they are already half sold. Each of these visitors is worth a hundred passers-by. People living locally, who must have known of your existence, will after a year or two pop in and buy something. They will tell their friends, and like a chain letter your fame will spread. But it won't happen quickly.

In a village near where I lived I sold hardly a chair for years. Fifty per cent of the houses are holiday homes. When it started I was surprised, but I have now sold upwards of 30 chairs to a



← 5 I use a 26in rip saw of a very ancient vintage to cut the arm pieces. I frequently turn the piece in the vice to cut from each side, in case the saw wanders off the line

↓ 6 The two pieces of arm are cramped to a board and a flat is planned to take the centre crest

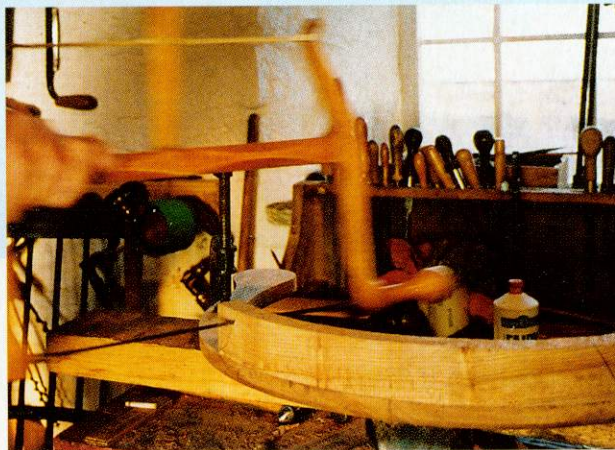
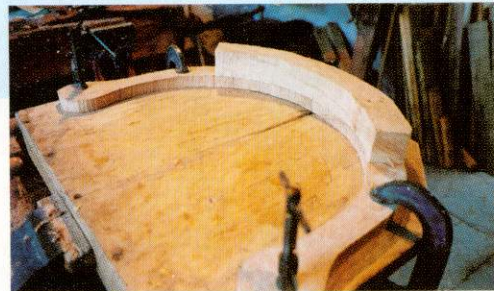


↑ 9 The three arm pieces, being glued up, can now be shaped. Here the bevel is being cut on the face edge of the crest



↑ 7 While the arm is flat I mark a straight pencil line for the dowel. This dowel helps to position the arm whilst gluing, and adds strength

↓ 8 The arm just prior to gluing. I put some plastic to stop it sticking to the board. I glued with my favourite Bison polyurethane glue which I can get in Dublin. Our local suppliers said Bison had discontinued this glue, but it is made in Holland. Do I have to go to Dublin for more?



↑ 11 The arm is shaped using a Stanley adjustable throat spokeshave, rasps and files, a dumb scrape and finally sandpaper

← 10 I shaped the sloping ends of the crest using a smaller bowsaw

village with a population of a thousand. The last chair I sold there after 10 years was to a retired surgeon who lived about 100 yards away. Each year in this area craft shops, galleries or workshops open and disappear at the end of the season. Those folk will tell you there's no market for crafts in the area after only a year. There's a market for fine work everywhere. Like a growing tree, building a craft workshop reputation is a brick on brick operation. Steady growth produces solid worth.

Learning by Experience

Those of you who have been regular readers of my column will realise that I am a man of fairly fixed opinions. I have tried to learn from experience, a good teacher but who's fees are high. When I talk about the things that have happened to me I do so in the spirit that someone else can learn.

I well remember a rich American telling me he bought a department store as a wedding present for his daughter. His son-in-law had worked in a similar store for 10 years. This wealthy man with a sad look in his eye told me of the bankruptcy of the store. His final

comment was: "He didn't have 10 years experience, he had one years experience ten times over."

Listen to Instinct and not Order

So I now come to a subject which is writ large in my book, make first, sell afterwards. In other words, be wary of commissions. If someone wants a chair and I have no stock I say OK, I'll phone you when I have one. I always add that if you don't like it you don't have to have it. Occasionally I weaken and take on a job but only if it's something I want to do.

I haven't yet started the table I mentioned back in the summer (GW 21:38). I want to do it, but I'm already beginning to worry about it. My normal way of working is to make what I am inspired to make, using the wood I have in stock. I then make things very quickly. If a joint isn't quite fitting, or there is a bit of bark showing, or I have dented it, no matter. The chair is on show, there is a price tag and you buy it warts and all, if you like it.

This may sound unprofessional but it's the way I work. I always feel that commissions are for small companies with machines and large

stocks of timber. I can hardly draw a box, let alone a chair. When I am making something I hold up a bit of wood, yes that looks OK. Of course I have a good idea of what I want to make but never in detail. As for producing a drawing, I couldn't do it. When I promise to make something there has to be a large element of trust, and the acceptance of a few warts. If I make a mistake I either leave it for all the world to see, or scrap that piece and start again. Never try to hide it.

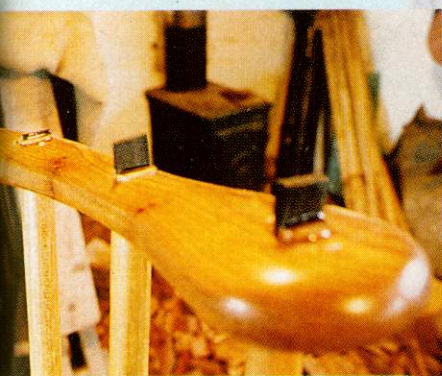
No one ever asked me to build a green chair or a red chair or a chair with carving, but I do all these things. I just build the pictures I see in my mind. A craftsman working on his own has a lonely time, and if I were building to orders I would have packed up a long time ago. My excitement is seeing new ideas take shape. In any case, I make more money from selling what I make. This is the creative route.

If on the other hand your inclination is towards machine work and you have the ability to make drawings with all the detail necessary for cutting lists and there is a degree of certainty in your work, then possibly commissions are in order. This can apply even

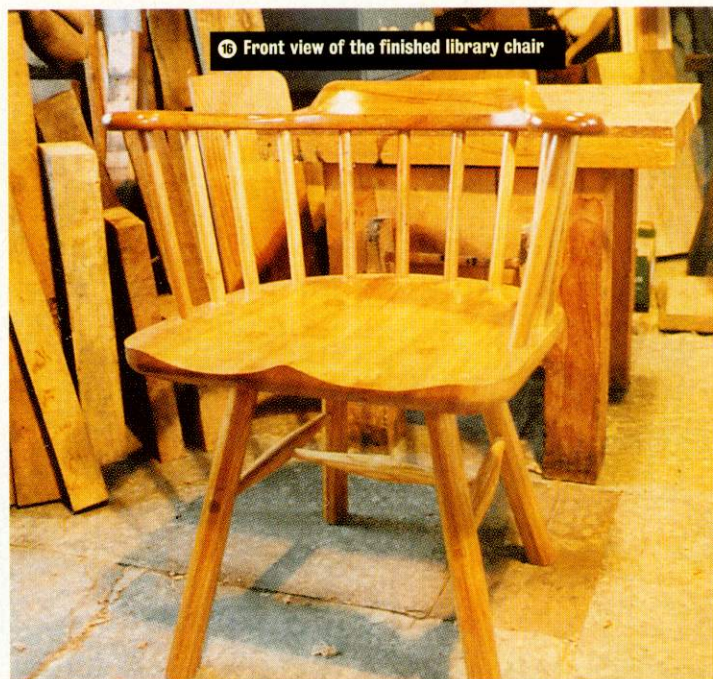


↑ 14 A way of accurately boring the seat. The two front posts are temporary to hold the arm in place

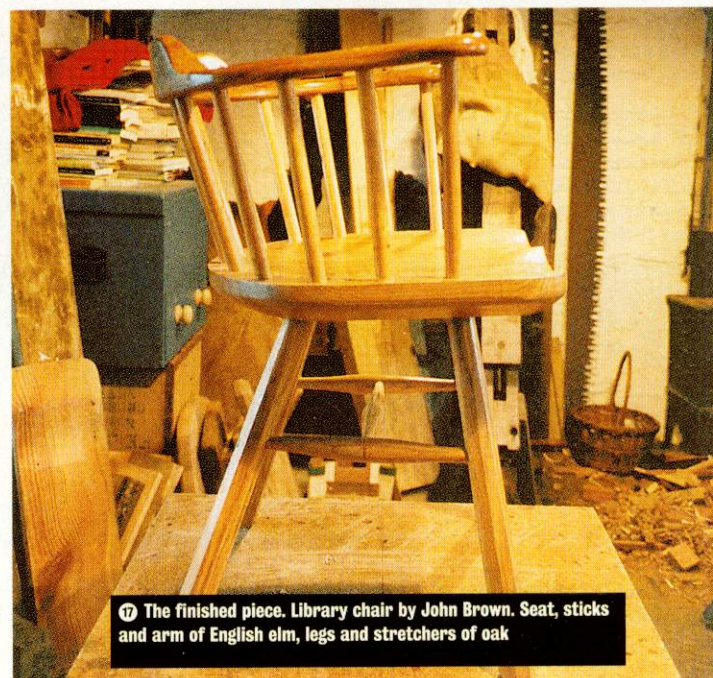
↑ 12 One half of the arm is shaped. The piece of 4x2in in the vice makes a good platform from which to work. It is important to get nice flowing shapes



→ 15 The elm arm of the library chair shows a nice pattern



16 Front view of the finished library chair



17 The finished piece. Library chair by John Brown. Seat, sticks and arm of English elm, legs and stretchers of oak

to a one man operation. However this is a completely different job from hand craftsmanship and I have no experience of how this would work.

Asking the Right Amount

There is always the problem of how much to charge. The most common failing is not to charge enough. One year, early on in my chairmaking career I made 62 hand-made chairs, some quite elaborate, many with carving or painted emblems. I worked very hard and at the year's end did not have enough money to pay the bills. The worry is that you will price yourself out of the market.

The next year I increased my prices by 50 per cent. Everything sold, so, fearful as I had been at this move I learned another lesson. If the clients like your style enough they are not going to penny pinch. Look over their shoulder out of the window at the sleek BMW or Mercedes parked outside, twenty or thirty thousand pounds for a motor car that will be scrap in 10 years.

Keeping good records is important, but beware, no business ever made money just because the book-keeping was right. It is simple to keep a day book in which you record everything, work, phone calls, letters, how you feel, and a cash book in which you write down everything (and I mean everything) you spend and all your income. An accountant may seem an extravagance but could well save you money

in dealing with HM Inspector of Taxes.

Getting it Right

I have found it important to be honest and truthful in dealing with the public. One of the complaints I have heard time and again is that if you are a woodmachinist do not advertise your work as hand work. People feel duped when they find details of a brochure or an advert are untrue. Working with machines is still a highly skilled operation. Possibly design is your strength. Has your work any unique qualities which you can cite to interest people in what you are making?

The final criteria is the work itself. I am sure I would have gained many more sales if I had more stock. From Easter until autumn there is always a need for my chairs in the gallery, so I rarely have examples in the workshop. When people call, my powers of description cannot match seeing the real thing. Perhaps I should just work harder and make more chairs.

All of this may sound unprofessional. Woodwork is fun. Seeing something you have just made, turning dirty old planks into a lovely object is a great high. But if you intend to make it your livelihood, don't take it too seriously, don't be too intense or single minded, have fun or there's no point in doing it. You are more

likely to do well if you don't grip the steering wheel too hard. Relax. Remember man proposes God disposes.

Chair Production at Blaenpant

I have finished my first chair in the new workshop and it has been delivered to Mr and Mrs Phillips in Farnham. They phoned to say they are pleased with it. I have never met them, they ordered it on the telephone, but they have promised to come and see me next year. I felt like making a library chair, so I have now completed that, chair number two at Blaenpant.

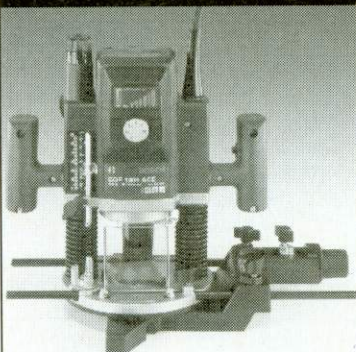
Feeling established in my new workshop and with two chairs under my belt, my plan now is to make a draining board, cupboards and bookshelves in my living space. Pictures of the construction of the elm draining board and perhaps a little portable plate rack to sit on the draining board will hopefully be ready for the next installment.

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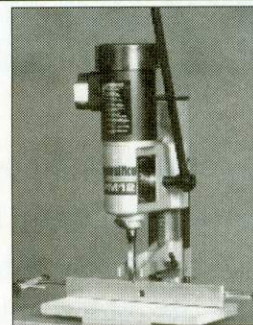
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Making radial improvements

The Ryobi radial arm saw is a popular machine for home woodworkers but can be tricky to set up. Ken Fackrell's guide will help any owners of radial arm saws

Buying a new piece of kit is a bit of a lottery. The moment the boxed machine arrives in the workshop is one of unparalleled excitement. You tear open the packaging and attempt to assimilate the various parts. It can go brilliantly, with your latest purchase up and running instantly.

If only that were always the case. How many of you, though, have machines that have never quite reached their potential? Discouraged by poor instructions and awkward assembly you've never quite got them going properly and they've languished in the workshop. You never feel happy using the equipment, and suspect you could be doing more.

A classic example of this is the Ryobi RA200 radial arm saw. This has received good reviews, and is certainly good value for money. Many home woodworkers have

found it to be an excellent first saw. However it is tricky to assemble and the instructions are comprehensive and a little awesome. I hope that other owners of this saw, and of other radial arms will benefit from the lessons I learnt in setting up my own saw.

My Ryobi was actually assembled on delivery (as yours will probably be by now). In order to adjust it as shown in the handbook I went back to the start. This is worth doing with any machine, new or secondhand, because you can only be sure of accuracy if you have set up the kit yourself. It is also a learning

experience that fosters a better working relationship.

The saw is capable of cross-cuts, ripping, mitres and compound mitres, and can be used for routing with a cutter held in the collet in the motor housing. However all effort will be wasted unless the sawblade is square to the fence and table. Once this is done the saw can be used with confidence.

There are three main

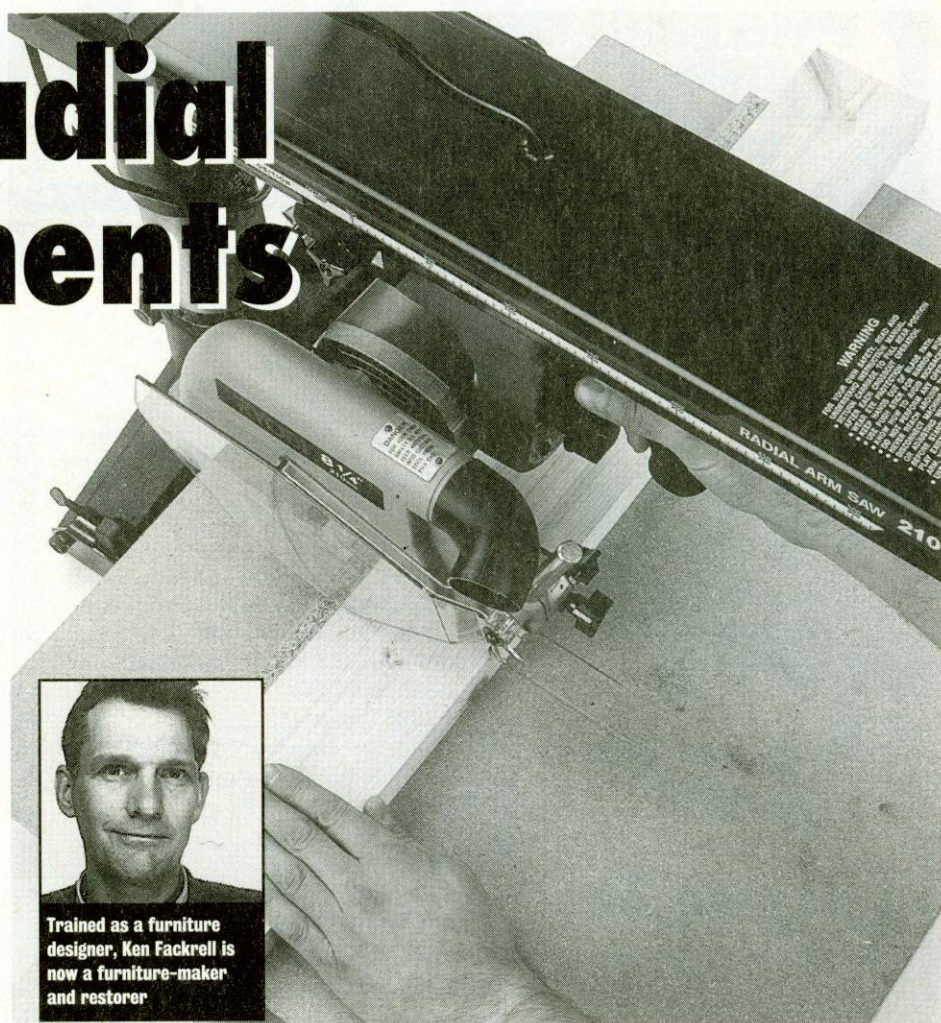
adjustments before the Ryobi can be used with precision.

- 1 You need to square the cross-cut travel, to true the sawblade on the radial arm relative to the fence.
- 2 The vertical orientation of the blade must be squared to the table.
- 3 And finally make sure you square the blade itself to the fence.

Once you've fitted a good TCT blade to the saw, you must make a higher fence to support the work better than the fence supplied. A piece of MDF or ply the length of the table and with a cross-section 50mm high by 12mm thick (50x12mm) is about right. The various clearance cuts for the sawblade are made later, as you work through the instructions, but you need to make one cut to allow the blade to move from the rear position for the initial adjustments.

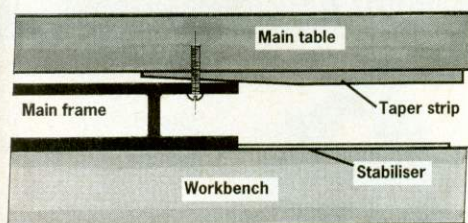
One of the

advantages of a radial arm saw like the Ryobi is the facility to carry out repetition cuts to identical length. A stop can easily be fixed to the fence, but what about pieces longer than the fence? Make a piece as an extended fence, the same thickness as the sawtable and square in

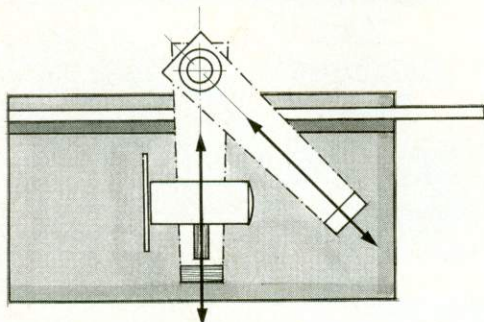


Trained as a furniture designer, Ken Fackrell is now a furniture-maker and restorer

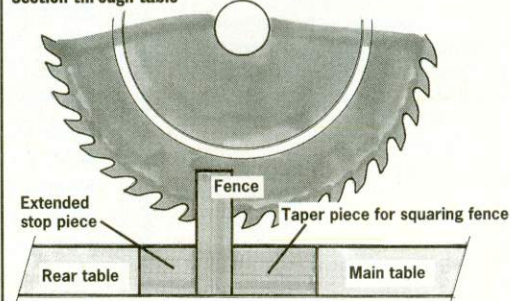
Section through table showing the taper strip for levelling the table



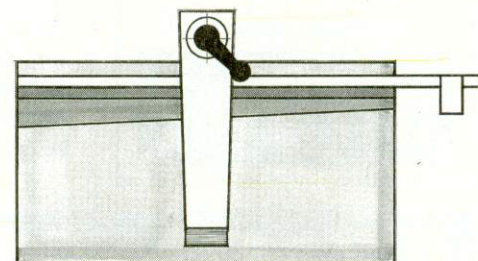
To achieve accurate cutting the direction of pull on the motor handle must be straight along the axis of the radial arm saw



Section through table



Plan view showing how the taper (exaggerated here) is used to square the fence to the blade travel. You can make the taper at either end to square the travel



TIP

If you use a sacrificial table to avoid cutting the base, put a piece of masking tape around the column to show the lowest point to which the arm can be adjusted.

section. Loosen the table clamp screws and insert it behind the fence and projecting to one, or both sides. Fitting this now will avoid disturbing set-up later.

Squaring the Travel

The method for squaring the cross-cut travel is to put a large square against the fence, mark a tooth on the blade, and note the variation of gap between the tooth and the square as the carriage is moved along the radial arm. I decided the 'tapping' of the table suggested in the instructions is not the best method.

Instead I recommend you take a piece of solid timber about 50mm (2in) longer than the main table, but the same thickness, and about 32mm (1¼in) wide. Fit it between the fence and the main table. Tighten the clamp screws, also ensuring that the main table is firmly fixed because any movement of the piece makes everything else a waste of time. Test the saw travel and assess the amount by which it is out of square. If adjustment is required remove the new piece and plane one edge to taper it slightly but evenly along its length. Refit, check and continue tapering the fillet until the saw travel is square. This adjustment works because the fence is being moved progressively out of square with the main table but in square with the radial arm. Mark the filler piece so that you can refit it in the same position, and trim it to length. Once this is done other things become simpler.

Vertical Alignment

The second adjustment is squaring the vertical alignment of the blade to the worktable. To do this hold a square on the table with one arm against the sawblade. The recommended method relies on loosening the bevel lock knob on the motor housing, adjusting the housing by swivelling the whole assembly to align the blade and re-tightening the knob. This works as a quick fix, but renders the Ryobi's useful click-stops inaccurate. A better way is to leave the motor housing locked at its 90° position and square the table to the blade.

The main table is held to the

sub-frame with four screws. Make a fine taper from any dense material. I used a piece of hardboard 100mm (4in) wide and the length of the metal chassis arm, measured from the face of the fence to the front end. I sanded the taper with a belt sander on the mesh side, so that you can see easily if the taper is even. Cut two slots for the table fixing screws.

Check the table for squareness with the blade. If adjustment is needed loosen the two screws holding the table at the low side and tap the feather strip between the underside of the table and the metal frame, ensuring the thickness

TIP

Before making any adjustments I would recommend that you fit a good TCT blade to make the saw quieter, more accurate and easier to set up and use.

is even over the length of the support. Then re-tighten the screws. Check the table against the blade. Once it is square you should not need more adjustment.

The last check is squaring the blade to the rip fence, to correct the orientation of the blade and not the travel of the motor housing on the radial arm, as in the first test. The square is held with one arm against the fence and the other touching the blade back and front (locking the carriage to stop movement). I had no adjustment to make, but the recommended correction is to slacken the yoke clamp and move the motor assembly and re-lock. The problem would again be that the click-stops are thrown out of accurate position, but I can see no way around this. If the motor housing is held true in the radial arm, and if the first squaring adjustment has been done accurately, then the blade should be correctly set anyway.

In the instructions the next stage is to prepare the worktable by making working cuts in the

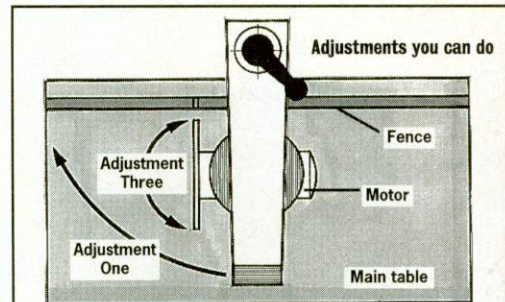
main table and fence. I suggest you do a dry run with the arm raised, the blade clear of the table and the motor off first.

At one stage the instructions suggest: "While the saw is still running, hold the handgrip with your left hand. Unlock the yoke clamp handle and pull out the yoke index knob. Then turn the yoke (the complete motor and blade assembly under the arm) in a clockwise direction until it locks in the 90° position. This cuts what is known as a swing line in the table for in-ripping." Doing the dry run showed just how stiff the whole yoke assembly was, needing two hands to turn it, which is no fun with the motor running. The instructions give details on tightening the travel if it comes loose with wear. Follow these instructions, but only tighten until the yoke moves smoothly with one hand and without play.

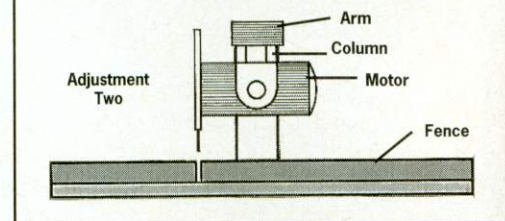
Adjusting Tips

The column clamp handle tightens as it is pushed backwards. My handle was nearly horizontal behind the machine. This is a pain if space is restricted and you need the saw against the wall. Slacken the clamp lever and adjust the lever/nut assembly until the lever is locking when vertical. It is also worth adjusting the mitre-angle indication plate on the column by slackening the two fixing screws and aligning the zero point with the white mark on the base.

Ryobi give clear, in-depth instructions, warnings and safety rules for using the saw. One good feature is that the reasons for the various measures are explained, reinforcing the message. Sadly



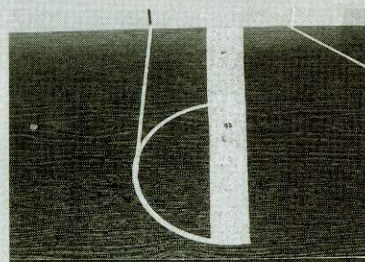
Adjustment one squares the fence to the blade travel. Adjustment two alters the vertical blade orientation while adjustment three squares the blade orientation to the fence



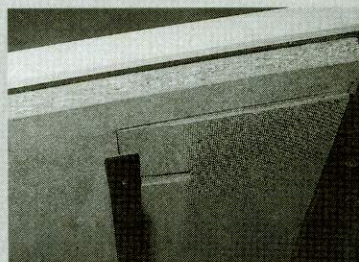
when there is a lot to read and you are keen to see the machine working, not everything sinks in. For example, when the saw is used for ripping, a spreader plate (ripping knife) is fitted to the front of the guard assembly, in place of anti-kickback pawls to stop the timber closing on the blade. It is vital to remove this plate once rip sawing is finished. If not the knife will be trapped between the timber and the blade when you cross-cut next.

When the saw is at an angle to the work you must make a practice cut, with the motor off, to check if any of the guards catch. If the blade jams, switch off the motor and cut off the power supply before trying to rectify the fault.

Once set up correctly the Ryobi does a good job, but owners will have noted it is noisy. This is true of other machines with brush motors. Adding mass to the worktable by fitting a thicker and denser table will dampen some noise, as will filling the gap between the worktable and the bench below with wadding. Then you can get working.

Details of the radial arm saw

Clearance cuts and swing lines are ¼in deep in the false table. The screw is fixed later



You can use a hardboard taper strip under the table to level it to the sawblade

Ryobi information

The Ryobi RA-200, which we found to be the Best Value radial arm saw in our comparative test of similar saws (GW 7:81), has recently been taken out of production. However for information about other Ryobi saws and products contact Essve Ltd, Luna House, Presley Way, Crownhill, Milton Keynes MK8 0HB, ☎ 01908 262262.

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Whether you are woodworking for your own satisfaction or for business reasons, the results you will be happy with are one and the same—the best! Ripple and step-free surfaces; truly square edges and perfect joints; clean, sharp mouldings and precise dimensions are what every woodworker aims to produce. The MAXI combines superb technical design, large capacity, ample power, rigid control surfaces and precise head setting to guarantee the feasibility of such perfect results.

MOST USED MACHINING FACILITIES:

Production capabilities of the MAXI focus on the traditional machining needs of joiners and cabinet makers. Here, the bulk of carcass construction and panel work is done on just four machines—i.e., circular saw, vertical spindle moulder, surface planer and auto-feed thicknesser. The standard MAXI brings you all of these facilities in a no-compromise format together with remarkable space and cost saving benefits.

Additionally, you can fit Lurem's precision slot mortiser and sliding crosscut/tenoning table to your standard MAXI at any time for minimal extra cost.

RAPID FUNCTION CHANGING:

Changing from any one function to another is simple and quick. The saw for example can be dropped below worktable level in a second or so without removing the crown guard. Similarly, the vertical spindle can be raised for moulding, rebating etc., or lowered to clear the saw feedpath in less than five seconds. Drive belts are permanently fitted to each driven shaft and interchanged only on the motor drive pulleys—again in just a few seconds.

YOURS WITH THE MAXI's ULTIMATELY PRACTICAL SPECIFICATION:

Lurem are the largest manufacturer of woodworking machinery in France and the largest producer of universal woodworking machines based on the "shared table" concept in the world. By virtue of this design, each machining operation benefits from having the largest table area available for work support and control. The MAXI 26 is the latest application of Lurem's technology to the specific needs of small workshops. It delivers the best mix of 'professional' capacity and working convenience with space and cash economy. Below is a brief summary of what you get:

CIRCULAR SAW: Up to 90mm (3½") depth of cut at 90°. 4700rpm blade speed gives very clean cut in difficult materials. Blade angle set against positive stops and graduated scale for square and bevel ripping etc. to a high degree of accuracy. 16½" max. rip between blade and fence. Table area: 41" x 25". Long fence for panels and short fence for timber ripping included.

VERTICAL SPINDLE: 30mm diam. with 115mm (4½") height adjustment. 4300 & 6750rpm spindle speeds allow different categories of tool to be used to best advantage. (Our FREE TOOLING CATALOGUE includes sanding drums; blocks with interchangeable profile cutters; solid profile block sets for making windows and doors; panel raising tools; tenoning discs, and many more.) Advanced specification also enables a top-recessed block to be fitted so that any size of tenon can be machined (progressively) without interference from the spindle. Micro-adjusting outfeed fence takes up the gap when the full height of the workpiece edge has been shaped or cleaned by the cutting action. Full set of tool spacing collars included.

SURFACE PLANER: 260mm (10¼") planing width; twin-knife 6300rpm block giving 12600 cuts per minute permits good feed speeds without visible pitch marks. Infeed table adjustment to vary depth of stock removal in one pass is set by single action cam lever and table lock. Supplementary STOP button positioned immediately adjacent to operator's station. 40" long tables and large, rigid fence make it feasible to surface and square timber to perfection. Precision ground, cast iron knife setting gauge included.

THICKNESSER: 260 x 150mm (10 x 6" app.) workpiece section capacity. Fully automatic power feed takes control to reduce timber to the absolutely precise thickness and peerless surface finish you require over its full length at a rate of 23 feet per minute. Mechanical feed clutch, anti-kickback protection, chip limiter and electrical STOP button are incorporated to comply with the most stringent safety standards. Thicknessing bed height is smoothly adjusted by handwheel through bevel gears to a cast iron central column with setting lock to prevent 'dipping' at workpiece ends.

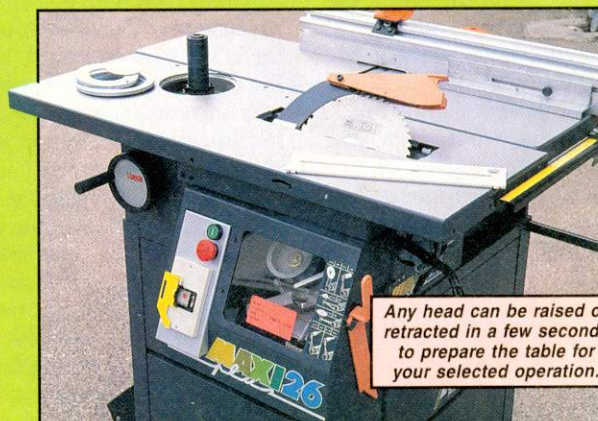
PLUS STANDARD EQUIPMENT INCLUDED: Mobility wheels and retractable handle. All fixed and adjustable guards and fences to comply with U.K. and E.C. Machinery and Health & Safety Regs. Waste extraction hoods/connectors for each cutter enclosure outlet. Maintenance tools. Spindle tool spacing collars. H.S.S. combination sawblade. H.S.S. planer knives with precision setting gauge. 2 HP continuously rated, 240v (suitable for domestic 13amp supply) motor. Thermal Overload protected, 'No Volt Release' push button START/STOP switch with additional remote STOP button. Safety lock. **(PLUS: LIMITED PROMOTIONAL OFFER—1000cmh mobile extractor with high-efficiency filter, collection bag and 2 metres flexible hose.)**

LOW COST OPTIONS:

For very accurate and fast production of mortise slots and dowel holes etc., this mortising table can be added at any time. Adjustable stops control the precise width, depth and height positioning of the mortise in the workpiece. Note also the integral funnel and 100mm Ø outlet in the table's base casting for waste extraction. Cost of the complete attachment is just £136 plus £23.80 VAT = £159.80.

To support large panels and for short-grain machining, the crosscut/tenoning table is another most useful option. When not required, the sliding carriage assembly can be instantly removed by depressing its rail stop. Total cost: £96 plus £16.80 VAT = £112.80.

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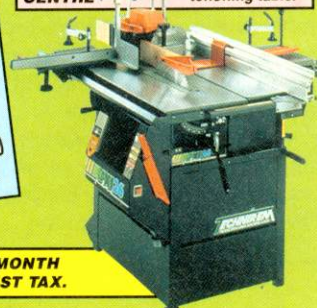
Extracting waste from cutterhead enclosures contributes enormously to health and safety by minimizing airborne dust and keeping the working area clear. Another important effect is that cutters are allowed to work at greatest efficiency because waste chips are removed at the moment they are produced. The cutterhead's rotational energy is conserved and bruising of cleanly machined surfaces due to chip impact is eliminated.

Each of the MAXI's machining functions (including the optional mortising) is served by the provision of direct, push-fit connection to the 100mm Ø TECHNIREM extractor hose.

Add at any time



MAXI 26 CENTRE with mortiser and tenoning table.



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Clothing for the workshop



What do you wear in the workshop? Phil Davy tries on a range of colourful workshop clothing, from smocks to boiler suits

If you are like me, you have probably never given much thought to protective clothing in the workshop. I usually wear an old shirt and jeans, so it doesn't matter if they get messed up. But for some tasks it is sensible to wear protective outer clothing, especially if you use timbers that can irritate.

Smocks for Turning and Routing

If you are a turner you need protection from flying chips. These find their way up sleeves and down your neck if they have half a chance. The traditional item to wear is the smock, similar to that of the yachtsman.

Made from cotton drill, the smock is usually a generous fit and designed not to restrict arm movement. It is fairly close fitting around the neck and cuffs to inhibit dust and chips getting in. Velcro strips on the cuffs let you seal them up tightly.

A strip on the neck flap again gives you a good seal. On the smocks from BSC and Lovell Workwear you can fold the flaps back if you want ventilation.

Most smocks have a full length zip, making it easy to put on the garment. It is not so convenient if you have to pull it over your head.

Smock length is important, especially if you are tall. When using a portable router you can soon get a stream of dust aimed at your leg. The longer the smock the more protection it will give.

The Faithful Dust Coat

Depending on what job I'm doing, I have a couple of old dust coats that keep most of the dust at bay. Once white, each one now resembles a Technicolour Dreamcoat. I find them ideal for decorating, and you can almost keep track of the colour schemes you have used over the years!

A dust or warehouse coat does have its limitations. You cannot seal the cuffs, and you can easily get an armful of sawdust when routing. If the sleeves were baggier you could attach Velcro strips for closing up the cuffs.

Pockets are obviously useful in protective clothing, but can soon fill with dust and chippings. When machining I find the lower pockets on a dust coat can get in the way. The protruding bridge guard on a surface planer seems to be a favourite obstacle. The number of pockets I have caught reaching across the guard when planing almost justifies adding a sewing machine to the workshop.

The front of a dust coat is usually fastened with press studs or buttons. Buttons inevitably work loose

or get caught and ripped off. Press studs are a much better and quicker alternative. I find the dust coat a good all rounder for woodworking. You are no longer restricted to the drab grey or brown coat of *Open All Hours*. Alexandra Workwear produce their coat in a range of 22 colours. You can be as conservative or as outrageous as you like.

The Traditional Apron Approach

An apron is probably the cheapest option in protective clothing. Many woodworkers wear a traditional heavyweight cotton one in the workshop. It is easy to put on and remove and allows you plenty of ventilation on a summers day. It is fine for work using hand-tools, but not so good for machinery or power-tools. It offers no arm protection, so your sleeves can get covered in sawdust.

Awkward, but not impossible to tie up behind you, the traditional apron is usually fastened at the front. This means you can catch the bow easily in a machine if you are not careful. With some machining operations an apron could be dangerous to wear.

Most aprons have a wide pocket, usually with a radiused bottom. This makes it easier to clean out chippings and general debris.

It is important before washing any item of workshop clothing to check the pockets. A nail or screw can play havoc with other items in a washing machine. The apron is unsuitable for woodturning as it does not give you sufficient protection.

Complete Cover-Up with the Boiler suit

The boiler suit is a bit of an odd one out, but it does have its place. If you are doing a lot of sanding in a confined space this garment is hard to beat.

It can be a pain to get into, and shrinkage is possibly more of a problem than with the other items. Press stud fastening is easier than buttons, and flaps over the pockets will limit dust collections.

Choose from a Range of Fabrics

Cotton drill is tough and keeps our irritant wood dust. It takes quite a time to dry when washed, and can feel rather stiff. Be wary of coloured smocks when first washing as the dye can run.

Clothing of polyester and cotton mixture (usually 60 per cent cotton) is generally lighter in weight than drill. Fine dust may penetrate, but this fabric is easier to wash and faster drying than the cotton drill.



Alexandra W159

If you want a cheap apron to wear when applying wood finishes this one from Alexandra may fit the bill. It is made in Britain from polyester and cotton. It is not as heavy and durable as a traditional apron of cotton drill.

A deep pocket is provided, with division stitching down the centre. The bottom is radiused, so cleaning out dust is not a big problem. You can buy this apron without a pocket if you prefer.

Ties are long enough for tying the apron at the front. There is a choice of 22 colours, so you can really brighten up your workshop. One size is available, 920mm (36½in) long. This is approximately 2in shorter than the Lovell traditional apron.

CONTACT

SIZES	one only
COLOURS	22
RRP inc VAT	£6.77 + £1 PP
BES WORKWEAR	☎ 01225 446336



Lovell Apron

Made in Britain, this traditional woodworking apron is 100 per cent cotton drill. The fabric meets BS1771. Although it is preshrunk, there will be a slight shrinkage of about two or three per cent when you first wash it. The Lovell apron only comes in a natural colour but can easily be dyed if you wish.

It is only available in one size, but this is generous. You would have to be pretty big for this apron not to fit. The single deep pocket across the front has radiused corners. These are better than square corners for cleaning out sawdust and chippings. The ties are long enough to allow you to fasten the apron at the front. An excellent, no nonsense apron.

Alexandra W101

The W101 boiler suit is one of a wide range from Alexandra. It is British made of Klopman polyester and cotton. If over 5ft 11in you will need the longer leg length version.

Six press studs fasten the concealed front opening. There are two breast pockets, each with flap and stud closure. The left one includes a pen slot. Two hip pockets and a back pocket provide plenty of storage. There is even a narrow pocket on the right leg for a rule.

The waistband is elasticated. I needed a boiler suit a size larger than the Alexandra warehouse coat. This overall is ideal for really filthy jobs, but generally too warm indoors. It comes in 22 colours, so be daring!

Alexandra W1

I prefer a dust coat to an apron for wood machining. There are no ties to get caught when reaching across a planer or saw. A coat means your trousers are less likely to get covered in dust.

You can get this coat from Alexandra in two lengths, 1000mm and 1100mm. I'm 5ft 10in tall and the shorter coat is fine on me. The fabric is Klopman polyester and cotton. A single upper and two lower pockets are provided. Fastening is with four concealed press studs.

You no longer have to put up with a dull brown or navy blue dust coat. Like many of Alexandra's products there is a choice of 22 colours, including pink and orange!

BSC Smock

This turning smock is made from 100 per cent cotton drill. It is British made and comes in navy, green, maroon, orange or natural. The natural version is £4 cheaper than the colours. With a full length zip, there are Velcro fasteners on the collar and cuffs. These give excellent protection and adjustment, allowing ventilation when required.

Two back pockets mean they are unlikely to fill with dust. The front breast pocket is too high and awkward and not really necessary.

Washing instructions are printed on the label and a tough hanger is fitted. I found the BSC smock strong and comfortable. It washed well and kept out dust adequately.

CONTACT

SIZES	one only
COLOURS	natural
RRP inc VAT	£8.95 + £1 PP
LOVELL WORKWEAR	☎ 01222 618112

CONTACT

SIZES	31½in to 55in
COLOURS	22
RRP inc VAT	£21.74 + £2.50 PP
BES WORKWEAR	☎ 01225 446336

CONTACT

SIZES	33in to 55in
COLOURS	22
RRP inc VAT	£15.86 + £2.50 PP
BES WORKWEAR	☎ 01225 446336

CONTACT

SIZES	42in to 54in
COLOURS	FIVE
RRP inc VAT	£22.50 + £18.50 + PP
BSC LTD	☎ 01308 863691



Craft Supplies

From Taiwan, the Craft Supplies smock comes in three sizes. Made of cotton, it is available only in navy blue. It has a full length front zip.

Unlike the other smocks tested this one has an elasticated, ribbed collar and cuffs. You do not get wood chips finding their way up your arms, but dust tends to accumulate on the knitted material. Not a huge problem but still a nuisance.

A small breast pocket is provided for pencils, but can fill with dust. A hanger is fitted and washing instructions are given on the label.

This is a comfortable smock which is easy to put on and take off. With this colour you do have the advantage of seeing how dirty it is!

CONTACT

SIZES	38in to 48in
COLOURS	navy blue
RRP inc VAT	£17.95 + PP
CRAFT SUPPLIES	☎ 01298 871636

Lovell Smock

This smock from Lovell Workwear is made of 100 per cent cotton drill. The fabric complies with BS1771 standard, so it will keep out dust effectively. Only natural is available, but dying the smock is straightforward. You have a choice of a zipped front or pullover style.

Two big pockets at the back mean waste is unlikely to get in. The adjustable neck has a flap that is held closed with Velcro. Another strip allows it to be folded back for ventilation. Cuffs have adjuster strips.

This smock is comfortable and not restricting. It is well made and durable. A useful addition would be a hanging loop. Sizes below 44in are £1.50 cheaper than the larger ones.

CONTACT

SIZES	38in to 54in (2in increments)
COLOURS	natural
RRP inc VAT	£18 + £19.50 plus £2.25 PP
LOVELL WORKWEAR	☎ 01222 618112

Boddy WA452

Unlike the others smocks, this one from Boddy does not have a zipped opening. You have to pull it over your head. With the two square-cornered pockets at the front they filled with dust and chippings. This was a nuisance, but with no zip you can wear the smock back to front.

British made from 100 per cent cotton, this smock is available in navy or red. It has a stand up collar. Neck and sleeves are loose fitting, but there are no closures on the cuffs. Although dust will not penetrate the tough cotton it can get up your wrists. This smock is about 3in shorter than the others we tested, which may be a problem if you are fairly tall.

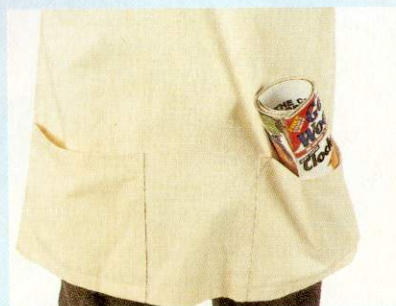
CONTACT

SIZES	36in to 46in
COLOURS	navy or red
RRP inc VAT	£24.03 plus PP
JOHN BODDY	☎ 01423 322370

Rear pockets

When you are turning or routing, front pockets on clothing will rapidly fill with dust and chippings. Both the smocks from Lovell and BSC have capacious rear pockets. Try not to store your glasses here if you can avoid it, though. It's easy to sit on them!

Pockets are generally easier to clean out if they have rounded bottoms. Using the nozzle of a vacuum cleaner is an easy way to get rid of any debris before washing.



Thanks to Ian Wilkie for his help in testing the workshop clothing

FINAL VERDICT Clothing

The choice of clothing depends on what type of woodworking you do. A dust coat is a good all purpose garment with several pockets for storage. It can feel restrictive, though, and you may find an apron more suitable. Great for wearing in the summer, but an apron does not protect your arms.

For woodturning a smock is ideal. Those with a zip are more convenient to wear than the type you pull over your head. A smock is excellent when using power-tools, although your legs will not be covered.

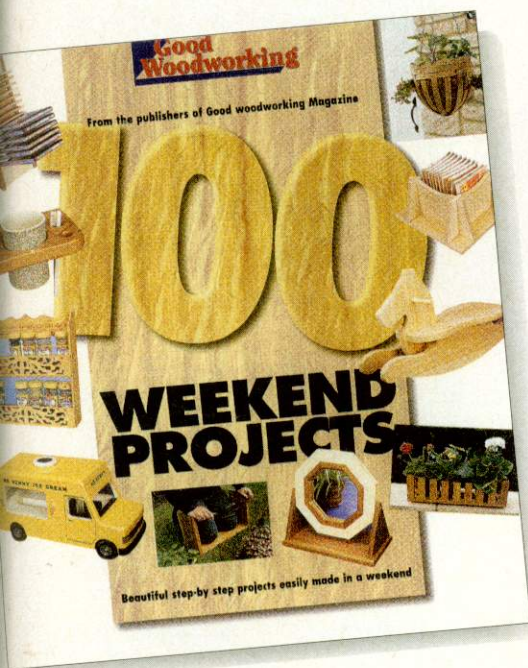
For filthy jobs you cannot beat a boiler suit. This gives maximum protection, but not recommended clothing in the height of summer.

NEXT MONTH ON TEST

Japanese chisels

Are Japanese tools just an expensive luxury? Next month we find out when we take a look at their chisels.

GOOD WOODWORKING BOOKS



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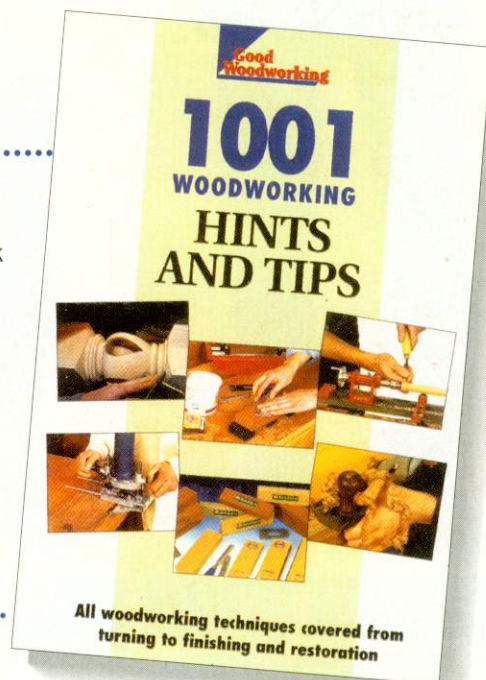
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CARVING BOARD

John Marshall shows how you can turn a meat carving board from a few offcuts

As wood must be held tightly for successful work, so meat needs a rigid platform for carving. The trick is to have a solid board from which you can serve. If the board has small spikes the meat will be held in place, while grooves take the juices away to an area for collection. At least that works on my carving board.

How to Make the Carving Board

1 Start by laminating some offcuts of hardwood. I used

oak, ending up with a piece 9in wide and 1in thick. Plane one side flat and sand to a finish. Draw a 8 $\frac{1}{4}$ in diameter circle and cut out. Superglue the finished side to a false faceplate and turn to round, with a slightly dished face. Sand to finish.

2 From the edge measure in 1 $\frac{1}{4}$ in. From that mark measure in 1in and mark. Measure another 1in and mark again. Draw those lines around the face. Using a freshly sharpened bowl

gouge cut a groove about $\frac{1}{8}$ in deep and $\frac{1}{4}$ in wide on each of the three marks.

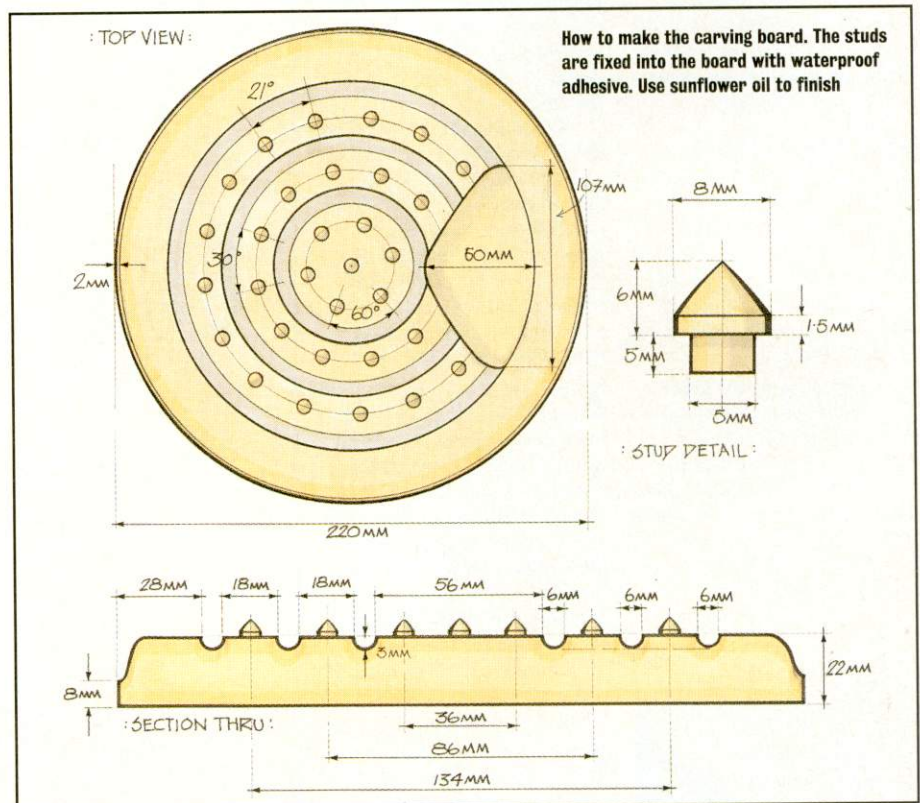
3 Find the centre line between the grooves and mark this round the dish, except the centre. Here measure in $\frac{1}{4}$ in from the edge of the groove and draw this round. Set out dividers to 1in

and mark off each of the pencil lines for the studs that hold the meat.

4 Remove the dish from the lathe, and using a saucer connect the outside groove to the third groove in a half circle to mark the well. Secure the work to the bench and with a 12mm ($\frac{1}{2}$ in) dia. coving

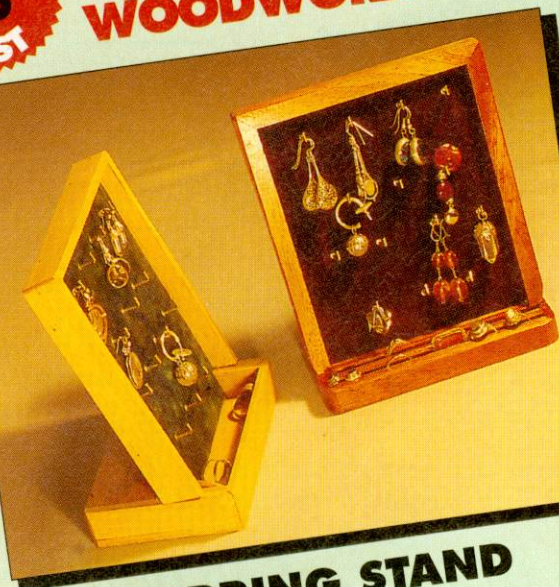
cutter fitted in you router, cut along the line to a depth of 12mm ($\frac{1}{2}$ in). Do the same on the outside groove, then rout out the middle to form a well.

5 Drill the 6mm ($\frac{1}{4}$ in) stud holes 5mm ($\frac{1}{8}$ in) deep. Turn the studs, held in a chuck in the lathe, glue in place and finish with oil.



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WEEKEND WOODWORK



EARRING STAND

Find out how to make Jack Hudson's home for earrings

A lady friend who loves exciting droppers and pretty rings asked recently for a way to store earrings and finger rings. She wanted to make a quick choice instead of rummaging about in drawers and boxes.

My solution was to make a rack with a backboard of decoratively figure hardwood, like yew, or faced with fabric. Richly coloured velvet looks superb with jewellery.

Making the Earring Stand

1 The spacing on my stand is for 14 earrings, with long droppers at the top and smaller ones lower down. This is a good all-purpose layout, but can easily be changed if you have inside knowledge of the requirements.

2 To cover the board cut the fabric at least 20mm bigger than the board. Lay it face down on a clean surface so that the nap of the velvet runs parallel to the long sides of the board. Velvet is so delicate that extreme care is needed to avoid marking the face.

The best adhesive for

Shouldered square hooks are better than cuphooks for the earrings. Use 10mm or half-inch size hooks. The selvage at the edge of any fabric indicates the long way of the cloth.

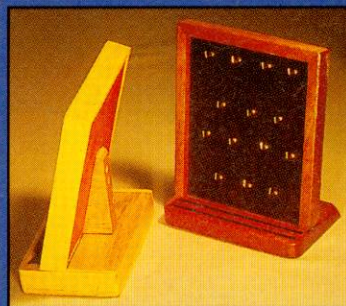
TIP

fabrics is Copydex. Run a filament of milk-white adhesive round the edge of the board. Position the board on the back of the cloth. Pull the top edge up and over, and pin it lightly with three gimps pins or tacks. Pull firmly from underneath, stretching corner-to-corner, top-to-bottom, fold over and pin. Now do the same with the sides leaving donkey's ears standing up at the corners.

When the adhesive has set the edges will be caught all round. Remove the 12 pins. Do not worry if there is some staining through on the material along the edges as these will be covered by the framing. Cut the ears off flush at the corners. The board is now ready for the hooks.

3 To avoid spoiling the velvet cut a thin card template to the size of the backboard and carefully mark out the hook positions. Punch a small hole at each point, lay the template on the velvet and sprinkle a little white powder over the card. When the card is removed the little white spots show where the hooks go. With bradawl and small pliers screw them all in and brush off the white marks.

4 Choose a piece of hardwood for the base. The simplest way is to cut an angled groove in the base for



Screw a supporting bracket to the back of the board. This helps to keep the board at the angle you desire



Make a template of the positioning of the holes for the earring hooks. The talcum powder is for marking the positions onto the velvet covering

the board, with vertical grooves for finger rings. Alternatively you could make a ring tray. This design has a solid piece behind the baseboard, with sides extending around the front and a floor stuck on the underneath.

Mitre the corners of the sides, and have them extending down to cover the edges of the ply floor. Add two spacers inside the tray.

5 Frame the baseboard with plain hockey stick strip or

picture moulding. You could even make your own rebated edging. Mitre the top corners and carefully cut the bottom angle to fit to the base. Fix the framing around the edges with panel pins. Punch the pins below the surface and

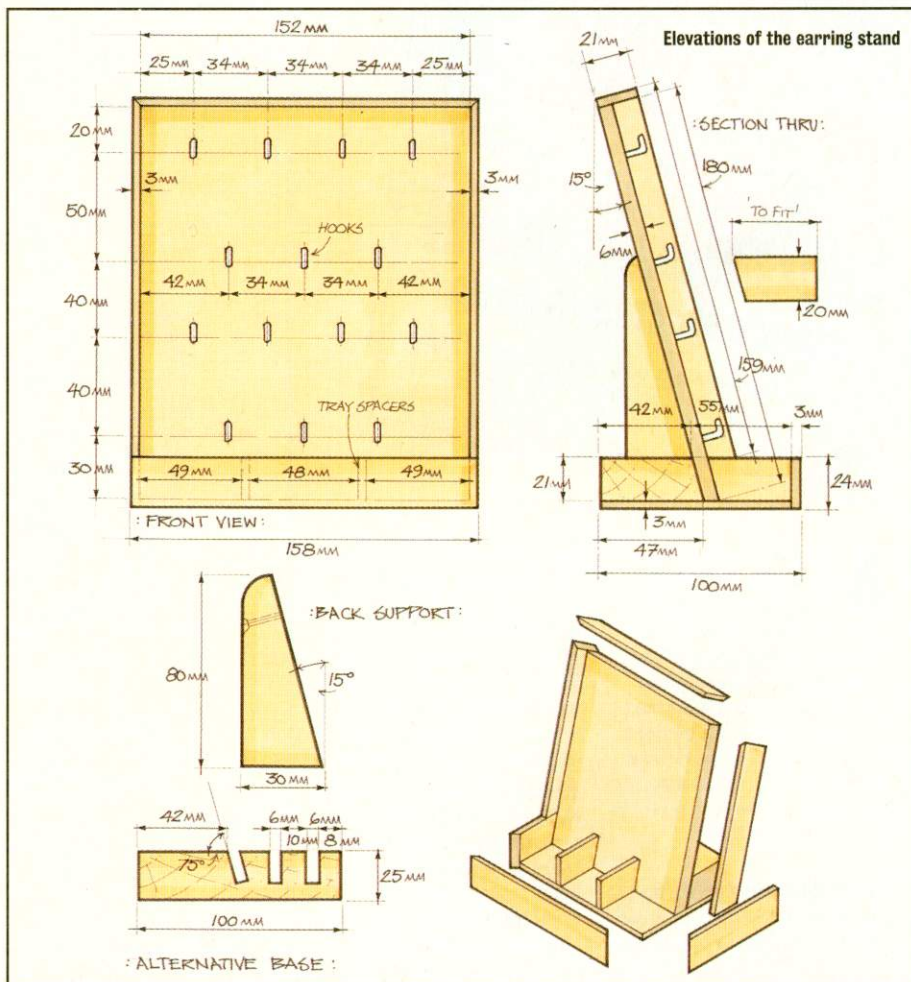
Make the spacers in the ring tray on the big side. That way they will fit really tightly against the fabric face of the board. If you are making the grooved solid base use a TCT blade in your saw, to give a 3mm cut. Carefully widen the sloping groove until the board plus the covering fabric is a really snug fit.

conceal with plastic wood. Trim the waste fabric flush at the back. A backing card is optional to make the rear view tidier. The back support adds strength, and is screwed through from the back.

6 Finish the wood with varnish and glue a piece of cork tile to the underside to prevent scratching.



The earring stand in parts shows how the finger ring tray is assembled with a floor, sides, spacers and a solid back block



PROJECT
£4
COST

WEEKEND WOODWORK



PULL-ALONG TOY FROG

Betty and Tom Barr explain how to make a new wheeled toy

Tom had made trains, tractors and monoplanes, but now he wanted to have a go at pull-along frogs. It would be cheerful and towable, with the leg movement suggesting a hop.

Making the Pull-Along Frog

1 The first thing you need is a piece of wood, about 200x100x100mm for the body of the frog. Of course you could make the body from more pieces glued together.

2 Mark out the body shape and drill the 10mm axle holes. Then drill the 6mm top-of-the-leg pivot hole 15mm deep on each side. It is important to do this with the sides still square so that you can drill the holes accurately.

Drill out the wheel arches with a hole-cutter, 18mm deep at the back and 28mm at the front. Chisel out any waste. The centres of the rear holes are positioned 20mm up from the base and the front holes 11mm. Rough the body to the shape and round over.

3 Next shape the eyes, by forming a 6mm circle with a small gouge. Then cut a bevel on the outer edge, forming the eyeball. The eye-socket can then be shaped followed by the under-socket. A large round file makes short work of cleaning up.

and 55mm diameter. You can turn the wheels on a mandrel bolt rather than a faceplate if you want.

5 In two of the wheels drill a 6mm hole 10mm in from the outside edge of the wheel for the rear leg pivot holes. Now fit the wheels on the axles. These need to be from 9mm dowel, and are 2mm longer than the distance through the body plus two wheels and two washers. Dry assemble the axles and file them flush with the wheels.

6 Cut the four leg parts from 6mm hardwood and drill a 6mm pivot hole 9mm from each end. The six hardwood pivot pins are 25mm long from under the head of the pin, with the head turned to 10mm diameter and the pin to 6mm. Dish the pin slightly just

under the head so that the legs move freely. Assemble the legs starting at the wheels. Fit a washer between the leg and wheel. Do the same between the leg and body and at the knee joint. If there is any friction hollow out the body a little.

7 To finish make V-cuts at the bottom of the legs to suggest toes, then dismantle the frog and finish with child-safe paint. Finish the bare wood with a water-based varnish. Assemble the toy when the varnish is dry, keeping glue from the moving parts. Add the line to a brass eye.

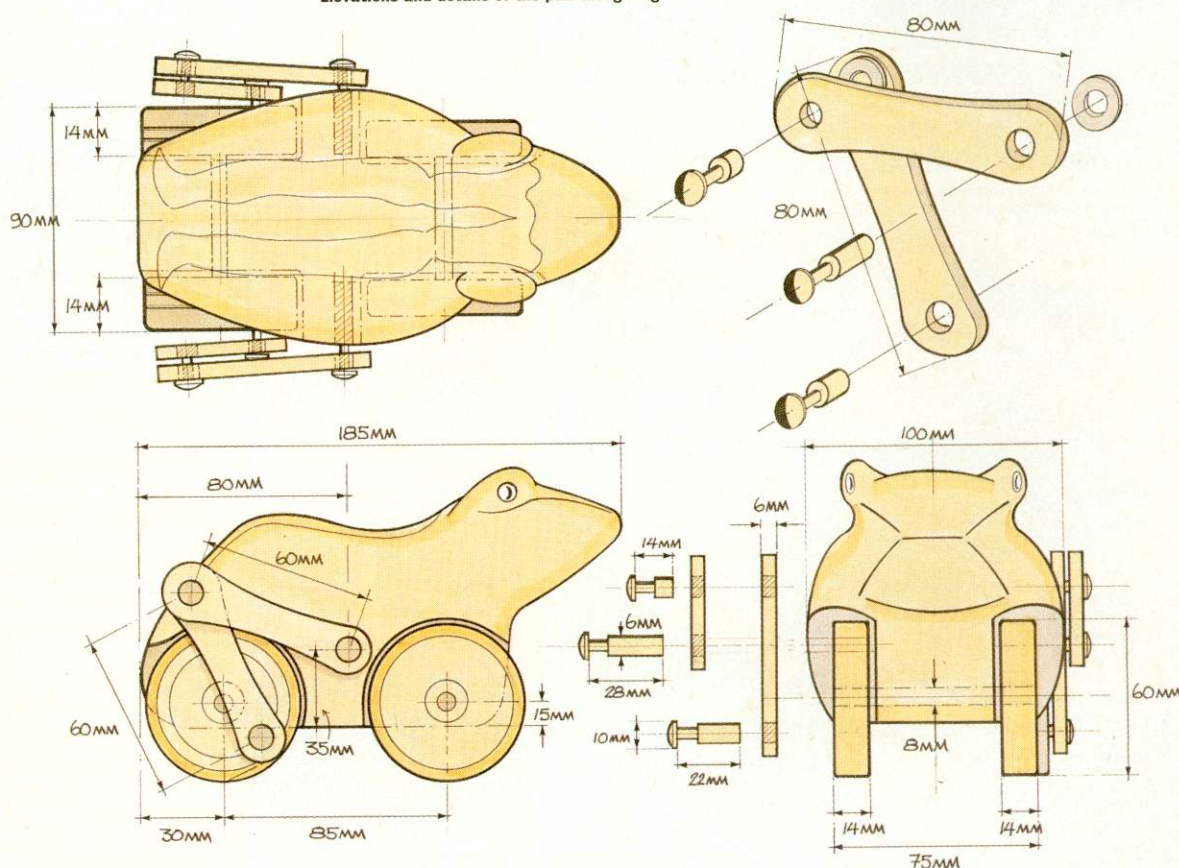


Shape the body of the frog after you have drilled the recesses for the wheels and the holes for the axles



One way to remove waste from the frog body for the wheel arches is to use a hole-cutter. It is best to have the drill in a drillstand for this operation

Elevations and details of the pull-along frog



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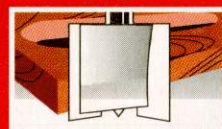
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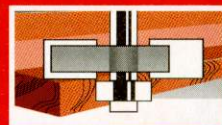
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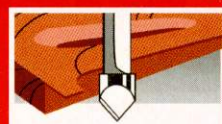
Cove 1/2"



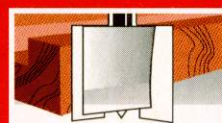
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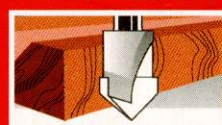
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Pierce & Trim 1/4"



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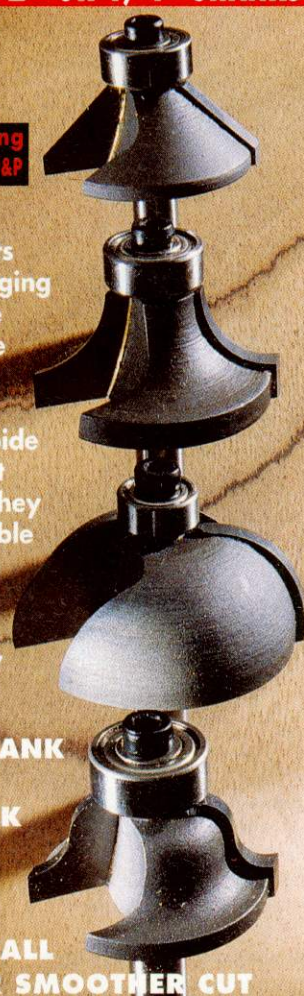
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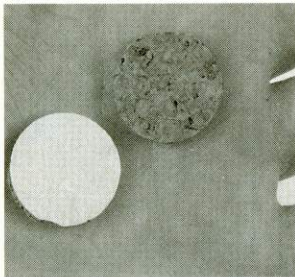
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Woodworking Hints & Tips

Cramping corks



THE CHEAP foreign G-cramps you can buy at market places are quite useful, but the shoe is very basic and has a tendency to bruise softwood and hardwood



even if the cramp is used gently. I have found a way of overcoming this problem by using stick-on cork tiles. With a $\frac{1}{2}$ in hollow punch, cut out discs from the cork tile, remove the backing paper and stick the disc to the shoe. The cork is thin enough not to reduce the cramp capacity too much, and can easily be replaced.

PS. I take great pleasure in reading your magazine and look forward to many more.

R.E. Weston, Dorset

I've bought similar cramps in the past, especially the F-type design, which are excellent for small work. They usually have shoes with plastic covers, but I would prefer cork, which has more give. Thanks for the discs, I'll try them myself.

NG

up. Once the glue has dried the piece can be turned. When it is finished a gentle tap with a mallet on the jointline and the two halves will split leaving paper on both halves to be cleaned off.

Gordon Petrie, Grangemouth
As you mention, this is a well-known practice, but certainly deserves repetition for those new to the sport.

NG

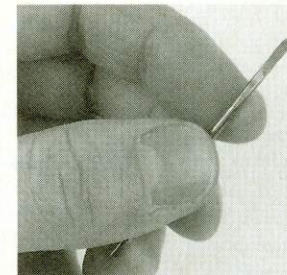
Custom tools



I WAS reminded by your reader's letter about using a cut-off nail as a drill bit. For some time now I have used a piece of wire from a de-rusting hammer (the type with a bunch of tough wires which chatter against the paint or rust)

Open sesame

HERE IS an idea for anybody who has an up-and-over garage door and would like more working and storage space for little extra cost. First cut the door down the middle with a disc cutter. Then add bracing and hang both doors to the sides of the frame. Fit door stop all around, and attach a lock. You now have two doors that open outwards and are draught proof. When the



Charles Smith uses old pieces of wire or even bicycle spokes to make small drill bits, with a ground flat tip

Paper and glue

PATTERNMAKERS will know about the glue and paper joint, but perhaps some turners do not. This is a method of turning two half pieces without screws. The glue and paper joint is easy and safe. First make sure the two adjoining faces are perfectly flat. Then spread a thin layer of wood glue on both surfaces. Now place a sheet of newspaper between the faces and cramp

Grinding leaves



To avoid the necessity of having to keep adjusting the tool rest on my bench grinder

to get the correct bevel when sharpening turning tools, I have replaced the tool rest with a stack of MDF leaves. These are held at one corner with a bolt allowing the ones not required to be swung out of the way. You present the tool flat on the top of the stack and the curvature of the grindstone produces the bevel to a slight concave.

The correct combination of leaves to be used for each tool can be selected by colour



When grinding tools L. Purcell has a stack of MDF leaves as a tool rest

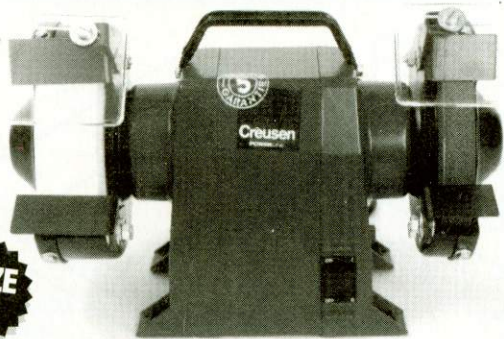


The leaves relate to different tools, and you alter the stack to suit

coding the top leaf with the colour on the tool handle.
L.H. Purcell, Devon
This sounds a brilliant idea. I guess though you will end up with slightly different angles of bevel on different tools of similar shape by dissimilar size.

NG

SEND US YOUR TIPS TO WIN A £72 GRINDER



PRIZE TIP

When we tested bench grinders (GW 2:63) we found that the Creusen DS7150 was the Best on Test (ring 01297 33656 for more information on Creusen). Now one of these grinders, which normally cost £72, could be yours.

All you have to do is send us your tips or ideas for better, easier woodwork. You might have a simple method for holding work, storing timber, finishing, sharpening, routing, or restoration. You might just have an idea or two that make your workshop more efficient, cutting wasted time searching for your tools and materials.

It's worth sending us your tips. Not only does the winner receive the award-winning £72 Creusen grinder, but also a special Good Woodworking genuine Swiss Army Penknife. If any tip of yours is published we will send you £10. So hurry your tips (with photos and sketches if necessary) to Good Woodworking, 30 Monmouth Street, Bath BA1 2BW. You could ring us with your tip on 01225 442244 or fax it to 01225 462986. Good luck. It's worth a go.

NG

PRIZE TIP

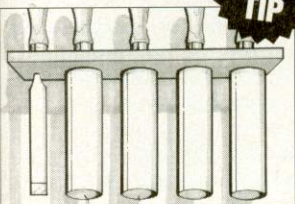
Woodworking Hints & Tips

doors are open fit a batten between them along the top edges, then attach a polythene sheet to the fascia, below the guttering, and extend it out to attach to the batten. This creates extra workspace which can easily be rolled up and stored when not in use. You can also make use of the dead space in the roof for storage.

A. Hammond, Norfolk
Good idea. NG

Safety tube

PRIZE TIP



A QUICK WAY to keep your fingers away from sharp chisels and gouges is to superglue kitchen roll tubes to the underside of tool holding shelves. You can note which chisel is which on the tube. Thanks for a very user-friendly magazine. Any chance of writing your index to disc?

David Wright, Somerset

I like safety tips, so we have decided yours is the Prize Tip this month. We could supply the index on disc. What software do you use? NG

Longer routing

I HAVE added two accessories to my Elu MOF96E router. The short-reach fence adjuster is too short for several jobs, but I cringed at the price of the longer version, so I spent 99p on 1 metre of M6 studding and cut this up to produce several alternatives of my own.

I also found that the length of the M5 turrets, which locate with the fine height adjuster, is so short that the plunge travel is roughly halved in use. Several cutters are too long for this to be acceptable. Unable to find a retailer stocking M5 studding, I found that 2BA threaded rod from a model shop worked fine. This is only 0.3mm undersize and only 2% out of pitch.

K. Quinton, W. Sussex

Our art editor has just bought an

Workshop tips



AS A KEEN woodworking enthusiast I hope that my top tips will be of use to yourselves and other readers. I think that your magazine is excellent and very enjoyable. Holding awkwardly shaped components can be tricky at times, so I have made this holding board which simply consists of a baseboard, stop, three cams and rows of holes drilling an inch apart.

You can easily turn your router into a biscuit jointer by making a jig, against which you run a guide bush. The groove is cut with a slotting cutter. The batten underneath the jig butts against the workpiece. By adjusting the position of the batten you can alter the depth of the groove for the biscuit.

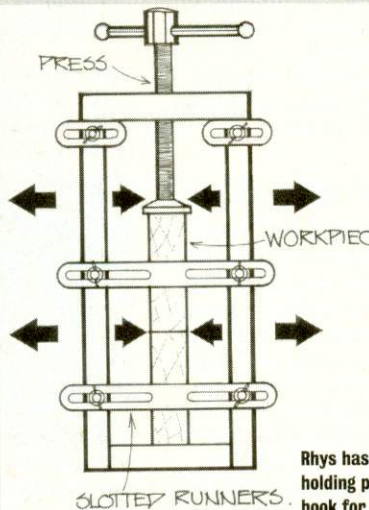
I have also made a tenoning jig. This has two platforms, one of which is fixed while the other slides. The guide bush on your router fits between the two runners on the fixed platform. You cramp the workpiece underneath the sliding carriage. You can produce angled tenons by loosening the wingnuts on the sliding carriage, but only move one end. Butt the workpiece against one end so that the tenon shoulder is cut at an angle.

My final jig is like a sash cramp, but designed to keep panels

flat when gluing them up with a sash cramp. The sides of the cramp move in and out to adapt to the thickness of the boards.

Rhys Roberts, Gwynedd

Thanks for your tips. I like the cam-holding board for shapes. NG



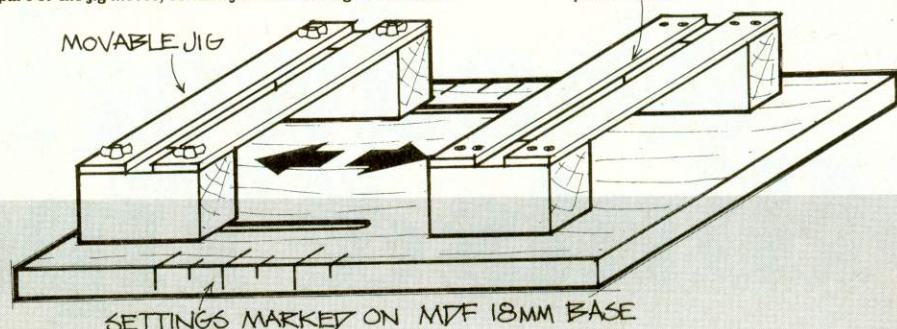
Rhys has made a sash cramp for holding panels (left) and a bench hook for awkward shapes

You can cut tenons with a router using Rhys Roberts' jig. One part of the jig moves, so that you can cut angled shoulders

FIXED GUIDE BUSH RUNNER

MOVABLE JIG

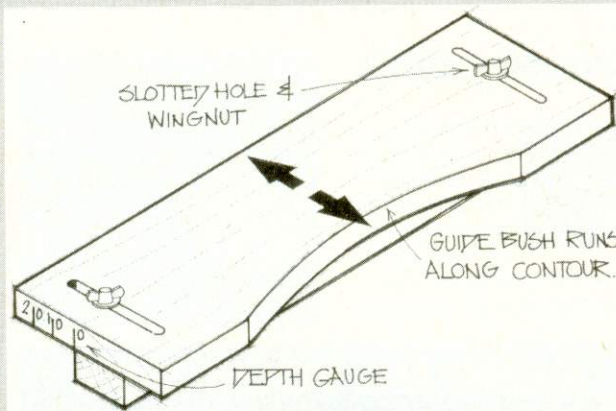
SETTINGS MARKED ON MDF 18MM BASE



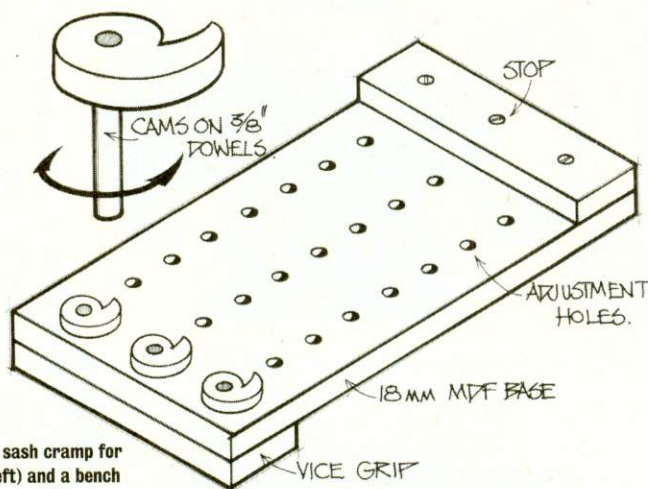
SLOTTED HOLE & WINGNUT

GUIDE BUSH RUNS ALONG CONTOUR.

DEPTH GAUGE



Rhys Roberts uses a router to cut the slots for biscuits. The guide bush runs against the contour of the jig to cut the slot for the biscuit



Elu 96 so he may want to try your tips in the future. NG

Grinder chucks



I HAVE removed the right-hand wheel from my bench grinder (anti-clockwise). I machined up an adaptor and fitted a 3/4in scroll chuck in place of the wheel. This allows for the quick changing to disc sanders, drum sanders, wire brushes and my flex drive. The grinder can be swung round.

Eric Willis, Hants

I'm always a bit nervous about playing around with grinders. Do not attempt this tip unless you know what you are doing. NG

Drilling jig

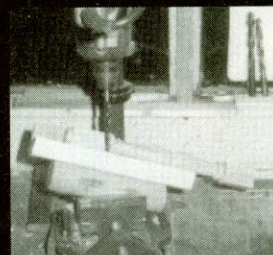


I HAVE come up with a jig for drilling holes at angles with a pillar drill or drillstand. The principle of the jig is that you have a wooden cylinder, that can be held in the drillstand vice. You

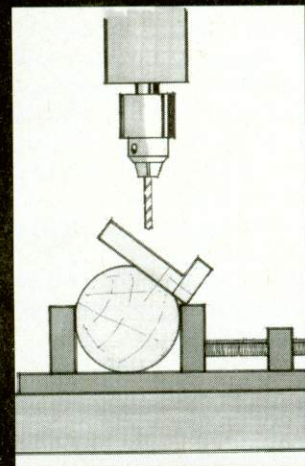
then plane a flat along the cylinder, to which you can screw a carriage to take the work you are drilling. By rotating the cylinder you can adjust the angle of the holes. As you can imagine, it is also easy to drill compound angles.

Eric Knott, Cheshire

I didn't understand this tip to start with but now that I do I can see its benefits. NG



With Eric Knott's wooden cylinder (which has a flat along its length to which is fitted a carriage) you can drill any angle you want



Plasplugs introduce the powerful new MasterSharp Professional – a technically advanced modular system that *sharpens, grinds, sands and polishes*. For little more than the cost of a single power tool, MasterSharp Professional gives you the power to build a complete workshop system!

The power at the heart of the MasterSharp Professional is the heavy-duty motor

unit. Double-insulated and thermally-protected for safety, its split-phase induction motor has a shaft speed of 3500 r.p.m. A 75mm diameter aluminium oxide grinding wheel is supplied as standard.

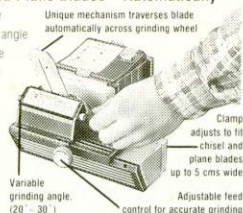
Power take-offs at each end allow for maximum flexibility when carrying out a variety of workshop tasks. Modules simply slot onto the motor unit and lock in place.



1 The Power to Sharpen Chisel and Plane Blades – Automatically

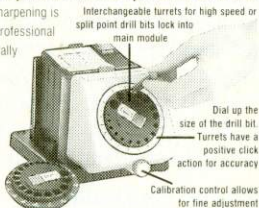
This unique Chisel and Plane Blade Module accurately re-profiles blades to the correct angle by automatically traversing them across the rotating grinding wheel. This uses a geared action driven from the main shaft.

Keeping the blade moving ensures that there's no risk of overheating, inherent with conventional bench grinders. Thus, the temper of the blade is retained without the need for continuous cooling. Accurate chisel and plane blade grinding is now quicker and easier than ever before.



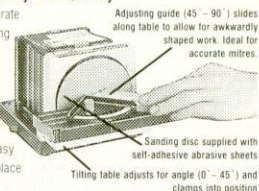
2 The Power to Sharpen High Speed Steel and Split Point Drill Bits

Quicker and more accurate drill bit sharpening is now a reality with the MasterSharp Professional Drill Sharpening Module. It automatically re-grinds and 'backs off' both high speed steel and split point drill bits using two interchangeable turrets that lock onto the main module. Unique flutes within each turret present the drill bit to the grinding wheel at the correct angle, making accurate re-sharpening simplicity itself.



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The Sanding Module is ideal for accurate sanding of wood and plastic. Changing the grinding wheel for a sanding disc turns MasterSharp Professional into an ideal power tool for many joinery tasks. Furniture making and picture framing require accurate mitre and butt joints to be sanded, an operation that is quick and easy with this module. Adjustable guides lock into place to keep the work at exactly the correct angle.



4 The Power where you want it - with an 80 cm Flexible Drive

The Flexible Drive Module turns MasterSharp Professional into an extremely useful source of power wherever it's needed. It's invaluable for all jobs that entail polishing, buffing, grinding, de-rusting, and drilling of small holes in difficult-to-get-at places. The module's heavy duty 80cm flexible drive is fitted with an adjustable chuck with a maximum shaft capacity of 6mm. Accurate hand held-work is made easier with the flexible drive's convenient handgrip.



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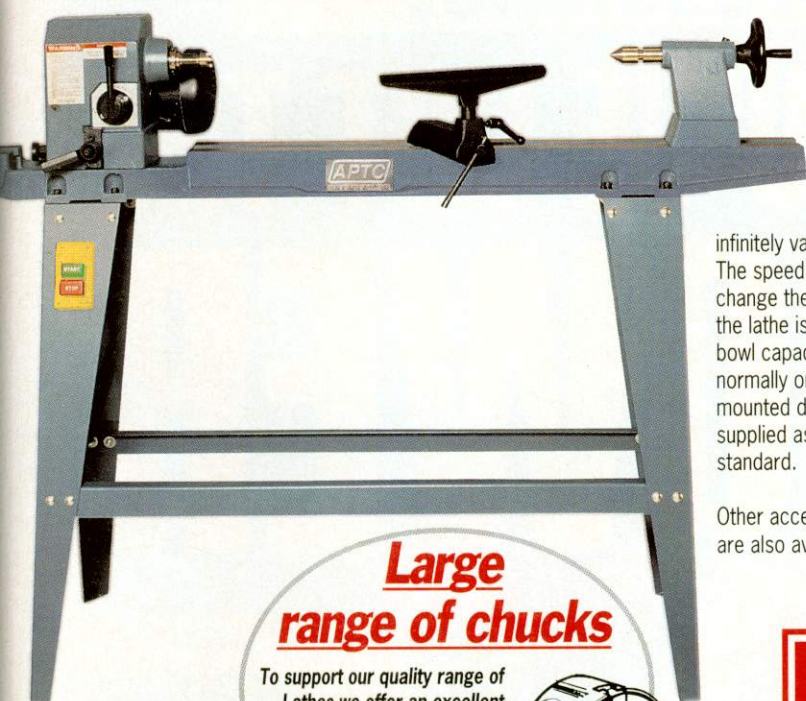
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APTC KWL37 Woodturning Lathe

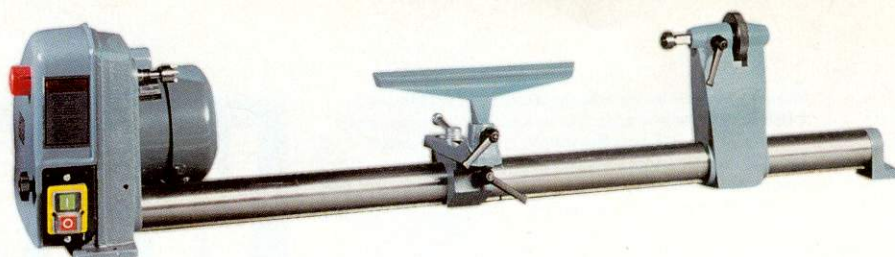
This upgraded lathe has quality bearings, a British made CNC machined spindle, knurled steel tailstock, hand wheel and brass lever locking handles. A reliable no volt release switch and plug are also fitted. The lathes are run up and checked thoroughly.

In this way we hope to supply a lathe which represents the best possible value for money we can provide. Secondly, a lathe which has had all its problem parts and irritating aspects replaced with true running, trouble free, easy to use solutions. Many KWL37's look alike but are not the same.

There is only one true blue APTC KWL37.



Price
£169.95
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Standard Accessories Specifications

6" Tool Rest	Max Dia over Bed	12"	Motor Power	1/2HP 240v
12" Tool Rest	Max Length Between Centres	37"	Speeds (RPM)	575, 980, 1560, 2520, 3580
4" Faceplate	Max Dia with Bowl Turning Att	N/A	Overall Length	53"
4 Prong Drive Centre	Spindle Taper	1MT	Weight	39Kgs
Revolving Tailstock Centre	Tailstock Taper	1MT		
	Spindle Thread	3/4" x 16 TPI		

APTC M900 Variable Speed Swivelling Head Lathe

The M900 is a relatively low cost, solid cast iron bed lathe with a rotating headstock (up to 180°). The cast bed is well machined and a cam lock action banjo allows for quick and easy movement (even single handed) of the tool rest.

The headstock has been fitted with variable speed. This allows 5 speeds between 480 and 2400rpm to be selected whilst the lathe is running. The speed selection is not infinitely variable. A speed selection lever locates in a series of holes to give an excellent range. The speed available will be more than adequate. No more having to stop and change the belt on the pulleys. Speed changing can only be carried out whilst the lathe is running. With a spindle turning capacity of 900mm and maximum bowl capacity of 360mm diameter the M900 gives you specifications normally only found on lathes costing twice as much or more. Lathes can be mounted directly onto a bench or raising blocks. Alternatively the stand is supplied as standard.

Price
£399.00
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Carriage U.K. Mainland -
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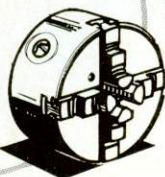
Standard Accessories Specifications

6" Tool Rest	Max Dia over Bed	280mm	Motor Power	1/2HP 240v
12" Tool Rest	Max Length Between Ctrs	900mm	Speeds	(RPM) 480 - 2400 Variomatic
4 Prong Drive Centre	Max Dia with Bowl Turning Att	360mm	Overall Length	1450mm
Revolving Tailstock Centre	Spindle Taper	2MT	Weight	83Kgs
Floor Stand	Tailstock Taper	2MT		
Bowl Turning Extension	Spindle Thread	1" x 8TPI		

Other accessories are also available.

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You can pick up

APTC H1000 Variable Speed Centre Lathe

Ideal if you are changing from a smaller lathe as ambitions have grown or purchasing a first lathe that is going to give years of service and not hold you back as knowledge and skills grow. Supplied on its own heavy duty cabinet stand with cupboard and shelves to hold bits and pieces that turners naturally accumulate with time. The lathe bed is solid cast iron with ground bedways. Both the cast iron tailstock and banjo are fitted with cam-locking devices allowing for smooth rapid adjustment even single handed. As if being able to turn up to 39" in length or 13" in diameter is not enough, the cast headstock is fitted with variomatic speed control. No more stopping to change belts over on the pulleys. A simple lever selects the required speed as the lathe is running. The left hand side of the headstock is fitted with a fly wheel to further add to the sweet, smooth running performance and is also used as a brake when the lathe has been switched off.

The sheer mass of so much cast iron is more than sufficient to absorb any vibration produced by out of balance blanks.

Standard Accessories Specifications

6" Tool Rest	Max Dia over Bed	14"	Motor Power	3/4 HP
12" Tool Rest	Max Length	420 - 3000	Speeds (RPM)	Variomatic
4 Prong Drive Centre	Between Ctrs	39"	Overall Length	58"
Revolving Tailstock Centre	Max Dia with Bowl Turning Att	N/A	Weight	112Kgs
Floor Stand	Spindle Taper	2MT		
Eye Shield/Guard	Tailstock Taper	2MT		
Headstock Bull Wheel	Spindle Thread	1" x 12 TPI		
NVR Starter				



Price
£549.00
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APTC APW500 DE Dust Extractor



Specifications

Motor Power	0.75HP	Air Flow	500M ³ /Hr
Hose Diameter	4"	Overall Dimensions	400 x 400 x 800
Approx Bag Capacity	1.3 cu ft	Weight	24Kgs

Price
£129.00
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For small low volume waste machines such as a bandsaw, circular saw or lathe. The space taken up by a mobile extractor can often be excessive. Accordingly, the option not to use dust extraction is by far the easier. In this sort of instance, a wall mounted unit with a waste sack/filter can often be more than adequate. Wall mounting or sited underneath a bench out of the way, this small portable unit is well powered with a good flow characteristic. Optional remote N.V.R. starter switch is available enabling it to be switched on and off from a remote station or wired into the motor supply of a machine to be extracted from so that when the motor is started the extractor starts simultaneously. Supplied as standard with 2.5M 4" flexible hose. Longer lengths can be purchased if required.

APTC WV1-WV2 Fine Dust Extractors

Powered by 1000W direct air flow vacuum motor (WV2 has 2 motors) on a 90 litre vessel, this is an ideal general purpose extractor for use on low volume machines such as power sanders or power tools and with an optional cleaning kit to clean up the workshop. Unlike many on the market this unit is fitted with an acoustic hood to reduce the noise, which is especially useful in a small confined workshop. A recently introduced waste sack fitment enables easy waste disposal just by lifting the sack out of the unit, retaining the fine dust for simple disposal. Waste sacks are easily and quickly fitted to this machine.

Specifications

WV1

Power Consumption	1000W
Hose Diameter	4"
Airflow	57L/Sec
Drum Diameter	460mm
Drum Height	584mm
Endurance	10min rest every 2hrs
Weight	15kgs

Specifications

WV2

Power Consumption	2000W
Hose Diameter	4"
Airflow	114L/Sec
Drum Diameter	460mm
Drum Height	584mm
Endurance	10min rest every 2hrs
Weight	18kgs



WV1
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WV2
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APTC APW1000DE Dust Extractor

A mobile and compact unit with a powerful 1 HP motor giving a 1000M³/hour flow rate. A very popular unit for a single machine in the small workshop. Supplied as standard with 2.5M 4" quality flexible hose (longer lengths of which are available upon request).

Optional Accessories: APHDBAG 10 Waste Sacks £9.50
QFMS Quick Fit Metal Strap £5.60

Specifications

Hose Diameter	4"	Overall Size	600 x 360 x 1400mm
Approx Bag Capacity	2.5 cu ft	Weight	35 kgs
Air Flow	1000m ³ /Hr	Motor	1HP, 240v

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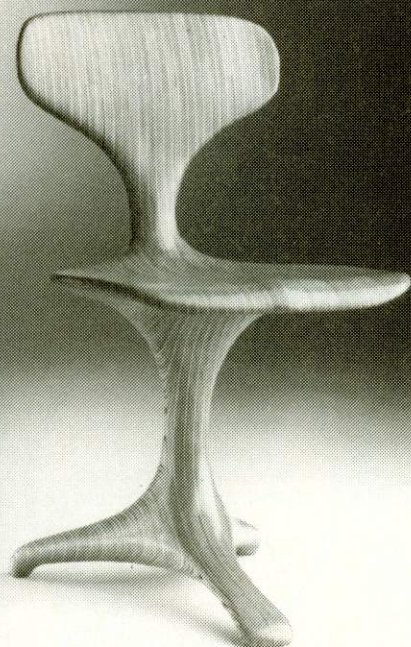
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Making Antique Furniture Reproductions

BY FRANKLIN H. GOTTSALL
 Publisher: Dover Publications
 ISBN 0 486 27976 6
 Price: £12.95 (softback)

A PAPERBACK reprint of *Reproducing Antique Furniture* (first published in 1971 as a hardback) starts with 'Some Useful Fundamentals of Cabinet Making'. It includes notes on turning, carving, finishing and hardware, more valuable to the beginner rather than the highly-skilled craftsmen.

The main body of the book (240 pages) contains photos, texts, line drawings and bills of materials (that is, cutting and materials lists) for 40 projects. The photos are poor, being dark and lacking in clarity. Each design has a constructional text plus explanatory line drawings, but some of the latter suffer from a surfeit of detail. The smallest dimensions of the shoulders and lengths of tenons, the depths of

MAKING ANTIQUE FURNITURE REPRODUCTIONS

Instructions and Measured Drawings for 40 Classic Projects



Franklin H. Gottshall
 With 51 Photographs and Diagrams

mortises, the sizes of dovetails etc... are shown. This clutters up the drawings with unnecessary information for any craftsman worth his salt.

Many of the designs are American versions of 17th and 18th century English furniture, including a chest on frame, a corner cupboard and side chair in the American Queen Anne style. Designs also include a Chippendale partners' desk based on the original at Nostell Priory, plus three small chairs and a wing armchair, Hepplewhite and Sheraton fourposter beds and native American designs like a kneading trough and Duncan Phyfe tables. Despite these criticisms the reprint maintains the high regard which is

accorded to the original and will prove invaluable to professional and skilled amateur woodworkers.

Reviewer: Vic Taylor
 Author on Furniture History and Restoration

Antique Furniture Reproductions

WORDS	●●●●○
PHOTOS	●●●●○
DRAWINGS	●●●●○
OVERALL VALUE	●●●●○

Nature in Wood

Great Patterns for Carving
 21 Small Birds and 8 Wild Animals



"Woodcarvers' Favorite Patterns" BOOK THREE

Woodcarver's Favorite Patterns

BY GEORGE LEHMAN
 Publisher: Fox Chapel
 Publisher: GMC
 ISBN 1 56523 004'3
 Price: Vol. 1 and 2 £14.95 (+P&P)
 Vol. 3 and 4 £14.50 (+P&P)

A WELL known carver in America, George Lehman has written a great deal on wildfowl carving. So it seems odd that such an eminent carver should have someone else's carving gracing the cover of all four books on wildfowl carving.

The books are in A3 size and ring bound so that they stay open whilst lying on the workbench. Book three is smaller with a stiff spine. A different subject is discussed in each chapter, with the author trying to impart the essence of the bird to the reader. The black and white photos are not of the best quality, which makes some of the detail hard to see, but the drawings are helpful, especially when tackling the projects.

George places a lot of emphasis on the type of mount you use. As he rightly says, many a great carving has been spoilt by the use of an inappropriate stand. There are words of encouragement but the books assume that you have a basic understanding of the techniques.

Reviewer: Mark Corke, Cabinetmaker

Woodcarvers Favorite Patterns

WORDS	●●●●○
PHOTOS	●●●●○
DRAWINGS	●●●●○
OVERALL VALUE	●●●●○

The Secrets of The Dolls' House Makers

BY JEAN NISBETT
 Publisher: GMC
 ISBN 0946819 54 8
 Price: £16.95 (softback)

THIS IS a delightful book for anyone interested in dolls' houses and their contents. It contains the work of 30 of the finest contemporary dolls' house and miniature makers, but is not just a book about dolls' house makers as the title might suggest. It also talks about the producers of miniature furniture, metalwork, needlepoint, porcelain, silverwork and bookmaking.

There are 200 excellent colour photographs, which alone make this book attractive and inspirational. It leaves you marvelling at the standard of miniature work produced by the craftspeople. Each expert gives their early background and recounts how they became involved in the miniature world. You get some

The Secrets of the Dolls' House Makers

Jean Nisbett



insight into the research and hours of painstaking work needed to create reproductions of such

quality. There is a range of periods and styles to cover any interest.

Although advice is given, the word 'secrets' referred to in the title is misleading as this is not a book on how to do it. Its aim is rather to show you what standards to aspire to and the quality of miniature work that you can produce. Jean Nisbett has put together an excellent book which will be welcomed by those enchanted by the dolls' house world. It is the sort of book that you will want to treasure and keep. A pity that it is not hardback.

Reviewer: Ian Wilkie
 Woodworking tutor

Secrets of the Dolls' House Makers

WORDS	●●●●○
PHOTOS	●●●●○
DRAWINGS	N/A
OVERALL VALUE	●●●●○

Furniture Restoration and Repair for Beginners

BY KEVIN JAN BONNER
 Publisher: GMC
 ISBN 0 946819 64 5
 Price: £14.95 (softback)

AT LAST I thought I had stumbled upon the ultimate book for the novice or beginner, furniture restoration simply explained. Alas, on closer inspection my fears became reality. I liked the general outline, and the humorous cartoons made light relief of a complex subject, but the last laugh lies with the author.

Some of the information contained is misleading and could result in irretrievable damage to a valuable piece of antique furniture. The use of scrapers to remove polish and chisels to remove ink marks made me shudder. Black thoughts came to mind of the

harmful damage that could be caused to an old surface with good patina. I laughed at the term 'removing gunge', but took a sharp intake of breath when the book suggested using car body filler to repair damaged areas.

There is a lack of reference to the skills needed in repairing woodwork. The staining and polishing needs before and after photos to show the stages. PVA glue is recommended for 90 per cent of restoration work, but I strongly oppose this glue and recommend scotch or animal glue instead as it may be dismantled if need be. The book is informative, but shallow in constructive advice and step-by-step techniques, which must be the top priority to anyone learning furniture restoration.

Reviewer: Stephen Hill, Restorer and Cabinetmaker

Restoration and Repair for Beginners

WORDS	●●●●○
PHOTOS	●●●●○
DRAWINGS	●●●●○
OVERALL VALUE	●●●●○

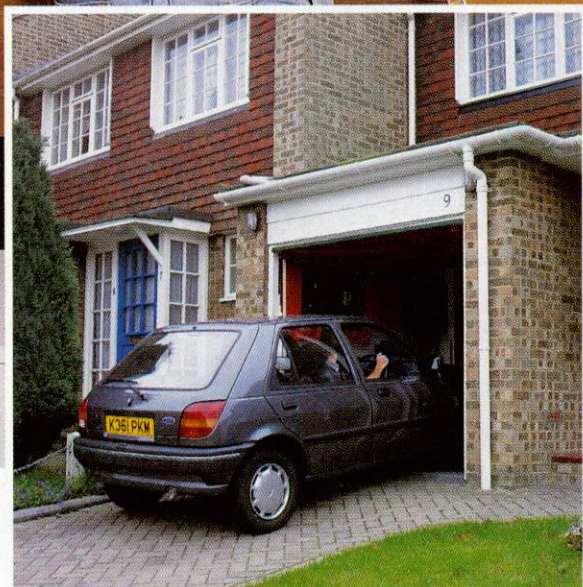
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 videos for the wood

Bookmark

Furniture Restoration and Repair for Beginners
 Kevin Jan

A view of the end wall of Tony Collyer's workshop shows how everything must have its place when space is limited. Undeterred, Tony cracks on with a drawer unit

Workshop angles



Tony's workshop has to take into account the to and fro of the new car in and out of the workshop come garage. He has designed his workshop around the space left when the car is inside

Imagine your workshop space is halved or even quartered. How would you begin to organise all your equipment, never mind all those bits and bobs that clutter up even

the biggest of workplaces? Suffering such a blow was the fate of reader Tony Collyer from Kent.

"I used my garage as a workshop until a new car arrived and took up

residence," he said. "The area left, once the car was garaged, was a space measuring 9x2ft, not very big when I have to house a host of machines like a radial arm saw, a bandsaw,

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The sign on the door to his house. Despite the upheaval of losing a great deal of workshop space, Tony has managed to keep his sense of humour

disc sander, bench grinder and my two vices."

Tony has used great ingenuity to house all his machines and hand-tools. "With limited space every ounce must be used to good advantage," says Tony. "I had to sell the radial arm saw as it was too big. To say I was sorry to lose such a trusty old tool is an understatement."

He replaced it with a smaller DeWalt radial arm saw, and mounted it on a wheeled cabinet, which can be moved around the workshop. His workbench has a folding top to make space for storing the saw, which rolls on castors into its operating position.

Tony put wall space to maximum use by tucking storage units neatly against them, units which he designed and made himself. One such unit, made of 3x2in timber with plywood panelling, has two substantial drawers, a storage shed for jigs and a tool drawer to house blades and spanners.

"I mounted it on three heavy-duty swivel wheels, so that it won't rock; garage floors are far from being level," says Tony. "Once in place, two stabilising feet are dropped down and secured with wingnuts. I then fitted each foot with a rubber shoe, which gives a rock solid support."

So far so good, but limited space means compromises have to be made. "I needed an area for a small metalworking bench with space for a vice and bench grinder," says Tony. "Having 2ft either side of the car, the size of the bench, 36x16in, is a

compromise, but I have been able to carry out all the jobs I have needed to."

Three cupboards below the benches house the power-tools, and above the two tool benches are full-length tool boards fitted with dowel rod to hold all the hand-tools.

Above all this are shelves that extend the width of the workshop. These contain numbered boxes to hold all the bits and bobs. A striking feature of the workshop is Tony's use of colour to offset the dominant browns and greys of a garage.

Finding a home for the bandsaw was almost impossible. There was no room to mount it on the main workbench, so the Delta bandsaw was positioned on a folding worktable. "I came up with the solution of a hinged bench bolted to a wall that could be folded up against the wall when not in use. The bandsaw would then be stored on the main workbench," says Tony.

His initiative has meant he can carry on with his woodworking hobby. Most of his projects are for his home, including a suite of bedroom furniture he has designed and built. The suite includes staggered bunk beds for his teenage daughters. Space has been made for six drawers, two wardrobes and an inset dressing table.

"Designing my workshop has taught me that if you put your mind to it there is always a way," says Tony. "From the initial prospect of being without a workshop, a lot of thought and planning has given me



Tony uses as much wall space as possible to store his tools, even those as large as his Black & Decker Workmate



A display board in his workshop contains miniature canal lock name plates collected by Tony and his family on holidays

a better organised, better equipped workshop than its predecessor. Its main advantage is that as space is limited everything has to have a home. This means better organisation with less time wasted searching for tools that 'must be about somewhere'."

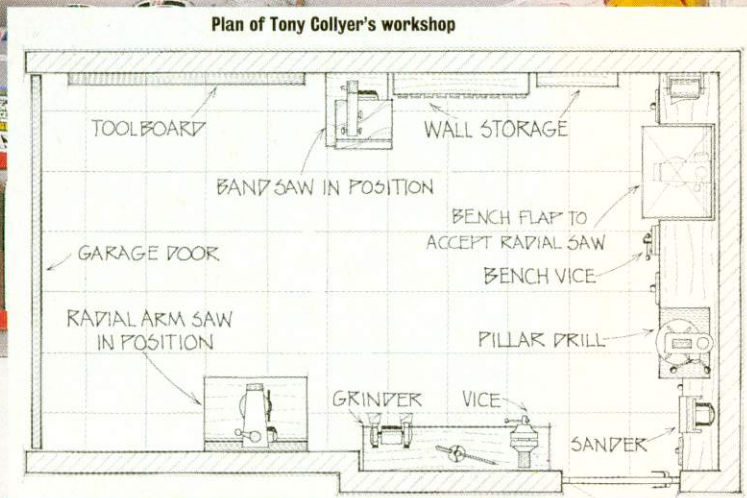
And if you won the lottery tomorrow what would your ideal workshop look like? "I'd build a new one, maybe three times the size that it is now, and have lots more storage units and more machines," says Tony.

If you find yourself in a similar position of losing a large area of working space, take heart from Tony's success, and look at the article on workshop layout in the November issue (GW 25:70).

The end of the workshop shows how Tony has managed to store even the larger tools; the DeWalt SDW1251 is stored in the workbench



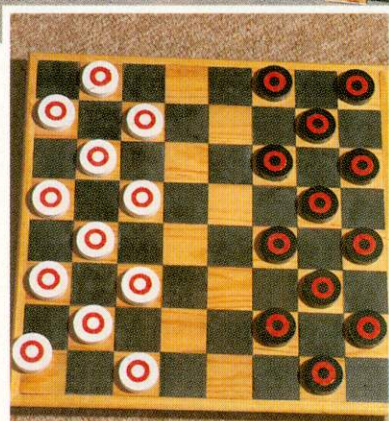
When pushed for space, a little bit of imagination, patience and planning can go a long way to creating an efficient working environment. A general view of the workshop/garage shows the clever use of the ceiling for storing a bicycle and ladders



The inside of Tony's storage unit is exactly what someone with limited working space needs. Designed by Tony the unit takes up a minimum of room, stored neatly against the wall, but the inside cupboard holds a great deal



Machines like grinding wheels and vices sit on top of the storage unit, which was designed and built by Tony. Just above it a neat wall panel shows how small tools are stored within easy reach of the worker



An example of Tony's work is a draughtboard made from deal squares, half stained black, with ramin edges. The pieces are cut from deal dowel



Tony has built a traditional dolls' house made from 12mm ply, and added a touch of his own by installing internal lighting



Finding a place for the bandsaw was almost impossible. Tony devised a folding table on which the bandsaw could stand while in a working position. The table could then be folded up and stored against the wall when not in use, and the bandsaw stored on the main workbench

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Many woodworkers are converting to some of the Japanese waterstones or the finer quarried stones for sharpening. One of the few disadvantages of such stones is that you can dig in so much more easily, particularly when sharpening freehand. The solution is to use a honing guide.

Most modern honing jigs (GW 28:83) have their own drawbacks. They usually run on a steel wheel which slightly crushes the surface grains of the stone. They also limit the length of the stroke. When freehand sharpening all your effort is applied to the edge, but with all jigs some downwards pressure has to be shared with the roller.

Running the wheel on the bench top overcomes the first two objections. Because the wheel is further behind it reduces the third.

My design of honing guide uses the plane's lever cap to clamp the blade, or iron, with a decorator's seaming roller as the wheel. After a lifetime of freehand sharpening I am now a convert to jig sharpening... some of the time.

Making the Honing Guide

We would like to have been able to offer a full-size drawing of the honing guide to help with the angles. Our drawing is half scale, but you can use the dimensions to make the guide. In reality the dimensions are not critical.

The dimensions here are based on an oilstone whose top surface is 41mm (1½in) from the bench top. There is a 6mm (¼in) clearance.

Use a wooden-handled decorator's seaming roller, but not the type with the wheel angled sideways to the handle (unless you

want to be very inventive and design a jig with the roller running alongside the stone). Those with a cushioned roller may be a bit nicer to use. An ordinary nut jammed into a recess will serve instead of the tee nut. Likewise, an ordinary nut will serve instead of a wingnut.

Because the centre line of my

wheel does not align with the centre line of the handle, the mortice is offset sideways. If the handle has a rectangular section, gauging the tenon shouldn't pose too many problems, but there is unlikely to be a straight edge for supporting your square to mark across the shoulder.

1 Mark and cut the tenon and shoulders as best you can. Fit the tenon into the mortice and then remark the shoulder line as indicated in the drawing, and chisel it to a neat fit.

2 If a Forstner bit is available, the tee nut could be sunk flush with the back of the jig, although this is really only for neatness sake. The aluminium (or plastic) angle plate serves to help alignment of the blade. Fix it with two or three screws. It is shown with one face set flush with the underside of the blade support, but again this is only for the sake of neatness. Indeed, a plain strip could be screwed to the side instead. Left-handers can put it on the opposite side of the jig.

3 The chamfers are optional but they do turn a gadget into a real tool. Finish with a durable and quick-drying varnish such as a water-based acrylic.

Using the Honing Guide

To determine the correct projection of the blade for, say, a 30° angle, make a small wooden 30°-60° set

Rolling to a finer edge

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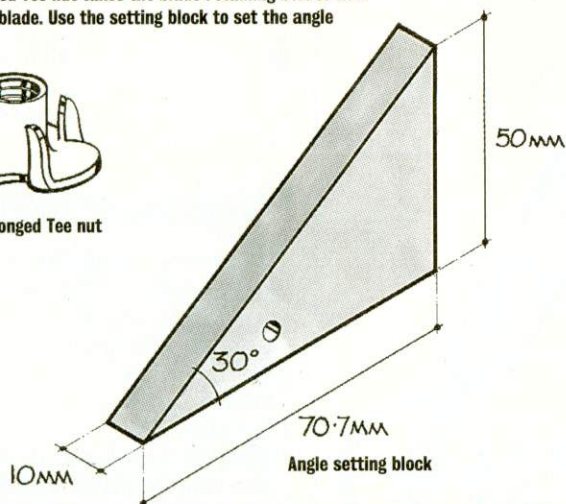


In the third part of his series on fine-tuning planes, Jeff Gorman explains how to make your own honing guide for easier sharpening

The pronged Tee nut takes the blade retaining bolt to hold down the blade. Use the setting block to set the angle

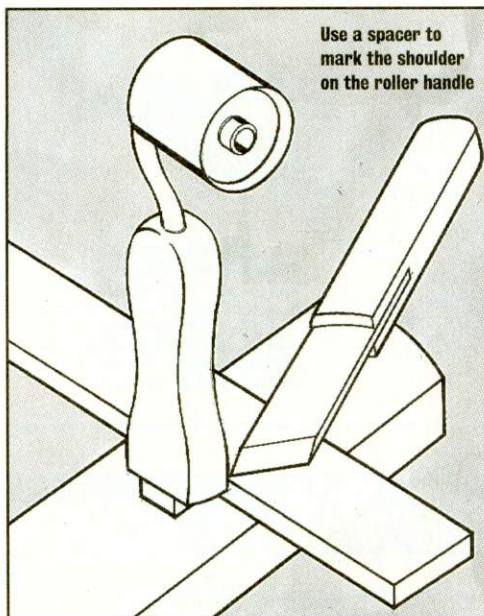


Pronged Tee nut



Angle setting block

An angle setting block will help you to set the honing guide to 30°. This is probably the angle you will choose for producing the secondary honed bevel on your plane irons. If you want a different angle make yourself another block, at say 25°



square. Fit this under the jig to adjust the forward projection of the blade until the jig matches the set square. Measure the projection of the edge from the end of the jig.

For setting the blade I simply rely on a pencil to mark the required distance from the front edge of the bench, but you could invent a special setting jig if you want. With your hand underneath, assemble the iron and lever cap while pressing the blade against the side-piece with the tips of the fingers. Hold the end of the jig against the edge of the bench, and move the cutting edge up to the mark. Clunk the lever into place.

Apply your favourite honing fluid and work the iron along the full length of the stone. Use straight strokes gradually moving the iron across the stone with each new stroke. Apply a little more pressure to the left-hand side while the right-hand side of the iron overlaps the stone, and vice versa, so as to create a slightly cambered edge. Watch out for more about this next month.

Unless the edge is nicked, you can tell when you have finished by feeling for the wire edge (burr) using the back of a finger nail. Lightly stroke the back face in the

direction of the edge. If nicked, persevere until inspection shows that you have honed it out. The wire edge is actually formed by the part of the metal edge that has become too thin to resist the stone and bends instead of being abraded away.

Turn the assembly over. Pass the back face lengthwise over the stone. Stroke your index finger from alternate sides until the wire edge comes away. If you do not fancy this, try using a strip of leather as a strop.

Sharpening Freehand

Sharpening without a jig does involve less fuss setting up, but it is doubtful whether a dead flat bevel, at exactly the angle of its predecessor, can be reliably obtained. There is a tendency to slightly increase the angle at each re-sharpening, or hone away too much metal by reducing the angle.

Freehand sharpening will not work for the super-sharpening technique we are planning for a couple of month's time!

In practice, a slightly rounded bevel does not matter half as much as is sometimes made out. All that matters is that a tangent to a round bevel is less than the plane's pitch

Cutting fluids for oilstones

Neatsfoot oil is the traditional lubricant for working with oilstones, and is non-drying. If you can get hold of it (if anyone finds some, please tell us of a supplier), thin it down with about one-tenth part of paraffin. Oilstone makers recommend a thin lubricating oil, such as cycle oil. If you use fresh engine oil, thin it with paraffin.

My early 1900s *Practical Technical Instructor* gives three parts of glycerine to one of meths for 'sharpening stones'. It seems to work OK. I have successfully used some surplus hydraulic fluid from a vehicle suspension or clutch/brake system, but note the supplier's recommendation to keep it away from your eyes and skin.

Alternatives are Redex petrol additive, and even washing-up liquid. Special honing oils seem to offer no noticeable advantage. Low viscosity is the key. Thick lubricants must be avoided. They will try to float the blade off the stone, particularly on the smoother ones.

All these fluids will carry away the metal particles, prevent glazing of the stone, and possibly cool a thin edge. This is all they need to do, so the other criterion is, which is the kindest to the bench, the oilstone box and your hands?

Whatever you use, avoid linseed oil. This is a principal constituent of traditional varnishes. As it dries it will form a skin and clog the stone. If you have any other tried and proven (or tried and failed) recipes do please send in your suggestions.

angle. So, if you want to sharpen freehand, here are a few tips for finding the previous angle and keeping it constant as you rub up and down the stone.

1 Place the blade at a low angle on a slightly oily patch of the stone,

and gradually increase the angle. Watch for oil being squeezed from under the bevel.

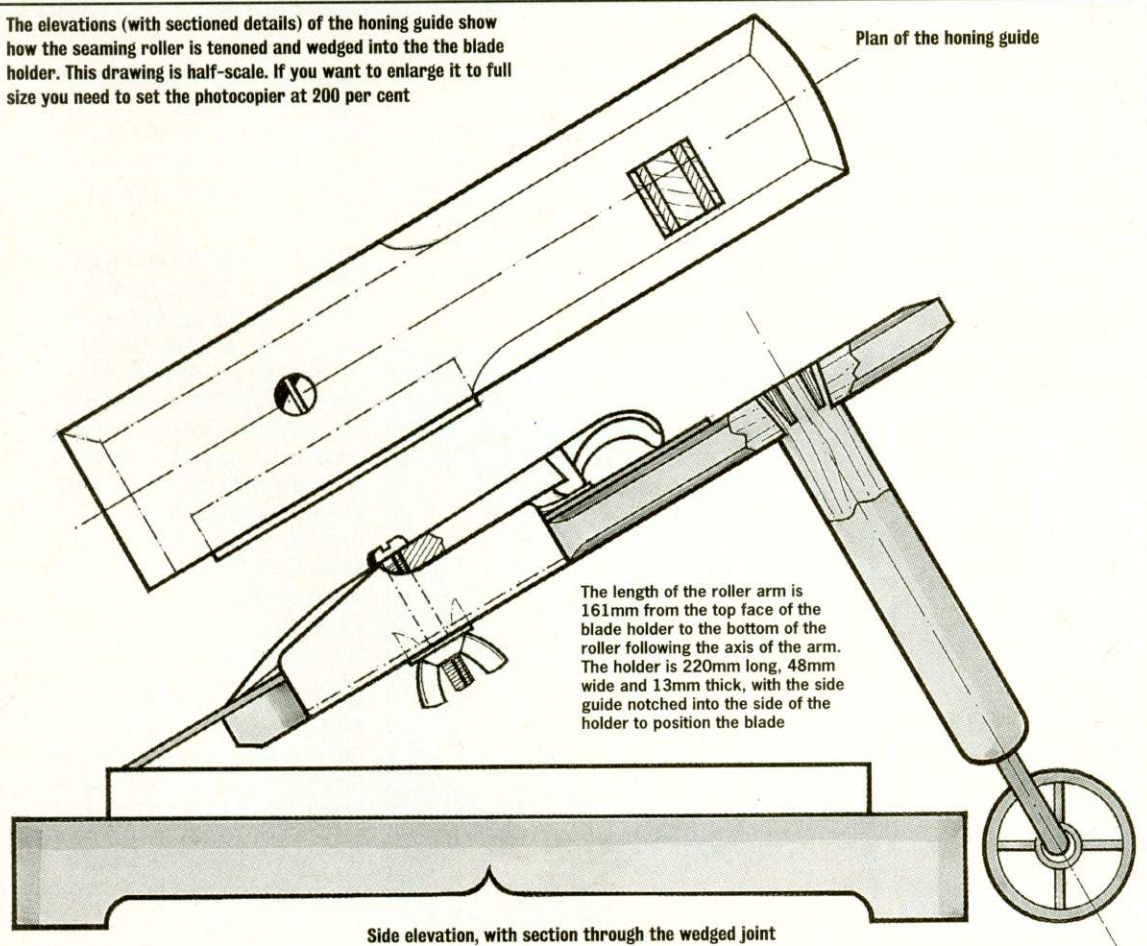
2 One trick is to use a finger tip to put a dab of oil against the back of the blade. When the edge contacts the stone the oil should flow to join the oil already on the stone.

3 Once you've started sharpening you can sometimes feel the edge is trying to cut the stone. When that happens the angle is too high.

4 Right-handers must freeze their wrist and elbow joints and think of the right shoulder as a pivot. Pivoting from the shoulder gives the longest possible radius to the arc of movement. There should be no pushing action from this frozen arm, with all the motive power coming from the other arm. Some people freeze the entire upper body and rock from their feet.

5 I have read a tip that to stop rounding the bevel you can try raising the back end of the stone by 75mm (1½in).

The elevations (with sectioned details) of the honing guide show how the seaming roller is tenoned and wedged into the blade holder. This drawing is half-scale. If you want to enlarge it to full size you need to set the photocopier at 200 per cent



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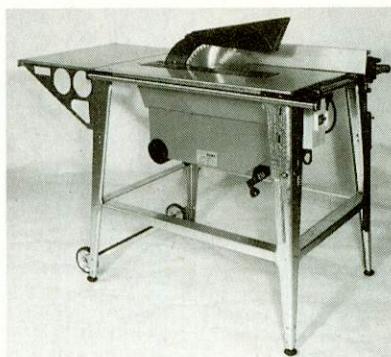
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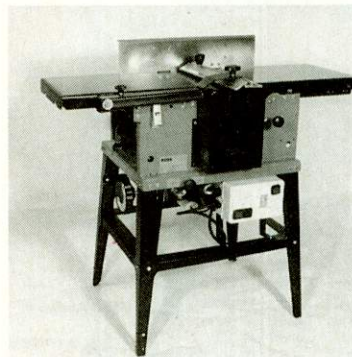


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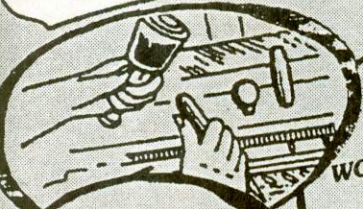
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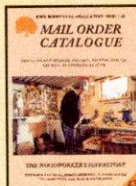
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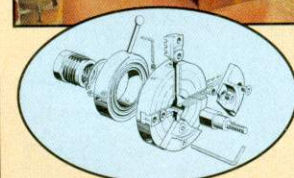


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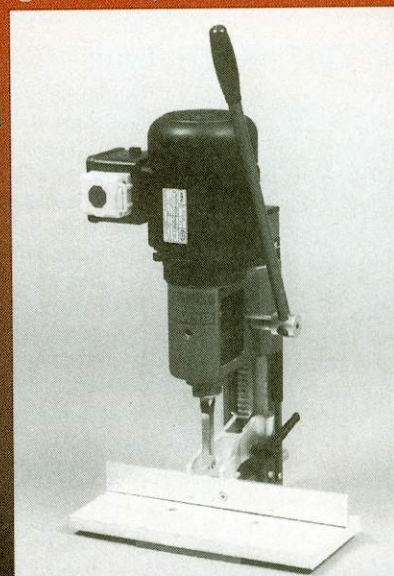
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■ Beginner's guide to spokeshaves
■ Create a handy spice rack
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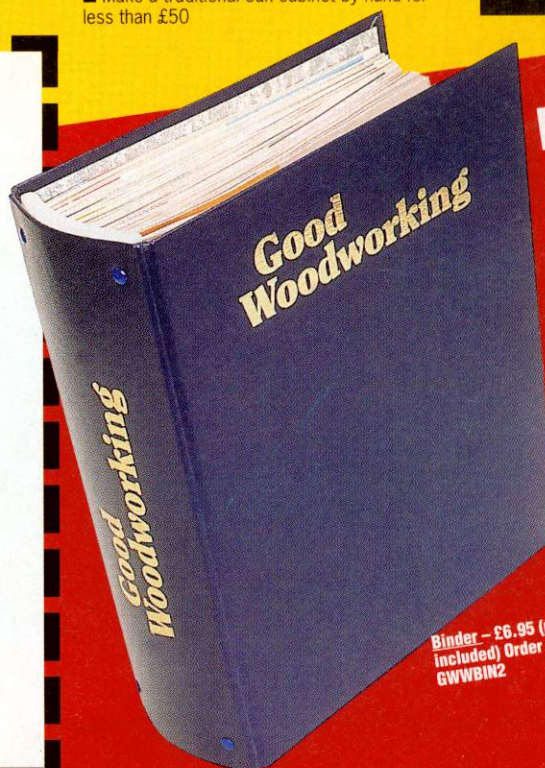
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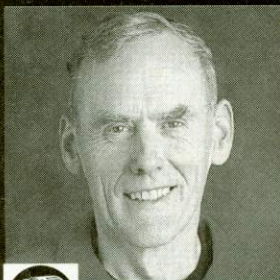
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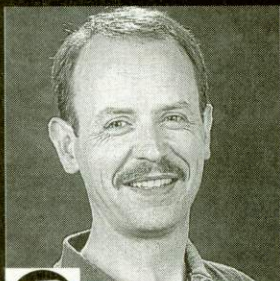
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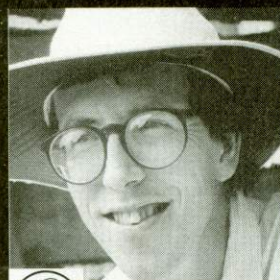
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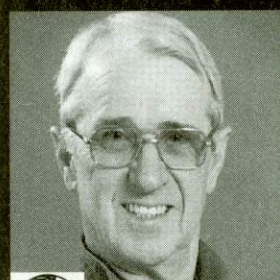
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Joints

Soundproof boards



Could you give me the name and address of any firm specialising in soundproofing wallboards to glue straight onto existing walls?

T. Barker, E. Yorkshire

You will be able to obtain the soundproofing wallboards from Severnply, 14 Gloucester Road, Stonehouse, Gloucestershire GL10 2PQ (☎ 0145382 6886/7). Although this firm is some distance from where you live, Severnply assure me that they could arrange delivery.

Ian Wilkie

Router bit extraction



I have difficulty extracting router bits from my Elu 131 router. I have tried oil on the shank, also tapping the bit after unscrewing. I have been careful not to overtighten.

E. Lawrence, Lancs

Difficulty in extracting a cutter from a router generally indicates a worn or damaged collet, the small chuck that holds the cutter in position. It is unlikely that the cutter shank is damaged to any great extent and even if it were that only prevents that particular cutter from being withdrawn.

When the large nut on the Elu 131 is tightened down on the collet this makes the inside surface of the collet contract and grip the cutter shank and hold it firm. Failure to release the cutter is usually due to the circular spring within the top of the collet being broken. It is a simple matter for this to be repaired and is not an expensive job, however I recommend that this work is entrusted to your dealer or Elu service centre.

Mark Corke

Finish for a bridge



I have built a functional/decorative bridge to go over my fish pond. Having used ex packing case glass (spruce), I am doubtful as to what finish to apply. I am

considering creosote for the base, preservative followed by Danish oil for the rails. The timber is substantial but rather soft. Any suggestions?

A. Smith, Leicester

I would not use creosote for your bridge base because it is harmful to plants and therefore, I should think, to fish and other pond life. You could use a proprietary wood preservative followed by Danish Oil as you suggest but my choice would be the product OS COLOR. This is a semi-transparent wood stain for exterior use with preventative protection against blue stain woodworm, beetle. It is also water-repellent, weather and UV resistant. It will not crack, flake, peel or blister and two coats, with 12 hours drying time between, will give a good protection. This woodstain and preservative product is available in 12 semi-transparent wood

colour shades. A 3/4 litre can cost £8.46 and will probably be sufficient for your bridge as it is economical to use. It is not clear whether your bridge is already in situ or whether you will put it into position when it has been treated. Even though OS is produced to EN 46 and EN 152 standards and is environmentally friendly, avoid splashes of the liquid contaminating the pond water to be on the safe side. Once the wood finish is dry there is no risk at all. If you want a colour shade leaflet or further advice ring RTX Joinery, Weobley, Herefordshire (☎ 01544 318092) who stock the whole range of OS products.

Ian Wilkie

Sealing edges



I'm told there is a product available to seal the edges of MDF, prior to painting. Any

information, particularly names and addresses of suppliers would be welcome.

Jim Keaney, Dublin

Fiddes make a paste filler for MDF edges that is used prior to painting. It costs £4.05 per 1.5kg, or £11.25 per 4.5kg. Their address is Brindley Road, Cardiff CF1 7TX, ☎ 01222 340323.

Phil Davy

Bolt supplier



I have built a picnic table out of teak, made so as to be unbolted at the end of the season. The table is kept close to the sea, whether during the season or in store. I realised when I built it that the bolts need to be as near rustproof as possible, probably of marine quality, but I had to put in temporary steel ones, as I could not find rustproof ones. The steel

Joint of the Month

No. 18 Splined Cross Joint
with Jeff Gorman

It can be quite easy to split the conventional cross-halving joint. Textbooks show some rather fiddly ways to try to overcome the splits that tend to start from the bottom of the notch. It had only one satisfactory gluing surface and is easily loosened by shrinkage.

The housings serve just to locate the loose arms while the glue sets, so they can be quite shallow unless you want to carry a moulding round the arms of the "X".

Advantages

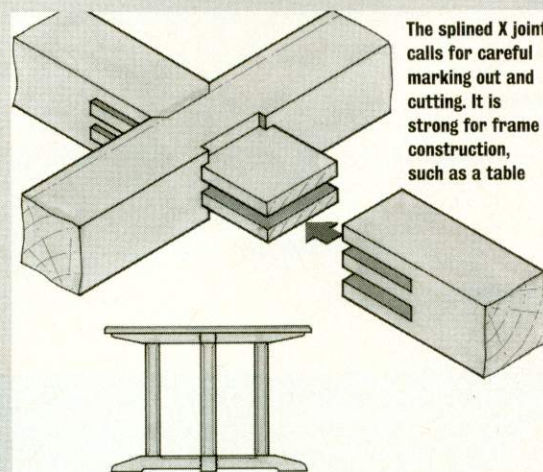
- 1 The splines greatly increase the gluing area. I have drawn two splines, but one thicker one could serve. The orientation of the grain of the splines gives the best possible glue bond.
- 2 The sideways projections of the splines can be shaped to offer an intriguing decorative detail. A nice challenge to your craftsmanship.

Disadvantages

- 1 Involves a lot more work

Hints for cutting

- 1 Leave the widths, say 1mm ($\frac{1}{32}$ in), greater than the finished size. First cut the mortises and the spline slots. Cut the housings to the intended final width. Prepare and temporarily fit the splines. You will need to have the spline lengths just right if the joint is both to close against the face of the housing with the splines accurately meeting the bottom of their slots. Make a trial fit of the arms and plane their sides until there is a perfect fit.
- 2 The use of mitres can enable chamfers or moulding to run the full lengths of the arms.



The splined X joint calls for careful marking out and cutting. It is strong for frame construction, such as a table

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Good Woodworking

unobtrusively as possible? The doors are unstained mat finished and I want to keep them that way.

G. Jeffrey, Dumbartonshire

I do not know of a clear filler. Depending on the timber used you would need to match the colour accordingly. Polyfilla Woodmatch, Colron woodfiller, Rawlplug Plastic Wood are all ready mixed and easy to apply with a filling knife. Available in several wood shades. Liberon wax or shellac filler sticks are also suitable for shallow scratches. The shellac filler is hard and is melted with a hot knife or soldering iron. Whatever filler you use, you will need to sand it flush when dry, with fine abrasive.

Phil Davy

Jewellery box

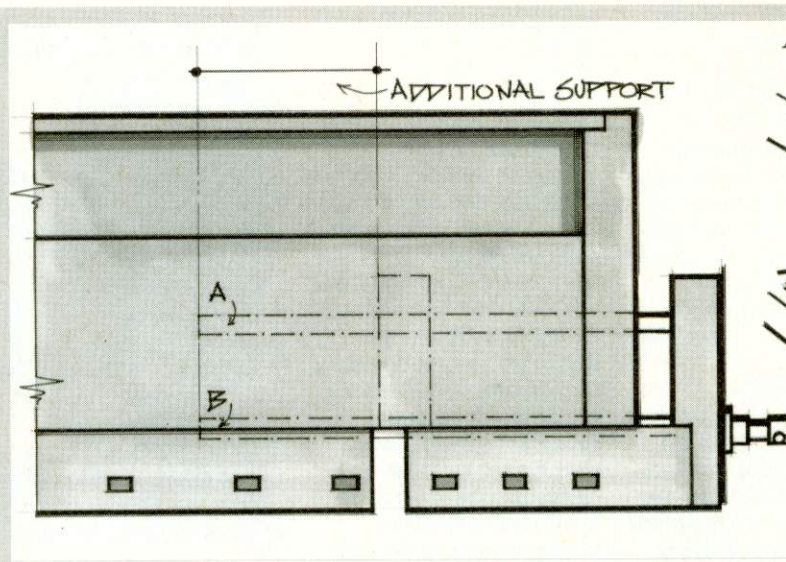
For my technology project at school I am investigating security. I am making a jewellery box and I would be grateful if you could send me information concerning the design and construction of jewellery boxes?

Gemma Walters, Dyfed

Design and construction of jewellery boxes must take in a wide range of considerations. Influences to consider are what size it is to be, the material available, the skill you possess and the time available. A well made simple box would be much better than a poorly made complicated box. So if dovetails are your strong point use them, if they're not, then go for a rebate or a simple butt joint and decorate the box either by cutting into it or applying something to it. For the base use a groove or a rebate if you can hide it on the ends (as you can if you're using a mitre or rebate joint for the sides).

As for the lid, the traditional method is to make the whole thing complete with lid and base and then cut it in two carefully with a tenon saw. Invariably Murphy's Law steps in and you're then doomed to spend the next three weeks chasing round and round with a plane trying to get them to match and succeeding only in making your jewellery box look more like a pencil box. An alternative is to use a flat lid and let it overhang.

As for security I never put locks on my boxes because if some character wants the contents he'll either break the box or take the whole thing. A lock will keep small hands out but apart from that they're not a



Design advice for a tail vice

I want to make a tail vice for my bench. Can you help with a design and advice. I am keen to avoid droop when the vice is fully open. I have the long screw and fixings.

M. Ayling, York

The tail vice can hold wide objects with the gripping space, unobstructed by any vice screw or guide rails. The dogs are used to grip boards end to end, and while a boon for old style ploughing and rebating, they come into their own in the age of the high speed router. They can also be handy for

prising joints apart. For designs to brood over, including dimensioned working drawings. Look at *The Workbench Book* by Scott Landis. A Fine Woodworking book published by Collins (ISBN 0 00 412467 7). I paid £19.95 several years ago.

I have chosen a 19th century bench to illustrate a point. Here the shaped arm to the right of the screw is clearly not a gripping jaw. Its principal purpose is to restrain the twisting of the slide as it is tightened. Certain older, and some modern engineered designs dispense with it altogether. The broken line shows the shape of modern versions. Some people fit

an extra dog near its far end. The plan outlines the arrangement of a typical under-rigging. Most designs have the support runners the same length as the jaw so as the vice opens, only a short length remains in contact with the guides and the underside of the top.

It might be worth while considering how to extend of parts A and B so they still remain engaged with the underside of the bench when the vice is opened to the limit. Close tolerances will be needed to conquer the dreaded droop, so I hope that your workshop does not get damp.

Jeff Gorman

great deal of use. Dig around the antique shops and find out how the old craftsmen used to do it. Secret compartments are a whole new dimension to the word security.

One more word on boxes. Get hold of a copy of Andrew Crawford's *Book of Boxes* published by Stobart Davies, it's pretty well all in there.

Peter Lloyd

Polyurethane tip

I found the feature on polyurethanes by Austin Hilditch very helpful (GW 25:90), but I would be grateful if he could pass on another tip; how to get rid of the small specks of

atmospheric dust that inevitably settle on a polyurethane coated surface even when it has been diluted with white spirit?

K. Barton, Sussex

Avoiding dust can be quite a problem. Firstly do your finishing in a place that has no more than the minimum of dust in the air. A workshop is usually the worst place for dust. In the summer I do the final finishing outside but for the rest of the year I do it in our kitchen, taking the work back into the workshop for sanding.

It is best to finish somewhere warm, dust only sticks while the surface is wet. The sooner it dries the less dust will stick, but do not use a fan

heater or anything that is going to raise dust (not near an open fire or any heater that might set fire to the white spirit contained in the product). Thin coats dry quicker than thick coats, but you need more coats, so it is a matter of balance. I usually do most of the finishing with thin coats of the product as supplied, or with some products thinned a little, more because I get a better finish this way than to avoid dust. I rub down a little between all coats but when the finish is nearly good enough, I rub down well with a fine grit, 240 at coarsest, then give a final coat (or two) with very thin product, usually thinning with an equal amount of white spirit,

occasionally more. This levels well and dries fast.

When the final coat is dry, and hopefully, having no more than a bit of soft dust on the surface, I polish with a medium hard rag using wax polish, more as a lubricant than as a polish, and finally buffing with a soft rag, most bits come off.

One other point on avoiding specks in the film. Often after part of a tin has been used you find an accumulation of bits. These may be hard and will not polish off so easily. Clean up the thin material prepared for the final coats by filtering through filter paper as used for wine making. Any bits will be removed.

Austin Hilditch

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① Where can I buy blades for a Naerok bandsaw, model B360? I am also interested in a router which can be converted to a mini spindle moulder. A. Stephen, Baffshire

Any supplier of bandsaw blades will be able to help. Try J.R. Porter (☎ 01458 860259). Hamilton Edge Tools (☎ 01633 838900), Trucut (☎ 01432 275454), or Axminster Power Tools

(☎ 01297 33656). Most routers can be inverted to use as a spindle moulder. See (GW 5:66/13:79/26:14) for tests on budget and professional routers.

Phil Davy

② I am looking for suppliers of beading to make photo frames, and PVC frames to make CD tower video cassettes in pirana pine. Can you help? D. Bodeley, Bath

Timber books

Is there a book on timber, its uses and characteristics for turning or woodworking, covering colour, grain, lightness, characteristic, uses and hazards?

K. Allen, Glasgow

There are a number of books on timbers, most of them designed to be useful for a fairly wide variety of applications. Probably the best value for money is the

Collins *Good Wood Handbook* by Albert Jacks and David Day, published by Harper Collins 1990. This retails at £9.95. Get hold of *World Woods in Colour* by A. Lincoln, published by Stobart. I have an old copy of the *International Book of Wood*, (now out of print), but is a beautiful handbook of all the different things that wood is used for. It starts with the growing and structure of wood, going through its conversion, into pictures and descriptions of applications of wood in architecture, carving, furniture-making, boatbuilding, transport etc... and ending with colour plates of several hundred different woods and a brief description of their characteristics. **Tobias Kaye**

mail order from W. Hobby Ltd, (☎ 0181 761 4244). The catalogue reference is Part No.303361, price £2.63 (+P&P) for a 3gram size tube. The information on the pack says that the thick, non-run super glue is ideal for bonding porous and non-porous surfaces and stays where it is placed. It fills gaps of 1mm and is ideal for china, wood, most plastics, canvas, metals etc... **Ian Wilkie**

Bearing wear

 There appears to be slight wear on the headstock bearings on my Nu-Tool 37 lathe. Can you advise me how to remove them and is there a size or code No. so they can be obtained locally?

A. Hewitt, Gwent

While small bearings like this do wear after a while, even with new bearings the Nu-Tool lathe does have vibration in it even when the bearings are in mint condition, mainly because the bearings are very close together. While this lathe represents good value for money, you cannot expect to get the steadier performance that you would from a more expensive lathe. This is especially true if you are turning

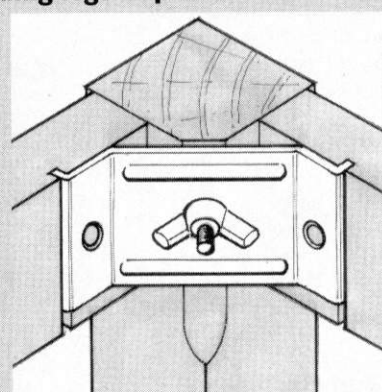
on the lefthand outboard side of the lathe, as the distance between the faceplate and the bearings then is too great for anything but vibration. However if you do need to replace the bearings on this lathe, firstly take off the drive belt, then to slacken the grub screws in the aluminium pulley and remove that from the shaft (you may need to heat this with a hair dryer first to expand the aluminium off the steel shaft), then it may be necessary to remove the steel plate that backs the main headstock casting and extends down to cover the belt run to the motor. Having done this you may find that there is some further bearing retaining system under the plate, but if the bearing is now clear all round its edge, as is the bearing on the front of the casting, it should be possible to drift the shaft out, either by tapping it with a softwood block or with a hammer, keeping the softwood in between the surface of the hammer and the end of the shaft. Once the shaft is out, if the bearings do not come with it a hardwood dowel can be used through one of the bearings to tap the other bearing out, working around its circumference taping as you go,

Device for holding legs in place

 I have searched all over the place looking for a supplier of a device to enable legs to be removed from tables to help save space in storage. I enclose a sketch.

P. Hutton, West Sussex

Try Isaac Lord who have a device called a cranked table plate (☎ 01494 459191).



Phil Davy

Glue for squeakers

 I make small wooden toys and need to glue squeakers (used inside teddy bears) to 3mm plywood cutouts. The squeakers are made of soft plastic and none of the usual glues seem to adhere.

A. Clarke, W. Mids

I suggest you try Loctite Super Glue Gel Extra. If you cannot find this glue locally it is available by

again warming the casting may help to free them. New bearings can be obtained from Axminster Power Tool Centre (☎ 01297 33656) or any local bearing stockist (see Yellow Pages) quoting the numbers printed on the bearings themselves.

Tobias kaye

Fretsaw vibration

 Is there any significant difference in vibration between single and double pivot fretsaws? I have read all your

test reports and there is no mention of vibration. I use an Axminster single pivot machine and even with a mat I get a lot of vibration. I also find it difficult to cut fine fretsaws (small) with this machine. **F. Faima, Bucks**

When we tested fretsaws (GW 1:74) the Hegner stood out as being particularly vibration free. None of the other saws were any worse than another. You need to bolt a fretsaw down if possible, even with an anti-vibration mat. **Phil Davy**

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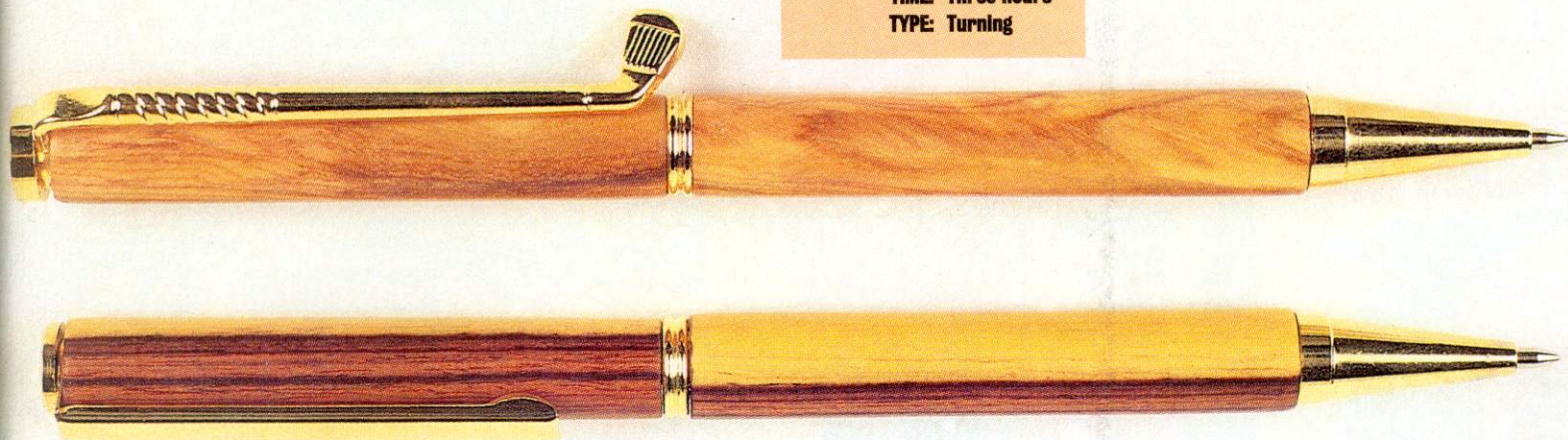


PROJECT GUIDE

DIFFICULTY: Intermediate

TIME: Three hours

TYPE: Turning



Propelling pens on a lathe

Turn and assemble wooden barrelled propelling pens by following our step-by-step instructions



Retired civil engineer, Eric Ballard's interest in turning came about when turning wheels for a model wagon

have made a special tray so that I can make 10 pens at a go for economy



Turning pens is a great project for the experienced turner, and something to which the novice can aspire. Making wooden barrelled pens involves a high level of accuracy to achieve the right thickness of timber.

When the ballpoint is propelled forward the two halves of the barrel revolve relative to one another. If each is turned with a lack of alignment of only 0.5mm ($\frac{1}{4}$ in), there will be a 1mm ($\frac{1}{2}$ in) lack of fit.

The thickness of the turned wood is only 1mm

($\frac{1}{4}$ in). In effect the wood becomes a veneer on the inner metal tube, and the glue joining the wood to the tube must be distributed over the whole of the contact surface, or the wood may crack later on.

These two features, together with accurate assembly of the components, make unusual demands on the turner.

Because of the many processes it takes to make a pen, I build them in batches of 10, thereby reducing the set-up times. I built a small wooden tray to hold the 10 pens, and throughout the various processes, the partly constructed pens are either being actively worked upon, or are stored in the tray.

Trial and Error

When I first started making pens, I cut the blanks into two lengths of 76mm (3in). I drilled each from one end, and inserted and glued the 53mm ($2\frac{1}{2}$ in) tubes. When the glue had set I turned the blank and cut off the surplus length of 23mm ($\frac{7}{8}$ in).

In principle this seemed sound, but in reality it

suffered from a severe weakness. No matter how precisely the drill point was lined up with the tailstock, it tended to deflect by the grain, and the resulting drill hole was slightly curved.

Whilst it was usually possible to insert the straight tube into the curved hole, it did not take up a position parallel with the line joining the centres of the drill's entry and exit points.

Since this was the line about which the blank was turned in the lathe, it meant that the thickness of the wood after turning was not uniform, particularly at that end of the tube which was buried two-thirds of the way into the blank.

Sometimes, when the turning was completed, the chisel had totally removed the wood at this point, leaving only glue. I improved this condition by drilling the blank from both ends, but it wasn't always enough to meet the tight tolerances I talked about earlier.

More Pitfalls

There are other disadvantages with this

method. The whole 76mm (3in) of the blank has to be drilled, even though a third of it is destined for the bin.

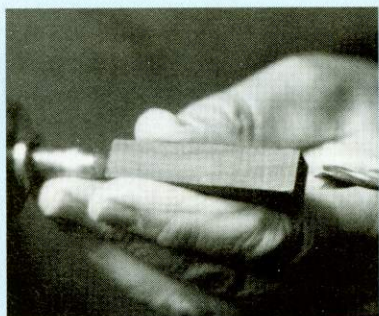
Such wasteful drilling is expensive in time and cost. And the additional length of drilling led to an above average proportion of the drill's deviation from the ideal line. There had to be another way of achieving the tolerances needed.

A lot of hard thinking, together with much experimentation, produced the solution to the problem, and the method of working I use today.

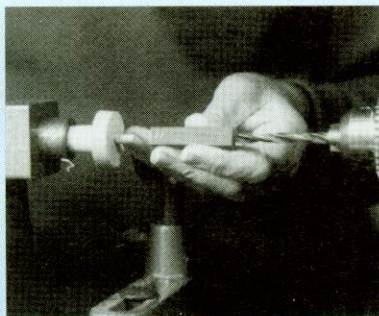
How to Turn the Pens

1 Cut each blank to produce two adjacent lengths of 57mm ($2\frac{1}{2}$ in). Pen blanks can be bought already cut to a size of 150x12x12mm ($6 \times \frac{1}{2} \times \frac{1}{2}$ in). I used a blank in tulip wood from Craft Supplies Ltd (☎ 0298 871636).

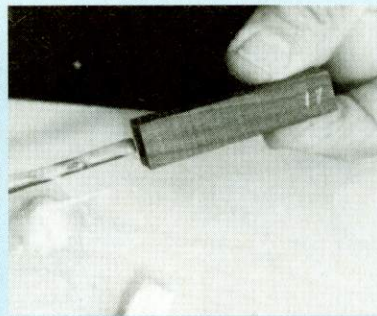
Select that part of the 152mm (6in) that yields the best grain configuration, a feature of the finished pen. Before cutting, mark the two ends that will be at the centre of the pen to ensure continuity of the natural



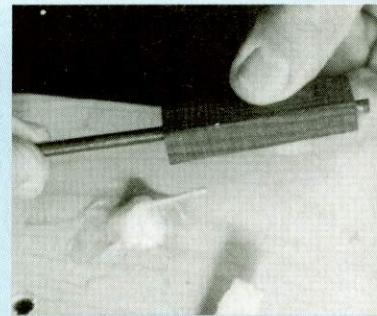
1 Start by drilling the blank, with the drill chuck held in the headstock. Use the tailstock to push the blank onto the brad drill bit



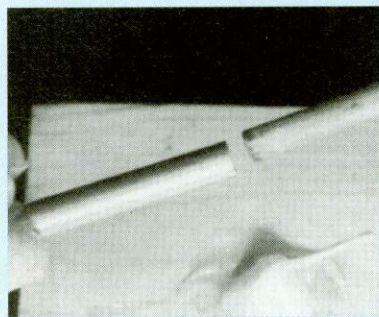
2 Once you have drilled halfway along the blank advance the thruster into the drilled hole to drill the second half of the blank



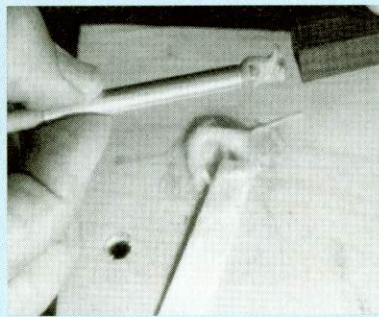
3 After you have drilled the blank and removed it from the thruster, put glue into the drilled hole using a thin bar to transport the glue



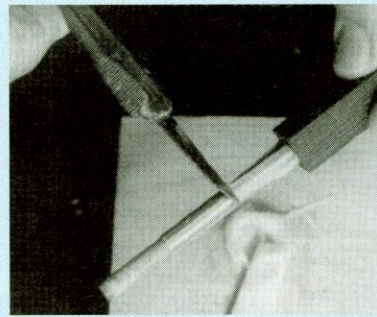
4 Spread the Araldite glue from the end with the best entry point. The quick-setting type of glue changes consistency too quickly



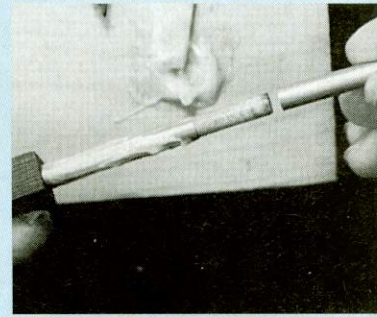
5 Push the metal pen tube over a turned mandrel which has a bullet shaped end against which the tube butts



6 The bullet end has to be about the diameter of the hole through the blank. Put a dab of glue on the end of the mandrel

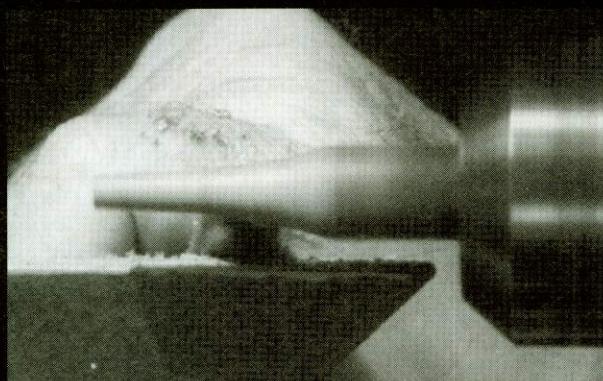


7 Spread the glue along the metal tube with a craft knife. The glue acts as a lubricant for fitting the tube in the blank

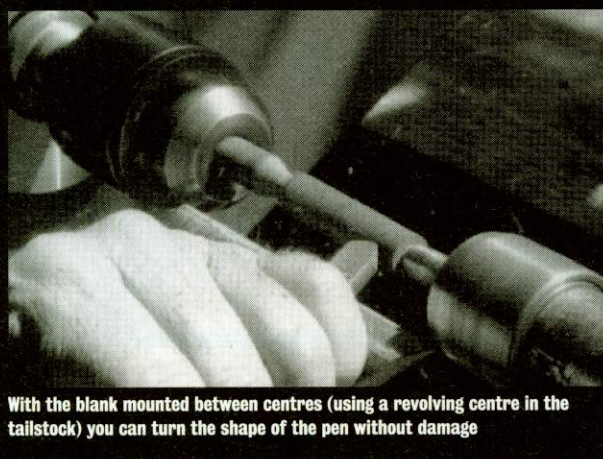


8 Place a second tube over the end of the mandrel and use it to force the first tube into the blank, jiggling to spread the glue

Using a friction mandrel to turn



Turn yourself a tapered wooden mandrel so that you can turn the pen blank between centres without harming the lining tubes



With the blank mounted between centres (using a revolving centre in the tailstock) you can turn the shape of the pen without damage

grain across the central ring of the completed pen.

2 The ends of the two halves of the barrels are punched and drilled on the lathe using a 7mm brad point drill. Start each drill manually until it has entered the wood cleanly. Only drill one end of each piece of wood with the revolving centre. The second end is pushed onto the drill with a purpose-made thruster inserted into the tailstock. This prevents the wood from splitting by the tapered point as it enters the previously drilled end.

3 Glue the metal tube into the wooden barrel. Work from an end of the blank which has a perfect drill entry. Use normal setting Araldite; quick setting material changes consistency too quickly for batch work.

To get glue all around the inside of the hole, start by coating a thin metal bar with glue. Enter it into the hole in such a way as to transfer as much of the glue onto the inner wall as you can.

4 Feed the metal tube onto the shank of a specially turned mandrel, the leading

point of which is bullet shaped with a diameter equal to the outside diameter of the tube. The shank of the mandrel is about 1in longer than the metal tube. By

placing a second tube over the end of the shank, the first can be pushed into the hole, thereby driving the bullet head through the glue, and spreading it around the

drilled hole in the blank. As the tube enters the blank it is further coated with glue on the outside and a twisting action ensures that the glue is spread around the hole.

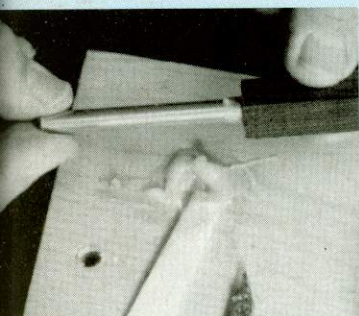
5 When the leading tube is within 6mm ($\frac{1}{4}$ in) of its final position remove the second tube and invert the assembly over a piece of smooth scrap wood. By pressing down on the mandrel shank it is pushed up to the projecting end of the first tube, and then both are pushed further into the hole until the tube is in its final position.

By that time the bullet head of the mandrel is projecting an inch through the barrel, and can be withdrawn for further use. Remove surplus glue from both ends and set the assembly aside overnight.

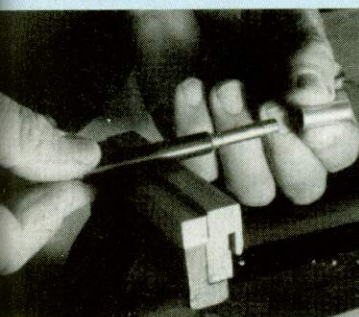
6 When the glue has set, clean the inside of the ends of the tubes with a $\frac{1}{16}$ in drill. For 10 pens there are 40 ends to clean, and it is worth putting the drill chuck into the headstock, running on the slowest speed. Square off each end on the disc sander,



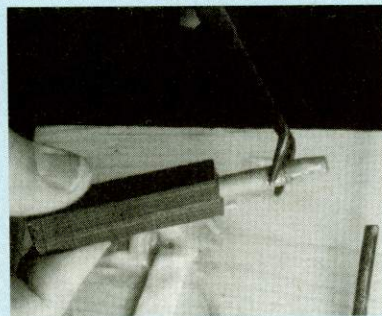
TIP Use a vice with protective jaws to drive the mechanism of the pen into the lower half of the pen. The mechanism has to be exactly the right depth in the lower half of the pen for the ballpoint to advance properly. To get the depth right, place a distance tube over the mechanism when pushing it home so that the mechanism is in exactly the right position



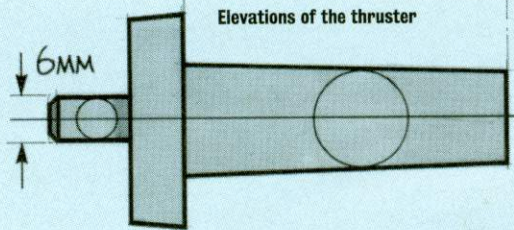
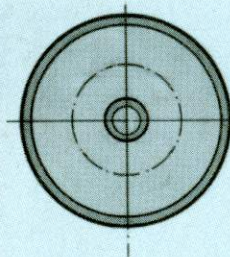
9 Carry on pushing the two tubes into the blank on the mandrel until the first tube is within 6mm of the final position



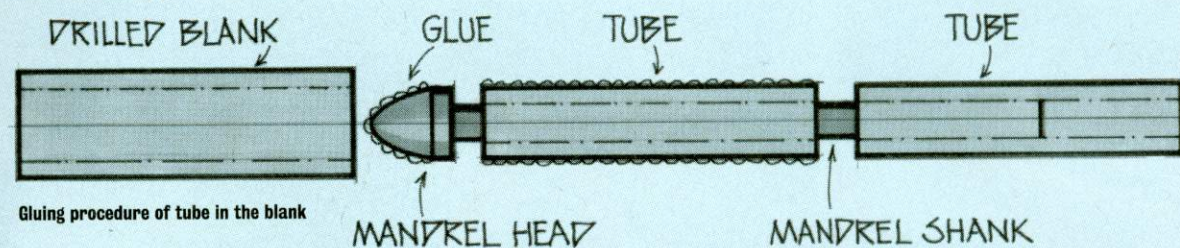
11 Pushing the mechanism into the tube can be difficult. Sand the mechanism a little before pushing the mechanism in



10 Press the shank of the mandrel to push it out the other end and to push the first tube in fully. Then pull out the mandrel



Use a thruster to hold the blank when drilling the second part of the hole down the centre. The idea of the thruster is that it reduces the risks of the thin wooden tube splitting as it is drilled



Finishing the turned pen



You can buy all the components to make a pen from Craft Supplies or John Boddy's, as well as many of the specialist woodwork and turning suppliers



Using a pen you have made yourself is especially rewarding. Write to us if you have any requests for turned projects in Good Woodworking

cutting back the 3mm ($\frac{1}{8}$ in) amount of surplus wood at the far end of the blank, removing any imperfection that there might be in the drill entry.

7 To turn the barrels, insert a piece of hardwood, 12mm ($\frac{1}{2}$ in) diameter into the lathe chuck and turn a drive mandrel to provide a friction fit with the inside of the metal tube. Use the mandrel for many pens, but if you take it out of the chuck, reshape it when next inserted to remove any eccentricity resulting from a changed grip in the chuck.

Push the barrel onto the mandrel and with the other end located by the point of the revolving centre, turn to the shape you want. Apply the finish while the piece is still on the lathe, using three grades of garnet paper, two coats of sealer, wirewool and two coats of friction polish.

8 Before assembling the pens, identify the two ends of the barrels that must be adjacent at the centre of the pen for grain continuity. Push the metal nib and clip onto the other ends with a

vice, the jaws of which have been packed so as not to damage the metal finish.

Propelling Mechanism

9 Push the propelling mechanism into the relevant end. I find that the diameter of the propelling mechanism is slightly

oversize, and undue force can split the metal tube and later generate a small crack in the wood veneer. This means that the diameter must be reduced using emery paper. You need to be accurate when determining the extent to which the propelling mechanism is pushed into

The procedure of gluing the metal tube into the blank is to use a wooden mandrel and a second piece of tube. Put glue in the blank and on the mandrel. Push the bullet end of the mandrel into the blank. Spread glue over the tube, then use the second tube to push the first in. Then remove the mandrel

the barrel. Too little and the advanced ballpoint will be loose during use, too much and it will project from the tip when fully retracted.

Before pushing the mechanism into the barrel place over it a piece of metal tubing, 21mm ($\frac{7}{8}$ in) long and 8mm ($\frac{5}{16}$ in) internal diameter. This acts as a distance piece, limiting the movement of the packed jaws of the vice as they drive the mechanism home.

Care must be taken however because if the disc sanding of the ends of the barrels has been too vigorous and reduced the lengths of the tubes, then the distance piece will be of the wrong length, since there is only about 0.8mm ($\frac{1}{32}$ in) tolerance.

Check that the pen works perfectly, and give it a final buffing with a polishing cloth ready for use.



WORKSHOP SALE

Selling your old router or looking for a bargain biscuit jointer? This is the place for readers to buy or sell anything to do with woodworking, up to a price of £500. All a space on this page will cost you is the price of a postage stamp. If you are selling an item more than £500 there is a nominal fee of £10

A FREE SERVICE TO READERS

FOR SALE

POWER TOOLS LESS THAN £100

Draper BD13/3E bench drill press, three-speed 1/2in capacity, £50. Bosch drillstand (exc drill) £15. Wolfcraft portable bench disc sander with Bosch variable-speed drill and several Velcro backed sanding discs, various grades, £45. **J. Rabey, London, ☎ 0181 527 8396.**

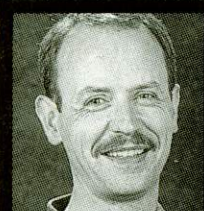
HAND TOOLS £25-£100

New electric glue gun, with supply of glue rods, £12 (+ P&P). Three 10in circular sawblades, little used 1x60 tooth TCT 1/2in bore, 1x30 TCT 1/2in bore, 1x44 HSS 1/2in bore, £20 the lot (+ P&P). **F. Rogers, Kent, ☎ 0181 658 8161.**

Record 52½E vice as new, £60. Stanley bridges colourmatic 1/2in drill variable speed, £20. Record bench stop, £3. **D. Massey, Bedford, ☎ 01234 721073.**

HAND TOOLS MORE THAN £100

Multico 6in planer attachment to fit Supershop or Shopsmith, £150 or swap for bandsaw to fit same



PHIL'S BARGAIN BUY

Technical Editor Phil Davy picks his bargain of the month and tells you why

If you like a peaceful life with as few machines and power-tools as possible, you may like the sound (if you can hear it at all) of Ron Rogers' treadle fretsaw. At £35 it seems good value. Give Ron a ring (☎ 01628 522113). There are several lathes for sale this month, from £120 upwards. Not too expensive if you are considering taking up woodturning for the first time.

machine. **Vin Shukie, Lancs, ☎ 01942 725653.**

Bench planes Record, 071, 073, 050. Combination plane, 14 cutters, 7 plough, 7 beading, £150 (buyer must collect). **A. Platt, Lancs, ☎ 01772 432638.**

MACHINERY £25-£100

Powered scroll saw (SS18) one year old, 8in throat take pin and plane

end blades, only tilts 30°, £60. Hobbies A1 treadle fretsaw in working order, but not original, £35. Hobbies fretsaw, hand frame 18in with wooden handle and screw adjustment, £12. **Ron Rogers, Bucks, ☎ 01628 522113.**

DeWalt DW250 mitre saw, TCT blade, in excellent condition, £85. **Mark Hussey, Birmingham, ☎ 0121 327 8299.**

MACHINERY MORE THAN £100

Record DML24, three-speed lathe, 24in in between centres, extra bed bars. Bench 4½in faceplate, screwchuck, four prong centre fitted throughout with locking handles, £130. **Alan Finney, Staffs, ☎ 01827 62315.**

Coronet lathe No.2, 48in centres complete with four jaw chuck, two tool rests and bench and 12 turning tools, £350. **S. Packman, Kent ☎ 0181 697 4355.**

Coronet (Minorette) lathe with TCT saw, swivel head 1hp motor 1ph new last year, 35in between centres. Bench/cub included with outboard turning rest, £280 (ONO). **E. Daldry, Swansea, ☎ 01792 792130.**

Poolewood bench circular saw 10 TA good condition plus accessories, £250. Charnwood dust extraction W890, £90. **John Wischhusen, Middx, ☎ 0181 422 4187 (eve).**

Myford ML8 lathe fitted with bandsaw attachment on purpose-made bench with lots of equipment, £500 (ONO). **B. Harrison, Birmingham, ☎ 0121 474 4519.**

Multico Super Shop five function combination woodworking machine,

like Shopsmith MK5 plus two instruction videos. **R. Scroggins, Essex, ☎ 0181 551 5188.**

Elektra Beckum 10x6in planer thicknesser, model HC260E with spare cutters and morticing attachments, £370. **Michael Gooch, Hants, ☎ 01256 22068.**

Coronet No.1 lathe (little used) 36in bed, 10in and 4in tool rests, £200. **B. Simpson, Preston, ☎ 01772 672041.**

Tyme cub lathe (14in) chucks many tools and accessories timber, £300, complete. **D. Thompson, Leicester, ☎ 01162 415225.**

Record lathe DML 24x, three months old, £120, set of six Record chisels, plus 1/2in bowl gouge hardly used, £60. **B. Colam, Derby, ☎ 01283 734335.**

Tilt arbor tablesaw 10in blade, in good working order, as new, £250. **Norman Ford, Herts, ☎ 01442 216486.**

Startrite rise and fall/tilt arbor sawbench with extensions, 10in TCT Blade £265 (ONO). **F. Morgan, Warks, ☎ 01203 329909.**

TIMBER

10 pieces of oak, well seasoned, 8ft long 4x4in, £7.80 each. **P. Gaynard, Wells, ☎ 01748 675092.**

WANTED

Bandsaw wanted, will collect, **G. Hickin, Worcs, ☎ 01527 821563.**

Mitre guillotine must be in vgc; Elu 96EF router; bandsaw 8in-10in cutting depth; routing bit and cutters; belt/disc sander; sanding drums. **J. Jovel, Suffolk, ☎ 01728 688619.**

Hegner fretsaw, Multicut 2S variable speed preferred. **Michael Gooch, Hants, ☎ 01256 22068.**

Carving blanks of lime or similar: dimensions 1in thick or more by 10in/12in square, small quantity say one dozen of. **R. Ribbons, Swansea, ☎ 01792 863236.**

Small hand router cutters, oak faced ply and blockboard. **F. Morgan, Warks, ☎ 01203 329909.**

Planer thicknesser, bandsaw, router, lathe and grindstone. **Ray Kirk, Metham Hall, Laxton, Howden, DN14 7YB.**

Arundel lathe for budding bodger keen to make first chair, K450 if possible, but any lathe considered. **M. Wallace, Northampton, ☎ 01327 342064.**

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Back to basics

No.28 Working order by Edward Hopkins

Much of the thinking behind working order is self-evident. You won't finish until you've jointed, or sand before you've sawn. Nevertheless there are principles and practices that are not so obvious. They will oil the wheels, soothe your nerves and make a noticeable difference to the standard of your completed project.

Workshop Functions

As work progresses, your workshop changes function several times. It starts with the preparation of timber, moving into joinery and construction, possibly encompassing some other skill such as carving or inlay, and culminates as a finishing shop. As far as is possible, complete each stage before moving on to the next.

The first thing this achieves is some sort of tidiness in the workshop combined with dust control. Before you begin a new job, clear the bench, dispose of offcuts and

sweep the floor. Give yourself a fresh start. Saw and plane all the components to their rough sizes before finally dimensioning any.

For some reason, thicknessers are not fitted with stops on the rise and fall mechanism. The only way to be sure that components are of an identical thickness

piece will. Unless your timber is badly seasoned and liable to distort before you have a chance to get back to it, thickness all the components to their final sizes and stack them neatly awaiting phase two. Phase one is complete, so sweep out the workshop one more time and get ready for closer work.

Prepare Spares

Mistakes can creep into the best of workshops. If a particularly tricky operation is coming up, or if a large number of identical components is to be made, prepare some spare blanks.

Having to go back to preparing rough timber when you are well into finer work does nothing for your composure. It'll do nothing either for identical dimensioning or grain matching. If much machine setting is to take place, use large offcuts of correctly dimensioned components for testing.

You might be tempted to complete the preparation

Planning makes life easier

The larger the job, the more important working order becomes. As important as the physical ease of working is the psychological benefit it affords.

Rather than facing an epic trudge over one enormous mountain, break the job down into several smaller projects, each of which becomes an afternoon walk up and down a manageable hill. There will still be preparation and processes common to several areas which must be completed at the same time and fathoming the working order will become a hillock in itself, but who would attempt long distance travel without a little planning?

by trimming all components to length. Where it isn't essential (for instance on tenoned rails), don't. The extra timber protects the final ends, retains strength during jointing and is a ready-made waste block which can be hammered during dry-fitting.

Leaving trimming to last (when it can be marked off against reality, not theory) also means that you won't inadvertently cut just a little too short.

Even the finest of timber is likely to move

around if it is machined into thin boards such as those used in panelling. Resist preparing this until you can move straight through to joining the boards (if necessary) and shaping then to fit the framing. Leave the finished panel located in the framing even if the latter must remain dry-assembled. Alternatively, pile the panels (potential cup to potential bow) on a flat surface with battening and a concrete block on top.

If many boards have to be joined as panels or if a

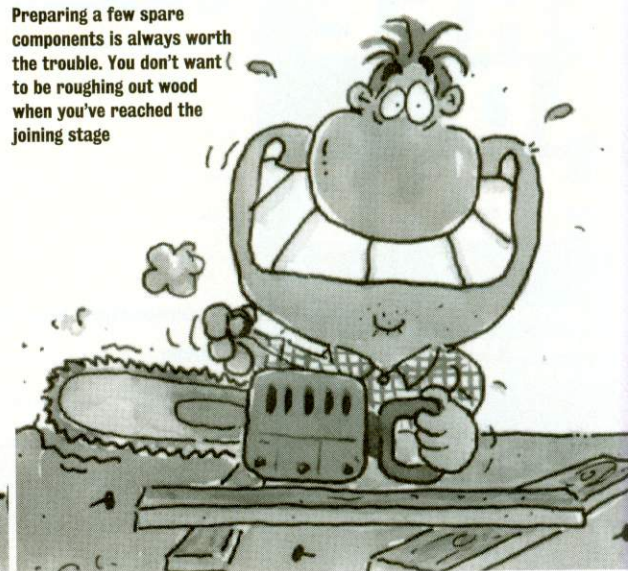
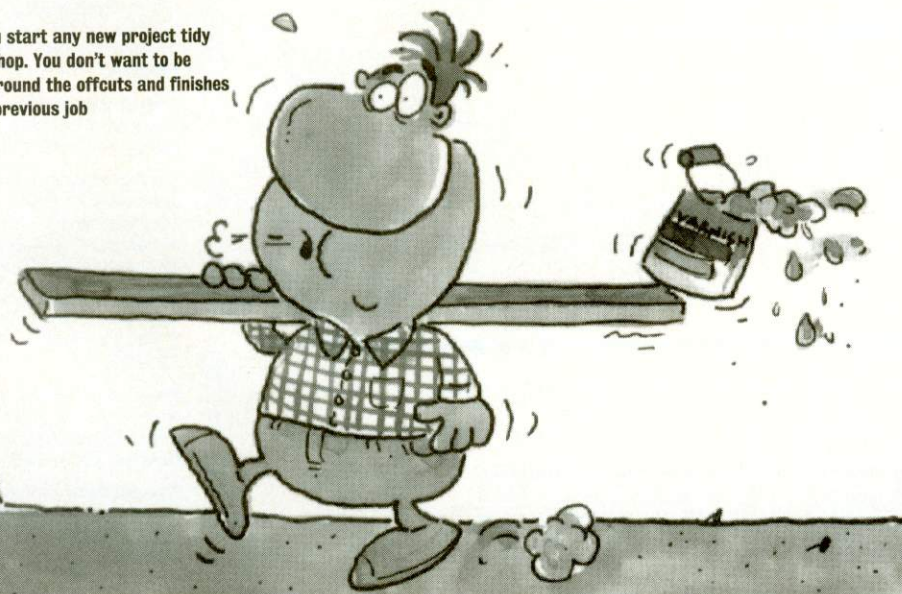
TIP Where curved components need to be cramped together, leave some areas of waste attached to act as cramping blocks. These can be cut to an angle convenient for cramping and sawn away (then shaped in) when gluing is done.

therefore is to prepare them with the machine on the one setting.

Separate units, like a dresser base and a plate rack above it, will not demand such micro-metered accuracy, but components of the same

Before you start any new project tidy the workshop. You don't want to be working around the offcuts and finishes from the previous job

Preparing a few spare components is always worth the trouble. You don't want to be roughing out wood when you've reached the joining stage



Sand and finish as many parts as possible before assembly, but remember to mask off the joints

Once you've started the finishing process the last thing you need is to be sanding an extra part, so polluting the finishing shop



construction is particularly large or complex, it may be necessary to set up a gluing and cramping routine. Whatever other work is going on, it may be that it stops half an hour early so that you can uncramp yesterday's offering and glue up today's. Forgetting the time it takes for each cramping to dry can result in frustration or haste.

Aim for Uniformity

Any identical process which you have to perform on several components should be done with the tool or machine on that one setting. To have to reset a router, for instance, to the exact position it took on a previous operation, is a waste of time and asking for discrepancies.

Having set stops on a radial arm saw for precise repetitive cuts, make sure

that all such work is done before they are removed. Changing all blades, cutters and bits takes time and invites error. Minimise it.

Only set a sliding bevel or a marking gauge once and leave it like that until its work is done. It is better to accumulate extra tools so that several can retain their settings, rather than keep adjusting and losing the accuracy of a few.

All of this means looking ahead to what else is required. Most often it means holding your horses when what you really want to do is just whip a chamfer round that edge to see how good it's going to look. It will look all the better if all the chamfers are exactly the same size, so hold off until you're ready for the rest.

Work Before Assembly

As the work progresses

Working Order for framing

- 1 When constructing a grooved or rebated frame (to take a panel or glass) cut the groove or rebate throughout the length of the rails and stiles first.
- 2 Dig the mortices which will take their position with regard to the groove or rebate.
- 3 Cut the tenon which will be haunched to fill in the groove or rebate on the outside of the frame where it is not needed by the panel or glass.

from heavy machining to joinery and decoration, so the amount of offcuts and shavings dwindle. Much of the sanding and cleaning up of components should be done before assembly because many corners will be inaccessible afterwards.

Likewise, some components, or parts of components might need to be finished before assembly. This might include rubbing down and waxing (for instance on the

insides of drawers.) Mask off with tape any areas that are to be glued so that wax (or any other finish) does not contaminate the joint.

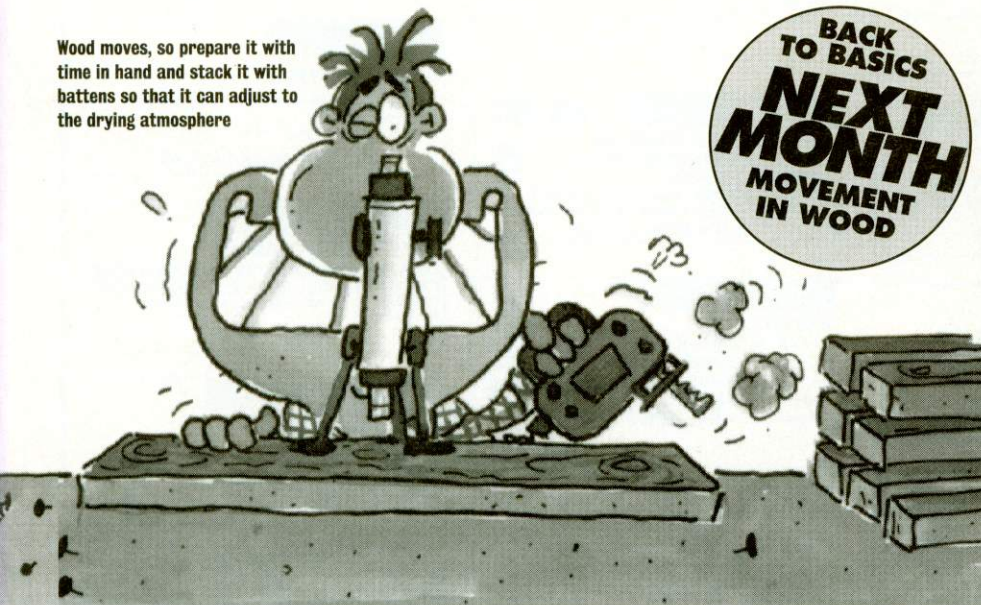
All handles, hinging, catching and other hardware should be fitted then removed for finishing. To do this work later is to risk scuffing the final surface. Remember that finishes have a thickness, so leave tolerances on doors, drawers and other moving parts correspondingly

wide. The old adage 'leave a penny for the painter' referred not to his wages but to the (considerable) thickness of paint (as thick as a penny).

By the time overall finishing takes place, the workshop needs to be a dust-free zone. Odd sandings and scrapings can be disposed of easily but the last thing you'll want is the atmospheric pollution of one extra component you'd forgotten to prepare. Some kind of vacuum cleaner is best to eat dust.

If dust remains a problem for any reason, apply finishes last thing at night so that the room is undisturbed while they dry. Better still, creep into the perfectly still workshop on Sunday morning, give the piece one more coat, and then go back to reading the papers.

Wood moves, so prepare it with time in hand and stack it with battens so that it can adjust to the drying atmosphere



BACK TO BASICS
NEXT MONTH
MOVEMENT IN WOOD

We have already covered many subjects for beginners in our monthly Back to Basics series. If you want a back issue contact our Hotline on ☎ 01225 822511.

Back to Basics so far

- Timberr yards (Nov.92) ● Buying hardwoods (Dec.92)
 - Preparing timber (Jan.93) ● Gluing (Feb.93)
 - Planing (Mar.93) ● Veneers (April 93) ● Chiselling (May 93) ● Holding wood (June 93) ● Screwing (July 93)
 - Nailing (Aug.93) ● Marking out (Sep.93)
 - Finishing (Oct.93) ● Estimating (Nov.93) ● Hinging (Dec.93) ● Mortice and tenons (Jan.94) ● Stringing (Feb.94) ● Panelling (Mar.94) ● Drawing (Apr.94)
 - Grain (May 94) ● Long joints (June 94) ● Wood stores (July 94) ● Using spokeshaves (August 94)
 - Choosing a saw (Sept 94) ● Drawboring (Oct. 94)
 - Workshop layout (Nov. 94) ● Planning a project (Dec. 94) ● Picture framing (Jan. 95) ● Morticing (Feb. 95)
- NEXT MONTH – The inevitable movement of wood.**

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- Purely Planes explains why and how to curve a blade
- Make the most of your finish with our article on Special Effects

TURNING

- Tobias Kaye gives expert advice and information on sanding turned work

TOP PROJECTS

- A classic writing slope
- Fireside coffee table

PROJECTS FOR THE WEEKEND

- Waste paper bin in cherry and MDF
- A bobbing wooden model of Venice!
- Expanding book ends
- Bandsaw a fruit bowl



Small chucks



Ian Wilkie tests a range of small chucks, suitable for turning in miniature

Japanese chisels

Are these luxury hand-tools, or do they really have a place in your workshop?



Add a touch of originality to a fruit bowl with a difference

Discover the delight of making a writing slope

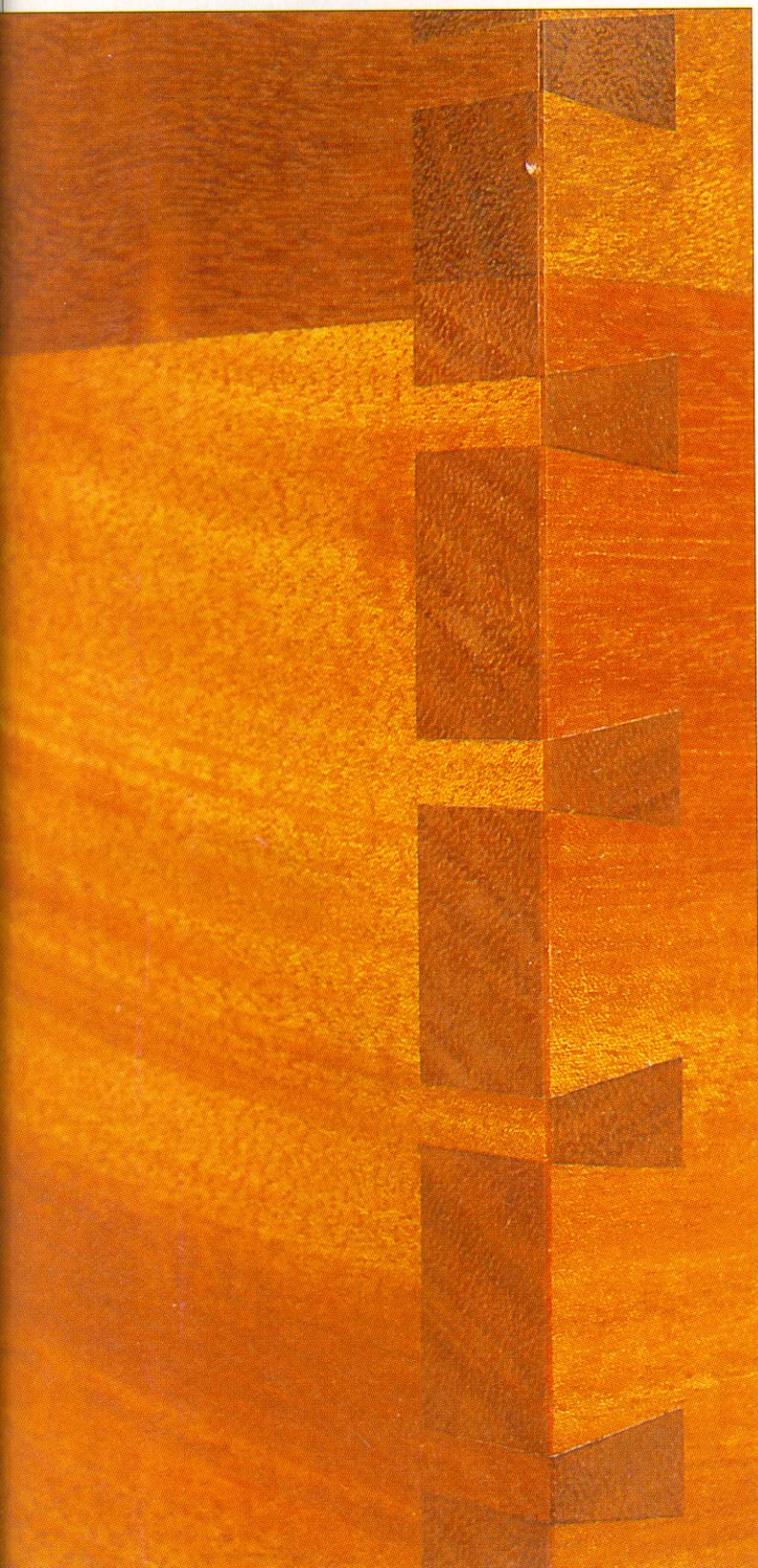
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Jeff Gorman explains two approaches to cutting dovetails, while we show how top furniture-maker Alan Peters regularly uses this symbolic joint as a focus of his work

Dovetailing for the Cautious or Bold



It is easy to see dovetailing as a black art only for the experts.

Furniture-makers certainly use this joint, more than any other, as decorative evidence of their skill. However once you have mastered the 3D geometry, the dovetail need be no more than a matter of careful workmanship. In my National Service days we were told The Naming of the Parts should always come before the technical drill. The same is true of dovetailing, so start by brushing up your jargon by checking the drawings.

Uniquely for woodworking, the dovetailer makes one part of the joint first and uses that to scribe around its mate. Some people start

with the tails, while others favour the pins. I take the tails-first route.

The width of the pins and their spacing can vary according to the nature of the job or your decorative fancies. For a practice joint (which I am going to explain) I'm going for fairly thick pins. For through dovetails on quality cabinet work, the pins at their widest part might be about half the thickness of the workpiece. They must, of course, be a little wider than your narrowest bevel-edged chisel.

On my test piece the pins near each end are deliberately crowded (tails are narrower there). This is intended to resist long-term warping likely to be caused by

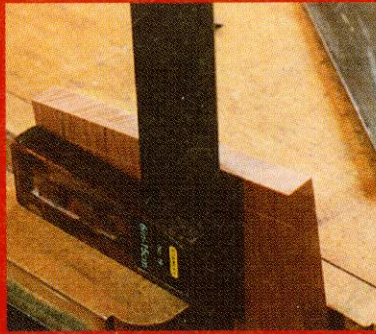
Alan Peters: Master of the Dovetail

The dovetail is regularly a focus of Alan Peters' work. Routers are used in his Devon workshop to removed some of the waste, especially for lapped dovetails, but essentially they are all cut by hand. Alan's work has been greatly influenced by the Arts and Crafts movement (he trained with Edward Barnsley) and by Japan, following a sponsored visit there in 1975.





Use a template to mark out the pin sockets. The Veritas and Richard Kell templates are probably the best known of the type you can buy



Tilt the job so that the saw lines are vertical. To avoid vibration fix the wood low in the vice, then remove the waste with a small fretsaw



A thump with your hand should be sufficient to propel a narrow chisel. Notice how the left forearm is supported on the vice



For finishing off the bottom of the pin socket you need a more delicate touch. Support the chisel with your left hand

changes in moisture. Forces acting on the half end pins can make them splay outwards, so they need to be thicker than the other pins.

Preparing to Go

Start with your work too thick by about a millimetre. Make sure the grain is perfectly straight around the joint. Since the pins have to receive marks from the tails, and therefore act as reference surfaces, the ends need to be smooth and square both to the face side and the face edges. Owners of circular saws have an advantage here. Check for any fine splits in the ends, or a corner of a tail might chip off.

Position the accurately planed

face sides on the inside of the job. Mark lines across the work with a cutting gauge or knife to indicate the depth of the pins and tails. The distance of these lines from the end of the boards depends on whether you are a Bold Dovetailer or a Cautious Dovetailer.

Going for Bold

If you take the brave approach you must never drop jobs on the floor. Equally you must be able to start each cut without the scratching, jags or false starts that round over the arrises of the joint. The reason for this is that the Bold

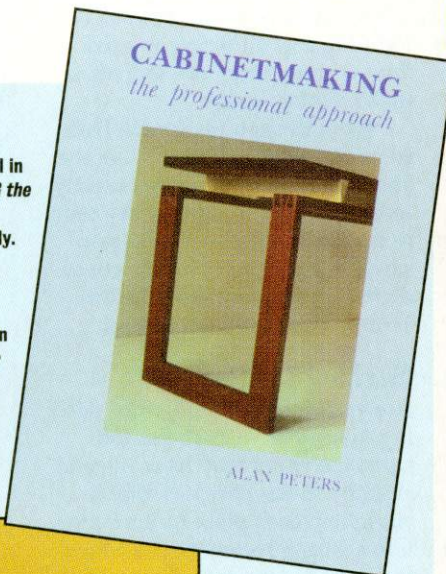
Dovetailer cuts the tails and pins to the finished length to start, but has the boards a fraction thicker than necessary. He planes back the outside faces after assembly.

It is vital that you mark the

depth of the joint (which is the finished thickness of the work) with a cut line. This is more accurate than a pencil line. You can fit the chisel into the line for the final cut, and you will see a slight

Though it does not explain how to cut a dovetail in detail, Alan Peters' classic book *CABINETMAKING the professional approach* (Stobart Davies), has a section on making drawers which is worth study. Alan outlines the order of work in making a drawer. His brief explanation will offer a structure to any budding furniture-maker. He

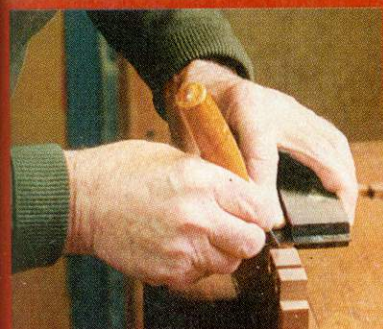
grooves the components early in the procedure, which is fine for lapped dovetails, but may need some care for through joints. The book combines technical advice with experience and is highly recommended



One day a Japanese furniture-maker visited Alan Peters in his workshop. He showed Alan how to make *nejiri arigata* (Japanese twisted dovetail). It took a while for Alan to use the joint, but in 1985 he celebrated the 10th anniversary of his Crafts Council visit to Japan with a one-man exhibition in Cheltenham for which he made this low table in yew



The front of a walnut chest shows how Alan Peters uses the contrast of sycamore and through dovetails in the drawers to distinctive effect. Alan favours the use of oak drawer sides with dark woods, and Honduras mahogany (from old furniture) with lighter colours



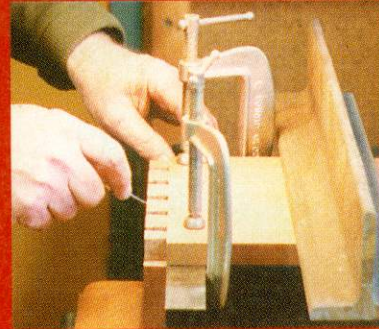
Check the socket sides for square with a small set square. If the socket is not square mark a new line before trying to adjust the socket



Rectify any inaccuracies with a chisel, then sharpen any corners so they are sharp for a good fit. Use a light to show what is happening



Check that the socket floor is square to the face side. If it is not you will need to mark the line again and chisel the floors all square



Use a marking awl to scribe the pins. A pencil would have been better. Notice the use of a metal rule to help in lining up

difference in the surface around the cut line. Once the glue has set you can plane the excess away. Furniture-makers will often do so with a long belt (pad) sander.

The Cautious Dovetailer makes the pins and tails 2mm longer than the finished thickness of the work. This allows some extra room for starting the sawcut. You then plane back the tails and pins after assembly. Mark the tails on one of the show faces using a sharp H or HB pencil, which is less likely to follow the grain than a knife. Square the lines across the ends.

Cutting the Tails

Accurately starting a sawcut can be quite a challenge. Let's spend a little time on it. As many teeth as necessary need to be engaged at once, so use a dovetail saw. Heresy or not, a slightly blunt saw can be an advantage because the teeth are less likely to jam into the wood.

If you are right-handed keep your left thumbnail clear of the teeth and against the plate of the saw. Make sure that you stand steady and comfortably. Set the wood low in the vice to reduce vibration but watch out for back ache. Locate the saw to just graze the pencil mark, yet form a kerf that only removes wood from the socket-to-be.

The secret of good sawing is common to good swimming. You need to relax the parts of yourself that need relaxing, yet be strong in other parts. This is easier said than done. You need to lift the saw against its own weight so you can start with featherlight pressure, yet you need a good firm wrist and hand grip to control the saw. If, growling and with gritted teeth, you are pushing like mad, a dig-in, jump and ghastly mess are likely.

See that the tip of the saw, your wrist and shoulder all lie in the same plane. Start with a light forward stroke on the furthest

edge, with the saw handle low. If the angle of the saw is too high to the top surface, the far corner will sit nicely in the gap between the saw teeth and make cutting awkward. Concentrate on establishing an accurate but shallow kerf, letting your hand drop slightly between each stroke so that the start of the kerf glides along the side of the pencil lines towards you. Relax. Take your time. Blow the dust away often.

When all is well and the cut is moving ahead, continue to work down the grain. Keep your eye not only on the line, but also on the shadow between the side of the saw and the kerf. This will show whether you are going off-square to the face side. Watch that you do not go too deep. Lean over the top to check the face side as the danger point approaches.

Old-time tradesmen, for whom every second counted, tend to chop out the waste, starting about two-thirds down the socket. This is prone to problems. Rather use a coping saw, fretsaw or jeweller's piercing saw to remove most of the waste. Saw until the change in sound and the closing of the kerf indicate you are nearing the end of the cut. Dislodge the waste with your fingers. This is better than allowing the saw to charge into the side of the socket.

Now gradually pare away the remaining wood until the merest couple of whisker thicknesses are left. Take care not to damage the socket flanks. You will now be able to let the chisel edge settle in the cut line for the final fatal cut. After you have chiselled the last slice you should be able to see the marks left in the end-grain by the knife when marking out.

Reverse the wood and repeat from the other side until there remains a series of sockets with slightly humped floors. From which side did the chisel work

most sweetly? From that side complete the job of flattening the humps. This can be a bit nerve-racking, because an accidental overshoot could end in a splintered face on the other side. Blessed are the glue-makers!

If you must undercut, ensure that you do so only to the central area of the socket floor. Start each cut by resting the chisel edge on the traces of the line showing on the end-grain.

Check that the socket floors and flanks are square to the face side. If they are not cut a new line and pare back. When tuning out errors, always cut a new line to work to. Fiddling and dithering any old how without reference will often make matters worse.

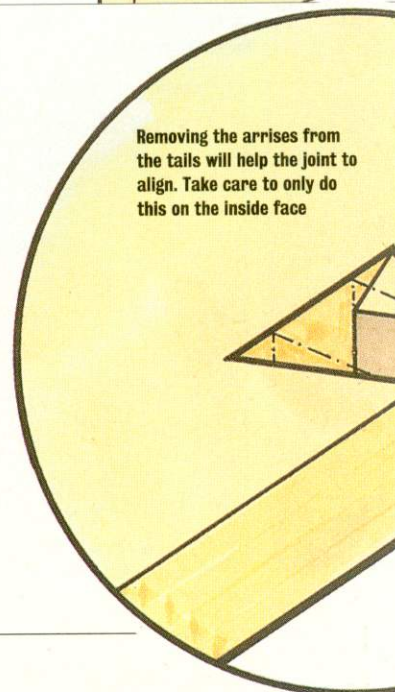
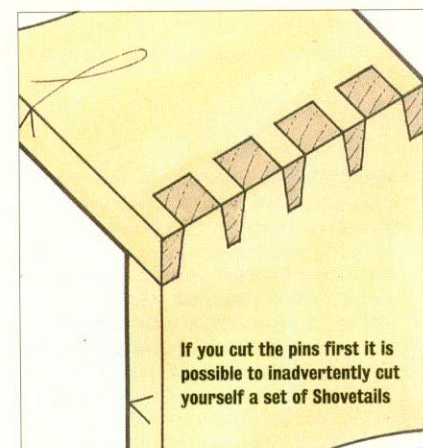
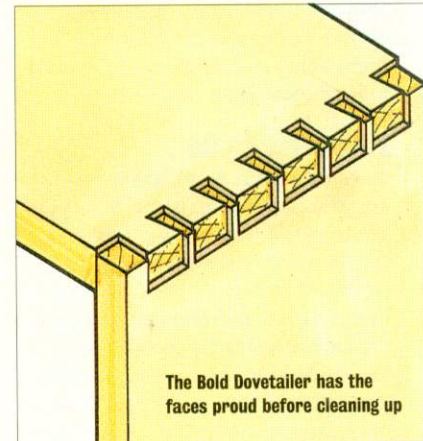
Form the notches for the half-sockets at each end by sawing the shoulders. Start by sawing exactly to the line, but since it is very easy to undercut the shoulder as you saw downwards, allow the cut to drift slightly away from the line. Trim to the lines with a chisel.

Marking the Pins

Are your face sides still dead flat? If you have to work in fits and starts the wood may have warped slightly. In this case it is vital to straighten each piece by cramping it to a strong batten. On the show faces, label each pair of pin/tail bearers conventionally A/A, B/B, etc... or, for fun, Punch/Judy, Morecombe/Wise or Pinky/Perky.

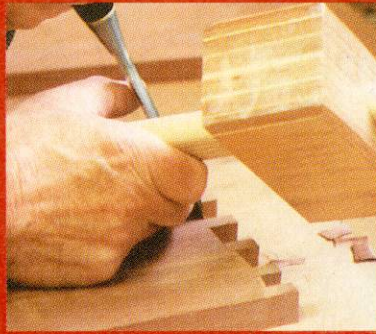
This may be the time to point out that as far as practicalities are concerned, you are obliged to scribe from the wrong face of the job. There is no way round this, but it implies that the flanks of the sockets you have just cut must be square to the face.

Arrange the mating parts with the face sides towards each other. By cramping a straight edge along the floors of the sockets you can produce a positive register for





Once you have marked across the pins onto the end-grain use a square to mark down the shanks as far as the shoulder line



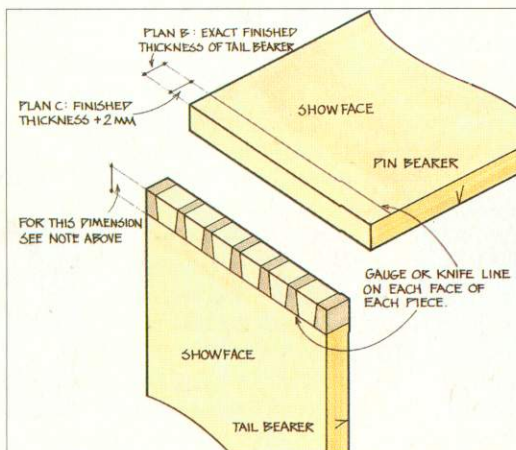
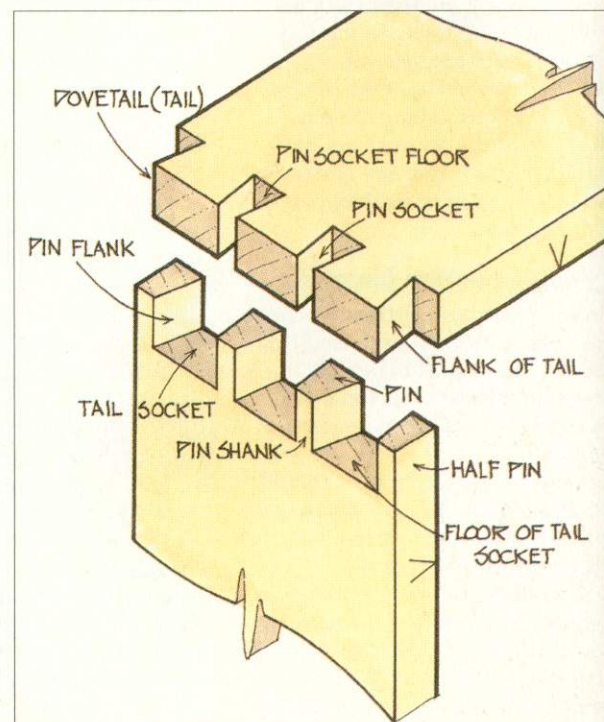
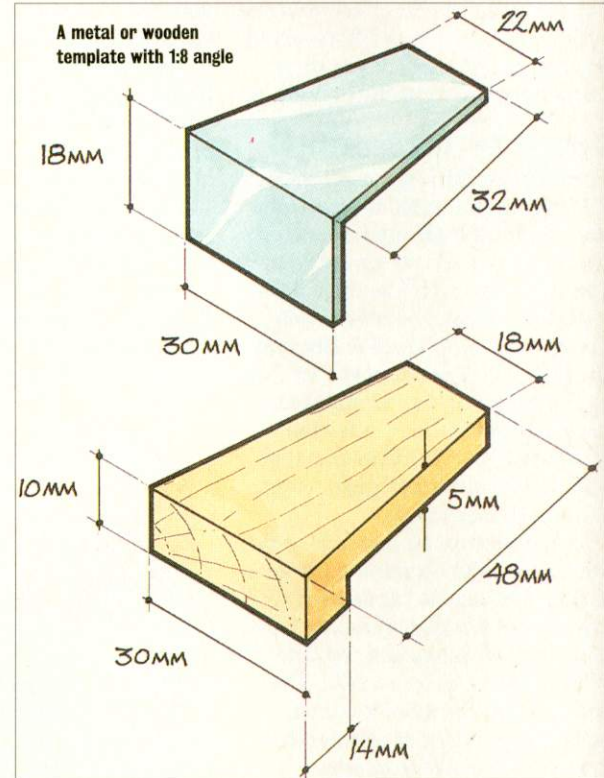
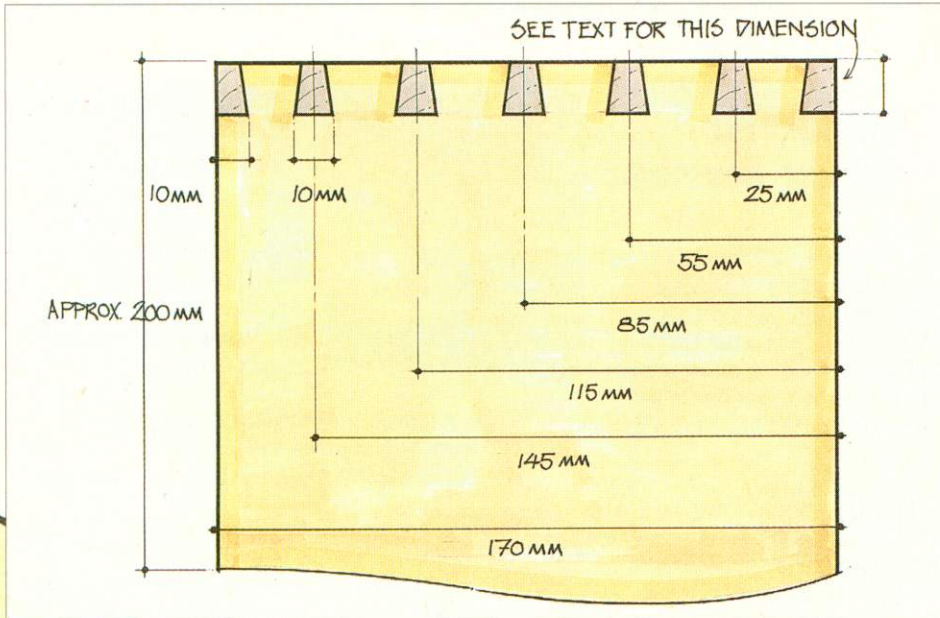
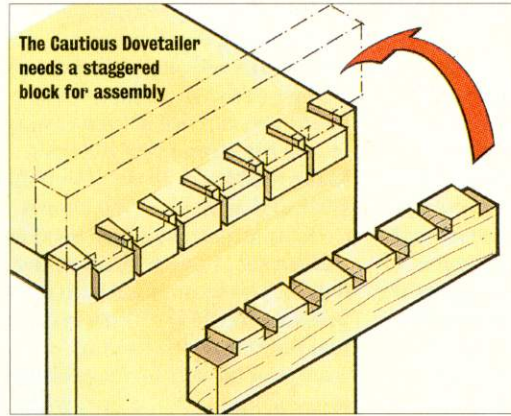
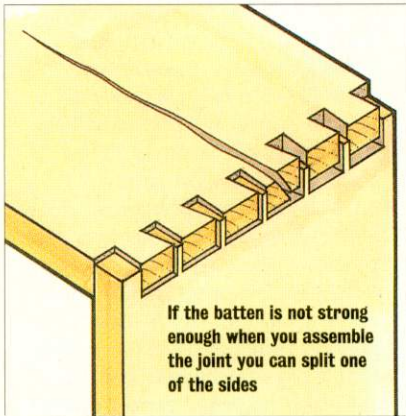
Keep the mallet in your hand while settling the chisel in place. Protect the bench with a chopping board. A gentle tap will do



When cleaning out the floor of the tail socket you may need to waggle the chisel handle sideways if it is difficult to push



If all is well a few taps of a hammer should close up the joint. The hammering block is essential. Only test the joint to about 3mm



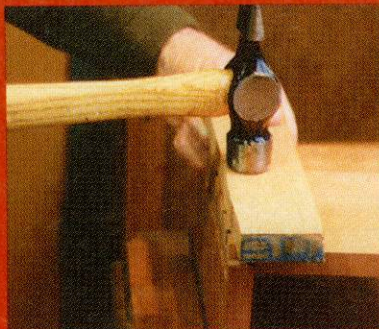
Start the marking out by finding the centres of the pin sockets so that you can cut the tails first (above)

Marking out the boards for dovetailing using the Cautious approach (Plan C) or the Bold approach (Plan B)

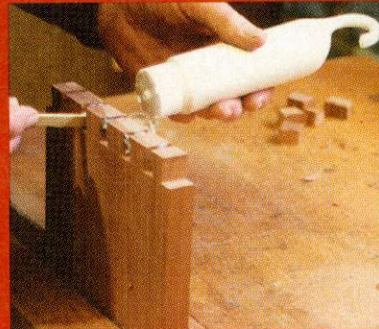
Acquaint yourself with the terms used for dovetailing. These dovetails are at a 1:8 angle with a half pin at each end of the board



In the early stages of dovetailing you might want to dry assemble first. Make sure the tails are bedding down evenly



If you do dry assemble the joint before gluing up you will need to take it apart carefully, especially if you are using a softwood



Use a lolly stick to apply the glue on the joint before assembly. Note the upside-down glue bottle that has a constant supply of adhesive



Having made the joint with the faces proud of the joint by a whisker you can clean up by planing back the sides

alignment. Scribe the pins from the sockets using an H or HB pencil. A draughtsman's 'clutch pencil' is good. Square across the end-grain.

Cutting the Tail Sockets

The drill for cutting the tail sockets (to produce the pins) is almost the same as for the pin sockets, except that now you can better see what is going on. Saw to graze the waste side of the scratched line. When paring take care not to undermine the pins with the chisel corner. For ease of control you can start with narrower chisels, but make the finishing cut with the widest that will fit. If it is hard to push, wiggle the handle sideways.

Chamfering the face side of the tails can make assembling the joint easier. You can do the same with the ends of the pins, but only if you are being cautious, and the pins will be proud of the boards. This reduces the chance of the pins splintering the outer corners of the tails as they break through.

If all has gone well, the joint will mate with taps of a hammer. Use a substantial batten to distribute the force of the blows. For fear of burnishing the pins (burnished timber does not glue well) you may fight shy of a trial fitting that goes more than part-way together.

Troubleshooting Dovetails

What's to be done if things haven't turned out quite as they might? If all the pins appear to be tight, a few judicious shavings from the face side of the pin bearer should do the trick.

Individually tight pins should be eased by paring their flanks with a chisel. Work across the grain. On this part, going downwards does risk splitting one side or the other, depending on the run of the grain. Check that the pin shanks are not tapering. At this stage I'm afraid there is not much

you can do if gaps are the result of off-square pin sockets.

Be especially careful with the fit of the half-pins. Tight ones can split. If the floors of the tail sockets are irregular, knife a set of new base lines as close as possible to the old ones. If working on a real job, the three remaining sets will need to be pruned. Equally of course.

When it comes to gluing up, the Bold Dovetailer will immediately realise the benefits of his or her approach, as long as the pieces haven't been damaged

by then. Since the wood is oversize in thickness, the pins and tail ends are submerged slightly below the surface of the show faces. As a result you can use simple cramping blocks for assembling the joint. Make the blocks about 50mm (2in) wide and as thick as the boards.

Cautious Dovetailers need to make a set of notched cramping blocks. The temptation is to use pressure inside the joints instead of making this special sort of cramping block. However doing so is just asking for a cabinet with distorted sides, causing gaps at the bases of the sockets. When it comes

to cleaning up, the sunken end-grain of the Bold Approach is easier to handle. Assuming the parts fit without gaps, the end-grain is supported by the sockets so that you can plane until the blade just skims the ends.

The Cautious Dovetailer will be tempted simply to plane away the projecting end-grain. This is also true of experienced workmen under pressure. However to prevent unwanted splits you might find it pays to chamfer (with a chisel) the exposed arrises down to the level of the surrounding wood before you start.

9

Top tips for tighter dovetails

1

If you modify a standard marking gauge you will not need to buy a cutting gauge for marking across the grain. Set the point to project no more than 2.5mm (1/8in). File away half of the cone of one point to form a sharp, reliable cutting edge. File another gauge to remove the opposite half of the point. These will now cut equally well across as with the grain.

2

When replacing a tiny splinter, it can be helpful to use a soluble glue to first glue the chip to a piece of paper. Use the paper to re-align the splinter, then glue with superglue. When set, soak off the paper.

3

Make the half-pins at the end of a set of dovetails a fraction wider than the other pins. This helps to stop any warping.

4

When cutting the tails and pins, set the wood low in the vice to reduce vibration. Some people angle the wood when cutting the tails so that their saw is vertical. Start with the saw at a low angle, at the back.



5

Instead of cleaning up by planing back proud pins and tails, plane back the face of the sides. Start with sunken pins and tails. This is the Bold Approach to dovetailing because the pins and tails must be right.

6

If you need to rectify errors, do so by marking a new line first. Do not try to pare a bit here and there. It usually ends in disaster.

7

It is usually said that the slope for softwoods should be 1 in 6 and for hardwoods 1 in 8. To get a bit of extra grip, use a 1 in 6 slope on thinner hardwoods. To save using a square and a sliding bevel, make a template.

8

Whatever fancy alternative joints may be illustrated in books and articles, there is, for hand workers, really no substitute for the dovetail when it comes to wood-to-wood, non-overlapping corner joints for sizeable jobs.

9

When it comes to marking the pins from the tails a good dodge is to cramp a metal rule along the floors of the pin sockets.



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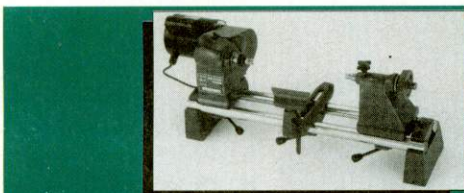
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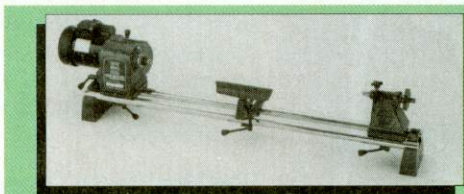
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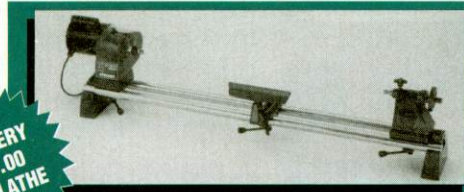
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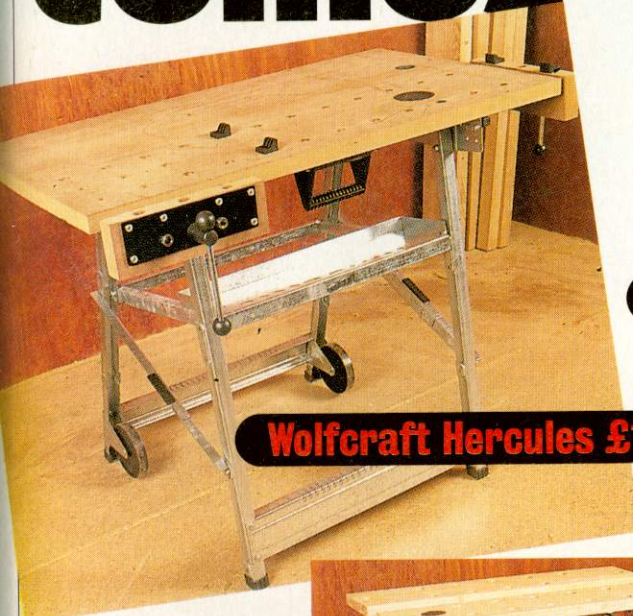


MAIL ORDER WELCOME



With the introduction of the Workmate came numerous clones. Technical Editor Phil puts six portable workbenches to the test

The Workmate comes of age



Wolfcraft Hercules £141.21



WOLFCRAFT 6194 £79.95



RICHMOND BW99/0200 £59.95



B&D WM536 £88.74



B&D WM800 £136.59



B&D 2000 £178.60

There can be few woodworkers who have never used a Workmate. You may think you have the ultimate workbench, designed and built by yourself. But chances are there is a Workmate lurking in a corner somewhere.

Until 15 years ago I must admit I avoided the Workmate. Not nearly as solid as a traditional bench, no serious woodworker would use one; or so I thought. Then a friend lent me a Workmate for planing the edge of a door and I was hooked.

Ancient and Modern

In theory the Workmate is probably everything a traditional woodworker should abhor. It is flimsy, lightweight and very DIY. It is far too small when you compare it with a traditional solid timber bench.

The fact the Workmate folds away into a flatpack only makes the traditional cabinetmaker's workbench look more professional. But the traditional workbench has changed little over the centuries. It does not offer the versatility and potential of the Workmate. For modern woodworking you should consider the Workmate as a David among Goliaths.

The Workmate Story

The name Hoover to domestic vacuum cleaners is like the name Workmate to portable workbenches. After nearly 20 million sales globally, Workmate is a household name alongside the Black and Decker drill. Although they may have invented the first pistol grip drill, Black and Decker did not invent the Workmate.

It was the brainchild of Ron Hickman, who was designing Lotus Cars in the 1960s and a keen DIY enthusiast in his spare time. It was while sawing some wood, using a chair as a support, that he accidentally cut through the seat. He then put his mind to improvising a simple bench using old building offcuts. Hickman did not have a big enough piece of



Early Black and Decker Workmates had alloy H-frames supporting the vice jaws. In its lower work position the feet had fine height adjusters

THE GOOD WOODWORKING WORKBENCH TEST

WOLFCRAFT WORKBENCH	B&D WM536
WOLFCRAFT HERCULES	B&D WM800
RICHMOND BW99/0200	B&D PROFESSIONAL 2000

Benches folded for storage

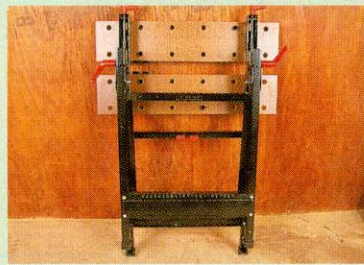
All the benches tested are portable. Some are easier to fold up and carry about than others, though. If you need to load one into your car, or carry it upstairs frequently, weight is important. A heavier bench gives a greater work area and is fine if you do not need to transport it often.

Supporting frames are steel, either enamelled or plated. The Richmond has neat folding arms to lock the legs in place. The Wolfcraft 6194 Workbench has levers for locking the legs. Rubber or rigid plastic feet are fitted to the legs.

Apart from the Black and Decker 2000, all the benches need to be assembled. The Wolfcraft Hercules took the longest by far.

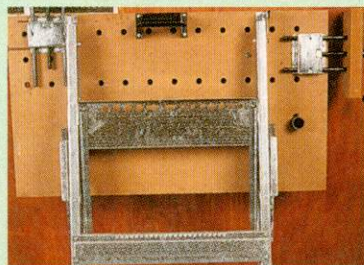
All the Black and Decker Workmates are freestanding when folded. This can be useful while you are unlocking the boot of a car. The other benches need to be leant against a wall, or hung on hooks.

Wolfcraft 6194 Workbench



The Wolfcraft 6194 Workbench is easy to fold up, though a little flimsy in this state. Two plastic levers lock the A-frame legs in place

Wolfcraft 6195 Hercules



The Hercules is three times as heavy as some of the benches tested due to its thick MDF top. Wheels are provided to move it around easily

Richmond BW99/0200



A sturdy A-frame is provided on the Richmond, locked by substantial folding arms. Folding up the bench takes getting used to

Black and Decker WM536



One of the smallest benches tested, the B&D WM536, is the easiest to fold up and carry. It gives you two possible working heights

Black and Decker WM800



Both jaws need to be horizontal on the WM800 before folding it up. This is one of the easiest Workmates to fold and transport

Black and Decker Professional 2000



To fold up the legs on the B&D 2000 you have to turn it upside-down first. Locating clips to keep the legs rigid are rather poor

thick plywood available for the top. A couple of hardwood blocks were used instead, with a gap down the middle for sawing.

From this first prototype he worked on the problem of the vice, although progress was initially inhibited by using a Record vice. The breakthrough came when he developed a system where the two benchtop pieces acted as a gripping device. This allowed long and irregular shaped pieces to be held.

Mini Skirts and Minibench

The new bench was intentionally compact and therefore already a radical departure from the traditional workbench. Hickman called one of his early prototypes the Minibench, in vogue with the era of the Mini car and mini skirt.

Hickman approached Stanley and Black and Decker in the early stages of development. It was only after he had solved most of the problems and started

manufacturing the Workmate Mark 1 that Black and Decker took any serious notice.

Hickman set up a company called Mate Tools Ltd in 1968 and produced 1500 units in the first year using cast aluminium H frames. These were to be the hallmark of his design.

Hickman promoted the Workmate Mark 1 at various exhibitions. On one occasion he even hired an acrobat who nearly broke his neck demonstrating the advertising slogan "You can do anything on a Workmate".

Black & Decker Workmate

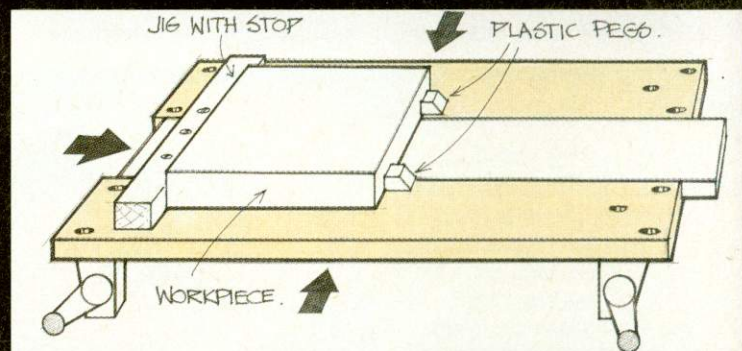
By now Black and Decker were eager to become involved and their designers worked closely with Hickman to develop the Mark 2 Workmate. This was the aluminium-bodied forerunner to the current pressed steel model which the world has come to know as the Black and Decker Workmate.

In all it cost Hickman more than £1.3 million to develop and protect his invention. Many patent infringements resulted from European and American companies jumping on the Workmate bandwagon. A Japanese company copied the Workmate so precisely that Black and Decker were able to resell the confiscated benches under their own name.

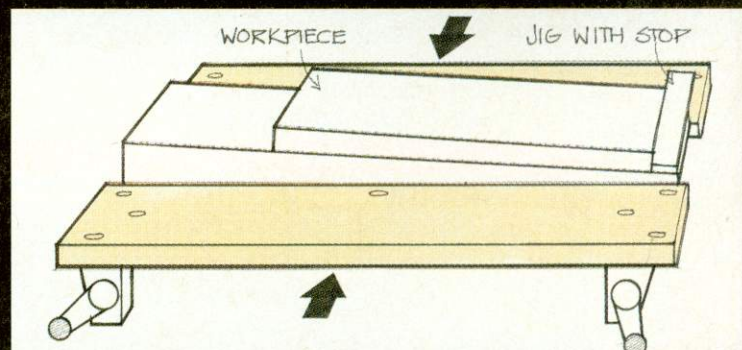
There have been more than 20 Workmate clones since Hickman's

TIP

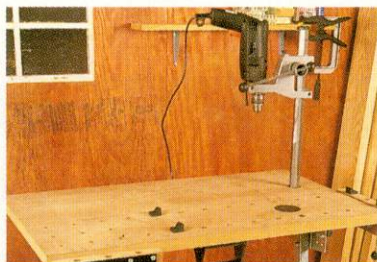
Richard Madders of Gloucester sent in several tips for making jigs to fit a Workmate or similar portable bench. He uses a Workmate as his only bench, so has had to improvise when faced with problems that do not always arise with a traditional bench. The insert is MDF of the same thickness as the jaws and slightly narrower than the jaw opening. This enables it to be gripped by both vice jaws



The insert extends the work surface and gives a solid, renewable surface for chiselling. It rests on the frame members. A batten screwed to one end provides a benchstop for planing and sawing. In conjunction with dogs, or pegs, the workpiece can be gripped in place



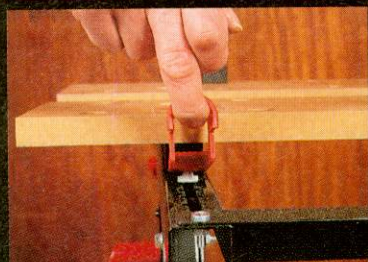
With the same insert you can make a shooting board for planing narrow edges. The reason for it sloping in the vice jaws is to use as much width of the plane blade as possible. Using a horizontal shooting board concentrates the contact of the blade into a narrow area



You can fit a Wolfcraft drillstand to the Hercules. This opens up the scope of the bench, which has worktop, front and tail vices of MDF

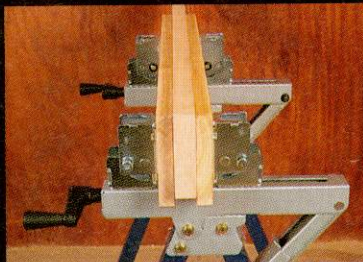
Features of Workmates and portable workbenches

Wolfcraft 6194 Workbench



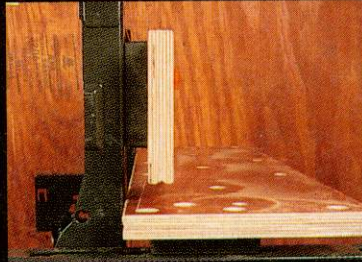
To move the rear jaw forward on the Wolfcraft 6194 Workbench you lift up a pair of plastic clips. Six hole positions are provided

Richmond BW99/0200



Both jaws swivel to 90° on the Richmond. Designed for clamping deep timber, the jaws tend to distort as you tighten the handles

Black and Decker WM800



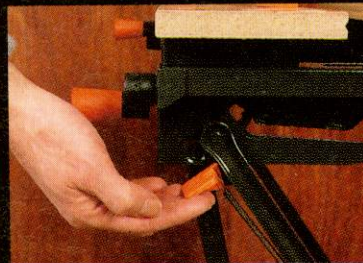
The front jaw swivels to 90° on the B&D WM800 for vertical clamping. You rotate a plastic knob on each end to release the jaw

Wolfcraft 6195 Hercules



The Hercules bench has conventional front and tail vices. Using plastic dogs at each end you can clamp boards up to about 42in long

Black and Decker WM536



On most Workmates you pull forward a pair of spring-loaded levers to fold up the bench. Jaws are veneered chipboard on the WM536

Black and Decker Professional 2000



One jaw on the B&D 2000 can be used at 90°. With the removable panel underneath you have a maximum clamping capacity of 600mm

You can swivel the front jaw to 90° on the Black and Decker WM800 and Professional 2000 Workmates. This allows vertical as well as horizontal clamping. Both jaws tilt vertically on the Richmond, so you can grip a deep piece of timber for planing. Tilted to 45°, these jaws are useful for sawing logs, large diameter timber or pipes.

The jaws on every bench can be adjusted to grip tapered work. Simply winding one handle opens or closes up that side. On most benches the rear jaw closes up and the front one remains stationary. The WM800 and 2000 Workmates have removable rear jaws.

The Wolfcraft Hercules is more like a traditional workbench. With two vices and large work surface you can use the dogs for gripping large panels.

Locking mechanisms vary. The B&D WM536 and WM800 are particularly easy to fold up.

invention hit the streets. Black and Decker themselves currently make six different models.

We tested three Black and Decker Workmates and similar portable workbenches from Richmond and Wolfcraft. The Wolfcraft 6195 Hercules bench is rather a different beast, though it is

still portable. Unlike the others it is fitted with wheels for mobility.

Tapering Jaws

The Workmate and its clones grip and support work ranging from regular boards to tapered stock and circular section. Unlike traditional benches, most we tested have

adjustable jaws. These act as horizontal work surfaces. One jaw opens or closes as you wind the two front handles. The maximum opening between jaws varies between models. Most of the benches tested have a big advantage over the traditional workbench. By opening up one

end of the jaws you can grip tapered work easily without using cramps. In conjunction with the plastic dogs you are not restricted to narrow stock.

A recent development in portable benches is the vertical jaw. On the Black and Decker WM800 and Professional 2000 Workmates

B&D WM536

Made in Britain, the WM536 is the smallest Workmate in this style in the B&D range. Assembly took 20 minutes. Framework and legs are steel, with rubber feet. You have a choice of two working heights. The four retractable legs are folded, exposing four extra feet to lower the top. Plastic levers below the front jaw are used to release the folding mechanism. Jaws are 18mm veneered chipboard and 124mm deep. Each has a horizontal groove for gripping dowel or rod. The rear jaw has metric markings. There are 14 holes for inserting the four plastic dogs.

Winding the handles moves the rear jaw forwards. The front one remains stationary. The vice action is simple and positive, with very little play in the jaws. The WM536 is delightfully simple to use, and its compact size makes it more portable than most. My only reservation is the chipboard jaws. You can replace them with ply when they get tatty. An excellent bench, and more portable than most of them.



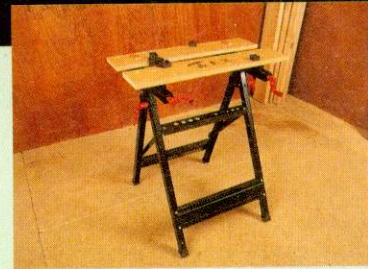
GW VERDICT

PORTABILITY ●●●●●	ERGONOMICS ●●●●●
Easy to fold up and open. Most portable of all benches tested	Two working heights possible. Vice action simple and positive
CONSTRUCTION QUALITY ●●●●●	SIZE & CAPACITY ●●●●●
Chipboard jaws not as strong as ply equivalent. Good footrest	One of the smallest benches, but reasonable clamping capacity
⊕ Simple to use and highly portable. No fiddling with rear jaw	⊖ Chipboard jaws, so watch you do not get them wet
VALUE FOR MONEY ●●●●●	OVERALL ●●●●●

WOLFCRAFT 6194

The Wolfcraft 6194 Workbench comes from Germany. It took about 45 minutes to assemble and instructions are easy to follow. A spanner is supplied, but you do need a large Pozzi screwdriver to tighten the hefty bolts for the jaws. A steel A-frame supports the jaws, which are 19mm MDF. Two levers lock the legs in place. Folding is easy, although the Workbench is a bit flimsy in this mode. Each jaw is 150mm deep, and 24 holes are provided for the four plastic dogs.

Two extra jaws are used for clamping awkward shapes. Winding the handles moves the front jaw forwards. This jaw can foul the handles when fully extended. Lifting two plastic clips releases the rear jaw and allows it to be moved. It slots into one of six pairs of holes. A footrest is fitted on either side, and tool storage holes are provided. Useful, but your foot could be obstructed. Vice capacity is better than most benches.



GW VERDICT

PORTABILITY ●●●●○	ERGONOMICS ●●●●○
A bit flimsy when folded up, but light enough to carry easily	Tool storage is useful. Front jaw can foul adjuster handles
CONSTRUCTION QUALITY ●●●●○	SIZE & CAPACITY ●●●●○
Plastic rear jaw clips could be stronger. MDF jaws are strong	Good vice opening capacity. Jaws longer than some
⊕ Vice capacity better than other benches of similar size	⊖ A bit flimsy when folded up for transportation
VALUE FOR MONEY ●●●●○	OVERALL ●●●●○



The Richmond BW99/0200 bench has spring-loaded arms to lock the A-frame legs in place. You slide a lever upwards on each folding arm

you can swivel the front jaw to 90°. This allows you to grip wide panels and doors horizontally. Previously you needed to use G-cramps to hold wide work in place. Initially I thought the vertical jaw on the WM800 would be ideal for gluing up projects. You can maintain cramping pressure the full length of the bench. Unfortunately the jaw does not remain at 90° as you tighten the handles. You could end up with a project slightly out of true, depending on its components.

The Richmond bench is unique in having two swivelling jaws. You can set them at 45° for sawing logs or holding other circular items. Locking them both vertically gives you a cramping depth of 118mm (4½in). Again, I thought, a brilliant innovation. Sadly the jaws do not

stay parallel with narrow stock as you increase pressure.

Jaws are usually chipboard, MDF or solid wood on cheaper benches. Birch or beech ply is used on the Black and Decker WM800 and Professional 2000 Workmates. Ply will withstand more abuse and is stronger than other materials.

Black and Decker Workmates have a V groove along the inner edges of both jaws. This is so you can grip dowel, tube or steel rod easily for sawing.

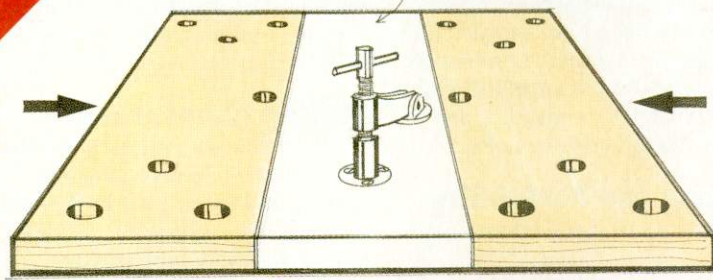
The Wolfcraft Hercules does not have adjustable vice jaws like the other benches. Instead the

All you need to know about Workmates

Make	RRP inc.VAT	Weight Kg.	Working height	Vice jaw length	Max jaw opening	Max load Kg.	Warranty	Typical price
Wolfcraft 6194 Workbench	£79.95	11.2	795mm (31½in)	702mm (27½in)	213mm (8½in)	200	5 years	£50
Wolfcraft 6195 Hercules	£141.21	30.0	835mm (32½in)	279mm (11in)	165mm (6½in)	300	5 years	£90
Richmond BW99/0200	£59.95	9.4	863mm (34in)	608mm (23½in)	145mm (5½in)	200	1 year	£50
Black & Decker WM536	£88.74	10.4	768mm (30½in) 587mm (23½in)	612mm (24½in)	136mm (5½in)	160	1 year	£60
Black & Decker WM800	£136.59	14.2	790mm (31½in) 610mm (24in)	740mm (29½in)	222mm (8½in)	250	1 year	£100
Black & Decker Prof. 2000	£178.60	25.4	798mm (31½in)	900mm (35½in)	495mm (19½in)	1000	1 year	£128

TIP

JIG WITH BENCH HOLDFAST



Richard Madders uses a traditional bench holdfast on his Workmate. By drilling an appropriate hole in an inserted panel of MDF you do not need to drill an extra hole in your vice jaws. For further tips on workmates see *My Mate Workmate* in *Good Woodworking* (issues one to eight)

RICHMOND BW99/0200

From Taiwan, the Richmond is unique in having two swivelling jaws. By depressing a pair of spring-loaded buttons, each jaw can be tilted to 90°. There is also a stop at 45°. Jaws are 20mm thick timber, 118mm deep. Twenty four holes are provided for the four huge plastic dogs. These are a pretty tight fit.

Assembly took 30 minutes, and two spanners are supplied. It took most of the time to cut the plastic wrapping away from the frame. The steel A-frame is sturdy. Spring-loaded stays lock the legs rigidly in place. Folding up the bench is a bit awkward. I found I was trying to fold jaws and legs the wrong way each time. Turning the vice handles moves the rear jaw forwards. Because the jaws are mounted so far above the frame (76mm), cramping action is affected. As you tighten the horizontal jaws together they tend to lift as pressure is increased. A pity, because the concept of two vertical clamping jaws is unusual.



GW VERDICT

PORTABILITY ●●●●○ Lightest of all, but a bit awkward to open and fold up	ERGONOMICS ●●●●○ Unique twin jaws can be tilted to 45° and 90°. Plastic dogs are huge
CONSTRUCTION QUALITY ●●●●○ Excellent locking stays keep legs rigid. Jaws can distort with pressure	SIZE & CAPACITY ●●●●○ Work surface higher than the rest at 863mm (34in)
⊕ Both jaws can be used vertically. Lightweight	⊖ Jaws can distort when applying pressure
VALUE FOR MONEY ●●●●○	OVERALL ●●●●○

B&D WM800

It took 20 minutes to put the Black and Decker WM800 together. It is made in Britain and is one of two new models featuring vertical clamping. By rotating a knob each side of the frame, the front jaw is released to swivel to 90°. In this position you have a vertical cramping capacity of 62mm from the edge of the jaw, 140mm to the uppermost plastic dog. I found this facility good for holding panels and timber in place, but not for gluing. As you increase pressure the jaw tilts out of true. Jaws are 20mm thick birch ply, with 15 laminations. The front jaw is 122mm deep, the rear one 213mm. Both have horizontal grooves. Alloy mountings are used to locate the rear jaw in any pair of three slotted holes in the steel frame. Once located, you push the jaw back to lock. Two working heights are possible, with folding legs used to lower the work surface. A horizontal steel bar strengthens the front jaw and acts as a tool tray. Four plastic dogs are included.



GW VERDICT

PORTABILITY ●●●●○ Easy to fold up. Retractable legs give two working heights	ERGONOMICS ●●●●○ Two working heights. Vertical clamping simple to adjust
CONSTRUCTION QUALITY ●●●●○ Strong ply jaws and steel frame. Vertical jaws not always 90°	SIZE & CAPACITY ●●●●○ Vertical as well as horizontal clamping facility
⊕ Vertical clamping ideal for panels and small doors	⊖ Rear jaw can be annoying to position
VALUE FOR MONEY ●●●●○	OVERALL ●●●●○



With a removable chipboard panel, the B&D 2000 can be used as a drawing board. You can also place the panel between or behind the jaws

heavy MDF worktop is fitted with conventional front and tail vices. The Hercules is closer to a traditional bench than the others.

Plastic Dogs

Each bench has a number of vertical holes bored in each jaw. These accept the plastic dogs that are supplied with each bench. Every bench tested has 20mm (3/4in) diameter holes. Dogs are interchangeable between benches.

All the dogs have serrated faces for gripping a variety of materials and shapes. Those supplied with the Richmond are massive, and rather too tight for the holes.

Folding and Portability

The essence of the Workmate and

its clones is portability. They can be used in the workshop or on site for a multitude of purposes and simply loaded into a vehicle. The Wolfcraft 6194 Workbench and Richmond BW99/0200 both use A-frame formats. The Wolfcraft is easier to fold up than the Richmond which is a bit unwieldy.

The Black and Decker WM536 and WM800 are both simple to fold and comfortable to carry. Perhaps most awkward of all to close or open up is the Professional 2000 Workmate. You have to turn this one upside-down to fold the legs.

Apart from the Professional 2000 Workmate, every model in Black and Decker's range has two working heights. You unfold the four lower legs to get the higher work surface. Legs lock in place and remain rigid in use. Older Workmates had individually adjustable feet to cope with uneven ground. Not usually a problem on a workshop floor, but a great idea when using the bench outdoors.

Testing the Benches

Each bench was used for a variety of woodworking tasks. Planing, sawing and routing are typical uses for portable benches. All will hold an external door vertically for shooting edges. You may need to raise the door up on blocks if the jaws are too high.

The advantage of long vice jaws is that you can grip fairly

substantial lengths of timber. A piece of 4x2in will sit happily between the jaws of most benches tested. On the Workmates and Wolfcraft Workbench, timber about 2in thick rests on the horizontal members of the steel frame. You don't need to check the work is horizontal. This is not always the case with the Richmond, because the jaws in their horizontal position protrude so far above the framework.

Supporting sheet materials while cutting is an obvious use for a portable bench. Here the Black and Decker WM536 and WM800

Workmates scored. Their dual working heights make life easier whether you are short or tall.

Carrying a bench up and down stairs was a useful test of its portability. Nothing could beat the simple WM536 Workmate.

The Last Word

Perhaps it is for the history books that Hickman, despite the huge success of his Workmate, was reported to have said "it is still misunderstood—it's not taken seriously". Our test of portable benches shows how essential they can be to any serious woodworker.

FINAL VERDICT Portable workbenches

We looked particularly at the ease of use of each bench. There is no doubt that Ron Hickman was pretty close with his original Workmate design. The more complex benches we tested tend to be more problematical. Swivelling jaws on the Richmond are a great idea, but there is room for improvement. The versatile Black and Decker Professional 2000 is a pain to fold up. Its loose panel can fall out when carrying if you are not careful. Wolfcraft's Hercules is pretty heavy for frequent transportation, but gives you a large work area and two vices. Having to reposition the rear jaw can be annoying on the WM800 Workmate. Its front jaw is not always at 90° when in the vertical position. The Wolfcraft 6194 Workbench is straightforward to use. Simplest of all and best buy is the Black and Decker WM536.

NEXT MONTH ON TEST Small Chucks

Ian Wilkie tests chucks suitable for small lathes and miniature turning

Who to contact

WOLFCRAFT	01787 880776
RICHMOND	0181 898 8295
BLACK & DECKER	01753 500805

Wolfcraft Hercules

Looking more like a bench than the other products we tested, the German Wolfcraft 6195 Hercules is quite a beast. Instead of twin jaws, front and tail vices are fitted. It took me over 2½ hours to assemble. You can easily waste time bolting items together in the wrong sequence. A case for improving the instructions, perhaps? The 32mm MDF top measures 1041x584mm (41x23in) and weighs a ton. There is plenty of space around the edges for G-cramps. Both vices have a 38mm thick MDF jaw, screwed to a steel plate. Holes in the top of the jaws take the four plastic dogs. These, in conjunction with the 27 holes in the bench top, allow large items to be held. Maximum cramping capacity is 1057mm (42in). A steel collar enables you to insert a Wolfcraft drillstand. A steel disc flush with the top can be used like a small anvil. The support frame is galvanised steel. The whole caboodle folds up and can be pulled along using the built-in wheels.



gw verdict

PORTABILITY ●●●○○	ERGONOMICS ●●●○○
Wheels are provided, but this is a heavy bench	Vice jaws can fall out when fully open. Accepts drillstand and extras
CONSTRUCTION QUALITY ●●●○○	SIZE & CAPACITY ●●●○○
Thick MDF top and vice jaws. Steel frame has some sharp edges	Extensive worktop area. Tail vice and dogs extend cramping capacity
⊕ Front and tail vices provided. More like a traditional workbench	
⊖ Heavy to lift, and frame could be a bit more rigid	
VALUE FOR MONEY ●●●○○	OVERALL ●●●○○

B&D 2000

Made in Slovenia, the Black and Decker Professional 2000 is the most expensive bench tested. Ready assembled, you have to turn the bench upside-down to open out the legs. Metal spring locating clips to keep them rigid are poor. With a centre panel of 20mm veneered high density chipboard, it looks more like a table. The panel sits on the steel frame and is fixed between the two jaws. The rear jaw is fitted to alloy supports and adjusts with locking buttons. You can also position the panel behind the two jaws. Jaws are 20mm beech ply and 116mm wide. Inner jaw edges are strengthened with an extra 20mm ply strip. Four plastic dogs fit the 22 holes provided. Two rotary knobs release the front jaw so it swivels to 45° or 90°. This gives a vertical clamping capacity of 600mm (23½in) with the panel placed on the lower frame. By removing bolts, 12 different jaw locations are possible. Clips allow the panel to be used as an angled drawing board.



gw verdict

PORTABILITY ●●●○○	ERGONOMICS ●●●○○
You have to turn the bench upside-down to unfold or close up the legs	Can be awkward changing position of vertical jaw
CONSTRUCTION QUALITY ●●●○○	SIZE & CAPACITY ●●●○○
Spring clips on legs could be more positive. Substantial ply jaws	Huge vice capacity, both horizontally and vertically
⊕ A versatile bench for anything from drawing to cutting logs	
⊖ Not that portable. Leg locating clips could be better	
VALUE FOR MONEY ●●●○○	OVERALL ●●●○○

Second opinion by furniture-maker Jeremy Broun



One of my favourite subjects is the Workmate. In my opinion it is one of the most clever and useful woodworking devices of this century. My ideal Workmate would

be compact and lightweight, folding into a slim regular shaped pack, easily carried in one hand to store in the workshop or boot of the car. It would be height adjustable, possibly one height for planing and sawing, and a lower height for mounting a small planer or circular saw on. The table top would be large enough to support panel boards with easy G clamp access, and strong enough to be stood on and durable enough to stand. The worktop would incorporate an integral gripping action for holding work of different sections and irregular shapes with a good capacity. The device would also easily accommodate a router converting it into a mini spindle moulder and a small portable circular saw, making my workmate a highly useful portable and space saving device.

Black and Decker WM536

This dual height model is compact, simple and purposeful, indeed it is a work of art. Every millimetre of its design is deliberate and the product of intelligent evolution. The working height of 768mm with a foothold height of 250mm, combined with the splayed leg design, gives optimum stability for its size when planing or sawing wood. It is lightweight, portable and does not fall over when folded.

A subtle but important detail is the 38mm distance between frame and worktop surface (the 'ride height' of wood when gripped in the vice jaws). This is the ideal mate but not perfect because surprisingly the 15mm veneered chipboard top (the flattest in the test) is unlikely to be durable if left outside or in a damp environment, and the rubber feet are prone to slipping off.

The closed table size is 610x250mm. The plastic dogs are 20mm high and the maximum gripping capacity using the dogs is 295mm, and between jaw faces 135mm.

Value for money



Overall



Black and Decker WM800

Slightly larger than the 536 and therefore slightly more stable, the 800 is equally versatile for gripping regular and irregular shaped work. The model includes a novel vertical pivoting frontpiece which grips wide panels horizontally. The widest panel it will accommodate in this mode is 490mm but I found the linkages rather sloppy and a less than perpendicular alignment of the jaws. The detachable rear jaws allow three different width settings (with maximum jaw openings of 65mm, 145mm and 225mm). Surprisingly the top on this model was not flat, but being made of 20mm plywood is a lot more

durable than the 536. Using the plastic dogs, a board of 480mm wide can be gripped.

Value for money



Overall



Richmond BW99/0200

Visually this model promises everything but delivers slightly less. It is small, compact and attractive looking with its grainy solid timber top and silver metal frame. The novel pivoting jaws offer several gripping configurations (horizontal, vertical and 45 degrees) ranging from a flat worktop to a V support for logs. The distance between horizontal worktop surface and cross frame, what I call the ride height of work being gripped is so great (75mm) that alarmingly as the vice is tightened the cranked vice action causes the two jaws to distort. This is to the extent that the grip weakens considerably. The vice handles however are the most comfortable to operate. This device is somewhat tall and top heavy with a high foothold resulting in it tipping up when planing hardwood. The 30mm plastic dogs fit too tightly in the generous array of holes. The jaws open to 145mm between faces and work of up to 290mm wide can be gripped in the dogs. The device took me 15 seconds to fold up.

Value for money



Overall



Black and Decker Professional 2000

This is more a bench than a workmate. It measures just over a metre long, by 720mm wide, with a worktop height of 798mm. The three-piece top includes a wide veneered chipboard centre piece. When it is removed it leaves two plywood jaws, the front one acting as the vice and the rear one offering numerous quick release stop positions. The front vice pivots to any angle to a fixed perpendicular position which, similar to the 800 model, distorts when clamping horizontal boards. It will take boards up to 760mm wide in this mode. In horizontal gripping mode it accommodates work up to 495mm between jaws. I did not like the crude bar handles but the plastic dogs are the best, and being the early Black and Decker type are a sensible 14mm high which means 15mm boards can be planed. I noticed the frame distorts into a parallelogram when the front jaw is pivoted vertically.

Value for money



Overall



Wolfcraft 6194 Workbench

Sporting an attractive beech veneer MDF top and black coated metal frame, this compact device includes a useful tool tray. The novel quick release rear jaw offers useful multi stopped gripping positions but the plastic grips look vulnerable for a device, which by its portability is likely to be knocked about. The plastic frame locking levers too look vulnerable when using a saw. This is a rather flimsy device although the low footrest should help with stability when planing. Circular sectioned work cannot be

gripped in the vice jaws but relies on an adaptor for the dogs which do not allow full support right to the end when sawing dowel etc... Work of 420mm wide can be gripped using the 19mm high dogs. This device is 795mm high with a closed worktop size of 700x300mm. It took me about 10 seconds to fold.

Value for money



Overall



Wolfcraft 6195 Hercules

No doubt the Greek God had stronger legs as the massive 32mm MDF worktop makes the galvanised steel underframe sway under its weight. This is not helped by numerous tiny nuts and bolts which make assembly an occupation. However, this device only takes five seconds to unfold into action and offers a very useful 1041x584mm worktop which includes two excellent vices, the end one opening to 100mm and the side one opening to 160mm, offering support of work up to 1075mm and 370mm respectively using the dogs. There are 33 holes spaced at 80mm intervals (including three in each of the vices) for the dogs so as a gripping device it is useful, although less versatile for irregular shaped work. The top includes a 35mm diameter steel sleeved hole for a holdfast and a steel pounding plate. The 50mm high foot support helps little with the overall stability of this device and I would be inclined to add extra timber bracing.

Value for money



Overall



For holding cylindrical items, tubes or logs you can tilt the jaws on the Richmond bench to 45°. Vertical clamping is possible. Huge plastic dogs are supplied, and are a bit too tight for the holes



The Black and Decker WM800 has a swivelling front jaw. This is great for holding work but not so good for gluing up work at 90°. The jaw does not stay at 90° as you tighten the handles

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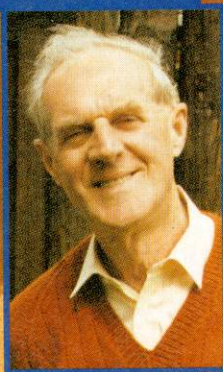
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giving an effect similar to grain raising. Pre-wetting, drying and sanding as for solid wood (GW 26:98) is not the answer. Apply water-based finishes without special preparation. Wetting agents in the formulae help even spread.

Often brush marks do not level readily, and with the plainness of MDF, are especially noticeable with coloured finishes. It is better to build up with thin rag coats. Leave smoothing down until after the second coat. Be careful not to sand through the varnish. If you start to get through it before the surface is flat enough, put on another coat, and sand after this is dry.

You might have to juggle between

wood, and give uniform colour and gloss. However before using wax remember that they give no protection against wear, or handling and MDF needs such protection.

Boards finished with French polish look good but you have to adjust the way you apply it. When wet the surface of MDF is soft, but hard rubbing when putting on the first few coats roughens it up. Put a few coats on gently. The board soaks up a lot of polish, and it is not a bad idea to put these first coats on by brush.

Allow to dry hard, preferably overnight, then smooth with sandpaper. This will remove any blemishes in the polish or on the

surface. It also smooths down any roughness, including the raised fibres caused by alcohol in French polish. Carry on as usual, being careful not to soften the early coats to an extent that you rub back to the board surface.

How Dyes React On MDF

Penetrating dyes are used on woods to maximise the characteristics of grain and figure. MDF has no such characteristics, so there is no particular reason to prefer dyes, which is just as well, for none went on well.

Water-based dyes do not wet the surface evenly and looked patchy. White spirit (solvent) stains soaked in excessively, which again made it difficult to achieve uniformity. The best were methylated spirit dyes, but they still had a tendency to patchiness with some roughening of the surface.

Overall, you are better avoiding penetrating stains on MDF because there are problems in its application without any advantage I know that make up for it.

Cuprinol Enhance Wood Dye, an all in one finish and

not just a dye, behaves like a water-based varnish. Application was particularly easy, but if you want surface protection it needs overcoating with a clear water-based varnish.

Austin Hilditch is a finishing expert who was the former Technical Director of Cuprinol, manufacturers of wood preservatives. He is now retired.



Choose your finish from a variety of finishing products, but be careful as MDF reacts to finish in a different way to wood

The use of medium density fibreboard (MDF) in the UK has increased tenfold over the last decade. Common MDF is used for ordinary indoor use, with special grades available for bathrooms and outdoors, thicknesses ranging from 3mm to 30mm.

Although made from wood fibres, MDF does not look like wood, being totally plain. You can veneer, paint or stain it, but there are big differences in how it takes various finishes.

Preparing MDF

It is best to do as little sanding as possible, coarse paper, even 150 grit, roughens the surface. If you have to sand the unfinished board use 300 grit or finer. Except for edges and worked areas, sanding is unnecessary. I find it best to delay any sanding until after the first two coats of finish, then to rub down both the finish and any unevenness in the board together. Cut edges need sealing before overall finishing. Use a seal suitable for the intended finish.

By far the best finish is the traditional solvent-based polyurethane varnish, clear or coloured. It soaks in

and it is better to put the first coat on thinly by rag, but without thinning. Otherwise application is the same as on solid wood. An extra coat may be needed to build up gloss. Appearance is plain but otherwise attractive. The surface of MDF is not wear resistant, so the protection given by this type of finish is useful.

Water-Based Finishes

Wetting with water causes swelling,

sanding and coating to get a smooth, uniform finish. Especially with colours, you may need several coats to get a good finish. You can get a satisfactory finish with water-based varnishes, but it is more tricky and tedious than with traditional varnishes, or when used on solid wood.

Applying Wax or French Polish

Wax finishes are the simplest to use.

They go on well, perhaps better than on

Good Woodworking

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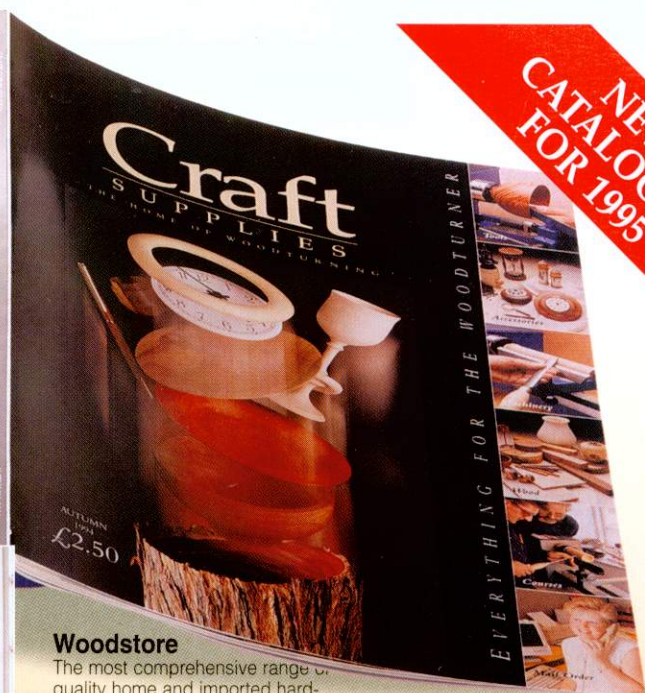
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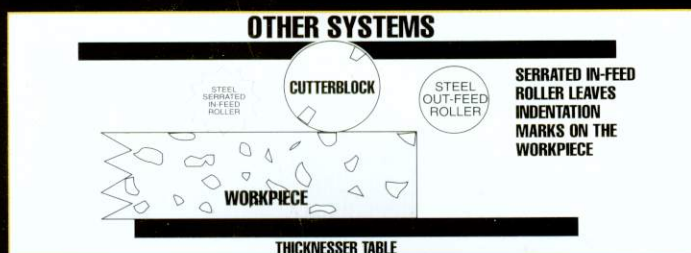
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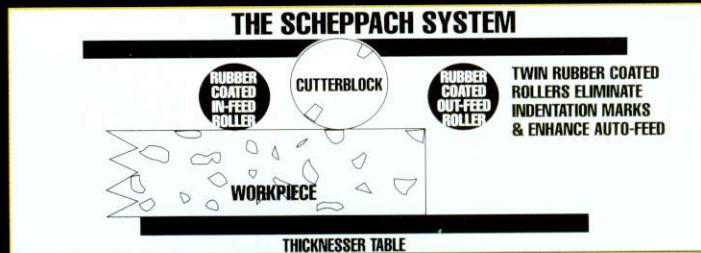
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