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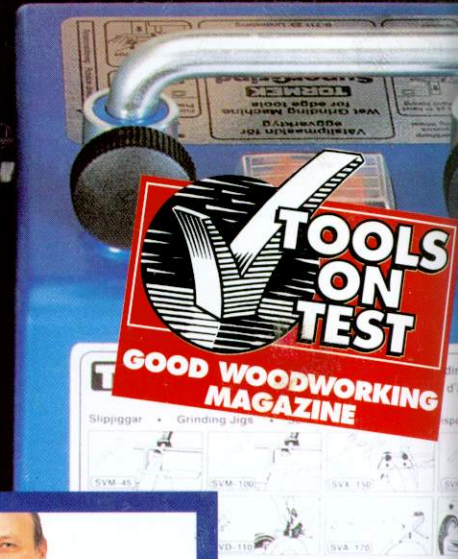


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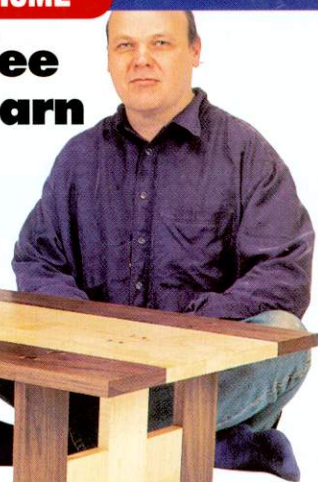
WETSTONE GRINDERS

Vertical or horizontal? Find out which is best on p.14



PROJECT FOR THE HOME

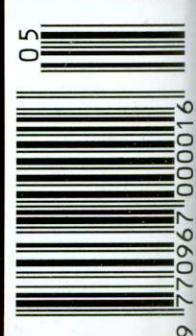
Make a coffee table and learn about cross grain clash



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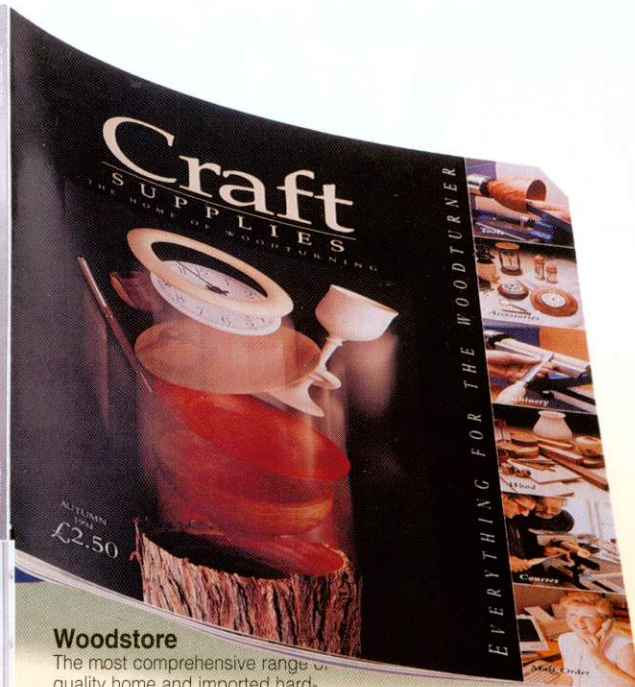
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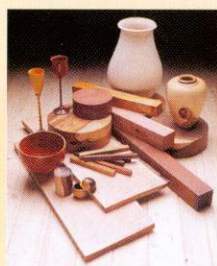
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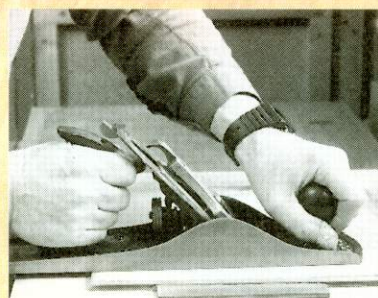
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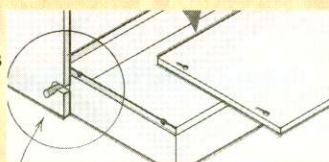
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I ONCE had a theory that humans were designed to live horizontally. All this walking around and doing things are but interruptions to one long blissful spell lying down. Likewise woodworkers often count sharpening as a tiresome intrusion to their making moments.

Is, though, the regular rejuvenation of edge tools best done standing up or lying down? By which, of course, I mean are vertical grinders better than the horizontal type? We've asked Mark Corke and Phil Davy to test eight wetstone grinders to reveal which works best on p.14.

The idea of revealing secrets appears regularly in the letters and questions we receive. You're often asking us how to build hiding places into projects. Now Vic Taylor, one of the grand old men of woodworking, exposes some of the cubbyholes of the past as suggestions for furniture of the future.

And to reveal the secrets of power sanding at the lathe, turn now to p.74.

Nick Gibbs

Good Woodworking

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PROJECT FOR THE HOME

Making a table by stripes



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Pete Martin shows you how to make a coffee table, with a design, triggered by oriental influences, that avoids the cross-grain clash



Pete Martin is a furniture-maker and a regular contributor to Good Woodworking

Every furniture-maker has favourite styles, techniques and influences. Nothing is original. I have an eclectic mind, tucking away images and bits of information that shape what I do. When it comes to designing I search, in an haphazard fashion, for the trigger that sets you going and acts as a catalyst.

During the earliest stages of conception for this table I happened to be working on

an idea for a laminated box. I wanted to make the box by stack laminating. I had considered using comb jointed corners, but realised that by alternating the layers, like bricks, I could create the joints as the box grew.

I sensed that this concept of jointing-as-you-build could be transposed to the table I planned to make. I wanted to work with contrasting timber, glued together to produce stripes. It

was to be a coffee table, low enough to be used for eating, cross-legged or kneeling, Japanese fashion.

The fact that the design has significant oriental influences is not merely a reflection of its use. I have made a number of tables unashamedly following the style of Alan Peters (GW 29:74), who has himself been influenced by the Far East since his tour of Japan 1975. I like the simplicity of creating

a form with only two legs and a table top.

Cross-Grain Clashes

One of the advantages of this style is that the grain runs in one direction, along the length of the table. Any movement will be across the width of the table top and the legs. This means the parts are not in conflict, and you are avoiding cross-grain clashes.

It is always vital to remember movement when

PROJECT GUIDE

DIFFICULTY: Intermediate
TIME: 30 hours
TYPE: Furniture

you design projects (GW 30:30). In this case I've tried to let it move freely.

The style of this table is familiar to anyone who has seen Alan Peters' bowl tables, which combine the concepts of this piece and the fruit bowl I made last month (GW 30:69). Searching for influences I've found Makepeace to be too flashy and complex, and have gravitated towards the simple designs of Gimson and Barnsley.

I also like work that combines different types of wood. I like the graphic shapes and the contrast. Combinations are a simple way to add decoration without too much ornamentation, and it's a good way to use up offcuts.

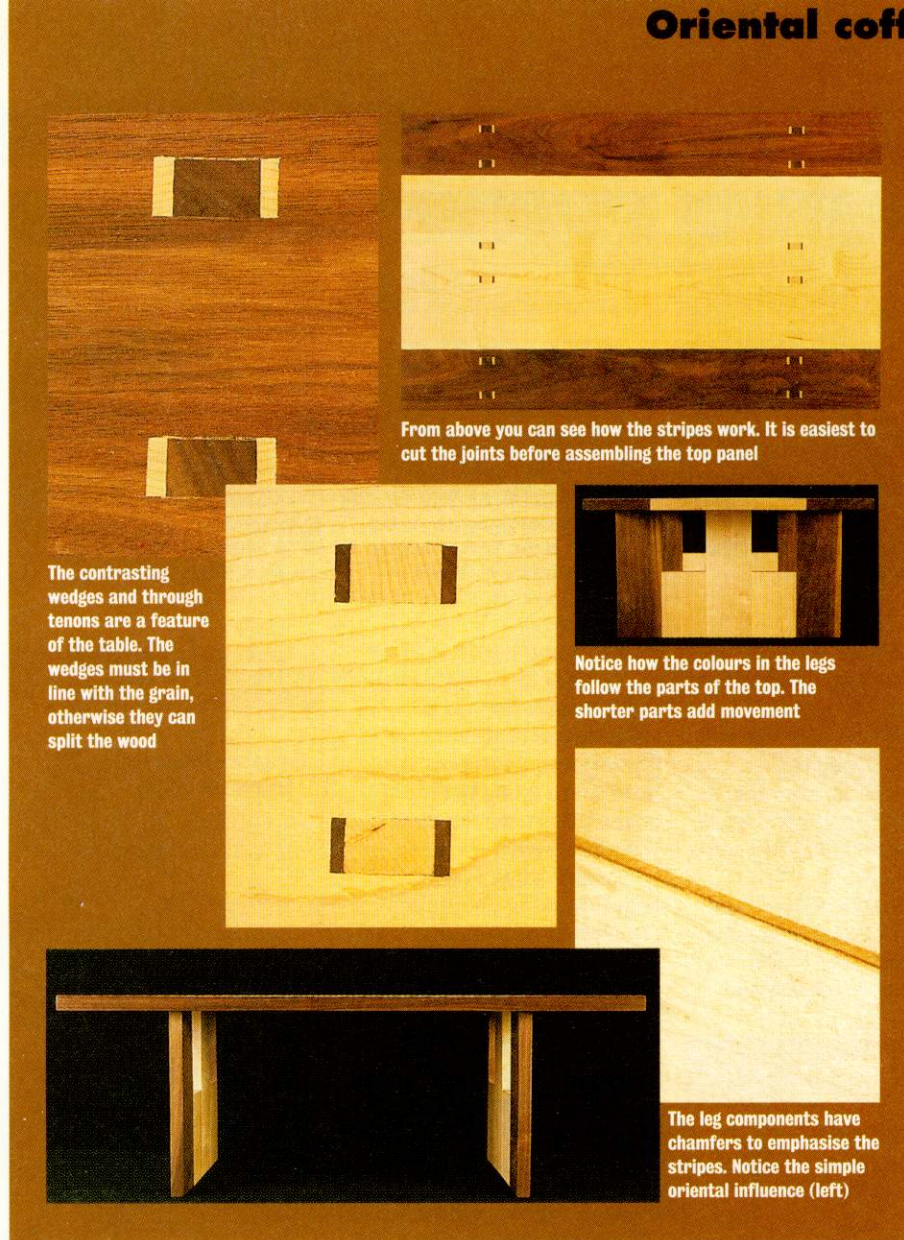
Good Combinations

I often group walnut and maple together. Maple lends itself to simplicity, and doesn't seem to work well when the design is fussy. Walnut is dramatically different, while being relatively close-grained.

Oak and walnut works well. The coarse open grain of oak has a tactile contrast to the smoothness of walnut. But maple and oak don't work, I think. The colour is too similar, and not strong enough in contrast to survive the difference in feel. Oak ends up dominating and maple disappears.

Ash and walnut combine pretty well. Oh it's walnut with everything! The strong grain of ash is so visual. You have to be a bit more careful with English walnut than with the American black I use most of the time (GW 29:4) because the strong figure and colour can distract the eye.

If you are joining contrasting planks try not to have strongly figured grain



From above you can see how the stripes work. It is easiest to cut the joints before assembling the top panel

The contrasting wedges and through tenons are a feature of the table. The wedges must be in line with the grain, otherwise they can split the wood

Notice how the colours in the legs follow the parts of the top. The shorter parts add movement

The leg components have chamfers to emphasise the stripes. Notice the simple oriental influence (left)

along the joint. Trainee photographers are always taught that a person walking out of a photo leads the eye out of the picture. They aim to have the subject moving into the frame.

To reduce the risk of a panel of joined planks warping you need to alternate the grain, so that

little variation between the sides of each plank. I can understand that some woodworkers view these woods as distinctly dull, but they are plentiful, suffer little wastage and are easy to use.

There is a problem with maple, to which I succumbed. For some reason you often find stains on the

surface which are mysteriously passed from the sticks used for spacing planks for seasoning. You can plane and plane away, waiting for the

stain to diminish, till you work your way out the other side of the board. It's a bit like digging to Australia.

I believe the stick staining happens more often when the maple is air dried than kilned. If the stick is chemically unstable it can stain. I must admit that I do not know very much about

this phenomenon. Is it best, I wonder, to use maple sticks between maple boards? Do write in to us if you know of a solution. The only way out I've found is to carefully position the stain where it won't be seen.

The dimensions of the

Making the table



1 Once you have planed up the table top parts, plan the positions and then draw a triangle for identification

TOOLS YOU WILL NEED

- **PLANER THICKNESSER**
Otherwise have the wood planed at the mill
- **ROUTER**
- **CRAMPS**
For gluing up the table top

MATERIALS YOU WILL NEED

- **MAPLE**
You need about 12ft of 4"x1½" in sawn maple. This is about half a cube (£15ish)
- **WALNUT**
About 9ft of 5"x1½" in sawn

Cutting List

	MATERIAL	QTY	LENGTH	WIDTH	THKNS
A	Centre top board	Maple	3	889mm 35in	98mm 3½in 28mm 1½in
B	Outer top board	Walnut	3	889mm 35in	130mm 5½in 28mm 1½in
C	Centre leg board	Maple	1	316mm 12½in	98mm 3½in 19mm ¾in
D	Short leg board	Maple	2	147mm 5½in	98mm 3½in 19mm ¾in
E	Outer leg board	Walnut	2	316mm 12½in	98mm 3½in 19mm ¾in

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 (¾in) on the width and thickness of sawn stock

WARNING

Tap the wedges into the mortices evenly. It is very easy to knock the legs out of square by concentrating too hard and too long on one wedge.

the bark-side of the planks is not facing all one way.

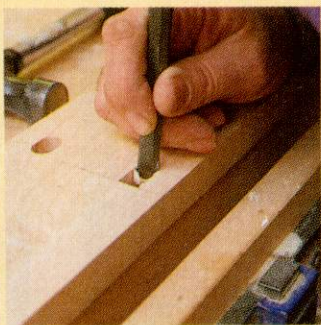
Select from each side for the best match, and take your time to find the best combination of planks. Every second spent in selection and marking is worth the effort.

One of the advantages of using American hardwoods, as I do often, is that there is

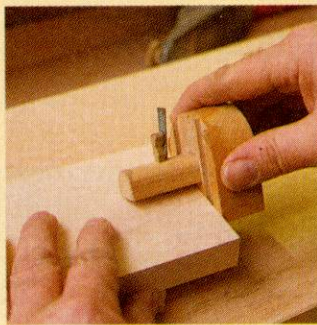
Step-by-step guide to making the table



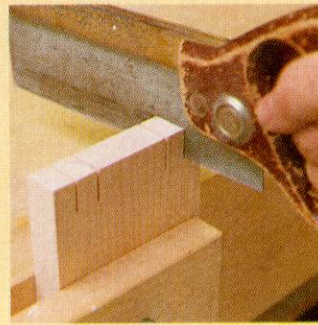
2 Cut the joints before assembly. Here I have used a router from both sides to form the mortices



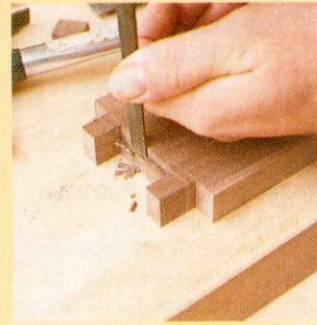
3 Square the ends of the mortices with a chisel, tapering the ends of each mortice to take the wedges



4 Using a marking gauge (or cutting gauge as shown here) to show the depth of the tenons on the legs



5 Cut the cheeks of the tenons down to the gauged line. This point will actually be hidden in a housing



6 Cut away the waste then pare back the edge between the tenons. Preferably use a mallet not a hammer!

Jargon Busting

Comb Joint

Often used for the making of boxes as it is a simple alternative to the dovetail, and has a line of interlocking fingers at the corners

table are determined by the space it must fill, in front of a fire, and by the need for people to kneel or squat at it. I have positioned the uprights well in from the edge of the top to give space for your legs both at the ends and the sides.

The balance of light and dark wood is important and determines some of the dimensions. I feel that the

darker wood needs to be on the outside to strengthen the edge, to stop that man walking out of the photograph. However you need more white in the centre otherwise the dark will dominate.

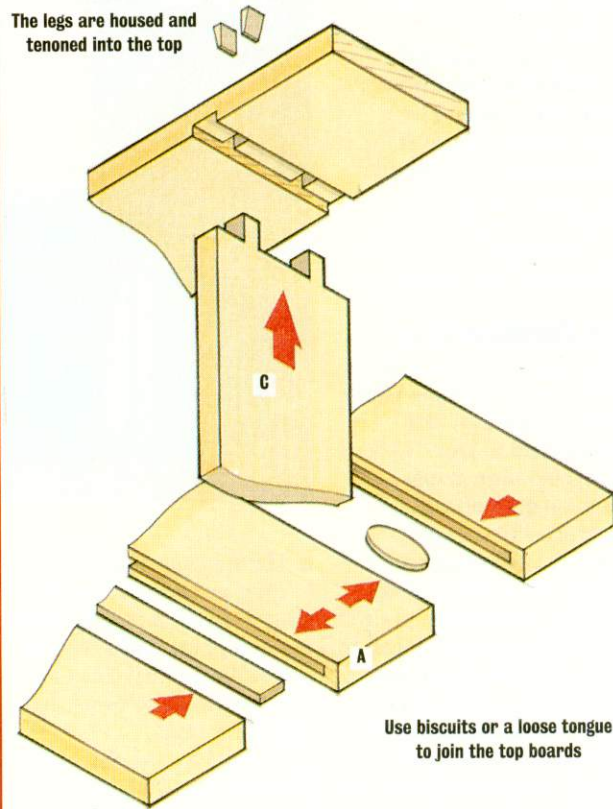
At this stage you can begin thinking about the laminating process that was stirred by my stack laminated box. You will notice that the stripes of dark and light wood are consistent through the legs and top. I was wondering how to make the jointing of the legs to the top as easy as possible. I wanted to use tenons through the top, with the legs fitting into shallow housings for location and a wider gluing area.

The key, I decided, was to cut the joints as I gradually assembled the top. I positioned the mortices so that in most cases they were exactly the same distance from the edge of each board. The only exceptions are the outer mortices on the outer boards (B) which are further from the edge because those planks are wider for overhang. This way you can set the fence on your router for the bulk of the mortices.

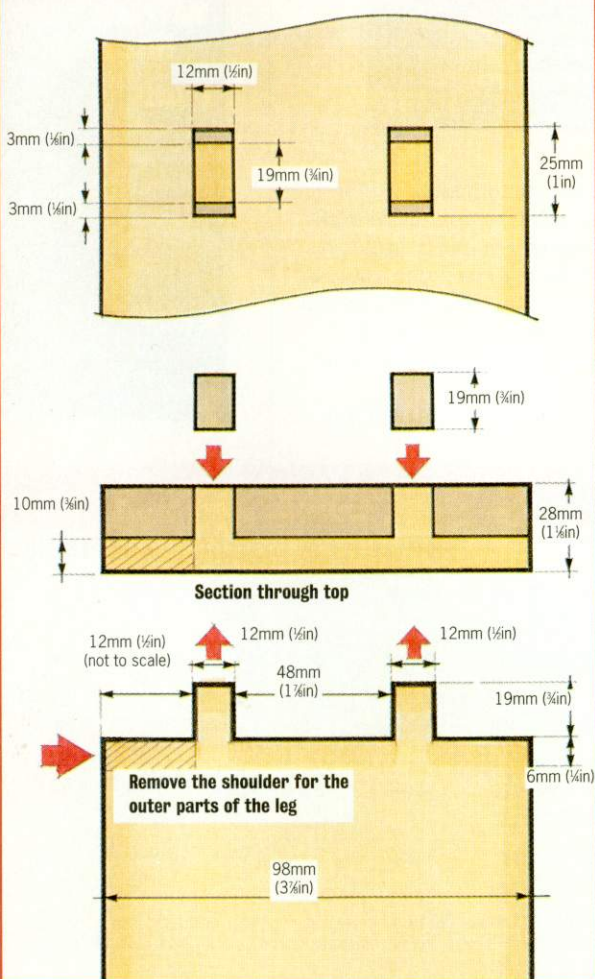
Equally you can cut the housings before assembling the top. That way the housings are actually open at both ends on the centre board (A) and open at one end on the outer two boards. This makes the cutting and cleaning up of the housings so much easier. You have to take great care when it comes to assembly, as the boards need to be very well aligned

Joint details of the table

The legs are housed and tenoned into the top



Detail of leg joint



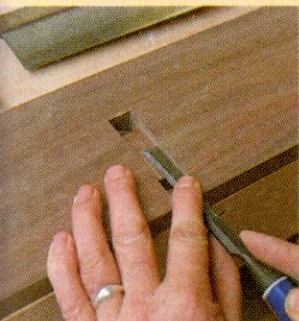
or the joints will be out. One solution is to use biscuits along the edges, which keep the boards level, and reduce the amount of planing you need later. But the most important lesson is to glue up two boards at a time rather than attempt to do the whole top in one go. This gives you more time to line up the joints, though you might prefer to use a faster-setting adhesive like Franklin Titebond for speed.

When it comes to the wedges (which add decorative contrast to the

table top) some people may want to wedge into the tenon. I wanted the wedges further apart, so positioned them to the outside of the tenons, tapering the mortice to suit the wedges.

How to Make the Table

1 Making this table requires a large amount of planing. Start by preparing all the wood for the top and legs. All but the outer boards (B) for the top are a consistent width, so owners of planer thicknessers can produce all the parts they need with two



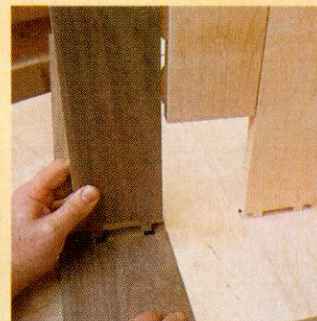
7 Clean out the housings under the top for the legs. Only the housings on the outer boards are stopped



8 I've used a biscuit joiner to assemble the legs and top panel. You could equally use loose ply tongues



9 You can either glue up the top all in one go or one board at a time. Use sash cramps over and under



10 To save terrible gaffs assemble the legs as you fix them to the top. Chamfer the edges for effect



11 Tap the wedges in evenly otherwise you can easily knock the table out of square. Trim off when dry

TIP Glue up the leg assembly when fitting it to the top as this will reduce the risk of mistakes. You may want to use a slow-setting glue like Cascamite to give yourself more time.

for three settings. Do the planing all at once.

2 Take all the parts and line them up to choose the arrangement of top and legs. You want the best face of the legs to face outwards, of course. I couldn't avoid a tick stain across the top, though. Pencil a mark to show the arrangement. If you draw a big triangle across all the pieces you will always be able to line them up again.

3 Now cut the mortises in the top for the legs, having marked their positions from the legs. When it comes to making out I recommend you cramp up the top and draw lines all the way around the top to position the legs. Use a router for the mortises, setting the side fence for location. Plunge the cutter down into the wood. It is best to plane the stock for the legs to suit the cutter you are using for the mortises. When it comes to the outer boards you have to adjust the fence position on the router by the amount of overhang.

For the best finish plunge from both top and bottom. That way there is no breakout around the joint.

4 Now cut the housings. Do this again with a router (or by hand) with the base

against a straight edge. Cramp a piece of waste to the edge where the cutter breaks out to protect against tearing. You may have noticed from the drawings that the outer mortice acts also as the stop for the housing. If you are using a radial arm saw to cut the shoulders of the housings, you only need take the saw as far as the mortice. The radius of the blade is such that the front won't cut into the stop of the housing.

5 Use a chisel to square up the corners of the mortises and the ends of the stopped housings. Cramp up the top lightly and lay the legs on the underside to check the positioning. With the top boards and leg boards the same width there should be no problems, especially if you work from the centre outwards. Each leg board matches each top board. The outer top boards of course are wider, but by working from the centre outwards that becomes irrelevant.

6 Assemble the top, gluing up the three maple boards at the centre, and then adding the outer pieces. With the biscuits there should be very little planing and cleaning up to do once the glue has gone off, though a belt sander does help.

7 Cut the tenons on the legs. Remember that there is a shoulder on the outer parts of the leg. Cut and shape the wedges, and chisel back the taper on the mortises.

8 When it comes to assembling the top and legs I suggest you glue up

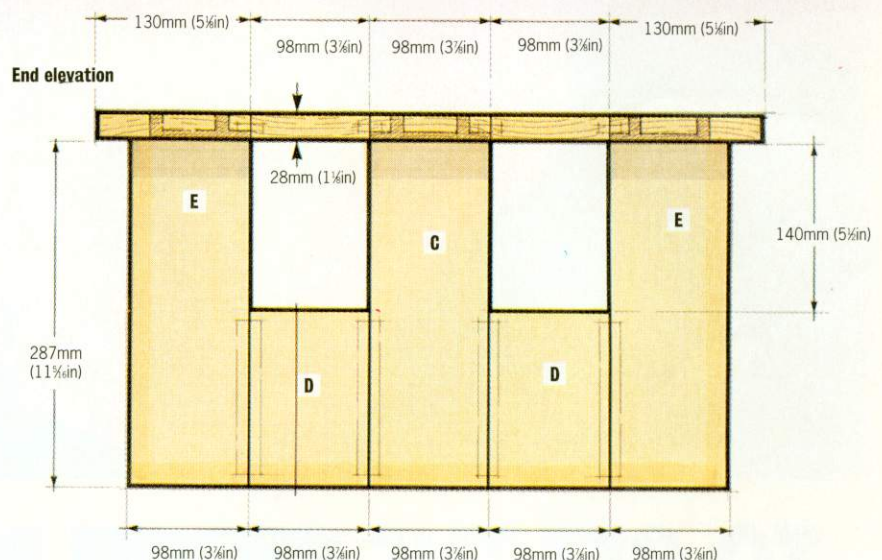
the legs as you fit them to the top. This may seem a bit more complex, but does reduce the risk of mistakes. Tap the wedges into the mortises and leave to dry.

I finished this table with a few thin coats of polyurethane (thinned 50:50

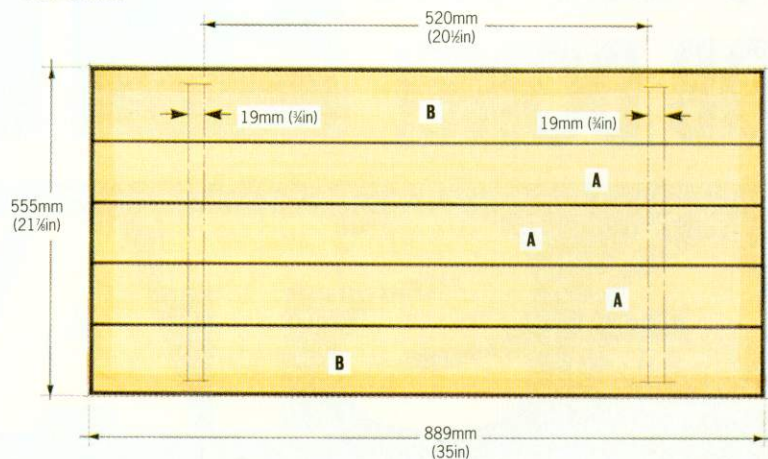
with white spirit). Cut back with fine abrasive between coats and then wax with 0000 wirewool, possibly the free pads we gave you with the April issue.



End elevation and plan of table



Plan of table



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Woodwatch

News Editor Claire McCullough reports on the world of woodworking today



POWER-TOOLS

The world's first electric power drill, from Fein, celebrates 100 years



Drilling times

AT A TIME when inventions were rife, including alarm systems which made it impossible for mortuaries to accidentally bury their customers alive, hand-tools were about to come into their own. The invention of the world's first electric powered hand drill celebrates its 100th anniversary this year.

Invented in Germany in 1895 by Wilhelm Emil Fein, the electric hand drill came together when Fein had undertaken a contract that involved drilling by hand a large number of holes. At the same time small electric motors were arriving from England. Fein took one of the British motors, attached it to a conventional chuck shaft and announced the invention of the world's first electric hand drill.

The company Fein was founded in 1867 by the Fein brothers as a mechanical workshop. Today Fein manufactures, at three plants in Germany, a range of more than 200 different power-tools exporting its products worldwide. In Britain Fein markets its products through a network of 200 dealers.

You can see examples of the first electric hand drills at the Fein Museum in Stuttgart and a model drill can be seen at the Fein office in Birmingham. For information ☎ 0121 789 7844.

WOODCARVING

Flying high at Pensthorpe

FOR the third year running Pensthorpe Waterfowl Park are hosting the exhibition of carved birds. In their Courtyard Gallery, a large converted barn, more than 350 birds will be on display and most of them for sale.

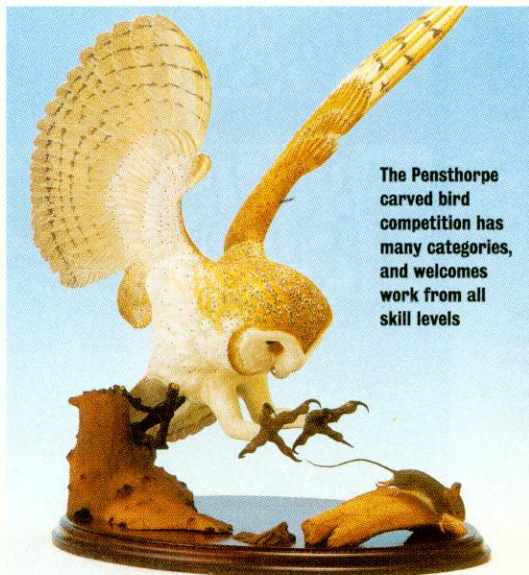
Amateur and professional carvers from all over the UK

can submit their birds to the show. The organiser, Judith Nicoll emphasises that the event is not a competition. "It is an art exhibition where any UK carver may display and sell their work."

New features this year are a special woodcarvers' weekend on the 16th-17th September, and a demonstration area where different well known carvers with varied styles and technique will work and talk to visitors. A video camera will be set up so their work can also be seen on screen in the main gallery. A marquee will have display stands of books, tools and general supplies for carvers.

There are many prizes from sponsors for winners of the Awards of Excellence. Work will be selected across styles of carving and species of birds by an expert panel of judges. Interpretative or impressionistic pieces are encouraged with an award for the Best Wildfowl as Sculpture. All visitors to the show can vote for their favourite carving to win the Visitors' Choice Award, and the Judge's choice will be awarded £500 from the Guild of Master Craftsman Ltd.

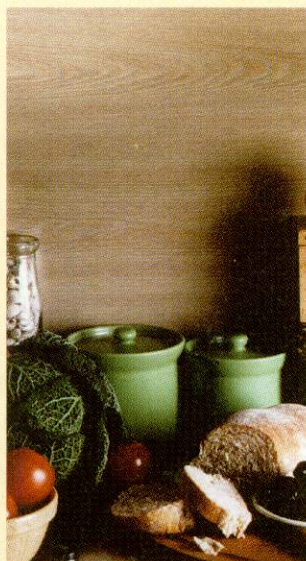
Pensthorpe has a 200 acre nature reserve, one of the biggest collections of waterfowl in the world, a children's play area and a restaurant. Admission to the park, details and entry forms are available from the beginning of May from Judith Nicoll, 18 Ditton Court Road, Westcliff on Sea, Essex SS0 7HG (☎ 01702 432774), or from the GMC, Castle Place, 166 High Street, Lewes, East Sussex BN7 1XU (☎ 01237 477374).



The Pensthorpe carved bird competition has many categories, and welcomes work from all skill levels

Shelves and boards

LIMED oak is the latest from the new Conti ranges of shelving and board. The finish features highly textured graining and is available in the Conti Classic Shelving or Contiboard. The Conti Classic is a range of profile-edges, melamine face MDF shelving available in three lengths, 600mm, 900mm, and 1200mm, and two widths 225mm and 300 mm. The Limed Oak edges are painted and lacquered. The Contiboard range is designed for furniture-making, non-standard shelving and fitted storage units. It is available in seven widths, from 6in to 24in and lengths of 8ft.



Machine recalled

IN JULY 1994 the Bosch Power

Tools Division brought out a device for stripping wallpaper, which complies with European Standard EN60335. The machine has caused seven accidents when steam came out of the device in an uncontrolled way. Bosch urges anyone who has bought a stripper to return it to the place where they bought it. The price will be refunded in full. Bosch has set up a telephone service line for enquiries ☎ 01895 838541.

Safety first

DIY WORK accounts for 12 per cent of eye injuries, most commonly caused by flying chips of wood and splinters when chiselling or hammering. National

Eye Safety Week, the 17th-23rd April, aims to raise our awareness of the dangers of eye accidents and to promote ways of preventing them.

The British Safety Council is urging you to follow the DIY Eye Safety Code:

- Eye protection is essential for all DIY jobs.
- Always wear safety goggles for the whole job, accidents occur when goggles are lifted for a closer look.
- Check that the goggles are BS 2092.
- Be careful when chiselling and remember to take special care when sanding wood, stripping paint, sawing etc... For more information and advice ☎ 0181 741 1231.

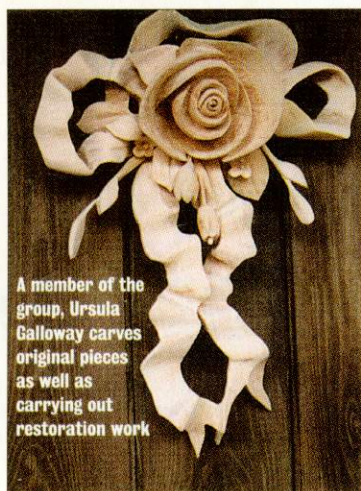
Women in woodwork

SETTING up groups among woodworkers is an increasingly popular way of exchanging ideas and information, and putting together exhibitions. One such organisation is the Women Woodworkers Group, who are aiming to create a national register of women who work with wood. "You contact us and we put you in touch with members in your area," said Sally Wallace, the group's co-ordinator. "There are women woodworkers out there and it is helpful for other women to know how they make a living from it."

The group was formed for mutual support and in the hope that it would encourage other women to pursue arts and crafts connected with wood. The four members, who have been together since 1992 and meet once a month, got together through the Cambridge Open Studio Scheme which encourages people to visit the workplaces of artists and craftsmen. The women, who are all professional artists, earn their bread and butter working with wood and other media. They share an interest in native and home grown timbers and a desire to promote their use.

Jenny Rumens, who turns and carves wooden flowers and leaves, formed the club initially with Kim Croucher when they discovered their mutual interest in buying tree trunks. Jenny turns vases and pots, and is currently carving a torso in pine, reflecting stages in the lives of women. Kim makes boxes, carves cats and does small batch turning. Her most recent commission is to carve a series of outdoor sculptures depicting giant seeds. She has just completed a 7ft sculpture of an acorn in burry oak.

The group are opening their studios to the public in July in conjunction with the Cambridge Open Studios Scheme. For information contact Sally Wallace, Farthingales, West Wickham, Cambridge CB1 6RY, ☎ 01223 290273.



A member of the group, Ursula Galloway carves original pieces as well as carrying out restoration work

News in brief...

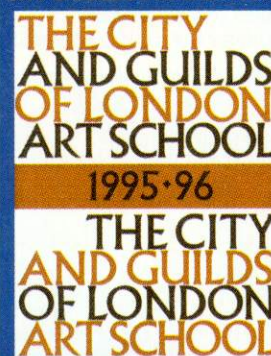
AWGB SEMINAR 1995

The fifth AWGB International Woodturning Seminar will be in August at the new venue of the University of Warwick. Full details and booking forms are now available from Len Grantham Spindles, Cooper Close, Nettleham, Lincolnshire LN2 2XX, ☎ 01522 595660.

ENCYCLOPEDIA IN SOFTBACK

Jeremy Broun's book *The Encyclopedia of Wood Working Techniques* (ISBN 0 7472 7845 8) is now available in paperback. It is a visual guide that shows a wide range of basic skills and woodworking techniques through clear, easy-to-follow step by step demonstrations. Published by Batsford, the book costs £11.99.

CITY & GUILDS PROSPECTUS



Looking for a course but can't quite make up your mind? Maybe the new prospectus from the City & Guilds of London Art School will help. The School offers graduate courses in restoration and conservation, woodcarving and gilding, decorative arts, stone carving and lettering. If you would like more information contact the School at 124 Kennington Park Road, London SE11 4DJ, ☎ 0171 735 2306.

DIARY

EASTER CRAFT FAIR

16th April
Hagley Crafts, Golden Valley Hotel, Gloucester Road, Cheltenham.
Open 9.30-5, admission 80p, under 14s 40p, ☎ 01562 777014.

MIDLANDS EXHIBITION

21st-23rd April
Leading experts demonstrate their skills, woodworking education, a vast range of products, tools and machines from all the leading suppliers, lecture programmes daily. National Agricultural Centre, Stoneleigh Park, Warwickshire. Unlimited free parking.
Open 10.30-6 (final day 5pm), admission adults £5.50, senior citizens £4.50, children £3.50, family ticket £14 (two adults and two children) ☎ 01926 614101.

ROBERT SORBY CLINIC

22nd April
Clinic and demonstrations by Robert Sorby with Tony Walker. 16 Station Road, Bedlington, Northumberland.
Open 9.30-4.30, admission free, ☎ 01670 823133.

CARVED WOOD

27th April-28th May
John Stephen Daniels and his life-like sculptures. Model House, Bull Ring, Llantrisant, Mid Glamorgan.
Open Wed-Sun 12-5 (before 1st May), Tues-Sun 10-5 (after the 1st May), admission free, ☎ 01443 237758.

FREE DEMONSTRATIONS

6th May
Woodturning: Phil Reardon
7th May
Nova Scroll chuck: Denis Whittaker
13th-14th May
Woodcarving: Dave Johnson
20th May
Upholstery: Ronnie Fisher
21st May
Briwax finishes: Briwax
28th May
Finishing: Stephen Hardcastle
John Boddys, Fine Wood and Tool Store School Room, Riverside Sawmills, Boroughridge, North Yorkshire.
Open 10-3.30, ☎ 01423 322370.

TATTON MAY FAIR

7th-8th May
Crafts organised by Country Designs. Old Hall, Tatton Park, Knutsford, Cheshire.
Open 10-5, admission to be decided, ☎ 0161 928 9146.

DECORATIVE ARTS

11th-17th May
An exhibition of contemporary arts includes the work of 100 designers. The event provides a forum to encourage the best in British design as well as an opportunity for well known designers to sell their work. An enormous range of furniture is for sale. Bonhams, Montelier Street Knightsbridge, London SW7 1HH.
Open Mon-Fri 10-6, Sat-Sun 11-4, admission £3, (free when you buy a catalogue worth £6) ☎ 0171 393 3930.

CRAFT AND DESIGN SHOW

19th-21st May
The Spring Southern Counties Craft and Design Show combines traditional skills of the past with new ideas and designs. The Maltings, Farnham, Surrey.
Open Fri 12-9, Sat 10-6, Sun 10-5, admission adults £2, senior



Spoilt for choice at the Spring Southern Counties Craft Show

citizens £1.50, under 14s 50p, ☎ 01597 851875.

ISAAC LORD

20th May
Teach in with Alan Batty. 185 Desborough Road, High Wycombe HP11 2QN.
Open 2-4.30, admission free, ☎ 01494 462121.

NORTHERN FEDERATION OF WOODTURNING

25th May
French polishing: Jack Clarke, Merseyside
25th May
Woodturning: Alan Batty, Cheshire and North Wales
Open 7.30pm
29th May
NFWG annual show, Cheshire and North Wales
Open 10-4, ☎ 0151 733 5917.

TATTON CRAFTS FESTIVAL

27th-29th May
Tented craft village with demonstrations organised by Country Designs. Old Hall, Tatton Park, Knutsford, Cheshire.
Open 10-6, admission adults £3.50, senior citizens £3, children free, ☎ 0161 928 9146.

TURNING AND CRAFT FAIR

29th May
A woodturning show and craft fair will include turning demonstrations with guest John Hunnex.
Details to be decided
☎ 01244 534699.

GOOD WOODWORKING ON SHOW 1995

23rd-26th November
After the success of our first show in 1994, Good Woodworking are holding their second. If you enjoyed the last show you'll love this one, or if you missed it now's your chance to catch it this time round.
For details ☎ 01225 442244.



Trend 40 years on

TREND'S new routing catalogue marks their 40th anniversary. The catalogue offers a range of router cutters, cutting tools and routing products. New products include tooling, jigs and routing accessories aimed at the professional woodworker. Trend Professional range products now include an extended range of machine bits and specialised drilling tools, a rosette cutting tool and a wide range of miniature cutters. CNC routing is featured along with the new router carver and a new postform worktop jig. The catalogue is available free from Trend stockists or from Trend Machinery & Cutting Tools Ltd, Unit N, Penfold Works, Imperial Way, Watford, Herts WD2 4YK. For information ☎ 01923 249911.

Non clog glue cap

USING a hair pin was just one of the tips you sent us for unclogging blocked up glue nozzles. But now you can throw away your hair pins because Loctite, the manufacturer of Super Glue 3, have introduced the non clog cap feature to tubes of Super glue 3 and Super glue gel. The steel pin moulded into the cap clears the nozzle completely ensuring the tube never clogs. Prices remain at £2.09 for the tube and £2.49 for the gel.

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

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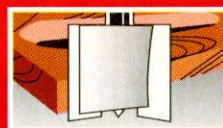
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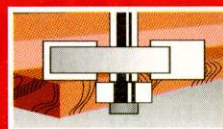
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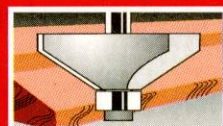
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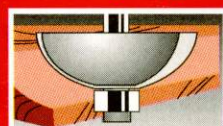
Plunging 1/2 3/4"



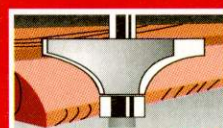
Rabbeting 3/8"



Chamfering 13/16" ~ 45°



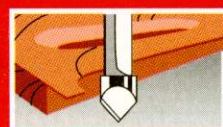
Cove 1/2"



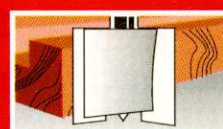
Roundover 3/8"



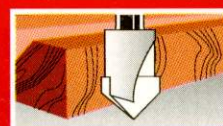
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"I had recently purchased a cheap import, and the electric motor burnt out. The price of a new motor made the machine totally uneconomical to repair. I therefore scrapped it and bought the machine I should have bought in the first place."

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Derbyshire.

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WHAT THE PAPERS SAY...

"If my old machine suddenly died on me, then I know I would have to replace it and it would be from the Record range that I would make my selection. It would be money well spent for me, with my son and grandson eventually benefiting in the years to come from my investment."

Gordon Warr, Practical Woodworking, January 1995.

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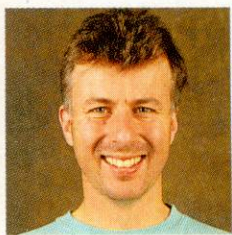
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WETSTONE

GRINDERS



Mark Corke, our sharpening expert, evaluates the benefits of grinding vertically or horizontally and finds out which wetstone grinder is best

The sharpening surgery at the Good Woodworking Show made it clear that getting a sharp edge on tools is something an awful lot of people find difficult. Knowing which grinder is best and the differences between the machines is a good start.

All the grinders we tested have one thing in common: water. They either have a vertical wheel running in a water trough or a horizontal stone with an overhead reservoir which feeds water onto the revolving wheel below.

Most woodworkers are familiar with high-speed bench grinders, with a pair of 6in or 8in diameter wheels, one coarse and the

other finer. These are mounted at either end of an electric motor which has a spindle speed of around 2850rpm.

Originally designed for engineering use, they have found their way into workshops up and down the country where they are used for a multitude of jobs, few of which are suitable or ideal. Almost anyone who has tried to regrind a plane or chisel on them will tell you how easy it is to burn the edge and draw the temper shown by the tell-tale bluing of the edge.

To avoid this malady, larger wheels cooled by water are far better for woodworking tools. Things happen more slowly so you can see what's going on and the wheel is at least as wide as the edge being sharpened.

Thus the

bevel remains constant across the width of the blade.

Going Horizontal

The wetstones in this test fall into two camps. Some have the stone rotating vertically while others have the stone running flat in the horizontal plane. All the stones which run vertically have the bottom third constantly immersed in a water trough. This cools the cutting edge by constantly washing the tool edge. The water carries away the metal particles as they are removed and these then sink to the bottom of the trough. Without the water the stone would become clogged, glazed and useless.

The horizontal stones are cooled by water dripping down from a

THE GOOD WOODWORKING WETSTONE TEST

CREUSEN NS5215TS	CRAFT SUPPLIES MG703
APTC VIKING	RECORD SCAN 200S
TORMEK SUPERGRIND 1204	DRAPER GWD205
TORMEK SUPERGRIND 2004	SAMURAI

suspended reservoir. It then flows to the outside of the rotating wheel by centrifugal force, finally running away via a plastic pipe into a suitable container. The advantage of the reservoir system is that fresh water is constantly fed onto the wheel so there is little chance of contamination from any dirty water in a trough. That said, I found all the water troughs, with the exception of the Viking vertical stone, easy to empty. It is a surprise to find just how many particles do collect after a sharpening session.

I find myself torn by the horizontal versus vertical debate. Personally, as a cabinetmaker, I prefer the horizontal wetstone grinders. The vertical versions produce a hollow bevel, as favoured by turners. But I have found that you lose the edge on chisels and plane irons more quickly with that hollow grind. There is less metal behind the edge as support. It is fragile, like a razor blade. The problem with the horizontal machines we tested is that the wheels are fairly small, so the difference in speed between the inside and outside edges of the wheel is great. As a result you are likely to wear one side of plane blades when using the full width of the wheel, but at least you get the flat bevel.

The advice I gave to visitors at the Good Woodworking Show is worth repeating. I was constantly asked which grinder is best. Personally I'm pretty keen on sharpening by hand, only reverting to the grinder for major repair work. However for those woodworkers with no bench grinder, I'd recommend they look at the combination machines. These offer the power of a vertical



high-speed grinder as well as the foolproof sharpening ability of the horizontal wetstone.

If you already own a high-speed grinder, then the dedicated wetstone grinders are more suitable. I suspect the amount of turning you plan to do determines your choice between horizontal and vertical. With some skill you will be grinding tools for turning on a high-speed grinder, but during the early stages a vertical wetstone grinder will make life easier. It depends on your patience.

Unfortunately this is not a cut and dried affair. Do not expect a grinder (wetstone or otherwise) to produce as fine an edge as an oilstone or Japanese waterstone used by hand. Choosing your approach to maintaining edge tools is personal, and worth experiment.

Testing the Grinders

To test the grinders we ground a fresh bevel onto a 2in wide plane blade and a 3/4in chisel. As well as looking for edge finish and an accurate bevel we were interested to find out how long it took to grind each of the tools. Just as important is how easy it is to set the machine up, how good the tool rests are and whether it was possible to repeat bevels with a fair degree of accuracy.

Some of the grinders feature a dry grinding wheel in addition to the wet wheel. The dry wheels run at about 2850rpm, useful if this is your only grinder as it extends its versatility. It makes it suitable for drill bits, turning tools and any grinding operation that needs this type of high-speed wheel. All the wetstones revolve between 70rpm and 450rpm which is much slower

but the wheel is that much larger so the peripheral speed is still fast.

The Tormek in particular is available with a huge range of attachments and the makers claim there are few tools it is unable to tackle. However the larger Tormek costs almost £300, so if you add all the accessories the whole thing ends up as an expensive machine.

Wheel Types

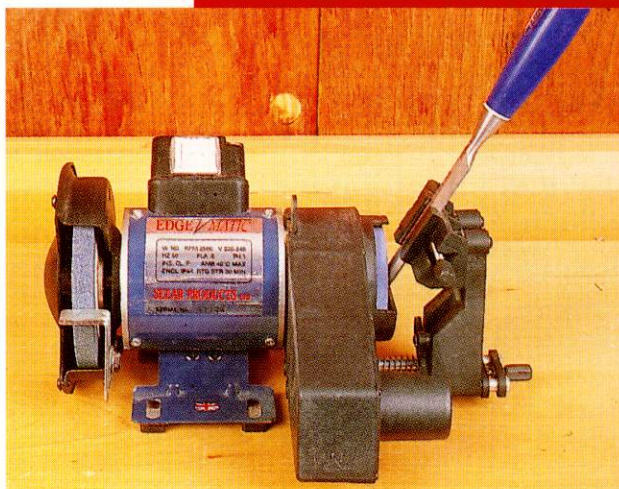
The wheels fall into two categories, either natural, or man-made, generally from aluminium oxide particles bonded together using a ceramic base.

They both do the job well and at the end of the day it comes down to personal preferences. I was brought up on natural stones which have suited me well, but many people find them too soft and easily damaged.

All waterstones take up water at an alarming rate when new. You must soak for at least half an hour from the box. This ensures that the stone is saturated and water used during the sharpening process is washed off the surface and does not soak in taking the metal particles with it.

Wetstone grinders need a little maintenance. Pay attention to the condition of the wheels. These have a long life but do not last indefinitely. Replace chipped and

The Edgematic



Though not a wetstone grinder as such the Edgematic from Seear Products has the facility to sharpen chisels and plane irons without the risk of overheating the edge. The idea behind the machine is simple. A cup wheel running at high-speed is mounted at one end of the motor spindle, with a tool holder swinging on two chrome-plated bars. A belt driven pushrod moves the tool holder back and forth across the flat face of the wheel. The angle, set at about 25°, is non-adjustable

but gives a perfectly flat, and very sharp, bevel on all types of edge tools. At the other end of the machine is a grinding wheel and tool rest.

The swinging tool holder is gently tensioned against the wheel, so you can leave the chisel or plane iron to sharpen as you carry on working. It can regrind screwdrivers, but cannot cope with the wider plane blades.

Although small the Edgematic performs well, and because the whole thing is automatic it is almost impossible to burn the tool edge. Some of the plastic parts and the tool rest look flimsy, but the machine runs with little vibration.

GW VERDICT

PERFORMANCE	●●●○
VALUE FOR MONEY	●●●○
RRP inc VAT	£128.00
SEEAR PRODUCTS	01932 344682

damaged wheels, not only because they cease to work well but a stone flying off at high-speed could be fatal. Check that all the nuts and bolts are tight, paying particular attention to those supporting the tool rest. Always wear goggles when using a grinder, whether it's a wet or dry wheel.

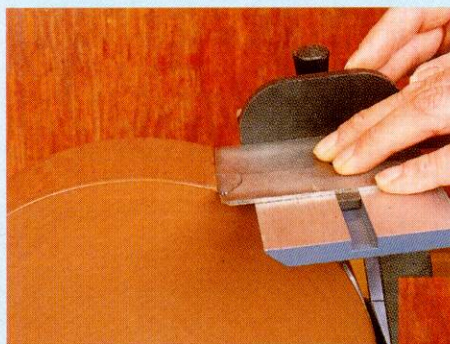
Value for Money

Whether the machines represent

value for money depends on your outlook. If you do not have a grinder the combined wet and dry ones are probably a good bet as they will perform all the functions within the average workshop.

If on the other hand you already own a dry wheel grinder, spending up to £300 may not represent such good value, especially if you only have a few chisels and a couple of planes.

Tool rests and grinding jigs



A good tool rest is important for producing accurate bevels with a wetstone grinder. The APTC Viking (above) has a mitre fence that slides in the tool rest. Vertical wetstones produce a slight hollow, whereas horizontal stones give a completely flat bevel. The Tormek knife grinding jig (right) costs about £17



Tormek have a comprehensive range of jigs for sharpening virtually any tool you can think of (left). The plastic Angle Master and honing paste come as standard with Tormek machines



Horizontal wetstones use a reservoir for storing water (left). The Scan 200S grinder (above) has an all in one plastic casing and water trough

Creusen NS 5215 TS



This is a heavy machine finished in grey paint. It has a 200x40mm wet wheel running in a PVC trough which is rather flimsy and below the robust nature of the rest of the machine. At the other end of the machine in familiar style is the dry wheel which is also 40mm wide but is of a smaller diameter at 150mm. The tool rest needs a spanner

long life. The tool rest supplied to the wet wheel is not so good. Whilst it is strongly made it merely consists of a 12mm round bar which is adjusted with a spanner, OK for some tools but not good enough on its own for chisels and planes. In fairness there are reasonably priced supplementary tool rests and

to adjust but is of stout construction and once set can be guaranteed to stay put and not move. There is also a no-nonsense spark arrestor and eyeshield to this wheel. The front mounted switch is easy to operate and this too feels up to a

these are excellent. Once set up correctly they performed well but I should like to see these forming part of the standard equipment as you will almost certainly need one or the other. This machine came with a generous length of lead which is a refreshing change, but no moulded-on plug which is featured on most of the other machines.

The Creusen is built in the Netherlands and is unique in having a five-year warranty.

GW VERDICT

VERSATILITY With the additional rest a worthwhile machine which copes well	●●●●○	EDGE QUALITY Good but the wheel was out of round which marred its performance	●●●●○
CONSTRUCTION QUALITY Solid, heavy construction, but water trough clamping poor	●●●●○	ERGONOMICS A heavy machine built to last, clean lines and low vibration	●●●●○
+ Solid construction, competitively priced with five-year warranty - Standard tool rest could be better. Water trough			
VALUE FOR MONEY	●●●●○	OVERALL	●●●●○

Craft Supplies MC703

This is one of several similar Taiwanese horizontal grinders tested having a 800 grit natural waterstone of 200mm diameter. The cast body is substantial and the switch is mounted on the front plate of the motor housing. There is a plastic water trough suspended above the wheel which has a drip feed control to the cutting surface. Also in black plastic is the wheel surround with a foam rubber splash arrestor to the periphery of the wheel. Spent water exits via a short length of pipe to the rear of the machine. The tool rest is made of flimsy pressed steel and is held in position by two thumbscrews to each of the tool post holders. I found these difficult to retain in the desired position.

The tool rest to the dry wheel, which runs at 2850rpm, is one of the better

ones but is still far from ideal and difficult to adjust. The motor runs well with little vibration but I found the wetstone was slightly out of true. A horizontal stone is more problematical than a vertical stone due to the large surface area that needs to be dressed from time to time.



GW VERDICT

VERSATILITY Good but only suitable for edge tools, the tool rest could be better	●●●●○	EDGE QUALITY Good results can be obtained, the tool needs a firm hand on the rest	●●●●○
CONSTRUCTION QUALITY Metal parts well finished but plastic parts and tool rest not up to scratch	●●●●○	ERGONOMICS Low noise level but it can get messy with water all over the place	●●●●○
+ Good value combination machine - Difficult to adjust water flow correctly			
VALUE FOR MONEY	●●●●○	OVERALL	●●●●○

Tormek Supergrind 1204

From Sweden, the Tormek is compact. Its blue plastic body has no nasty bits sticking out and houses a 120W motor rotating at 120rpm. The aluminium oxide grinding wheel, which runs in a rigid ABS water trough, is 200mm diameter by 40mm wide which is OK for chisels, but a 50mm wheel is better for plane blades.

The switch is easy to reach, being mounted between the substantial tool rest posts, and has a sensible waterproof cover to prevent accidents.

The machine came with the standard tool holder which accepts chisels and plane blades, however the width between knurled bolts which holds the blades is too narrow to accept blades from a No.8 try plane.

At the opposite end of machine to the grinding wheel is the honing wheel, 145mm dia by 25mm wide. It is covered with soft leather to which honing paste (similar to chrome cleaner) can be added. With this wheel it is possible, after grinding, to hone to a sharp edge. It is strange that to do the



honing the whole machine has to rotate through 180°. It is necessary to have the wheel rotating away from the operator.

This grinder is well made, but the wetstone runs slightly out of true. It does not seem to affect grinding performance, though. The tool rest/holder was the best in the test but the standard plastic angle jig can be a bit tricky to use.

GW VERDICT

VERSATILITY Can sharpen almost all tools with the addition of supplementary jigs	●●●●○	EDGE QUALITY A straight edge but the small dia. wheel produces a shallow hollow	●●●●○
CONSTRUCTION QUALITY Plastic casing is substantial and waterproof. British motor	●●●●○	ERGONOMICS Very quiet, low vibration and switch easy to reach	●●●●○
+ Lots of accessories so you can sharpen virtually any edge tool - You have to turn the machine through 180° to use the honing wheel			
VALUE FOR MONEY	●●●●○	OVERALL	●●●●○

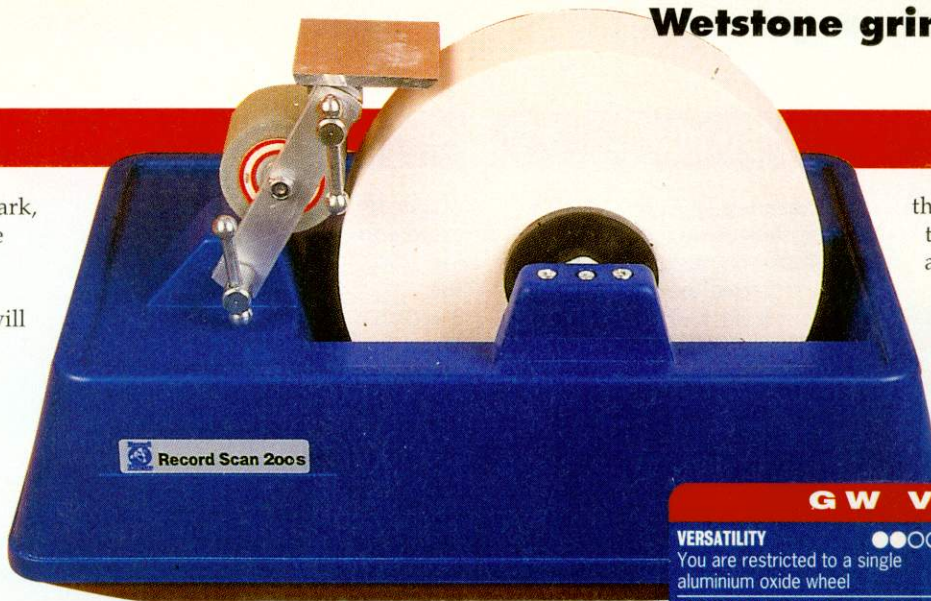
Scan 200S

The Scan comes from Denmark, hence its name, and with the exception of the tool rest is moulded almost from one piece of plastic. The wheel will revolve in either direction, via a badly positioned rocker switch to the rear of the machine which is fiddly to operate. The instructions are not brilliant but it does have information on stone care and safety in use.

To empty the integral reservoir you have to tilt the whole machine backwards having first carried it to the sink. This is not very satisfactory. I found the tool rest almost impossible to adjust correctly and it was not particularly stable in use. With the wheel rotating correctly towards the operator it is impossible to use this machine without

getting soaked. Water went everywhere except back into the trough. The motor is rated as 20 minutes continuous use, which when grinding a couple of large plane blades could easily be exceeded. The stone was

the only one of all those tested that was round. There is an abrasive rubberised wheel of 50mm diameter mounted under the tool rest which seems to be an afterthought. It is presumably for honing, but no mention is made of it in the instructions.



GW VERDICT

VERSATILITY

You are restricted to a single aluminium oxide wheel

●●○○○

EDGE QUALITY

The edge quality was good but this machine is slow to grind

●●●○○

CONSTRUCTION QUALITY

Plastic casing has built-in water trough. Motor rather low powered

●●○○○

ERGONOMICS

The switch position is poor and emptying the water is a pain

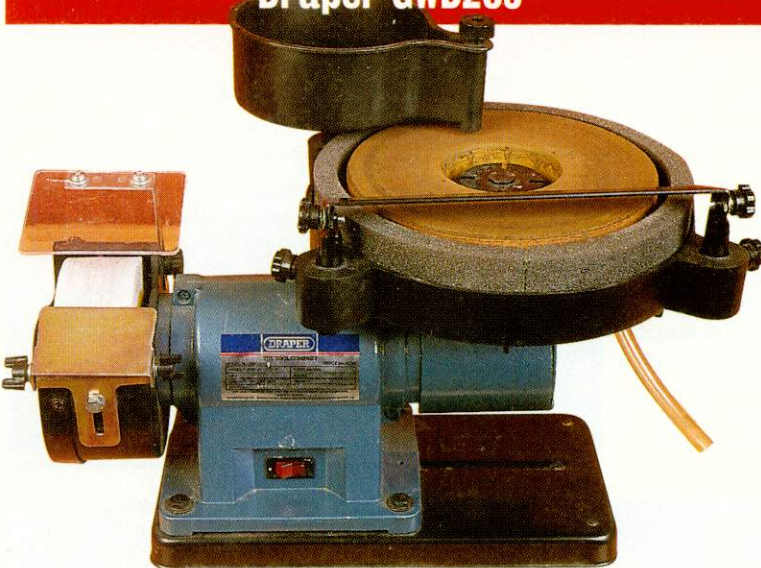
●●○○○

- + You are not paying for a second wheel you may never use
- Poor switch position. You can easily get wheel revolving wrong way

VALUE FOR MONEY ●●○○○

OVERALL ●●○○○

Draper GWD205



This machine is similar to the Craft Supplies grinder. The only differences are the colour and the addition of a 50mm dry wheel in place of the normal 19mm wide fitting. On closer inspection it turns out that the wheel is in fact a cup wheel which is being used incorrectly, and revolving at high speed. As tools are sharpened on the outside of a wheel which has a wall thickness of only 15mm it makes you wonder what would happen when the wheel wears down. It is possible that it

could shatter at high-speed with serious consequences. Cup wheels are meant to be used by grinding across the rim of the cup and not on the side. I don't feel I can recommend this grinder due to the potential hazard. Does this contravene abrasive wheel regulations? Otherwise this Taiwanese wetstone works well.

GW VERDICT

VERSATILITY

The wet wheel can be used for all edge tools

●●○○○

EDGE QUALITY

Well up to standard, producing a good flat bevel

●●●○○

CONSTRUCTION QUALITY

Poor quality tool rest to the dry wheel, unable to adjust accurately

●●○○○

ERGONOMICS

Easy to keep clean and the front mounted switch is well placed

●●○○○

- + Low vibration and good finish to tools with wetstone
- Dry cup wheel could be dangerous

VALUE FOR MONEY ●●○○○

OVERALL ●●○○○

APTC Viking

My first impression was that this is an excellent machine. It looks built to last. All major parts are cast alloy including the tank. The motor has an input of 200W and is quiet in operation. The dry wheel which runs at 2850rpm is powered directly from the motor spindle. The 250x51mm Japanese wetstone runs via a reduction gear at 70rpm. The tool rest is adjusted by substantial levers and is of heavy construction. It is supplied with a sliding mitre fence to ensure that tool edges are ground true. The grinder has an illuminated rocker switch to the front of the machine. This is difficult to reach when using the wetstone. The wetstone was slightly out of true but was one of the finest of grits in the test. The instruction manual supplied with the machine

was poor and showed tools being ground without a tool rest, which can be dangerous.

A good, solid combination grinder from Taiwan.



GW VERDICT

VERSATILITY

Can cope with all edge tools. Large wetstone gives shallow hollow

●●○○○

EDGE QUALITY

The edge quality was good but slow due to the fine grit of the wheel

●●●○○

CONSTRUCTION QUALITY

A heavily built machine. Water tank a pain to empty with drain plug

●●○○○

ERGONOMICS

Low noise and vibration but the right angle design is awkward

●●○○○

- + Slow speed wetstone feels very safe to use
- Right angle design makes switch access awkward

VALUE FOR MONEY ●●○○○

OVERALL ●●○○○



This Japanese machine consists of a 205mm diameter wetstone mounted in a plastic case. The Samurai has a similar tool rest to

Samurai

the Taiwanese grinders. There is slightly less flexing on the Samurai's tool rest.

I tried the optional planer knife tool rest which, though expensive, is a vast improvement on the standard fitting. It does add £82 to a machine that is already expensive. The wheel is lubricated in time-honoured fashion by a drip feed that is mounted over the wheel. However I found this hard to adjust to get the right amount of water to fall onto the stone. Spent

water exits via the familiar short length of plastic pipe to the rear of the machine. The switch is easy to locate and use, being mounted conspicuously at the front of the casing. For its diminutive size the machine performed well with the stone cutting and minimal vibration. Good for achieving flat edge bevels.

GW VERDICT

VERSATILITY Only good for plane irons, chisels and planer knives	●●●○○	EDGE QUALITY Good, especially when allied to the optional tool rest	●●●○○
CONSTRUCTION QUALITY Well built but perhaps a little too much plastic	●●●○○	ERGONOMICS Quiet machine with easy to reach switch. Short drain tube	●●●○○
+ Excellent finish possible with 1000 grit wetstone - Limited to fine grinding only. Expensive			
VALUE FOR MONEY ●●●○○		OVERALL ●●●○○	

Tormek Supergrind 2004



Bigger brother to the 1204, the Swedish Tormek 2004 works in exactly the same way. It has a 250x50mm stone which is better for tools. The larger diameter and greater width make things somewhat easier. The grit of the stone equates to about an 800 grade which is ideal for removing metal quickly. The case of the machine is manufactured from pressed steel. Turning the grinder to carry out honing operations is easier thanks to the addition of a carrying handle to the top of the case. This machine was the most expensive tested but is good and heavy which helps damp down vibration. Unlike the

1204 the 2004 has a continuously rated motor of 200W. The 64-page instruction manual is comprehensive and gives some useful tips on getting the most out of your machine. An excellent grinder, but very expensive.

GW VERDICT

VERSATILITY Extremely versatile especially with the addition of a few accessories	●●●○○	EDGE QUALITY Edges produced are excellent, in conjunction with leather wheel	●●●○○
CONSTRUCTION QUALITY Heavy steel casing with handle. Large stone gives shallow hollow	●●●○○	ERGONOMICS Quietest grinder in the test. Very low vibration	●●●○○
+ Built like a tank, and you do not get water all over the place - Very expensive			
VALUE FOR MONEY ●●●○○		OVERALL ●●●○○	

All you need to know about wetstone grinders

Make	RRP inc.VAT	Weight Kg.	Motor input	Wetstone speed	Wheel size mm	Warranty	Typical price
Creusen NS5215T	£129.95	13.2	275W	135rpm	200x40 150x40	5 years	£129.95
Draper GWD205	£163.33	9.0	375W	320rpm	200x25 125x50	1 year	£100.00
Craft Sup. MC703	£99.50	9.4	375W	320rpm	200x25 153x19	1 year	£99.50
Record Scan 200S	£190.35	6.8	85W	120rpm	200x44	1 year	£179.00
Samurai	£219.01	6.8	170W	450rpm	205x25	1 year	£219.00
Tormek 1204	£170.55	7.0	120W	120rpm	200x40	1 year	£140.00
Tormek 2004	£299.52	14.2	200W	90rpm	250x50	1 year	£250.00
APTC Viking	£157.95	13.6	150W	70rpm	250x51 125x16	1 year	£157.0

FINAL VERDICT Wetstone grinders

When choosing a grinder bear in mind the type of grinding you do. If it is solely for edge tools any of these machines will do the job. A dry wheel does extend versatility and is useful for fast restoration of a damaged edge. The APTC Viking works well and is good value for money. The Creusen NS5215T is a sturdy, reasonably priced combination machine that needs the optional blade jig. Both the Tormek Supergrinds are hard to beat but adding attachments makes them expensive. The Tormek Supergrind 2004 is a solid, vibration-free machine and is the Best Buy.

NEXT MONTH ON TEST Roller stands

Jeremy Broun finds out the best second pair of hands for machining timber and panels

Second Opinion by Phil Davy

APTC VIKING

This machine is more solid than most. Emptying the tank is a pain as you need a spanner on the drain plug. At least there is no water spout to worry about. The slow rotation of the wetstone makes it feel safe to use. Setting the tool rest square to the wheel is tricky. Reaching in front of the vertical wheel to switch off is risky.

Value for money ●●●○○
Overall ●●●○○

GREUSEN NS5215T

A sturdy combination grinder. The clamping bracket for the water tank seems an afterthought. The standard tool rest for the wetstone is primitive, and repeating a bevel precisely is virtually impossible. You do need the optional chisel and blade jig (£18). A messy grinder to use, with water all over the bench if you are not careful. The wheels take 15 seconds to come to rest when switched off.

Value for money ●●●○○
Overall ●●●○○

DRAPER GWD205

The dry cup wheel is mounted incorrectly for safe grinding of tools. Like other Taiwanese grinders, the drain tube is too short. Both tool rests could be stronger, and their plastic adjuster wheels are awkward. You can get a good bevel with the fine grit horizontal stone.

Value for money ●●●○○
Overall ●●●○○

SAMURAI

This grinder does not offer a vertical wheel, but the 1000 grit stone gives a good finish to edge tools. The standard tool rest is adequate, and does not flex so easily as those on similar grinders. The optional planer knife jig really does improve performance, but makes this an expensive machine.

Value for money ●●●○○
Overall ●●●○○

SCAN 200S

Finding the switch on the Scan is a pain. When you succeed you are not sure which way the wheel is going to revolve. At least you are not paying for a second grinding wheel you may never actually use. The stone is coarser than some and you cannot get such a good

edge to tools. Wheel rotation is pretty fast. A machine that is easy to use, but your hands will get wet in the process. Rather an odd rubber wheel, presumably for honing, but there is no mention of this in the instructions.

Value for money ●●○○○
Overall ●●○○○

TORMEK 1204

The blade jig is easy to position and use. I found the tank did not capture all the water when grinding a plane iron. As well as water on the bench, it collected around the switch. Fortunately this switch is shrouded. The leather honing wheel will polish your blades, but do not expect as good an edge as a fine bench stone will provide.

Value for money ●●●○○
Overall ●●●○○

TORMEK 2004

Like the Tormek1204, a British motor is fitted. The large diameter wheel means you are left with a barely-perceptible hollow after grinding. There was no problem with water splashing over the casing or the bench, and the trough is easy to remove for emptying. An excellent machine, but at this price perhaps only a luxury for most woodworkers?

Value for money ●●●○○
Overall ●●●○○

CRAFT SUPPLIES MC703

The advantage of this type of combination grinder is you do not have to move position when changing from dry to wet grinding. Like many Taiwanese machines, the tool rest adjusters are horrible. Both tool rests are crude. The horizontal stone seems coarser than the Draper. The water reservoir had an annoying habit of swivelling round. This grinder is fine for occasional use, and is good value at under £100.

Value for money ●●●○○
Overall ●●●○○

WHO TO CONTACT

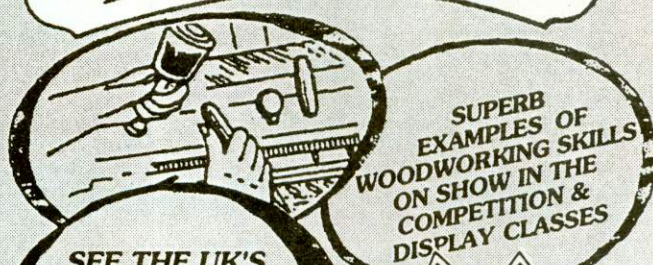
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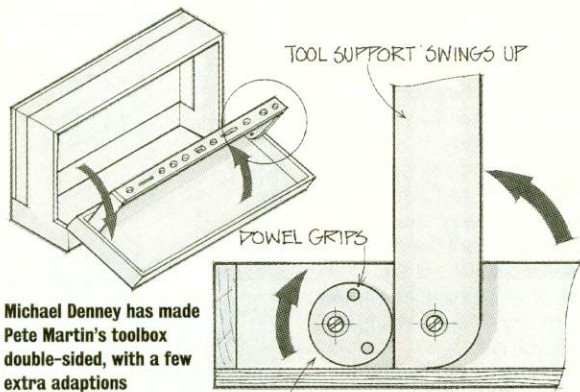
Woodworking Hints & Tips

Space savers

Finding new ways to store tools and materials in the workshop for next to nothing is a problem every woodworker encounters. So a few months ago we organised a special competition for your storage tips (GW 27:40), with £600 worth of Veritas tools kindly donated by Brimarc Associates.

Here at Good Woodworking we understand the problems of finding space in the workshop. We have a continual flow of tools arriving here for testing, and constantly find our shelves to be stacked to the limit. When we invited you in January to send in tips for workshop storage we weren't actually asking you to solve our problems, but we have been amazed by the quality and quantity of your response.

Perhaps it is the £600 worth of Veritas tools up for grabs that generated so



Michael Denney has made Pete Martin's toolbox double-sided, with a few extra adaptations

CAM LOCKS TOOL SUPPORT IN PLACE

Martin adaption with cam lock

I HAVE adapted Pete Martin's portable toolbox by hinging the sides. The design offers safe storage of chisels, in particular, without damaging the cutting edges. The tools are also presented at a convenient angle, and the chisel bridge can be locked in place with a cam lock for ease of access.

Michael Denney, Cornwall

This toolbox looks similar to the one Jeremy Broun made us in January 1993 (GW 3:58), with some excellent variations.

NG

Boxes for the turning

BOTH MY BOXES are made to store and carry turning equipment. My lathe was in the garage and I didn't want to keep small, valuable and rust-attracting tools away from the house. So I made a couple of boxes (as an exercise to familiarise myself with a newly-acquired Woodrat) to reduce the

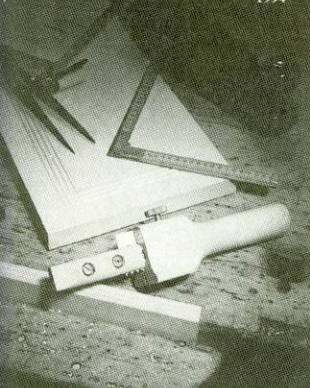
number of trips out to the garage. I discovered when making the smaller box (330x185x135mm for my Multistar chuck) that it

is best to make the box as one then cut off the lid. The larger box (670x375x95mm) is for my turning tools. The intention was to make all the tools easily available, but secure in transit,

so the tool supports are split in half. Since making the boxes I have reorganised my workshop, which is now in the house so I've had to find storage for my boxes!

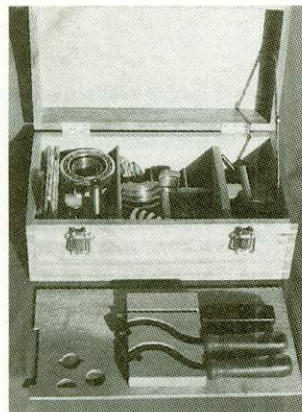
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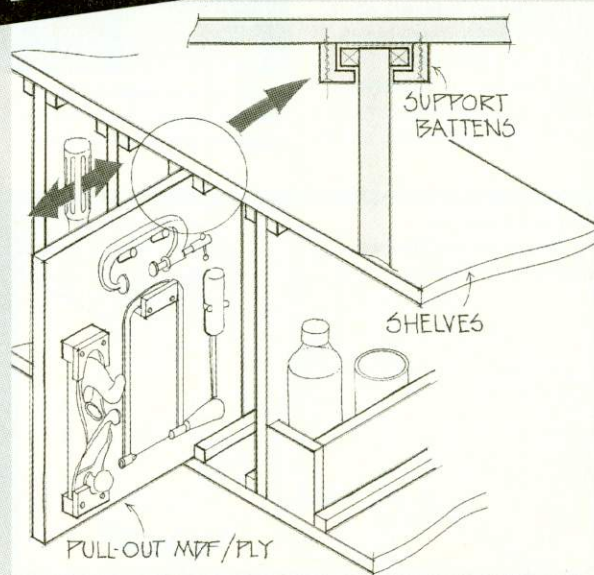
many tips arriving at Good Woodworking every day. Don't forget each entrant receives a 10 per cent discount on orders placed for Veritas tools. Vouchers will be in the post very soon.

In fact we have had so many entries to this competition, that we are going to publish more next month. For more details about Veritas, ring Brimarc on 01926 493389.



To keep his turning tools and Multistar chuck clean and safe R. Fairweather made special boxes

FIRST



Sliding solution wins first prize

TO CREATE maximum storage space inside a cupboard or between shelves I have mounted tools on sliding boards using spring clips, hooks, webbing and Velcro. Planes can be held in a shallow tray fixed to the sliding boards, as can boxes for tins and bottles to take odds and ends. By making a T-section top edge you can suspend the sliding board under a single shelf. I have worked out that if you have a wall space 12in high and 12in wide, and a shelf 9in deep, using six sliding boards gives you four and a half times more hanging space than using only the wall area.

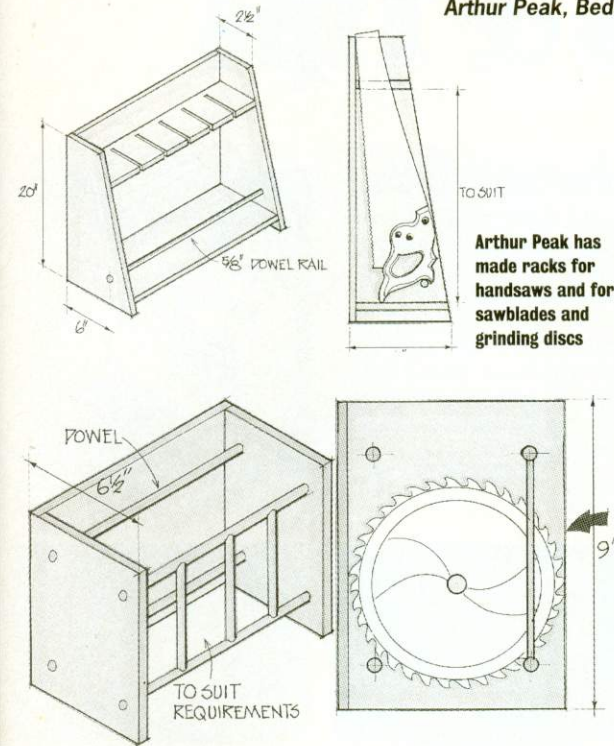
J. Dodge, Hants

We instantly saw how this could save space, so awarded you the £300 first prize. NG

Racks the word for grinding discs

YOU CAN'T beat racks for holding tools and equipment. I have made one for handsaws, which stack with the handle up and the teeth towards the rear. It can be made wider to accommodate more saws, and be fixed to the wall if you want. Sawblades, grinding wheels or discs, polishing bonnets and drill attachments are just as difficult to stack, so I've made a rack for these using dowel. You can alter the spacing of the dowels to suit different diameters of wheel or disc.

Arthur Peak, Beds



hooks for longer things.
H is for trays made from **hardboard** and 2x1in PAR can be slid under the bench.
I is for **inner tube** cut up into chuck key tethers, cable tidy and any size of elastic band.
J is for never throwing out **jars**.
K is for watching out for discarded **kitchen cabinets** as they are perfect for workshops.
L is for storing wood in the **loft space** of your workshop roof.
M is to remind you that if you find any **mild steel**, keep it for making brackets and hooks.
N is for those **nails** I've knocked in everywhere.
O is for **office furniture and fittings**, good for filing and holding small tools.
P is for cutting the sides out of **plastic drums** and 5litre containers to make bins.
Q is for **quick off the mark** or someone else will get it.
R is for making **regular checks** in skips and for using **rivets** as handles on tins.
S is for **seed trays** that hold tons of stuff.
T is for gluing the lid of a **tobacco tin** to the bottom of another to make a stack.
U is for substituting eye bolts with **U bolts**.
V is for **very cheap** is best.
W is to hold funnels and wood upright with **waste pipe clips**.

Richard Shepherd, Beds

The A, B, C of the workshop

A is for **angle iron** for making stands with drawers and for holding tools.
B is for using **bulldog clips** for holding plans.
C is for keeping tools tidier in drawers by using **cutlery trays**.
D is for **door pulls** to hang up strap cramps and rope.
E is for cutting open **engine oil cans** to act as drawers.
F is for **freezer baskets** which make excellent storage boxes, with the contents visible.
G is for sections of **guttering**, great for holding small items on the wall, while gutter clips act as



In Richard Shepherd's workshop **F** is for freezer baskets to hold rags, **O** is for office furniture to file small tools and **G** is for guttering as shelves



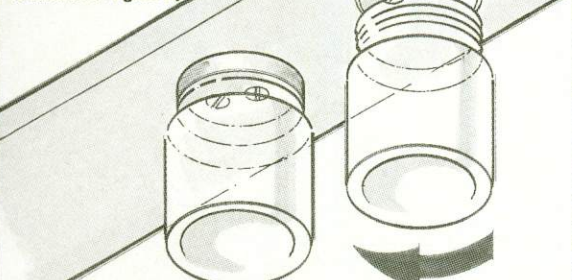
E is for cut-open engine oil cans to hold bits and bobs, though it is worth writing the contents on the front

Shelf space

LOOK AROUND your workshop and you'll notice lots of wasted space under most of the shelves. I screw the lids of old mustard or jam jars below shelves to store small items like panel pins. They are easily visible and accessible. You could fit them under a wall-mounted cabinet, as Pete Martin made for the original article.

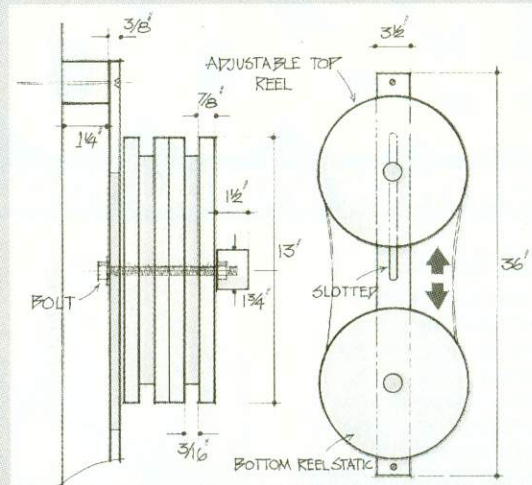
C. Graham, W. Yorks

It's an old trick, but screwing the lids of jam jars to shelves is a good tip



Blades and cramps

SECOND



We liked Roger Petard's bandsaw blade holder (top) so much that we awarded him the £200 second prize

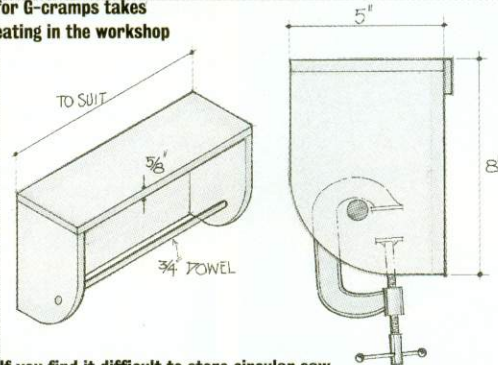
MANY woodworkers will keep a supply of circular sawblades and bandsaw blades, ready as replacements. Storing them can be tricky. I do not like the idea of handling coiled, razor-sharp blades for a bandsaw so I decided to construct a unit which keeps the blades under tension, but allows easy access. The upper wheel can be adjusted for tension, so that you can fit and remove blades easily, without them falling off. The drums are made from 7/16in and 3/4in sections glued together.

I do not like the idea of storing circular sawblades in their box since you would have to attach the reducer to the blade every time you need to fit it. So I have made brackets which allow you to keep the reducer fitted to the blade all the time. The length of threaded rod is cut according to the measurement of the reducer and blade combined. Label the brackets for easy identification of the blades. I have positioned all my blades behind a door. When my grandchildren visit I simply open the door to guard the blades from inquisitive fingers.

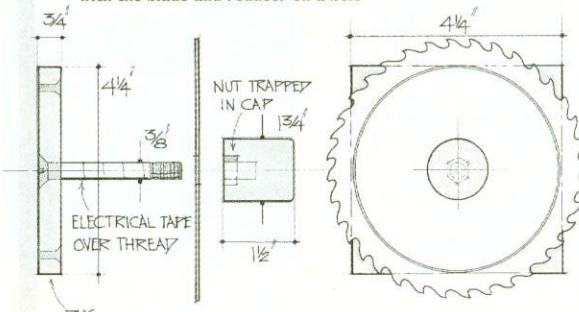
Everyone knows that you can't have enough cramps. But they must also be accessible, ready for action at the slightest notice. Make yourself a G-cramp unit, which not only offers a bar for suspending the cramps but also a shelf for other tools.

A. Rodger Petard, Middlesex

A rack for G-cramps takes some beating in the workshop



If you find it difficult to store circular saw blades, make brackets, screwed to the wall with the blade and reducer on a bolt



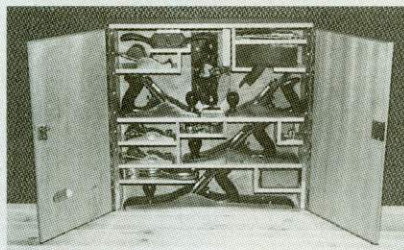
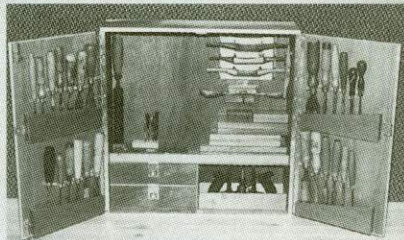
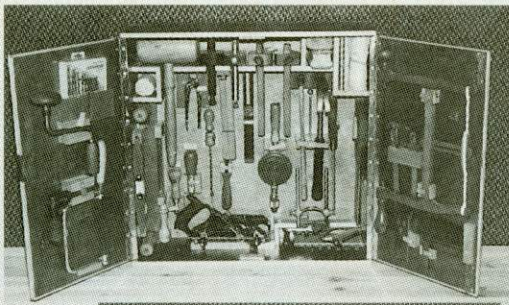
Moving workshop

IT IS A SAD day when you move house and lose your workshop. No more heavy bench, no more piped extraction, lathe set-up, nor all those lovely storage cabinets and shelves racked and hung with tools. Four years ago my work took me to pastures new, and the spare bedroom became my latest workshop. All my tools were packed up in cardboard boxes, impossible to find, so I decided to make a set of three cabinets for my most used tools.

The size that proved the most effective was 24x24in, with variations in depth to suit the tools each cabinet has to store. The carcass of each was made from odd bits of blockboard and ply. The doors are hung on piano hinge and the tops and bottom of each cabinet overhang the doors for added protection. I found that not boxing the doors offered better accessibility and capacity. All the tools are held firmly. One cabinet is for general tools, with anything from hammers and mallets to drills, marking gear and a few saws. The shaping cupboard holds the spokeshaves, chisels and gouges, leaving the final box for my assortment of planes. I have even been able to leave some space in amongst the chisels in reserve for new tools.

Terry Andrews, W. Yorks

Forced to move workshop Terry Andrews made three boxes to take his tools, combining accessibility with mobility



from the wall. A more original idea though, I think, is to mount my main woodworking machines on simple plinths fitted with locking castors and expanding cable. The plinths act as storage cupboards for my power-tools, the weight of which adds stability. The units can be pushed out of the way when not in use, or positioned to suit the work in progress.

Ian Highfield, Birmingham

Power boxing

I MADE A box more years ago than I can remember, to house power-tools in the main storage area. However there is a surprising amount of space for hand-tools to be stored in the removable tray and small drawer. I can fit a drill, jigsaw (including all the bits in a drawer above it), a vice and a circular saw. The tray for hand-tools has a lid that locks in place with keyhole slots to prevent tools falling out when the tray is shut and latched to the carcass. The box is strong enough to act as a

seat. The tray can be pulled out, free of the carcass, because of the L-shaped groove in which the hinge is housed.

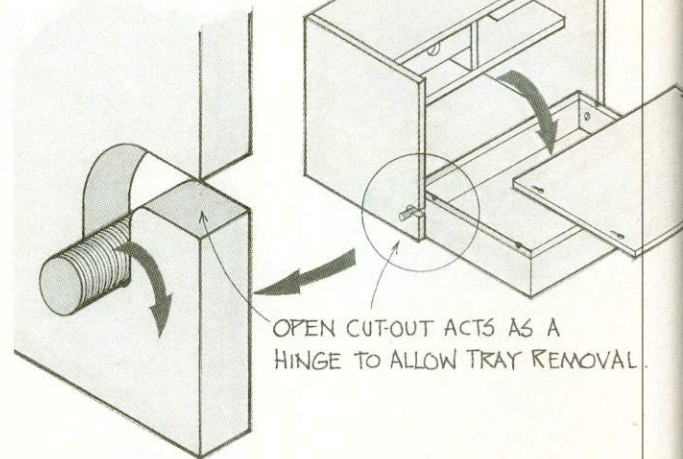
Ray Dyson, Sheffield

Storing abrasive

GLASSPAPER storage used to be a regular problem in my workshop. I do not need vast quantities of abrasive, but always had a good variety of grades and types in an unsorted stack on a shelf. To solve this problem I bought an A-Z expanding document wallet from the local stationers. The wallet has 18 (not 26) separate pockets which are ideal for abrasive storage and plenty for my needs. Being a little like a concertina the expanding wallet will stretch from a couple of inches to four or five, and is robust enough to store more than 100 sheets. Consequently my easy access selection is now kept flat, free of dust, and is easy to store at the end of the day.

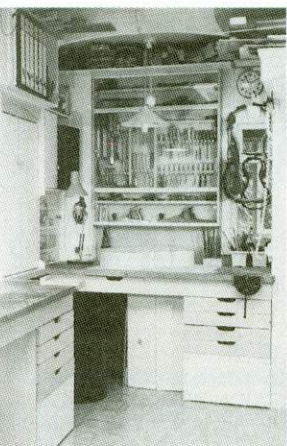
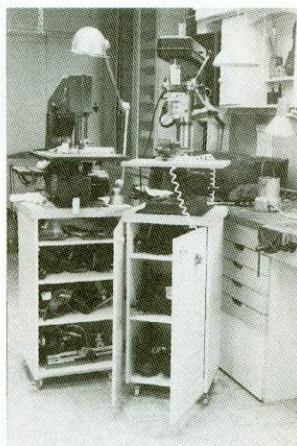
Chris Kemp, Staffs

Ray Dyson has adapted the standard toolbox to have a front that pivots and slides out of its hinge



identification and access, while silica gel bags inside limit corrosion. I don't know why, but tools kept in this cupboard stay sharper. I have many drawers below the bench, including a deep one on castors at the bottom. I use office box files to store plans and work sheets, while the timber is positioned high for maximum warmth and ventilation. Plastic plant pot holders store brushes, pencils and the like on the bench, with a drilled block of wood for files and rasps. Finally I have a metal bin for rubbish.

Like many woodworkers I hang cramps on a 3x2in batten, screwed 2½in

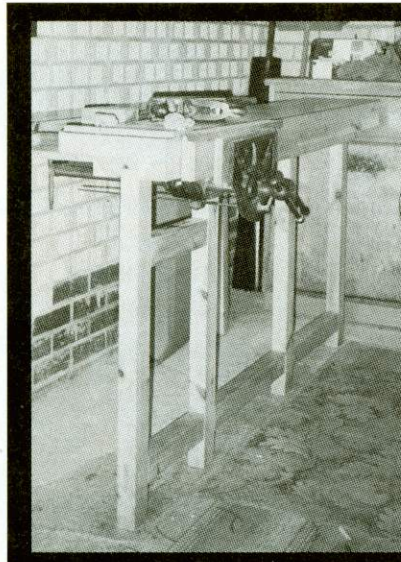


Ian Highfield has fitted Perspex doors to his cupboards to reduce the dust and moisture. He has fitted his machines to mobile plinths

Seeing the tools

I RUN A SMALL business from home, my main workshop being a converted double garage. As a maker and restorer of all types of violin and bow the nature of my work can change many times a day, from large stock removal with power-tools to minute and delicate tasks. All my customers visit me in the workshop, and many spend a considerable time having adjustments made to their valuable instruments. My problem is keeping the workshop clean and tidy with minimal effort, while having easy access to hundreds of specialised tools, cramps and jigs.

The simple pierced-shelf style cupboard is a dust trap. Perspex sliding doors allow easy

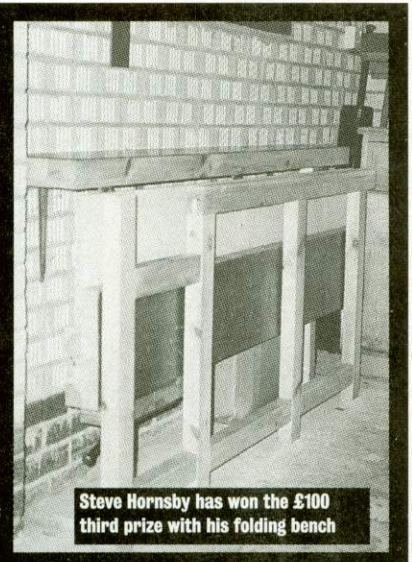


THIRD

Folding bench

LIKE MANY people my workshop is also my garage, in which I store my car every night. So I have built a bench that folds up and down in seconds, leaving a handy 9in shelf when folded. When up the bench has a well and vice, and is sturdy and solid. The leg frame is designed with a gap for the vice. I fixed the shelf to the wall with standard brackets, hinging the bench with 6in strap hinges. I cover the top with hardboard. I would not be able to use the garage as a workshop if I did not have the folding bench.

Steve Hornsby, Notts



Steve Hornsby has won the £100 third prize with his folding bench

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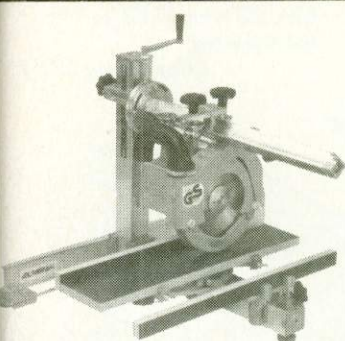
POWER TOOL CENTRE

Important Announcement

The Partners of Axminster Power Tool Centre regret to advise that they are no longer able to offer the Record Power range of machinery.

A.P.T.C. have been given no written explanation for this and can only assume that Record Power may have a direct selling policy which is in conflict with A.P.T.C.'s own aggressive pricing policy.

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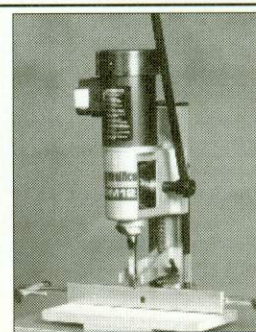
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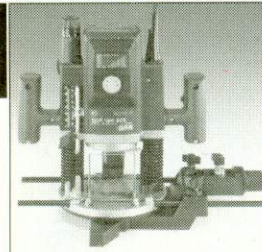


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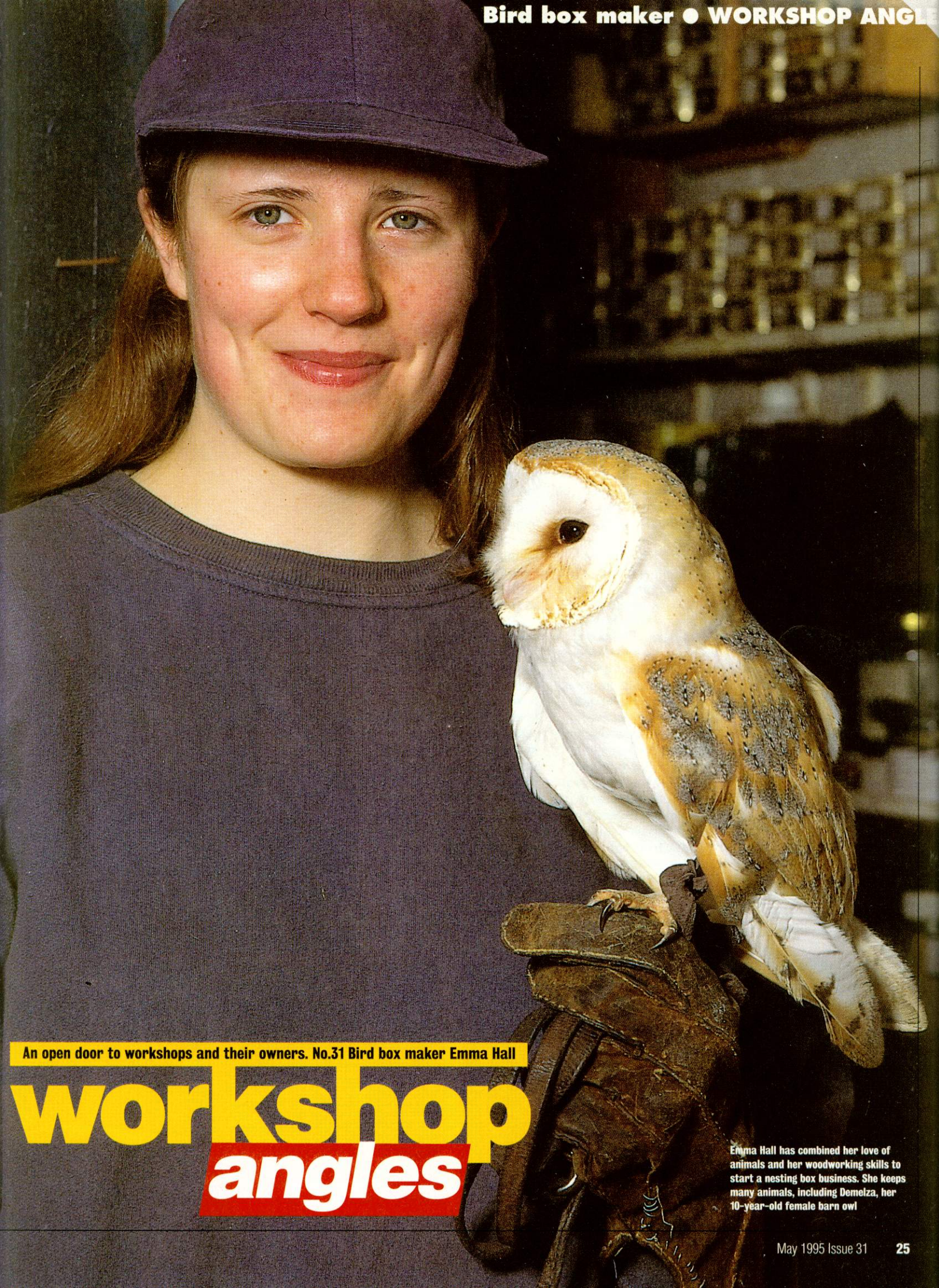


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An open door to workshops and their owners. No.31 Bird box maker Emma Hall

workshop angles

Emma Hall has combined her love of animals and her woodworking skills to start a nesting box business. She keeps many animals, including Demelza, her 10-year-old female barn owl

Leaving school and facing the overcrowded job market has daunted all of us at some time in our lives. Not to be put off by the gloom and doom, 19-year-old Emma Hall started her own business building nesting boxes. A matter of months down the line, business is booming.

Emma has researched the needs of different birds and builds appropriate sizes for the various species. She designs each box herself and now has a range of 15.

"I draw up the plans, cut out the individual box pieces, nail them together, sand them down and paint them," says Emma. "I use spruce for the small boxes and exterior plywood for the larger ones." Her nesting boxes are installed in the open, so are treated with non toxic finishes.

Customers contact Emma through Chris Sperring, Conservation Officer for the Avon Hawk and Owl Trust. "Her nesting boxes are like the Hasselblad, the most expensive hand-made camera in the world," says Chris. "They are built with precision and a lot of care. She has the advantage of knowing the birds, and has already changed the design of some of our boxes to better suit the birds, which is important when dealing with wildlife. Her boxes are not churned out like a factory, each one is carefully thought out."

Combining her ambition to work with animals, Emma, a self-taught woodworker,

started making boxes for her own birds in her outdoor aviaries. "I couldn't find work, so I started putting the boxes together. Then a friend put me in touch with the Trust. They needed someone to make specialist nesting boxes for a variety of birds and they got in touch with me," explains Emma. The Trust, who ensure the conservation of birds of prey and owls, decided to use Emma's skills and so her small business got under way last December.

Emma lives with her parents in Portishead in Bristol and uses her father's small workshop. She has to assemble the bigger boxes outside or on site.

"I have my hands full with orders flooding in from farmers and even from Nuclear Power stations," says Emma. "Olbury Power Station have a nature trail and want to show that they are doing something beneficial towards the environment."

Contributing her bit to conservation, Emma has designed the first ever open tray box to mimic a rock face, designed to encourage peregrine falcons to nest. "It has been positioned 150ft up a nuclear reactor on Olbury nuclear site," says Chris, "and the very day after it was set up we found a peregrine sat in it."

Although backed by her parents, Emma has had to buy tools from her earnings as she progresses. "I get them for birthday and Christmas presents. I recently bought a jigsaw and small circular saw

second-hand, but I urgently need a pump action screwdriver, which would speed up assembly of box panels," says Emma.

She has to cover the cost of buying all new timber and roofing felt for the nesting boxes. A small box, say for a tit or a robin, can take between three quarters and an hour to build and costs £7.50. A larger pole box can take a couple of hours to make and costs £50. Emma works seven days a week and makes on average seven nesting boxes a day.

A keen animal lover, Emma keeps rabbits, guinea pigs, many birds in outdoor aviaries and a tame Tawny owl, Demelza.

"Barn owls are very much at risk in the wild because farmers have ploughed up hedgerows and grassed areas, which is destroying the natural habitat of small mammals, the only food barn owls eat. Many more owls exist in captivity than in the wild," says Emma.

It is part of the work of the Trust to encourage landowners to recognise the government's 'set aside' policy and set up nesting boxes to encourage wild birds to breed. The policy states that 15 per cent of arable farms has to be left cultivated to recreate the natural habitat.

Despite her business success, Emma is cautious about the future taking it one step at a time, but obviously one in the right direction. If you are interested in Emma's nesting boxes contact her on ☎ 01275 849227.

Emma works in her father's small workshop, but most of the tools are hers. She has built up her collection over the years, getting tools for birthday and Christmas presents



Emma's nesting boxes include ones for a tawny owl, tree creeper with tiny slits at rear, barn owl, small owl, tits and robins



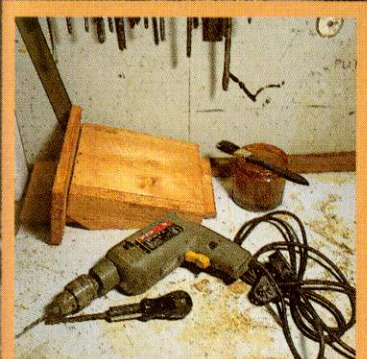
Most of Emma's work is done in her father's small workshop, but larger bird boxes have to be built on site or outdoors



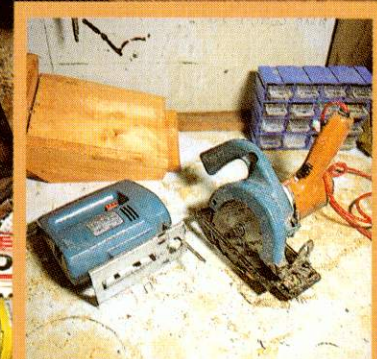
Emma started her business in December 1994. An electric heater in the workshop kept her warm on winter evenings



Making the box basically involves cutting out the wooden pieces, nailing them together, sanding down the boxes and finishing



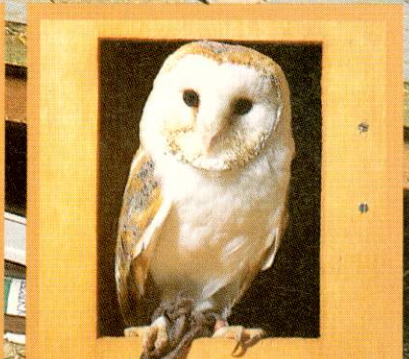
Lack of equipment is one problem new businesses face. Emma is gradually building up her collection, including an electric drill



Emma bought two small power-tools second-hand, including a B&D DN31E jigsaw and a B&D DNJ52 two-speed 5in 420W circular saw



A range of screwdrivers, a much used tool, hang ready in the workshop. Emma makes on average seven boxes a day



Demelza, the 10-year-old female barn owl was part of Emma's inspiration to start building nesting boxes

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- Special Christmas gifts for all the family to enjoy
- Easy clockmaking
- Polyurethane examined

ON TEST Palm sanders, alternatives to the traditional mallet

FREE
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- Build a workbench
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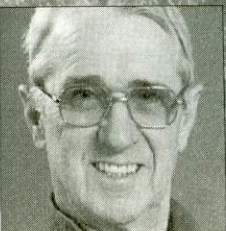
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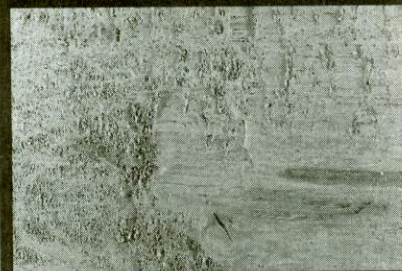
SHOP GUIDE

fine tuning a plane

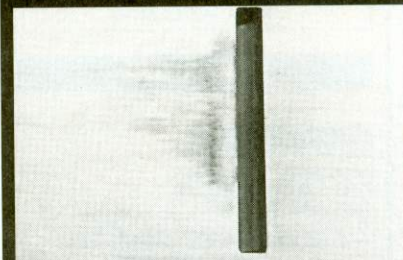
Find out how to achieve a high standard finish with a finely tuned plane. Jeff Gorman shows you two methods of sole flattening



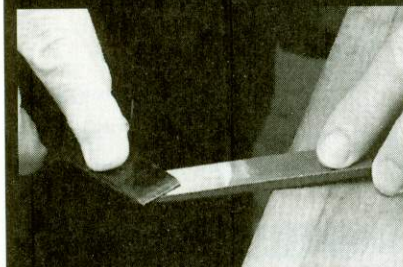
purely PLANES



BEFORE. As a test for a fine-tuned plane I prepared a piece of oak on a machine planer. The worst tear was 0.053in deep and 0.18in long



With marking blue you can show any high spots on the sole of a plane. The bump behind the mouth of this jack plane is a common fault



Hold the engineer's scraper with your left hand wrapped around the shaft. Keep the scraper at a low angle to the sole of the plane

To work only with the grain is one of the first woodworking lessons we learn, but how simple life would be if only we could! Decorative figure, as found in imbaya, comes with grain that changes direction with gay abandon. The same piece of sapele lit from opposite ends shows how each strip has its fibres lying in opposite directions. Reverse grain lurks around every knot, even in the plainest of woods.

Inevitably, we sometimes have to plane against the grain, maybe lifting and tearing the fibres as we go. With a sharp and finely tuned plane, you can plane all but the most awkward timbers to a fine smooth finish, free of tears and rough patches. If perfection in finish is your goal, read on!

Before starting to plane, I photographed a piece of oak badly

torn by a machine planer. The worst tear was 1½mm (60thou) deep. As it stands it could hardly have been used on any decent job. To show what can be done with a finely tuned plane, I deliberately planed the same area against the grain with a super sharp and finely turned Stancord plane, as made by Stanley or Record.

It took a while for the fine-set plane to get rid of the worst tear, but it would have taken a good while longer with a scraper, to say nothing of half-cooked thumbs.

Of course, had the wood been prepared from sawn with a good plane, the tears need not have happened in the first instance.

TIP Protect your benchtop when fine tuning a plane. Graphite dust is released during work. It can get everywhere doing untold damage.

Norris) are said not to suffer the same problem.

If you are in luck, your plane's sole may already be perfect. But before assuming this, check the fit of the frog on the sole. Unequal pressures from the frog might be a cause of distortion behind the mouth, so check the fit of the

bedding surfaces with engineer's blue and scrape high spots until there is good contact all over. Re-assemble, alternately

tightening each screw little by little. Replace the cutter unit. Set the blade so that it does not cut. Next, please read the box below

Sources

Engineer's Blue

Tilgear catalogue, p.23, Stuarts Micrometer Engineers Marking, £1.25 tin. Alternatively, use traditional Prussian blue oil paint from suppliers of artists' materials. The colour does not matter so long as the pigment is not abrasive.

Abrasive grit

Sold for valve grinding by motor accessory shops in containers with 80 grit silicon carbide in one end and a finer grit in the other. Use paraffin to thin the grease in which it is bound.

Spray mount

Artists' materials suppliers

Preparation for a Flat Plane

Most people recognise that a perfectly flat sole on a plane is important for accuracy. This ensures close contact between the front lip of the mouth and the wood, enabling the plane to bear down on those rogue fibres that would prefer to split ahead of the blade rather than be cut. See 'A close-up on planing' (GW 27:70) and 'Fettling a plane' (GW 28:36) for more details.

Owing to the natural properties of cast iron, Stancord planes can slightly distort after manufacture. There is a tendency, for example, for such planes to develop a bump just behind the mouth. This will interfere with your work. Being made of mild steel, Spiernors (our jargon for planes made by Spiers or

Checking for flatness

A heavy-section, purpose-made straight edge is best for checking for flatness, but failing this, a good quality steel rule, preferably marked BSt 4372, is essential.

Check edges for slight damage. Without touching the original machined edge, use a fine abrasive to remove any small nicks. Rules are likely to be bowed in their thickness. This means that unless held at right angles to the surface under test, they will give either a false concave or convex reading, depending on the inclination away from, or towards the user. The blade part of a good quality combination square, which will be thicker than a normal bench rule, is less likely to have this fault (avoid cheap versions, I found one to have a 0.13mm (5thou) error

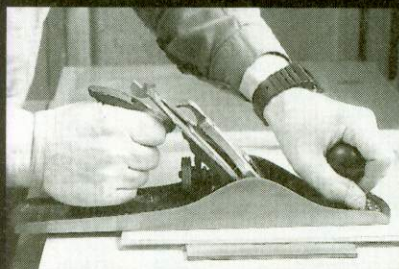
along its edge). To overcome the effects of bow, hold the face dead upright against something machined "square" such as the side of an engineer's square.

Use feeler gauges along the plane to check for gaps between the sole and the rule. If you are limited to only using a rule for testing, it is better to work by feel rather than to lift and hold a heavy plane to the light. Grip the rule at its mid-point. On a convex surface it swivels freely. The ends tend to grip a concave surface and the middle part can be made to flex. This is useful when preparing face sides, etc... on your wood.

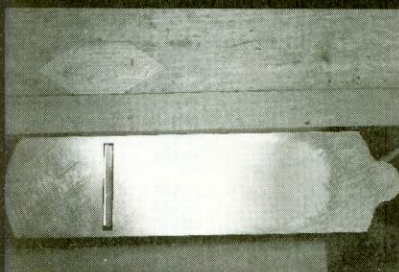
It would be much better, however, to use a surface plate, essential if the sole is to be finished by scraping.



AFTER. With a well-tuned smoothing plane, working against the grain is no longer a problem and you can eradicate all those tears in the oak



One way of flattening the sole of a plane is to use aluminium oxide abrasive paper stuck to glass. Use your hands around the frog, not like this!



The sole of this Record SP4 has been part scraped, with the front now flat and likewise the back. This is probably enough scraping

probably be too great to correct by hand methods. Have a local firm regrind it on a surface grinder, or in the case of a new plane, take it up directly with the manufacturer.

Grit and Determination

Sole flattening can be achieved in the following way. Tape, or preferably stick, sheets of various grades of aluminium oxide paper onto a flat surface such as a machine table or a sheet of float plate glass. Although expensive if bought for this purpose alone, 3M's Spraymount is ideal because it is made to be strippable. Start with 80 grit.

As you stroke the plane over the abrasive, you may hear individual pieces of grit breaking loose from the paper, cutting deeper scratches in the surface as they roll between the plane and the abrasive. Make strokes parallel to the length of the plane and move slowly across the sheet so that these errant grits do not scratch diagonally across the sole. If they do, they will show up later,

GW New Jargon

Fine tuning: This involves making the sole as flat as possible and adjusting the shaving aperture just wide enough to pass a fine shaving. We are talking about work aiming for a high standard of finish. For work like planing the edges of chipboard, a plant with a fine mouth and bulled-up sole would be a bit over-the-top.

whereas deeper parallel scratches can hide among the others. Use two hands over the frog, rather than on the handle and knob.

If the sole is convex in length, make it slightly hollow by working with the plane at right angles across a narrow, say 60mm (2½in) wide, strip of abrasive. Do not remove too much before retesting. Finish by longitudinal grinding.

Retest with a rule, or better still with a surface plate. As the accuracy improves, move gradually to finer grades of paper. Contamination of finer grits by coarse grits is fatal to a good finish, so dust the work surface and the inside of the plane at each change of grit. You may have seen this method of working on the sole

before. It will certainly improve things, but it is unlikely to get the sole absolutely flat. If justified by the kind of work you do, and you have the extra patience, you can improve on this.

Scraping Along

The second method of sole flattening is by using an engineer's scraper to scrape the sole. This can generate an accurate surface, and give an impressive finish. It is not difficult if you know already how to handle a wood chisel.

You need a glass plate to act as a surface plate, and an engineer's scraper. You can easily make your own scraper from an old file (see box below).

Scraping is a matter of holding the scraper the way the photo shows, with your left hand

Jargon Busting

Shaving aperture

The space between the cutting edge and the mouth's front lip

Planer ripple

Machine planers consist of rapidly rotating knives making glancing cuts across the wood's surface. These show as a series of shallow waves. Blunt knives also compress the wood. When the wood is dampened, these can bounce back and show as humps

Surface plate

Usually a cast iron or granite block with a very accurately prepared flat surface. Used by metalworkers for setting out or testing for accuracy

Feeler gauge

A fan-like assembly of strips of

steel marked with their thickness, starting at 0.4mm (1½thou). Motor accessory shops sell them

Linish

A finishing machine is a metal-working machine that uses an abrasive belt rather similar to a belt sander

Thou

A thousandth of an inch. A millimetre is about 40thou

Combination square

A 12in rule. Accessories like combined square and mitre head, protractor and centre finders can be attached to it

Engineer's Blue

To check the fit between a surface and a surface plate, engineers have traditionally used a greasy agent called marking blue (not to be confused with marketing-out paint, also blue). It is similar to artist's Prussian Blue oil paint

gripping the file and your right hand on the handle. Starting at one end, lightly jab diagonally on each high spot using short strokes. You will produce a fine powder, part metal, part graphite. Do not hold the scraper at too high an angle for the best results. Keep the scraper in contact with the metal during the back stroke, but release the

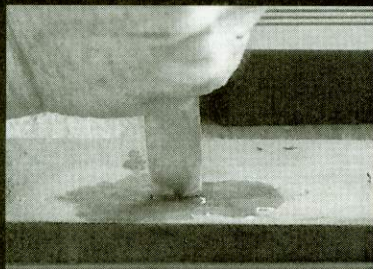
To Make An Engineer's Scraper

The drawing below shows how the last inch or two of an old 6in (150mm) file has the teeth ground away to form a smooth surface. The profile of the end is ground slightly curved across the width, but flat across the thickness to form two sharp edges. Rest the surface of the file on the face of the wheel and stroke it a couple of inches forwards and backwards. Frequently dip in cold water to avoid spoiling the temper by overheating.

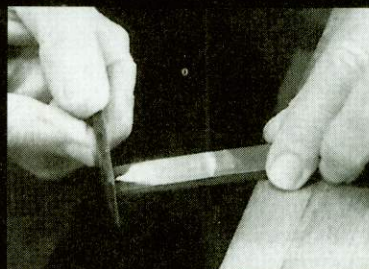
One way of sharpening a scraper is by rubbing it

pendulum fashion against an oilstone. This need not be a very fine stone, but this job will not improve your best stone, so use an old one if you can. If you have something like a medium grit flat scythestone, it should serve very well. Failing this, tip your good stone on edge and work on the edges.

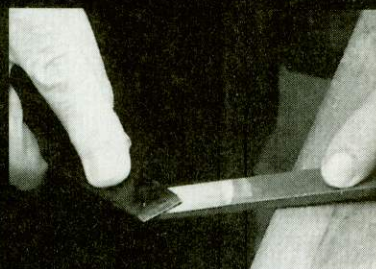
A second method uses a diamond hone as shown. With either method, the burr must be stoned from both faces. Frequent sharpening is the key to success, in fact scraping with a sharp scraper can be satisfying.



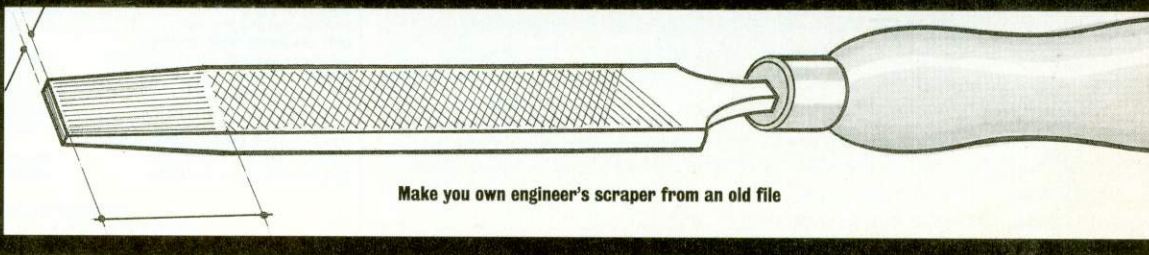
One way to sharpen an engineer's scraper is on an old oilstone, pendulum fashion. You could use the edge of the oilstone



Hold your engineer's scraper (or converted file) over the edge of the bench and sharpen with a diamond lap



Once you have sharpened the end use the diamond lap to remove the burr. You must remove the burr from both faces



pressure as you do. Reblue (see box below for details of preparing and using engineer's blue).

Resharpen the scraper and work at right angles to the old strokes.

As you proceed, a regular series of small contact spots will develop. When the spots are 6mm (1/4in) or less apart, the surface will be as good as the system can make it. Concentrate on leaving a line of high spots just in front of the mouth by avoiding this area until the job is nearly complete.

We have shown a photo of the sole of the half completed, scraped surface of a Record SP4 plane. The area forward of the mouth is dead flat, with the criss-cross pattern of scraping and some of the area behind is not yet scraped (and could possibly be left alone). This economy plane (Best Value, GW 4:40) lacks frills, but they do not



TIP When opening or closing a feeler gauge, it is easy to buckle the thinnest blades. Swivel the neighbouring blades over them, and then move them together.

affect working quality. Although there is no frog adjusting screw, the shaving aperture can still be adjusted, so the SP4 and similar planes can be fine tuned to give as good a finish as the more expensive planes.

Slightly round the arrises between the sides and the sole. If you are in the habit of tipping the plane on edge as a rough way of testing a surface, check that the arris really is straight.

Making a glass surface plate with blue

Engineer's surface plates can start at more than £100 for the lowest grade, but modern float plate glass should be adequate for our purposes. A piece of 6mm plate glass 12x10in might cost £5, unless you have contacts for offcuts.

Make the edges safe by removing sharp edges with an oilstone slip lubricated with paraffin. Select a flat piece of chipboard or MDF sheet. Glue the glass with say, nine blobs of a flexible and squidgy adhesive such as Black Bostik.

Prepare the surface for a thin coat of engineer's blue by grinding with abrasive grains and the bottom of a jam jar, but retain enough unfrosted areas to indicate that the surface is still flat. Some kind of applicator will be needed for the blue. Inside the bottom end of an old plastic spice container, coil a strip of hard felt from a hat. To prime the applicator, dampen the felt with white spirit (substitute turps), but do not make it too wet. Spread some paint directly onto its surface. After it has been run in, squeeze a quarter of an inch or so of paint onto a smooth, washable surface such as a melamine offcut, add one or two drops of white spirit. Spread with a stick. Re-charge the applicator from the plastic surface. Keep the applicator in a sealed jar when out of use for a while.

Spread a thin, not too wet, not too greasy layer of blue onto the glass surface plate. If it is too wet, you will get an optimistic reading. Use a straight up-and-down motion without overlapping the strokes. We are dealing with minute amounts and do not want to be misled by thickly built-up areas of blue. Clean the surface plate when the film of blue starts to harden and pull away. Applying the blue is probably the trickiest part of the job. The rest is just a test of character.

Blue up the sole by rubbing the plane over the inked surface. The blue shows the high spots that need to be ground or scraped away. Look closely at the centre of the blue area and observe the area of metal actually burnished by contact with the surface plate.

As the accuracy of fit improves, watch for suction. A directly upwards movement can lift the plate, and its mount, especially if a bit wet. Slide the plane from the surface instead. Please note that the glass can become fragile, maybe owing to the numerous scratches acting the same way as diamond glass cutters do.

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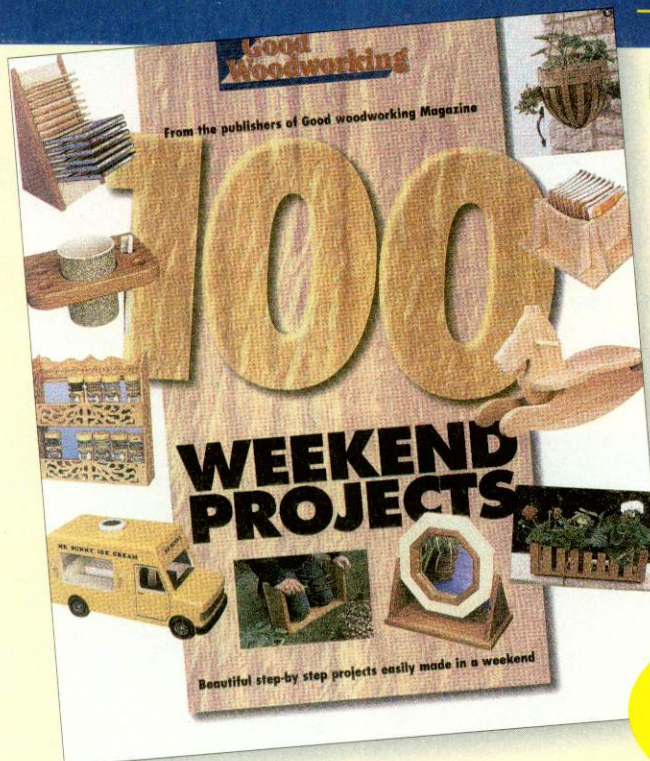
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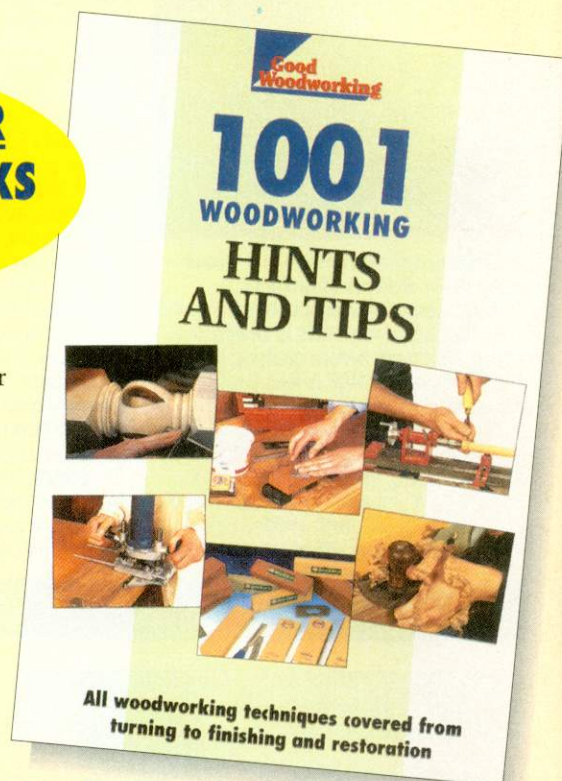
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Bonda Edge Seal



inner core absorbs finishes more easily than the outer skin.

We have received several letters asking if there is a product specifically for this task. Bondaglass have developed an MDF filler designed for the job.

Bonda Edge Seal comes in four sizes. It looks pretty disgusting when you open the tin. Make sure you have adequate ventilation, as Edge Seal has a strong smell. To use, you simply stir the contents and apply it to the MDF with a brush or cloth. The paste is fairly thick, and is best thinned down with Edge Seal Thinners. In a warm workshop the filler will be dry in a few minutes, although the tin indicates 30 minutes. It dries to a creamy colour and can then be sanded. You are then ready for that first coat of primer or stain.

Bonda Edge Seal can be used for sealing veneer too, and can also be sprayed. If you use MDF a lot this filler could be what you are looking for.



GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
EDGE SEAL	£6.96 per 450ml
THINNERS	£4.27 per 250ml
BONDAGLASS-VOSS	☎ 0181 778 0071

Veritas Saw



COUNTERBORING screws into timber and then covering the head with a matching plug is a simple and neat way of concealing a fixing. In your haste to finish the job off it's easy to saw off the protruding plug with a back saw and end up damaging the surrounding surface. The teeth are set on both sides and no matter how carefully you cut the rigid blade may just nick the surface.

Canadian company Veritas have got round this problem with their Flush Cutting Saw. The flexible blade is 120mm long and has 22tpi. Teeth are set on one side only so that the blade tends to rise up as it cuts. Like a Japanese saw, the Veritas cuts on the pull stroke. Its teeth are shaped in a similar way. The plastic ribbed handle is comfortable.

As well as plug trimming, this saw is ideal for cutting protruding tenons.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT	£13.65
BRIMARC	☎ 01926 493389

Festo CDD9.6ES



when you pick it up. Once you get used to the drill it seems pretty comfortable. It is a palm-grip drill, as opposed to a T handle design. The base is completely flat, and means the drill will sit upright on the bench. A neat device is the screwdriver bit holder. This slots on the bottom of the handle and stores up to five bits.

I tried the 9.6V variable-speed version. On top of the casing is a hefty slider switch for selecting the speed. Slowest speed is 380rpm, while the fastest setting produces 1100rpm. The trigger is large enough to operate with either one or two fingers. Variable speed comes into play as you squeeze the trigger. Above the trigger is a slider button for selecting forward or reverse. Its centre position locks the trigger off. An electronic brake is fitted to the motor.

Like most industrial cordless drills the Festo has adjustable torque settings for screwdriving. By twisting a collar behind the chuck you have a choice of nine

settings. Personally I tend to ignore the clutch and keep to the drill position when driving in screws. I'm sure that there are plenty of chippies that swear by this function, though, and would not be without a clutch.

Both the 9.6V and 7.2V variable-speed drills are fitted with a 10mm keyless chuck. Tightening a bit in place is dead simple. Weighing 1.68kg, the CDD9.6ES is a similar weight to other 9.6V drills.

A one-hour charger is standard, and will accept batteries from other makes of tool. If you are colour blind you may find it difficult to tell the charging status. This can be a problem with many battery chargers. Green, yellow and red LEDs tell you what's happening.

If you are not familiar with Festo tools, you should get a pleasant surprise if you buy one. Each comes with a superb heavy-duty plastic Systainer box. These can be bought individually, with a choice of three depths. They clip together to form a very neat stacking storage system. For a limited period, an extra Systainer box fitted with 13 removable compartments comes free with each drill. The Festo CDD9.6ES is an excellent industrial drill. It is pretty expensive, but for a professional machine you get what you pay for. It's a pity a second battery is not included as standard.



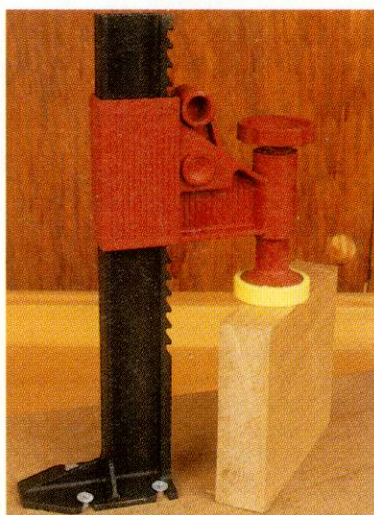
GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT	£205.63
FESTO	☎ 01252 775100

CORDELESS power-tools are still evolving, and German company Festo have not been taking a back seat in the the drill department. Their new 7.2V and 9.6V drills look very different from the competition. Instead of a horizontally-mounted motor, Festo have designed their new range with a vertical motor fitted in the handle. Power is transmitted to the spindle and chuck via bevel gears. The thinking behind this was to produce a shorter drill, making it particularly suitable for drilling or screwdriving in confined spaces. The Festo measures just 177mm (7in) overall from the tip of the chuck to the back of the casing. If you remove the chuck for screwdriving the length decreases to about 5in.

Repositioning the motor meant little room for the battery, so Festo have put it on the outside of the drill, in front of the trigger. The battery clips into place with a spring-loaded lock. Battery position affects the balance of the drill and consequently it does feel rather unusual

BTM Clamps



BC range are designed to be screwed to the bench or other flat surface. Ribs on the girder section bars enable four screws to be used.

Both horizontal and vertical clamp versions are available. They use a bar which is toothed along its inner edge. The sliding shoe operates on a ratchet. Sliding the shoe towards the fixed end is fast, reproducing the sound of a football rattle rather well! As you tighten the thumbwheel against the workpiece a pair of teeth lock against those on the bar. The shoe incorporates a quick release mechanism, so you can quickly make approximate adjustments to suit the length of the work.

The shoe faces are grooved, so clamping dowel or irregular shapes is easy. A removable soft rubber cover on the adjustable shoe means you do not have to bother with packing pieces.

The BC6 is a horizontal clamp and has an opening capacity of 165mm (6½in). Its throat depth is 63mm (2½in). I found this clamp useful as an extra pair of hands for gluing up awkward or delicate items. The BC6 is not restricted to bench mounting, as you can use it like a conventional G clamp.

Clamping force is not as great as you can get with a cast iron clamp, but BTM do claim a force of 100lbs is possible. An 18in (BC18) clamp is available for



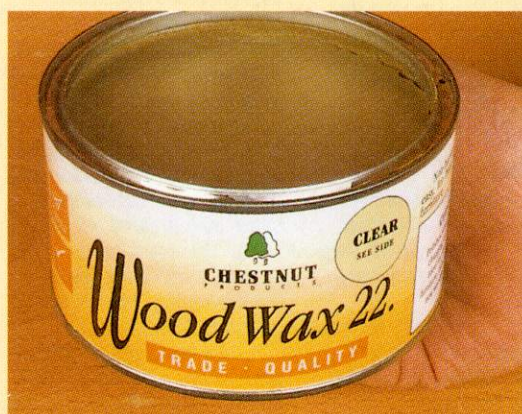
£15.04. The BCBM6 is a lightweight holdfast. Capacities are the same as the BC6 horizontal clamp. The difference is you screw the base down on this vertical clamp. It is not as easy to move as most holdfasts, but using screws is far cheaper than buying extra collars. This clamp would be useful for repetition gluing or holding jobs.

Do not expect to replace all your cast iron G clamps with these. BTM clamps are useful additions to the workshop that do not cost an arm and a leg.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
BC6 RRP inc VAT	£11.80
BCBM6 RRP inc VAT	£12.88
BTM	☎ 01638 515000

Woodwax 22



WOODWAX 22 is the latest finish from Chestnut Products. Chestnut are secretive about the exact ingredients, but they did tell me that only natural waxes are used. It is available in clear and three shades of brown.

If you are not a lover of pea soup don't look too closely at the clear wax! A hard paste, it can be applied using a cloth or fine wirewool. On carved work and mouldings a soft brush is useful.

Chestnut recommend you buff the wax as soon as it is applied. A second coat can be put on after 15 minutes drying. I tried the clear and medium brown wax on bare pine and oak. I have found a sealer is usually best on pine before waxing, but on the oak this was not strictly necessary. Excellent results were obtained using Woodwax 22 on lathe work.

And the 22? It simply refers to a batch number of the wax Chestnut had on their stand at a recent woodworking show.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT	£3.75 per 450ml
CHESTNUT	☎ 01322 386567

Micro Mesh



SOME WOODWORKING projects demand a superb finish. If you are French polishing or using lacquer a high gloss will highlight the finest of scratches. On musical instruments I have used 1200 grit wet and dry paper between coats. Pretty fine, and until recently I thought that was as far as you could go. Micro Mesh abrasives, however, are available in incredibly fine grits to help you get that ultimate finish.

Craft Supplies are selling packs of fine and ultra fine American-made Micro Mesh. The pack of four sheets (roughly 6x3in) contains 1500, 2400, 3200 and 4000 grits. The pack of three contains 6000, 8000 and 12,000 grits. A small foam block helps sanding contoured surfaces, costing £2.35.

I tried the Micro Mesh on previously varnished timber. You obviously need to go through the finest wet and dry papers first (silicon carbide) before Micro Mesh is of any benefit. I used water as a lubricant. I have seen an example of a vase finished just with Micro Mesh and the result was outstanding. Micro Mesh is perhaps much too fine for many woodworkers. But for those of you searching for the best possible finish give it a try. Velcro-backed discs are available.

GW VERDICT

PERFORMANCE	●●●●●
VALUE FOR MONEY	●●●●○
RRP inc VAT fine	£4.95, ultra fine £3.95
CRAFT SUPPLIES	☎ 01298 871636

Pony Edging Clamp



JORGENSEN clamps have been used in the USA since the turn of the century. Then, only handscrews were available. Now you can get Jorgensen and Pony clamps in Britain, including the old fashioned handscrews. Many Jorgensen designs are traditional, but some clamps are unique in having no direct British equivalent. One of these is the Pony 3325 edging clamp.

Record make an edging clamp with two adjustable screws, but the Pony comes with three. This means you can tighten the middle screw off-centre. It may seem an unnecessary feature, but with workpieces of varying thicknesses it can be very handy. You do not always want to apply pressure directly over the centre of an edge, especially if it is a moulding. The third screw makes it easier to overcome obstructions.

The Pony clamp is made of ductile cast iron and has a plated finish. It is ribbed for strength. The middle adjuster uses a thumbscrew for lateral movement, while the outer screws use tommy bars. There is some play in the threads, but no more than you would get with conventional G clamps.

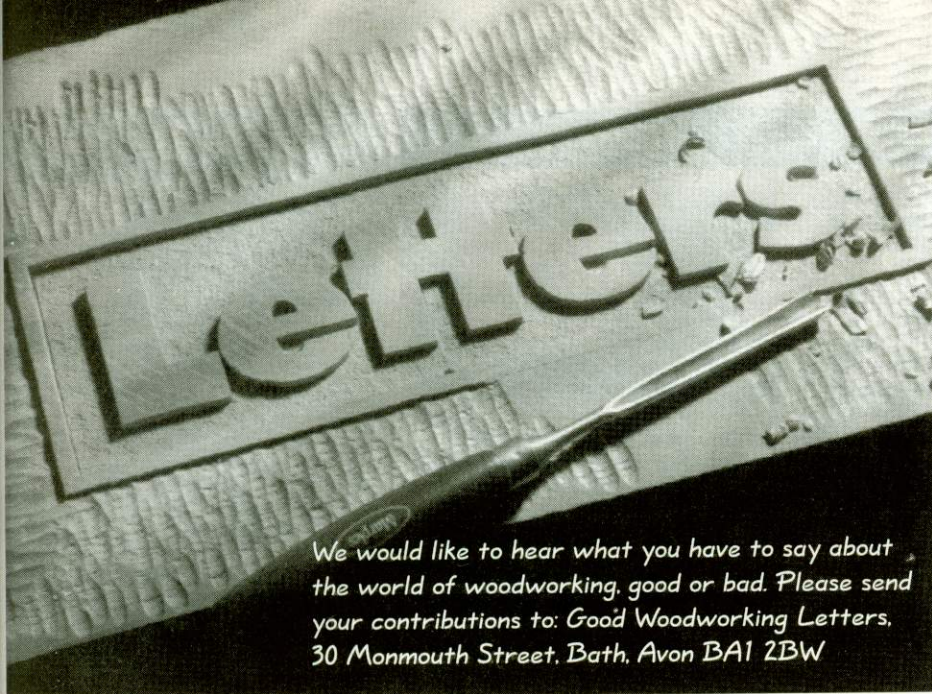
Maximum opening capacity is 63mm (2½in), and the throat, or depth capacity is the same. This makes the throat of the Pony twice as deep as the Record C129. Even though the Pony 3325 weighs only 0.55kg, it is pretty strong. The makers claim it has a clamping force of 800lbs.

The edging clamp is the sort of tool you may wonder when you are ever likely to use it. But having one among your tool kit is not a bad idea. As well as the obvious use for gluing lippings and mouldings to edges the edging clamp can be handy for repair work. Sometimes a normal G clamp will not give sufficient pressure for that corner you may have chipped. It can also be used as a small capacity conventional G clamp.

Chesterman have introduced a wide range of Jorgensen clamps to Britain. We will be testing other products in the next few issues.

GW VERDICT

PERFORMANCE	●●●●○
VALUE FOR MONEY	●●●●○
RRP inc VAT	£12.57
CHESTERMAN	☎ 01785 50341



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

Welcome replies

In reply to J. Porkin (GW 28:62) why not wash out and use empty hand sprays that household cleaners and polishes come in? By using one in each hand I covered the outside of my 12x9ft workshop in creosote in less than two hours with little wastage. You can also use them to spray a fine mist of clean water on MDF board to raise the grain, leave for 24 hours then sand off. To seal the edges of MDF re R. Bint (GW28:61), apply two coats of sanding sealers, sanding down after each, before using water-based solvents.

D. Riggs, North Yorkshire

Thanks for your replies. I will pass them on.

NG

Saved by RCB

I wonder how many

woodworkers pay attention to things like ensuring that chisels and plane irons are sharp, that the bench is tidy to prevent accidents, yet get complacent about other issues? I was using a power drill of somewhat vintage age in the garden. An extension lead from a circuit breaker in the garage was used as the power supply. After half an hour's use there was a puff of smoke and no power. I discovered that the drill cable had worn through right under the cable grip of the plug and had shorted. Had I not been using an RCB I wouldn't be here now. I was so shocked that I have now instituted a monthly check system. The message has to be use an RCB at all times and periodically check all wiring.

Brian Blaine, Northants

Thanks for warning us of this potential accident. We hope to

test RCBs and cable reels soon. It is by publishing experiences like yours that other readers learn of the dangers of woodworking and hopefully take the suitable precautions.

NG

Using initiative

With regard to the letter from M. Fallows (GW 29:24) I have never made a clock case but I could produce the wall clock using the article in November (GW 25:16). I empathise with Mr. Fallows to a point. Step-by-step instructions are useful and the pedestal table (GW 25:4) by comparison was well described. However a beginner, merely by following the article, would waste a lot of timber. On the other hand if Mr. Fallows has the skill to pull that off, he should have no trouble with the case for the clock. As

Bill Watts pointed out, the woodwork is no more than a wall cabinet made to house a clock.

As far as plans and dimensions are concerned Bill stated that the cabinet must be sized to suit the movement. So little more than proportions and notes on design features are necessary. Re the potted history, seen by Mr. Fallows as a waste of time, I think it adds appeal to the article. Knowing the mystique behind clock building brings extra zest to the making of one.

However articles are often a mere starting point. You have to learn to think for yourself. I intend to make Pete Martins' display cabinet (GW 29:4). If I didn't own a biscuit jointer I would find another way to joint the case. My copy will substitute ash for maple and it will be wider thus needing double doors. So the loose approach results in designs bearing only a token resemblance to the original but which will be personal.

If Mr. Fallows wants to make a clock by numbers all he needs to do is read Bills' article again and get in touch with Timecraft.

John Walker, Birmingham

I agree exactly with all your points. The article was meant to be about how to get into clockmaking and not a project on making one specific clock. I agree that woodwork, like life, without any history would be dull. It is always fascinating to understand some of the reasons why things are.

NG

Wen search

I need an armature for a Wen chainsaw, model 1100, 18in, 2hp, 5.5A, 240V, made by Wen Products Inc, Chicago Illinois, USA. Can you help?

D. Phillips, Dyfed

I don't know anything about these products. Have you tried contacting Wen in the USA? Or contact a magazine called Forestry and British Timber, published by Benn Publications, Benn House, Sovereign Way, Tonbridge, Kent TN9 1RQ ☎ 01732 364422.

NG

Sale success

My mag arrived on the doormat at 9am this morning and I was pleased to see it carried my ad and a plug from you (GW 28:69). The tools were sold by 5pm. They had been donated to my local Tools For Self Reliance group but were not suitable to send out in a carpenter's kit to Africa; spares alone would be impossible to find there. The donor generously allowed us to sell them and these funds will be put to good use within the

charity. I am grateful for the help given and for the hours of pleasure which I get from the mag. **David Dawson, Surrey** It works! Brilliant. Keep those items for sale coming.

NG

Stopping a chamfer

What are the step-by-step procedures for producing a stopped chamfer? How do I cut the groove across the grain (GW 23:6)? I thoroughly enjoy your magazine, it seems to have a lot to interest me, an elderly enthusiast without much knowledge or skill. The Good Woodworking Show was first rate and I found your capers when making shove h'penny boards most entertaining.

John Hunt, Surrey

How you produce a stopped chamfer depends on the tools you own. The easiest method is with a V cutter in a router. Mark out where you want the chamfer to start and stop first. Then cut with the router. The stop at each end will be slightly rounded by the cutter. The best thing is to straighten out the stop with a chisel. You could cut the chamfer with a chisel, but it would take time. Make sure you do not tear the grain. You might be able to use your rebate plane with an angled cutter to remove the bulk of the waste first.

There are any number of ways to cut the groove across the grain. The best way is to use a plough plane, as long as it is the type that has a pair of scoring knives at the front. It is important that the shoulders of the groove are cut before the cutter tries to force out the waste. You could cut the shoulders with a handsaw first but the housing may be a little long for that technique.

Take care not to tear the grain where the groove breaks out. Use a backing piece to stop this happening.

NG

H'penny plans

Thank you for your test report on honing guides (GW 28:83) on the strength of which I bought the Stanley which is great. Unfortunately I could not make last year's show and I would like to make a shove h'penny board. I need details of type and size of wood, details of markings and the best finish. Please carry on in the same format, as your magazine talks to us and not down to us. **W. Walters, Hants** You missed quite a demonstration with the making of the shove h'penny boards, I even did one blindfold. I don't recommend the four minutes 56 seconds it took me to make one,

The younger generation

We have three grandchildren, two boys and a girl between the ages of five and nine. They all enjoy being in Grandad's workshop, and the article aimed at getting children involved in woodwork (GW 26:88) gave them interesting ideas to tackle for themselves. Please note the pencil behind the older boy's ear, the sign of a true workman.

They made wonderful projects with a little help and lots of encouragement. They decorated the end products to their own choice. The pencil holder was painted blue and small flowers were painted to add a touch of colour. The marble run was finished in a more intricate fashion and the wooden battens painted green with a brown base, giving the illusion of a Hampton Court Maze. The large boat was painted in bold primary colours and looks magnificent. It was also varnished.

They and we received so much pleasure from this article that we feel obliged to request more ideas for the up and coming generation of woodworkers. We could then keep a file separate for them to refer to when they spend time in Grandad's shed, which is their idea of paradise.

Shirley Hudson, London

It is reassuring to see that our efforts to encourage young woodworkers are working. We will try to bring you more ideas in the future.

NG



Woodworkers of tomorrow. Grandad's workshop is their idea of paradise



Our article on children involved in woodwork proved an inspiration

and the quality of the finished product was at times dodgy. I used a board 12in wide and 18in long. You need nine grooves about 1½in apart. This suits 2p coins. The best thing is to experiment. The wider apart the grooves are the easier the game becomes. I used veneered chipboard with a melamine finish, which meant the coin slipped very well. If you are using solid wood a bit of sealer and wax should be enough. I cut the grooves with a thin router cutter, making only a shallow cut, and then staining the grooves with Liberon water stain. At school I made a similar board by cutting the grooves with a handsaw. NG

Wolf query thanks

Thank you for all your help with the query I had about my Wolf drillstand. The response from readers was amazing. The first reply came only days after the picture was printed and letters kept coming for weeks. I'm sure you have gathered that the chance of finding an old 1950s metal cased drill in good working order are slim so I am rereading your test on drill presses (GW 21:70). I am mesmerised by the number and choice of machines available, but the APTC Ch16 looks hard to beat.

Peter Goosey, Northants

Soap trick

It's a welcome plonk when *Good Woodworking* falls through the letter box. However there was one suggestion I was not at all in favour of. I suffer from cardiac asthma and a few things set me off choking, one is tobacco. The use of tobacco as antidim, as we used to call it, was carried out by many with their gas masks. The correct antidim was in a container and was fine white Castile soap. Moisten your finger, rub it on the soap, apply to the glass or plastic, then polish with a soft cloth. It is still as good as anything I have found and use it regularly on my spectacles or goggles.

James Kendall, Birmingham
This is a perennial problem, so thanks for your tip. NG

Optimistic drying

I enjoyed reading Phil's survey of moisture meters (GW 27:49). I know from experience that it helps if the meter is as user friendly as possible. Phil says that air drying gets timber down to 14 per cent MC. I think he is being optimistic! While it is possible in the UK to air dry timber to 15 per cent MC in an exceptionally dry summer, on average timber only air dries

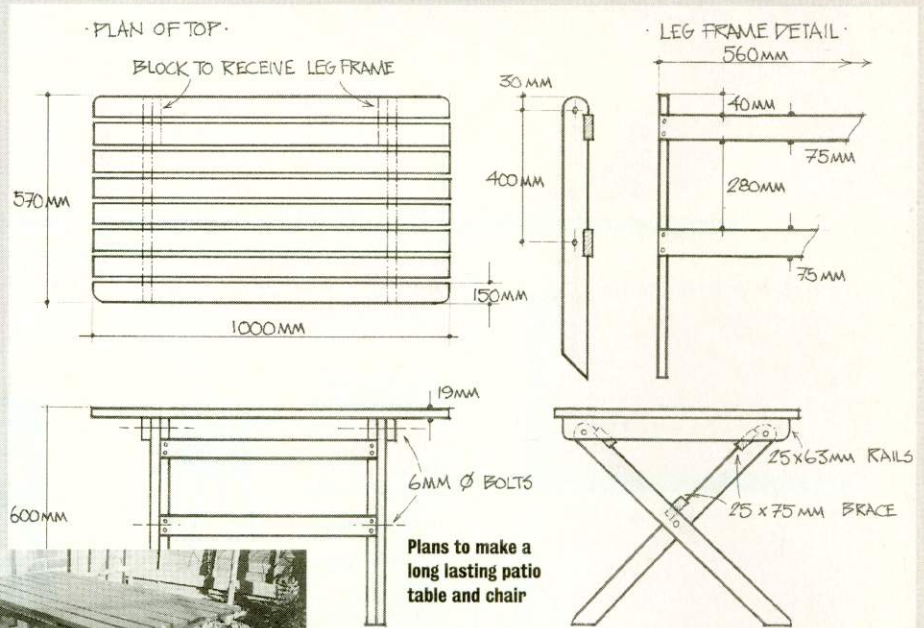
Build a patio table and seat to last in the garden

It might be of interest to your readers to make a simple patio table, which would be a useful piece of garden furniture for the summer months. I made the seat and table more than 20 years ago, and it is still in first class condition, mainly because I had the idea of making them collapsible for storage during the winter months.

The seat of course is more complicated to make and needs a variety of tools, but the table should be within the range of any amateur.

You need minimal tools, namely plane, saw, screwdriver and drill. Although the choice of timber is up to you, I used easily obtainable softwood for the top, and four pieces of 19x150 planed square edge flooring split in two.

These slats are screwed to the two cleats through the top. I used 32mmxNo.6c/d zinc plated screws. The bolts are 6mm galvanised RH. The two which attach the framed legs to the top at the ends where the



cleats are blocked out I used wingnuts for easy dismantling. These are the only ones which need to be removed to fold the table flat for storage. I soaked all the timber in joinery grade clear preservative, particularly the bottom ends of the legs and finished it with a wood stain. This has withstood prolonged hot sun and rain all these years. If anyone is interested I can supply details of the construction of the seat.

Norman Wilson, Norfolk

down to 20 per cent MC. With large cross-section timber this takes several months. Air drying can be speeded up by the use of fans alongside the stack of timber (forced air drying) but to arrive at moisture contents low enough for use inside heated buildings the timber should be dried in a kiln. One of the beauties of kiln drying is that you

can use a schedule where the timber dries at the correct speed for that species, minimising degrade. When timber is air dried it is possible, especially in hot, dry weather, that it loses water too quickly and splitting, checking and/or distortion takes place. It is possible to get timber to lower moisture contents by placing the timber in a room

where the relative humidity is maintained at a level low enough to enable the timber to naturally arrive at a moisture content of 12 per cent. I imagine this is the suitable environment that Phil rightly says is necessary for timber to air dry to moisture contents lower than 14 per cent.

Martin Cook, Bucks

I think you will find our article about dehumidifiers pretty interesting (GW 28:14). NG

Picture framing

I want to develop my skills in picture framing up to a professional standard in order to set up a business. Do professional framers use a guillotine tool which does not have a revolving sawblade? If so where can I see a range of such tools and are there any you recommend? Is a revolving circular saw just as good as one of these guillotines? I also want to buy one of the machines which cut mounting board accurately with the cutting edge angled for effect. Where can I find these tools on sale? Do you know of any short courses available for picture framing?

Trevor Williams, Dyfed

Professional picture framers use three main machines to speed up the operation and improve the accuracy. To cut the mouldings, with mitres, they have a special

mitring guillotine. This is usually foot operated, and is a powerful bit of kit. They also have a board for cutting the mount. This has an integral cutter for slicing up cardboard. The final machine is an underpinner. This is used for holding the mitre joints together with a sort of staple.

Of course you can make do with a mitre saw for the moment to cut the mitres, but this is less likely to give you as clean a joint as a guillotine. You could cut mounting board with a Stanley knife, and strengthen the joints with a stapler or pins for the moment. Not being a picture framer I do not know where all this kit can be bought. I know that you can pick up second-hand tools if you hunt around. About courses I know nothing, so if anyone can help please contact us. NG

Boomerang details

Would you please publish details on how to make a boomerang, size, weight, type of wood etc...?

R. King, Merseyside

Unfortunately I have never come across details of how to make a boomerang. I suspect that the best approach is trial and error. Many of them are made from plywood. That at least would have consistent weight/density for experiments. Hopefully other readers will be able to help. NG

Unique yew tree



An example of the male and female living in symbiosis

At Crom Castle, residence of the Earl of Erne, near Newtownbutler, Co. Fermanagh in Northern Ireland, grows a very interesting tree. It is a yew tree, or rather a male and female growing together. Nobody is certain what age it is but it is said that in the time of Queen Elizabeth I a knight at arms said goodbye to his lady in its shade.

As for its spread of branch it is believed to be a quarter of an acre, under which, as a Dublin guide book published in 1930 claimed, could shelter as many as 1000 people.

Eric Malone, Co. Down

Do send us photos or stories of interesting trees. NG

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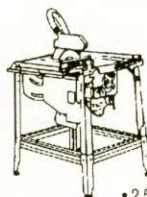
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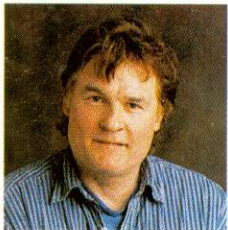
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Securing work on the benchtop is vital for accuracy, so what better device to use than the bench holdfast. Jeremy Broun explains the hows and whys of using one

Holding work securely is essential for successful woodworking. No matter how steady your hand is on the saw or plane, if the work itself moves around on the benchtop or in the vice the accuracy is lost.

Of course the vice does much of the gripping, albeit limited to fairly narrow section work. It can be used for planing, sawing, chiselling, drilling and some routing operations.

The benchtop is the natural place to support larger or thinner pieces for planing, sanding, using a chisel and mallet and some routing operations. The workpiece is

secured by G-cramps or using dogs in conjunction with the vice, but for many tasks where speed and convenience are required the bench holdfast is hard to beat.

What is a Bench Holdfast?

According to the dictionary the word 'holdfast' is the act of gripping strongly. A woodworking bench holdfast is a simple vertical clamping device which quickly inserts into a bare

or metal sleeved hole in the benchtop. By winding a threaded lever arm with a shoe on its end, which presses onto the workpiece, a firm grip results.

Usually a piece of scrapwood is placed under the shoe to protect the workpiece but some modern holdfasts have a rubber or plastic shoe pad.

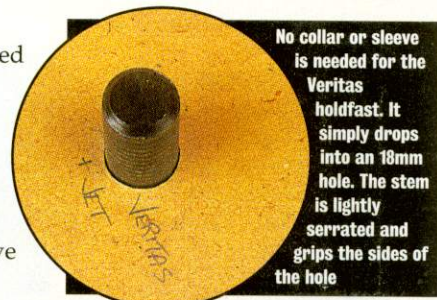
The Uses of a Holdfast

A bench holdfast, or at least a well chosen one, is quick to use and is an effective way of securing down work of any shape or profile.

This then gives easy access for a wide variety of tool handling operations such as chiselling, sawing, carving, routing and drilling.

The holdfast is particularly useful for routing operations where the edge of the workpiece needs to be free of a cramping device, or for chopping out mortises or dovetails directing the impact over a bench leg.

The holdfast can be used for bulky or tall work which otherwise is hard to secure. There is no reason why a holdfast cannot be used in some gluing operations, like sandwiching pieces together



No collar or sleeve is needed for the Veritas holdfast. It simply drops into an 18mm hole. The stem is lightly serrated and grips the sides of the hole



The Marples M145 holdfast uses a plate as a washer under the bench. The upper collar is recessed into a 62mm hole. Both are secured with three bolts

localising the pressure in the centre of the work against the benchtop. You can also use a holdfast to help with some assembly operations.

Type of Bench Needed

You would normally use a fairly solid traditional style bench with a top at least 50mm thick. This allows adequate support for the holdfast stem, whether a bare or steel-sleeved hole is used.

Some of the holdfasts, such as the Vise-Grip model, actually fit into the dog holes of Workmates. But generally the diameter and depth of the hole is crucial to the

Holdfast hand down

The holdfast or hold-down is indeed a hand down, apparently from around the time of the Romans, and its simplicity probably makes it pre-date the bench vice.

The traditional hold-down was an iron bar, shaped like a shepherd's crook. It was inserted into a hole in the bench and simply jammed in with a mallet, clamping the work.



Get to grips with holdfasts

effectiveness of the holdfast's gripping action.

An important consideration is the intended application. If you are holding down work for

heavy malleting a solid bench is needed. If you need to support, for instance small flat panels for planing, routing, etc... then a Workmate may be enough.

You also need to match the hole requirements of the holdfast to the type of bench as some holdfasts, such as the Marples and Sjöberg models, rely on a steel sleeve embedded into the benchtop, whereas the Veritas will operate in a cleanly bored hole.

Positioning the Holdfast

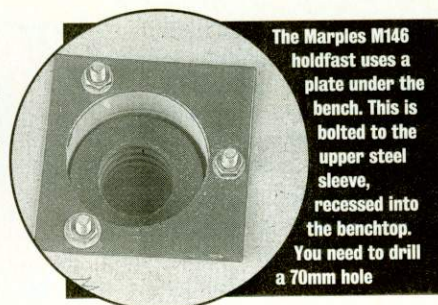
Holdfasts vary in reach depending on their design and there is no hard and fast rule as to where they should be positioned. It is worth considering that chisel and mallet work is best done over a bench leg and that for some planing and routing operations the edge of the work needs to be near the front of the bench.

The positioning of the hole will also be influenced by what is below the benchtop as the extended holdfast may foul a drawer.

Certainly when choosing a holdfast, knowing which type of hole it needs, a bare hole or a sleeved metal hole, will influence your decision. The latter will more seriously scar your benchtop.

Is One Holdfast Enough?

Ideally the simplicity of the design and its dependence on a hole being drilled into the benchtop suggests several holes will give the tool



The Marples M146 holdfast uses a plate under the bench. This is bolted to the upper steel sleeve, recessed into the benchtop. You need to drill a 70mm hole



You need a 15mm hole for the Vise-Grip holdfast. A large wingnut is easy to tighten. The bolt is only 50mm long, restricting its usefulness on thick benchtops



The Jet clamp system uses a rod through a 19mm hole. This is attached to the bar via a clevis pin. A circlip adjusts to suit bench thickness

more flexibility. This in turn suggests more than one bench holdfast might be useful.

Obviously a better grip will result from two holdfasts as there is a tendency for work to pivot or swing round. The cost of a pair is likely to be prohibitive, though. In our test the holdfasts which lent

themselves best to multi-hole use are the Veritas and Vise-Grip models. Most of the others need additional bolts or collars, available as extras.

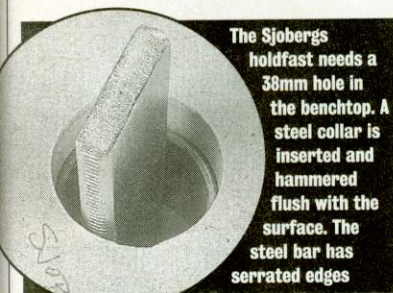
How to Install a Holdfast

For non-sleeved holdfasts, just a power drill and drill bit are

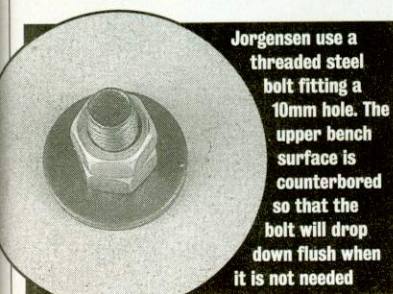
enough. It is recommended you use a forstner, auger or flat bit, taking care to drill exactly the diameter hole the manufacturer recommends. Get someone to help you line up the drill vertically.

For sleeved holes you should follow the above instructions. The Sjöbergs holdfast is the simplest as

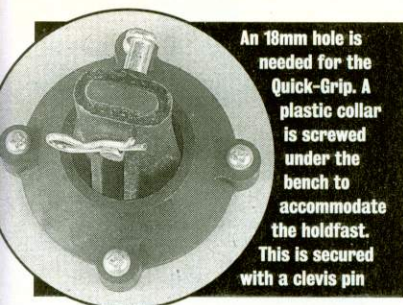
	Marples M145	Marples M146	Sjöbergs ST94
Contact	Record ☎ 0114 2449066	Record ☎ 0114 2449066	Brimarc ☎ 01926 493389
RRP (inc. VAT)	£35.87	£42.12	£49.35
Origin	Britain	Britain	Sweden
Reach	150mm	190mm	95mm
Capacity (depth)	0 to 205mm	0 to 240mm	0 to 150mm
Construction	Solid cast steel incorporating serrated stem (to aid grip) and pivoting arm with swivel head and threaded adjuster with small tommy bar. Stem inserts into cast lipped steel sleeve which is recessed into benchtop and secured by tiny bolts. Thick paint finish	Stouter than the Marples M145 but similar solid cast steel incorporating serrated stem (to aid friction grip), pivoting arm with swivel head and threaded adjuster with tommy bar. Stem inserts into cast lipped sleeve, recessed into the benchtop and secured by small bolts	Medium fabrication steel bar with vertical screw thread operated by a tommy bar, similar to a bar cramp. Nylon circular section head using universal pivoting joint
Jeremy Broun Furniture-maker Good Woodworking Contributing Editor	This is a no nonsense traditional style solid steel holdfast incorporating a steel sleeve embedded in the benchtop. It does the job well although the paint finish on the tight fitting stem of the sample model tested is so thick it chaffed against the collar. Some sideward pull is evident	This slightly beefier model to the M145 has a better capacity and gives a firmer grip, although the stem diameter in relation to the collar hole diameter causes an angled grip which results in some sideward pulling as you tighten up. Make sure to use scrapwood as the head is serrated	For a few pence more the stem could have been longer. The vertical action and large diameter nylon swivelling foot gives a neat grip. It is very easy to use if somewhat limited in reach. A bonus is that extra steel collars are cheap and easy to cut from a length of tube. You can fit them elsewhere on the benchtop
Ian Wilkie Woodworking course tutor Good Woodworking Contributing Editor	This is a well made and very strong tool which is easy to use. However its T-bar is only 60mm long and this is really too short for comfort. Its serrated pad does mark the wood. The holdfast gives a good grip and it is made to last a lifetime	A larger version of the M145, it has an 80mm T-bar which could be longer. The shaft which fits into a bench mounted bush is also bigger and will not fit a M145 size bush. This tool is strong, gives a good grip but it is expensive. In both cases a large G-cramp would represent better value for money and would perform a similar if not better job	The tool is well finished and strong with a nice large nylon ball and socket head which does not mark the wood. It gives a good grip, but the mild steel collar, which fits into a 38mm dia. hole, should ideally be epoxied in place. The long tommy bar handle, although crude, makes it easier to tighten than the Record holdfasts. It is rather expensive
Broun			
Value for money	●●●●○	●●●●○	●●●○○
Overall	●●●●○	●●●●○	●●●○○
Wilkie			
Value for money	●●●●○	●●●○○	●●●○○
Overall	●●●●○	●●●○○	●●●○○



The Sjöbergs holdfast needs a 38mm hole in the benchtop. A steel collar is inserted and hammered flush with the surface. The steel bar has serrated edges



Jorgensen use a threaded steel bolt fitting a 10mm hole. The upper bench surface is counterbored so that the bolt will drop down flush when it is not needed



An 18mm hole is needed for the Quick-Grip. A plastic collar is screwed under the bench to accommodate the holdfast. This is secured with a clevis pin

difficult to find a drill bit large enough in diameter. These sleeves are then fixed with small nuts and bolts after pre-drilling.

If you are like me you may end up losing some of the bits and pieces when removing a holdfast. The Jet system and Quick-Grip use clevis pins and retaining clips that could end up in the sawdust if you are not careful.

If you have never used a holdfast you may see one as an unnecessary luxury in the workshop. You can devise all sorts of methods for cramping work to the benchtop, but the holdfast really is hard to beat. With a bit of ingenuity some models can be used for horizontal clamping against the bench leg.

it relies on a short length of steel tube. The Marples models rely on a heavy-duty lipped cast iron sleeve. After drilling the core diameter, following the above instructions, you can then simply insert the sleeve, trace around the collar or lip and rout out carefully (freehand) the wood as it may be

FINAL VERDICT Holdfasts

Before you buy a holdfast think about what you are likely to be clamping. Holdfasts such as the Veritas and Marples M146 models have a greater reach than others, making them a good bet for wide panels or boards. The Veritas is beautifully made and does not need a collar. If you want a holdfast specifically for carving the Jet clamp system can offer you the greatest capacity. Instead of the standard length Jet clamp, you can buy a longer bar (up to 2m) for greater depth. You can use the Jet system as a normal clamp when a holdfast is not needed.

One of the easiest holdfasts to use is without doubt the American Jorgensen 1623. Although it has a limited reach, clamping pressure is excellent and the bolt drops out of the way when not needed. Extra bolts are available, but you could easily grind a coachbolt to fit. You can fit a number of bolts around the bench for very little cost. Costing considerably less than the rest, the Jorgensen is our Best Buy.



Quick-Grip 556

American Tool Co ☎ 01246 261030
£26.44
USA
60mm
0 to 105mm
Metal stem with plastic pistol grip type head and plastic collar assembly, clevis pin and clip. A large yellow rubber shoe is provided

This is a rather cheap, flimsy and limited capacity holdfast offering an adequate but not impressive grip. I had trouble lifting the holdfast out of its plastic benchtop mounted collar. The surface area of the foot and its reach is also limited

This light-duty, mostly plastic holdfast is more suited to delicate operations like musical instrument making. It is easy to operate and the bar, which remains stationary when the holdfast is in use, can be removed quickly by removing a pin from under the bench

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Veritas

Brimarc ☎ 01926 493389
£47.34
Canada
190mm
0 to 225mm
Quality coated steel stem and lever arm with turncrew capped with a large hexagonal cast brass knob. Fits into 18mm hole with no collar

There is a nice crafted feel to this holdfast and the reach and gripping depth just take the lead. The convex non swivelling head seems to work and the device operates quickly and efficiently by simply drilling an 18mm hole in the benchtop. The grip is reasonably good

Well made and finished holdfast, it is easy to use and only needs a 1/8in diameter hole, the same as the holes in most Workmate benches. No metal bush is needed, making it easy to fit to a bench. It gives a good grip particularly on flat work and does not mark the wood. The handle is small and older woodworkers may experience problems

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Vise-Grip 11D

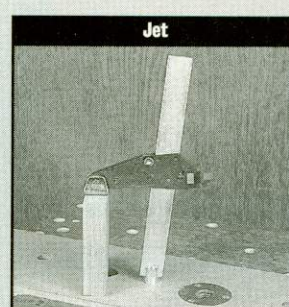
American Tool Co ☎ 01246 261030
£33.19
USA
80mm
18 to 95mm
Chrome vanadium steel mole grip design with long screw and fine adjuster and quick release lever. The head swivels and includes a neat fitting rubber shoe

This is an expensive pair of mole grips but it is good for quick setting and gripping of flat panels especially using the dog holes on a Workmate but will not grip work less than 18mm thick. It also grips material on a bench drill and is deceptively strong. A pair of these would be useful

This mole grip holdfast gives a good grip but its short bolt fitting is only 50mm long, too short for most benches. It is better suited for use on a drill table than on a thick bench but the bolt diameter is too big for most drilling machines. It could be useful for home-made jigs made from thin MDF but I do not recommend it for woodworking use

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Jet

TMT Design ☎ 01926 312033
£29.55
Britain
80mm
18 to 230mm
Plated steel bar stem with black coated steel lever arm and plastic turncrew handle. Clamping kit comprises stout collar with spaced seatings for clamping circlip, a clevis pin and hairpin type locking pin

Built on the Jet clamp system, a 300mm long bar is supplied but can be extended. The device takes time to remove from the benchtop because of the locking pin but a 19mm drilled hole through benchtops ranging in thickness from 18-50mm make it versatile. The tool offers a fair grip

The Jet clamp system is innovative, versatile and strong, but when used with the holdfast kit is disappointing. It is awkward to adjust and the grip is poor. Moreover it is cumbersome and gets in the way

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Jorgensen 1623

Chesterman ☎ 0785 50341
£17.04
USA
45mm
0 to 75mm
Orange lacquered cast steel body with tommy bar turncrew, swivel head and nut and bolt type bench fixing into a counterbored hole

A brilliant device handling most tasks on most benchtops. The recessed housing for the bolt head locates instantly. Losing the locking split is no problem as the device still works due to its excellent direct downward gripping action. Nuts, bolts and extra holes make it cheap and versatile. Can be used on a bench drill

This strong cast iron tool with an Acme thread and a ball and socket head is well finished and gives a firm grip. Its strength and basic design place a lot of stress on a work surface. Used on a 70mm thick beech workbench it should prove to be a useful cramping device. It is excellent value for money

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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.

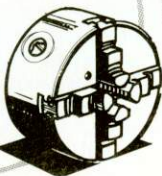
There is only one true blue APTC KWL37.



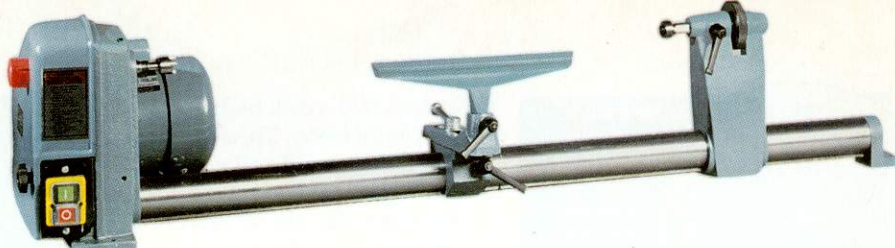
Price
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Carriage U.K. Mainland -
£9.95

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- Gouges
- Parting Bending Tools
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- Ring Tools
- Woodturning Finishes
- Sealers
- Polishes
- Oils
- Adhesives
- Safety wear
- Plus many other accessories to complete your woodturning requirements



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.

Other accessories are also available.

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		

Price
£399.00
Inc VAT
Carriage U.K. Mainland -
£15.95

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



Price
£549.00
Inc VAT
Carriage U.K. Mainland -
£15.95

APTC APW500 DE Dust Extractor



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.

Price
£129.00
Inc VAT
Carriage U.K. Mainland
£9.95

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

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
£299.95
Inc VAT
Carriage U.K. Mainland
£9.95

WV2
£379.95
Inc VAT
Carriage U.K. Mainland
£9.95



Price
£159.00
Inc VAT
Carriage U.K. Mainland
£9.95

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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Back to basics

No.30 Glue types and chair repairs by Edward Hopkins

The commonest repairs are on chairs because they, above all others in the furniture world, are subject to inconsiderate behaviour and physical abuse resulting in grievous bodily harm.

If you had a twelve stone object sitting on you, rocking back on your legs and levering itself up on your arms, you'd appreciate their position.

Joints work loose and can break. Thinner components snap and castors part company. The chair gives up. It comes to you in a state of distress and in need of restoration.

The most difficult cases will be those that have been restored before. If the work was done well but the same area has failed again, it highlights a particularly weak area that needs more extensive strengthening.

Too often the work has been done badly. Copious quantities of the wrong type of glue will have been poured around broken wood with what appears to be a medieval belief in miracles. The less faithful have whammed a nail or two in for good measure.

Much of the restorer's work is in undoing these travesties. He will remove all but the oldest hardware and dismantle badly glued repairs. New wood may be needed to remake broken joints. Sometimes this necessitates dismantling a lot of the chair frame in order to extract a broken component and work with it on the bench.

Sometimes the glue on remaining joints has failed and the frame could do with regluing anyway. To cope with all these eventualities, the restorer



needs to know the three main types of glue.

Animal Glue Traits

Old fashioned animal glue is made by boiling up hooves, hides and bones which, judging by the accompanying smell, are the bits no-one else wants. Small amber coloured beads are soaked in water and heated in a special glue pot, a double boiler, so that the glue itself cannot overheat and burn.

Animal glue is difficult to use because once removed from the pot it sets quickly. You have seconds to work before it becomes rubbery and too thick to be squeezed out of

a joint by cramping. This thickness, where it is not a problem, can be an asset. It is a 'gap-filler' which means it fills spaces within poorly cut joints and strengthens them.

It is strong and for a long time slightly pliant. As the decades pass, it dries out further and reverts to a dry almost crystalline form at which point its adhesion might break down.

It is a reversible glue which means that by introducing water and heat, dry old glue can become fresh and sticky again.

Urea Formaldehyde

This is best known as Cascamite One Shot. A fine

cream coloured powder, it is mixed with cold water into the consistency of thin custard. It is strong, waterproof and with gap-filling properties.

Unlike the other glues, it is rigid and brittle when dry. As all solid timber is always slightly on the move with fluctuations in atmospheric moisture, it won't accommodate shrinkage and is liable to crack.

Universal PVA

Polyvinyl Acetate Emulsion (PVA) is almost universally used by woodworkers and recognisable by

the vague description 'white woodworking glue'.

It comes ready mixed and can be used straight from the container. It is available under many brand names to different recipes, some more waterproof and some faster setting. It always remains slightly flexible and is therefore more appropriate to solid timber constructions which are always liable to move with atmospheric moisture.

Reactivating Glue

A frame which needs to be dismantled in order to be reglued may fall apart with a few taps of a (padded) mallet. In the real world there is always a critical joint or two which is perfectly secure and determined to stay that way. To soften the glue you need to introduce water and if practicable, heat. How delicately this is done depends on the quality and construction of the piece.

A dining chair frame of no museum value can be given a bath. Run enough water to cover one set of joints and leave the chair

Glue and antiques

Animal glues have been used extensively on all antique furniture and for this reason, combined with their reversibility, they are essential for the antique restorer. However well the restorer is repairing a piece of furniture, he or she should allow time if further damage necessitates it being dismantled one more time.

As well as the authenticity of using animal glue (which is important in the finest pieces of furniture), this is the only glue that can be easily reactivated.

soaking for several hours. The water destroys some of the finish (which will have to be made good later) but at the same time will reactivate and dissolve the glue. Smaller assemblies can make do in a bucket.

If such drastic action cannot be taken because of the incidental damage it causes to veneers and patination, micro-surgery can be performed. Use a 1/16in bit, drill a tiny hole into the joint, or ideally into the clearance gap at the end of the tenon or rail. With a hypodermic syringe inject water into this hole. As it soaks in over the hours or even days, top the hole up

with more water. When the joint is sodden it should come apart with ease.

Cleaning up Old Joints

While the dismantled joint is wet and the glue still fluid, scrape out and wipe off as much of the stuff as you can.

Now leave the components to dry thoroughly before you do any more work on them.

Old animal joints which come apart without water retain a crust of glue. Mortices and sockets too might be half filled with it.

WARNING Do not soak veneered components in water or the veneers will lift.

bad repair has been made, PVA might have been applied. Although this is not reversible, it will break down if soaked in water. It will lose some of its adhesion and remain as a thin rubbery film. This must be picked and scraped off the wood.

It you are unfortunate enough to be following a repairman who had

used Urea Formaldehyde, there is no easy solution. Try deftly knocking the joint apart. Sometimes the glue cracks or comes away entirely from one surface. If the bad job has been done well you may have to saw the components apart.

Regluing the Joint

A joint originally held with animal glue is ideally primed for a second application. You do not have to remove all traces of the old glue as long as the joint slips happily back together. Heat up the pot and smear all surfaces with the hot thin treacle. Fit the components immediately, cramping as necessary. After a few minutes peel away exuded glue which comes away neatly in one rubbery strip.

If the piece is modern or old but of no value (and is never likely to be) you can reglue with PVA. This, unlike animal glue, is not a gap filler so if the joints are loose, they will not be as strong as they would be

In this case it will be less messy to reactivate the glue using steam rather than soaking in water.

Ideal for this is water simmering in a pressure cooker because the outlet in the lid can be fitted with a plastic tube with which you can (wearing gloves) direct the steam.

If it is a modern piece or if a

Back to Basics so far

We have covered many subjects for beginners in our Back to Basics series. If you want a back issue contact our Hotline on ☎ 01225 822511.

● Timberr yards (Nov.92) ● Buying hardwoods (Dec.92) ● Preparing timber (Jan.93) ● Gluing (Feb.93) ● Planing (Mar.93) ● Veneers (Apr.93) ● Chiselling (May 93) ● Holding wood (June 93) ● Screwing (July 93) ● Nailing (Aug.93) ● Marking out (Sept.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 (Aug.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) ● Working order (Mar.95) ● Shrinkage (Apr.95).

NEXT MONTH – Mark Corke on Call.

with animal glue. They will also be much harder to dismantle in future.

What to Use on Breaks

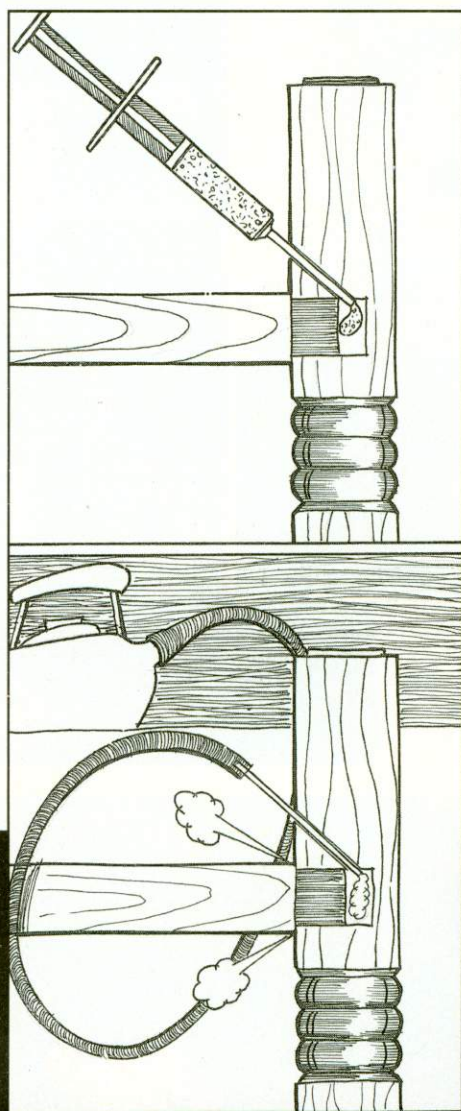
The wider role for PVA and Urea Formaldehyde in repair work is dealing with breaks and with the insertion of new wood. Just as with bones, breaks in wooden components can be a definite parting, or a series of interconnected splits in the fibre.

The former needs to be held back in position while 'splints' are fitted, shaped and coloured to blend in with the original wood. The latter needs glue injecting into all the fissures and the fracture cramped tight (sometimes taped) while it dries. Both can benefit from UF glue which will fill any remaining small gaps. These mends never have to

be taken apart again. If that area fails, they will be repaired in a similar way.

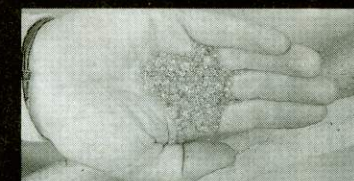
UF is useful for filling up a castor socket which has widened causing the castor to drop out. Invert the chair and clean out the socket. Make sure that the castor will fit in its correct position. Scrub hot water into the socket with an old toothbrush to make sure that the glue will key. Half fill the socket with glue and replace the castor, taping it into position if necessary. Swivel the castor before the glue has fully dried.

A better version of this for superior chairs is to drill out the socket and UF glue a dowel to fill it. Trim this off and drill it to take the castor. In both instances the extra strength of UF will make a stronger repair.



There are two ways to loosen a joint once you have drilled into it from some inconspicuous point. You can either inject the joint with methylated spirits or force steam into the joint. These should break down the glue bond

Antique furniture will probably be assembled with animal glue (sometimes referred to as Scotch glue). You melt this with water (right) in a glue pot. The beauty of this glue is that it can be reversed with water or, better still, steam



Animal glue is also known as pearl because it is often supplied as beads. Mix these with water and heat in a double heater



Urea formaldehyde adhesives (top left) are mightily strong for repairs, and give you time for assembly, but will give future restorers real problems. White glues (PVA) are a more obvious choice, but they go off very quickly, so cramp up in stages



BACK TO BASICS
NEXT MONTH
MARK CORKE ON CALL

Vic Taylor traces the life of the secret compartment and shows you where to add subtle hiding places in your next project

Suss out the secret compartment

The entire set of drawers in the 1720 walnut bureau at the Red Lodge, Bristol pulls out for travelling. The central door hides drawers, which themselves conceal yet more secrecy
Photos courtesy of Bristol Museums and Art Gallery (Red Lodge)

You may think soaring crime figures are exclusively today's problem and that keeping your valuables secure was easier in the good old days. Not so. Our ancestors had no police, no safe, no burglar alarms and no banks in which their cash could be kept, in other words, self-help was the name of the game.

Almost a thousand years ago the safest repository for money and valuables like gold or silver plate and jewellery was a large hole hewn out of a tree trunk. The trunk and its lid were strengthened by means of iron bands nailed around them and the whole thing was then fitted with two or three different locks. The keyholders were local people of good repute, and all of them had to be present before it could be opened.

The trunk (or 'monoxylon' as historians call it) was kept in a church as it contained church treasures, alms, or special taxes like the 'Saladin Tithe' imposed by Henry II to help pay for Crusades.

By the late 15th century the power of the barons had been broken and most people could look forward to living in peace in their homes. Among other improvements this led to what hitherto had been primitive furniture becoming more sophisticated and branching out into new designs, as well as reaching more levels of society.

At the same time trade at home

Please help me

I was thrilled to receive a letter from Vic Taylor answering my question about secret compartments a few months ago. He mentioned a bureau-bookcase in the Red Lodge in Bristol, dating from 1720, with 30-odd secret compartments. So why not commission Mr Taylor to write an article on the subject, using that magnificent exhibit as the basis?

Meyrick Simmons, Belgium
No sooner said than done. I hope you enjoy the feature. NG

and with other countries began to flourish, with the inevitable result that crucial documents like leases, IOU's, and bills of exchange proliferated and had to be accommodated. And, human nature being what it is, there were

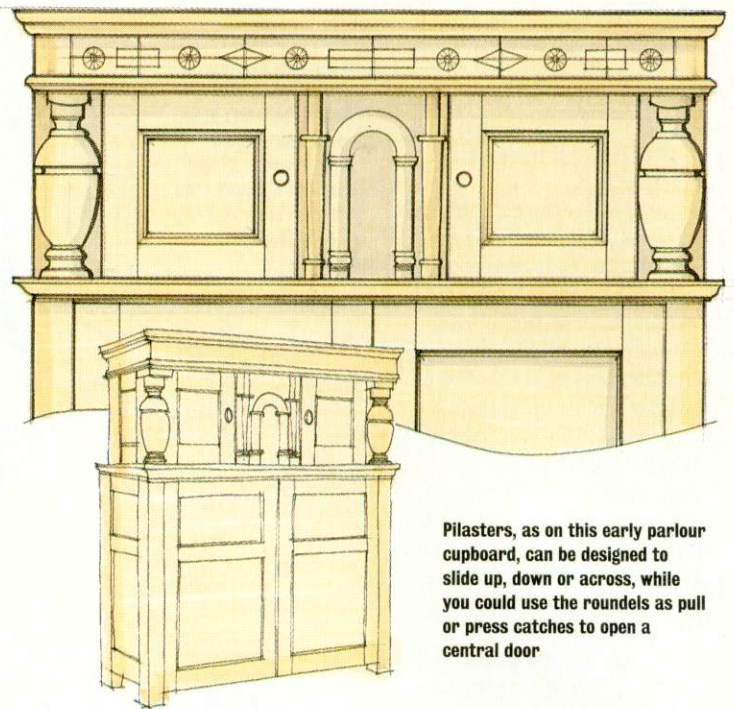


often compromising letters that had to be hidden from prying eyes.

Studying the history of secret compartments is bound to offer



When you pull down the flap on the Red Lodge bureau you can push back the desk surface (far right), with the boxes back underneath the front hidden by a reveal. The pilasters pull out, and when you pull out the pigeonhole (right) you may find cubbyholes behind

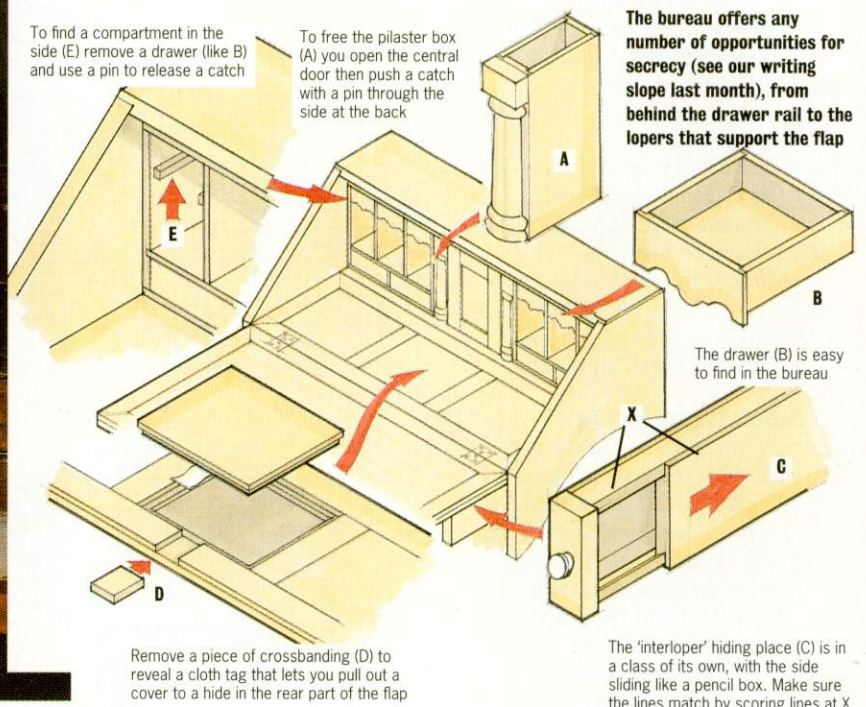


Pilasters, as on this early parlour cupboard, can be designed to slide up, down or across, while you could use the roundels as pull or press catches to open a central door

To find a compartment in the side (E) remove a drawer (like B) and use a pin to release a catch

To free the pilaster box (A) you open the central door then push a catch with a pin through the side at the back

The bureau offers any number of opportunities for secrecy (see our writing slope last month), from behind the drawer rail to the lopers that support the flap



Remove a piece of crossbanding (D) to reveal a cloth tag that lets you pull out a cover to a hide in the rear part of the flap

The 'interloper' hiding place (C) is in a class of its own, with the side sliding like a pencil box. Make sure the lines match by scoring lines at X

ideas for building hiding places into your own work now. One of the first of the new designs as the 16th century approached was the press or parlour cupboard, which developed from the original cupboard via the court cupboard and the livery cupboard. A favourite hiding place was in the slots built in behind the pilasters at each side of the central cupboard. Some pilasters were made to slide upwards while others could be moved sideways.

Such cupboards were decorated with lavish carving, and the frieze rails along the top edges were carved with strapwork and circular motifs called 'roundels'. One of these could be adapted easily to

open the central door when it was pulled or pressed.

One of the several small drawers could also be fitted with a dummy keyhole to give the impression that it could be opened with a key; actually the drawer was pivoted and could only be opened by pushing one end.

Introduction of the Buro

During the 1600s bureaux (often called 'buros' at the time) made their appearance and gradually became more and more complex. The fact that they could be used for business as well as ordinary correspondence made them the obvious repositories for legal and commercial documents. It is not

surprising that of all the various designs of furniture the bureaux contain the greatest diversity of secret compartments.

Many bureaux and bureaux-bookcases (and secretaires which were a later 18th century development), were made so that the whole of the pigeonhole and writing section could be lifted away to accompany the owner on his travels. Handles were often provided to make this easier.

Popular Hiding Places

Some of the more usual hiding places are the pilasters flanking a central cupboard similar to the arrangement on a press cupboard. In this case each pilaster is attached

to the front of a slim, deep box. To get the box to spring forward, open the central door and look for a pin hole at the back of the side through which you can push a pin or a similar pointed object.

A typical set-up is where the pin pushes the tongue of a swinging button out of a latch fixed to the back of the box and a leaf spring pushes the latter forward. As the button is loosely fixed it swings back to a vertical position because of gravity and you have to push it aside again with the pin to return the box.

A drawer in the frieze (B above) is an easier choice and is likely to be one of the first places a searcher would look, but the 'interloper' (C)

is in a different class. It is built into one of the lopers (which are the supports for the flap when it is open) and is made on the same principle as a school pencil box with a sliding top.

Although only one side actually slides, it is essential that a line is scratched on the opposite side so that the two lines match (at X). The sliding side can only be opened when the loper is pulled out and is automatically closed at the same time as the loper is pushed in.

The underground compartment (D) relies on a small patch of crossband veneer being loose so that it can be prised up. Obviously it has to match in with the adjacent crossbanding but this is not as difficult as it sounds. When it is lifted out, a small cloth tag is revealed which is attached to the central panel covering a secret well beneath. Bear in mind, we are not describing modern thin veneer but the much thicker sawcut veneer which could be up to $\frac{1}{8}$ in thick and correspondingly robust.

An ingenious and more difficult secret place is in the side of the bureau (E). Here, there is a panel in the end of the bureau which can only be reached after a drawer in the frieze (B) has been withdrawn. The panel, which is hinged like a door, is secured by a catch operated through a pin hole.

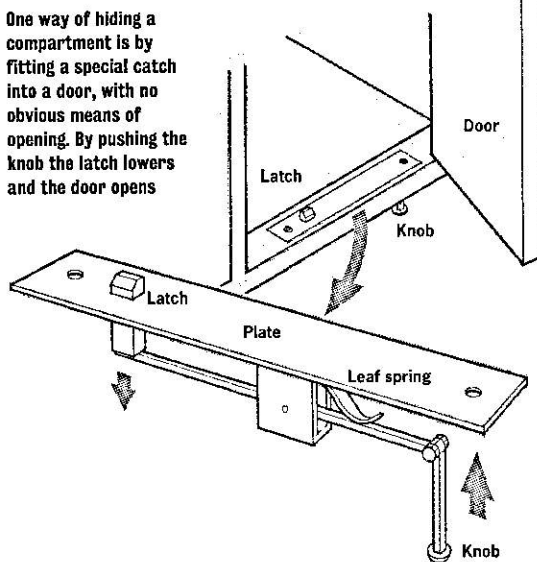
Influences from Abroad

During the late 17th and early 18th centuries English cabinetmaking was greatly improved by cultural influences from the Continent. In particular the influxes of Huguenot refugees from religious persecution in France and Holland brought with them high standards of craftsmanship in veneering, carving and cabinetmaking.

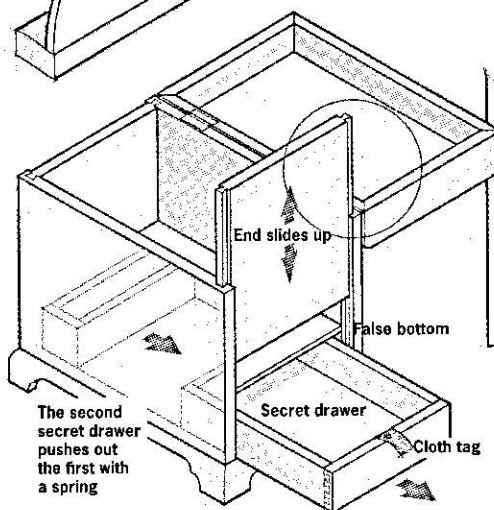
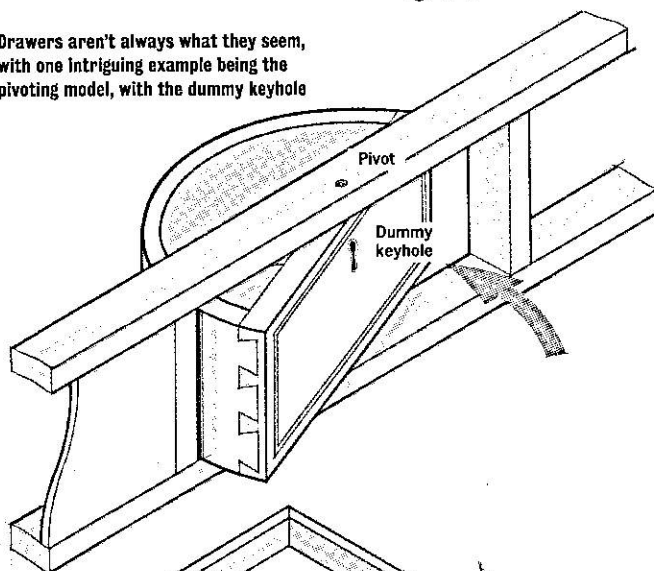
Both Louis XIV and Louis XV were enthusiastic patrons of the best French makers. The latter king was an accomplished woodturner who invented *tables volantes* which rose and fell into the floor.

J. F. Oeben (1720-1763), his pupil J. H. Riesener (1734-1806), and the Roentgen family were the leading cabinetmakers of the period and were responsible for some of the most complex mechanisms ever incorporated into furniture. They were rivalled in England by Thomas Sheraton (1752-1806) who delighted in designing devices for secret drawers and cupboards. Many of them are described and illustrated in his *Cabinet Maker and Upholsterer's Drawing Book*. Two of

One way of hiding a compartment is by fitting a special catch into a door, with no obvious means of opening. By pushing the knob the latch lowers and the door opens



Drawers aren't always what they seem, with one intriguing example being the pivoting model, with the dummy keyhole

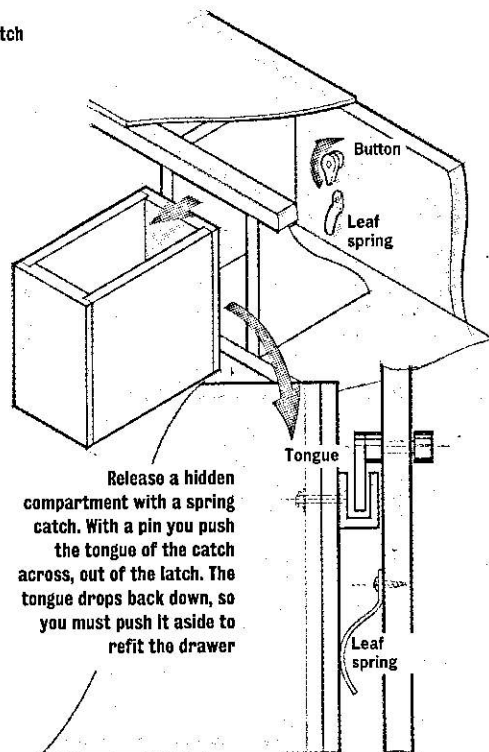
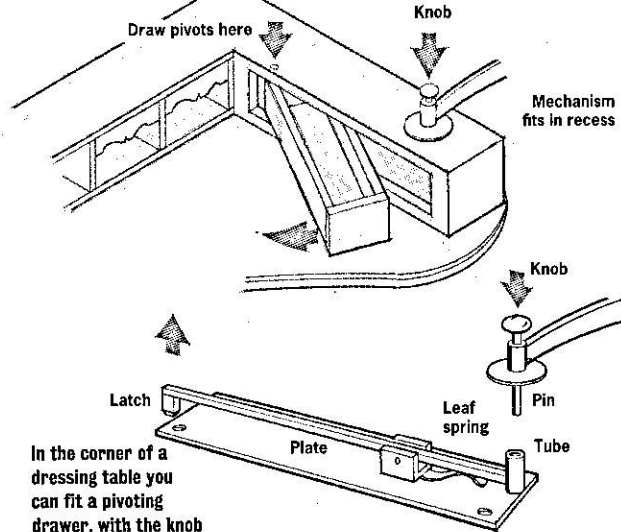


For small caskets you can easily hide a drawer under a false base, hidden by a sliding front. Always consider making a second hiding place behind the first

the devices are the hidden door and pivoting drawer (top above), for use on a sideboard and a lady's dressing table respectively.

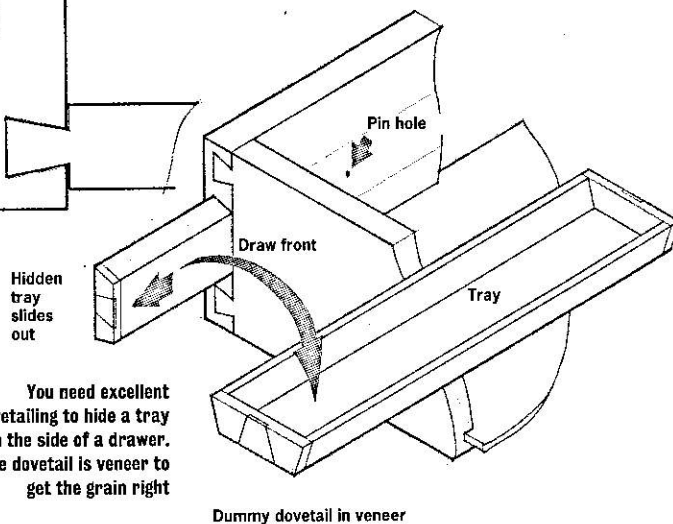
The hidden door incorporates a gadget fitted to a cupboard door so that when the knob is pushed

In the corner of a dressing table you can fit a pivoting drawer, with the knob or candlestick releasing the catch



Release a hidden compartment with a spring catch. With a pin you push the tongue of the catch across, out of the latch. The tongue drops back down, so you must push it aside to refit the drawer

You need excellent dovetailing to hide a tray in the side of a drawer. The dovetail is veneer to get the grain right



upwards, a latch (which engages in a slot cut in the bottom edge of the door) is freed, and the door can be opened. The cupboard, incidentally, is part of a sideboard and houses a chamber pot for the use of Georgian gentlemen who

have imbibed too freely of after-dinner port!

The pivoting drawer is housed in a corner of a typical lady's dressing or writing table; it was common for one table to serve both purposes. The knob is pressed

downward against a pin which rests on a tiny spring in the tube, and the pressure is transmitted along the rod to lift a latch out of a slot cut in an extra-thick drawer back, thus allowing the drawer to open. The same result can be achieved by moving the candle arm sideways.

The Secret is in the Box

Small boxes and caskets for all kinds of purposes were popular in the 18th century. Typically one end was made to slide upward so that a secret drawer under the false bottom could be pulled out by a cloth tag. Alternatively a leaf spring was used so that the drawer springs out.

In some designs it was not an end that had to be pulled out but one or more of the divisions inside. A further refinement was to have a second secret drawer, with a spring fixed to it, behind the first one to push it out, giving the impression that only one drawer existed.

The secret tray (bottom left) is for those with nerves steady enough to saw clean, sharp dovetails. While it is clear that a sharp pin pushed through the hole and moved sideways will start the tray opening, it is not so obvious that often the dovetails on the drawer front were cut out of one piece of veneer and glued on over the original joint so that the grain appeared consistent.

The Realities of the Era

You may have noticed that there is no mention of coil springs, which would have been more effective than leaf springs. The reason is that until the end of the 18th century the quality of steel was not reliable enough; as it was cabinetmakers had to rely on the spring steel used in clockmaking.

One more point, things such as coins or jewellery which might have rattled or clinked when moved were wrapped tightly in a cloth bag. To avoid sounding hollow when tapped with the finger tips, secret compartments were often stuffed with hay or dried moss.

The practice of building secret drawers seems to have died out by the 1840s, possibly because banks were becoming more popular and offered adequate security. But if you want to revive it and include a secret hideaway in your next project, think what you could do with solenoids, remote control gadgets and all the other kinds of electronic wizardry!

SECRET COMPARTMENTS The reader's experience

My daughter, *writes David Young of Herts*, wanted a 'strong box' in which she could lock away 'bits and pieces'. While there is nothing special about the dimensions, and any reasonable size is feasible, there are some novel features about the chest, notably the false base for that simple bit of secrecy.

I find that it is worth building a mock-up out of cardboard, or at least making a scale isometric drawing. My experience is that some dimensions look 'right' and others don't. Juggle with the dimensions of the starting stock to get the best usage from the plank(s). I started with a one foot wide planed oak plank 10ft long by 1in thick which was just enough for the whole chest.

I wanted to make the lid from a single width of the plank, but I decided that a wider lid was necessary which meant dowelling two lengths together. It took ages to plane the butting edges (with progressively finer setting of cut on my electric planer) so that you could barely see light through them along the whole length, when you held them together edge to edge. My method of dowelling is to drive $\frac{3}{4}$ in panel pins into one edge at the required positions, leaving half of the pin exposed, then to cut off the top with pliers or pincers, leaving $\frac{1}{8}$ in standing proud. I can then offer up the second piece and press it firmly onto the cut pin heads, first by hand then with a tap from a mallet. When pulled apart, and the pins extracted, the marks for drilling the holes are not only clear, but enable a pilot to be drilled without it being deflected sideways by the grain; particularly important with a coarse and hard grained wood like oak. If you aren't using commercially made dowels, cut a notch along the side of the dowel to allow excess glue to rise up from the bottom when pushing the dowel in?

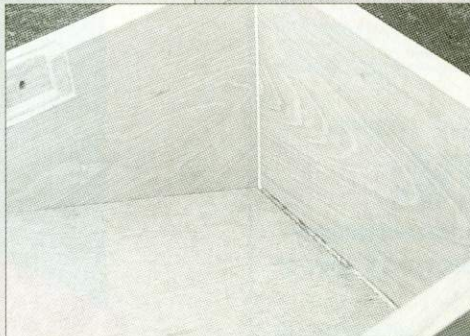
I fixed the ply base by gluing it into a routed slot about $\frac{1}{2}$ in up from the bottom, taking care not to rout the slot right to the edge where it would spoil the appearance of the joints. It was at this stage that I started the secret base.

I made a false bottom of the same ply as the true bottom. It rested on a simple 1x $\frac{1}{2}$ in softwood frame leaving a useful space for "billets-doux"

etc... You open the secret space by pressing down on the side of the false bottom which is not supported by the softwood framework. Experiment showed that an unsupported gap of 2-3in was enough to give the right leverage to lift the opposite side of the false bottom sufficiently to get a finger under it to lift it off.

To make the bottom even more secret, I ran a thick bead of hot glue round it to make it look as if it was glued to the walls of the box. The best way to do this

For a few secrets in a chest David Young fitted a false bottom, disguising the secrecy with a bead of hot melt glue. This camouflages the false base to the chest



David Young's recent project hides secrets for his daughter

was to run the hot glue along one edge of the false base at a time, then to press the glue bead onto a flat sheet of heavy duty polythene while it was still soft. Don't run it directly into the angle between the base and the polythene – as I did at first – or you will stick the polythene to the ply. Let the glue cool for 10 to 20 seconds before being pressed onto the polythene. Experiment with a bit of scrap first. You can build up just the right thickness of glue so that the false base is a good friction fit and doesn't jiggle.

I bought the brass fittings at a specialist shop. Note that the overhanging lid has the hinge offset from the box side so that it can open well beyond vertical. No doubt you could 'doctor' a conventional hinge, but the pair I used came with one long and one short 'leaf'. Nonetheless I could only find them with the countersinks on the 'wrong' side, so I had to re-countersink them from the other side.

This opened the hole of course, requiring a larger diameter of screw, but good stout brass screws are a good idea here. The lock is a simple two lever 'box lock', these seem to be only obtainable in the older type of ironmonger. They are not very strong, as we found when a burglar broke into a box with a similar lock. He left no trace of 'jemmy' marks, a good jerk up on the lid must have broken away the teeth from the striker plate. But I don't know of a more robust alternative. For a glowing finish on oak I favour a good wax but, to resist hot and cold spills, I used Ronseal Matt Coat polyurethane varnish in this case. My daughter wanted to use the box as a seat, so my wife made a cushion from 2in foam.

David Young, Herts

● I've been asked to build a piece of furniture and to build in secret compartments. There is a book *Secret Compartments and Trigger Mechanism*, but I don't know the author or publisher. Can anyone help?

John Marshall, Notts

Please contact us if you know of the book.

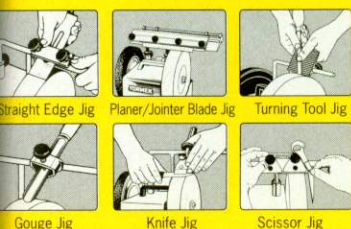
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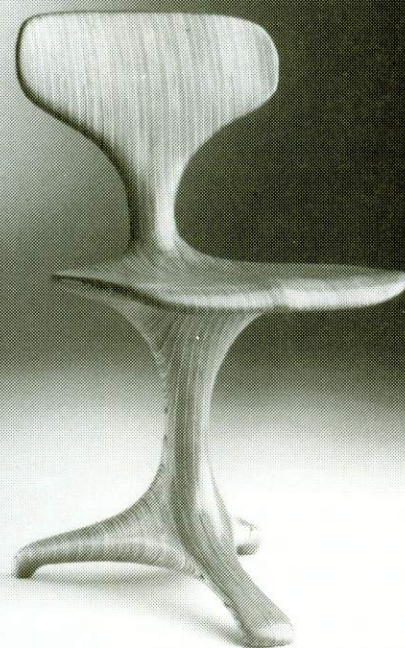
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Marketing & Promotion For Crafts

BY BETTY NORBURY

Publisher: Stobart Davies

ISBN 0 85442 062 2

Price: £7.95 (softback)

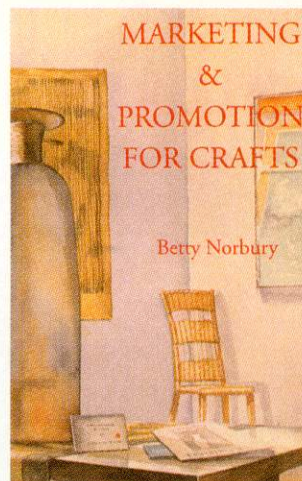
MOST of us feel the desire to see a little money pass hands in return for our efforts, if only to finance new timber stocks. Finding a constant supply of customers though is a

and exhibition organiser to ease the craftsman's passage through the rigours of selling work.

Though not dealing specifically with any one craft, the contents apply equally to marketing fine woodwork as any other form. In short, informative chapters, she deals with issues such as image presentation, pricing and ways of reaching clients. She also stresses the importance of maintaining an index of customers and contacts.

The information is sound advice, but I found the book a little above the level of many people's needs. It tends towards exhibiting your work as an outlet and doesn't deal sufficiently with more mundane ways of earning a crust. The reader best suited to the book may already be some way down the promotional path. All in all an inspiring read for anybody foolishly tempted to think they might earn a living from the fruits of their hands.

Reviewer: Pete Martin, Furniture-maker



Marketing & Promotion For Crafts

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

never ending challenge that many of us fail to meet. Betty calls on her experience as a gallery owner

Marquetry

BY DAVID HUME

Publisher: Search Press

ISBN 085532763 4

Price: £7.95 (softback)

CREATING pictures by cutting pieces of veneer and gluing them to a base board to make an attractive design was traditionally used to enhance furniture. More recently artists and woodworkers have started making pictures and designs for their own sake. The book is aimed at people whose interest is solely in marquetry. Subtitled 'How to

Make Pictures and Patterns in Wood Veneers', this is exactly what the book offers.

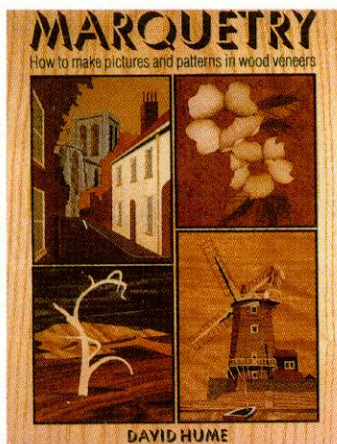
It begins by outlining the history of marquetry, and goes on to explain how a picture can be built up, demonstrated by the use of colour photos.

Although I am not a great lover of marquetry I can appreciate the skill and patience that must go into the making of a complicated pattern or picture. However I found the dogmatic attitude of the

author irritating, and got the impression that his techniques are the only ones applicable to this type of work. Discussion on other types and methods of gluing would not have come amiss. Animal glues, the traditional types of adhesives for this work, do not even get a mention. Omissions of this sort let the book down.

However I can recommend this book which has good clear photos to illustrate the points made, but don't expect plans as it is left to the reader to design his own picture. The book gives a good background read on the subject of marquetry but I would suggest further reading if only to get a wider overview of this fascinating subject.

Reviewer: Mark Corke
Cabinetmaker



Marquetry

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

Woodturning: A Guide to Advanced Techniques

BY HUGH O'NEILL

Publisher: Crowood

ISBN 1 85223 836 4

Price: £15.99 (hardback)

A COMPREHENSIVE guide by a well respected top class woodturner is a welcome addition to any turner's library. The book covers all aspects of turning, from basic techniques to the more advanced aspects of the art behind the skill.

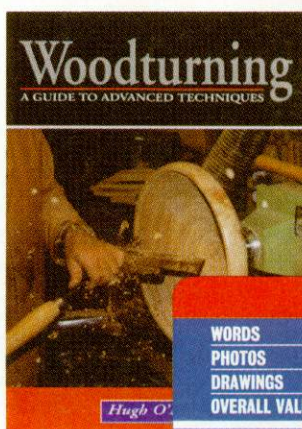
Hugh takes us through the preparation of timber, design and dynamic symmetry. The book goes on to talk about between centre and faceplate turning,

finishing and colouring. It is refreshing to see more attention paid to spindle work, which is usually not covered in as much detail as faceplate work.

The book is well written, with a likeable style. The black and white photographs with the clear diagrams illustrate each point clearly. The book is particularly suitable for the turner who has mastered the basic skills and wants to move on to more advanced and demanding projects.

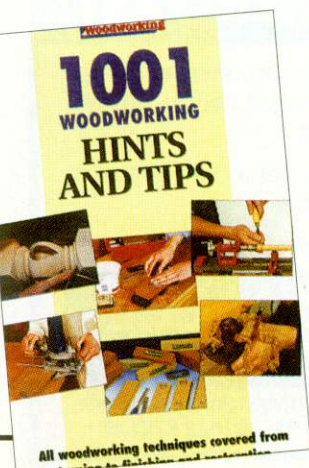
This is the type of book that you often refer to for inspiration, so I'm glad to see it comes in hardback and will survive many years in the workshop. Although I read a lot of turning books I do not own many, but this is one which I would certainly buy. I have no hesitation in recommending it to other turners. There is something here for everyone.

Reviewer: Ian Wilkie, Woodworking Tutor



Woodturning

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



Good Woodworking 1001 Woodworking Hints and Tips

BY GOOD WOODWORKING CONTRIBUTORS

Publisher: Future Publishing

ISBN 1 85981 075 6

Price: £9.99 (softback)

A COLLECTION of hints and tips by well known contributors to Good Woodworking has been brought together in book form. The book is not just tips that have already

appeared in the magazine (although some have) but represents the distilled wisdom of experts in various branches of woodwork.

Each expert deals with a particular subject, Roy Sutton with machinery, Ian Wilkie with miniature woodwork, Jeremy Broun with routing and power-tools and so on. There are no hard and fast boundaries to these areas so there is inevitably a degree of duplication and inconsistency. Some sections are in abbreviated note form while others read like draft chapters of a book. In general however the style is straightforward and clear, although some of the drawings would benefit from more explanation.

It is impossible to imagine a woodworker

who could not benefit from this book. The experienced worker will be familiar with a number of the hints but there will be many more that are new to him. One useful tip could repay the cost of the book many times over and I will be surprised if any one can find only one such tip.

Reviewer: Ron Fox
Woodworker and Routing Tutor

GW 1001 Hints and Tips

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

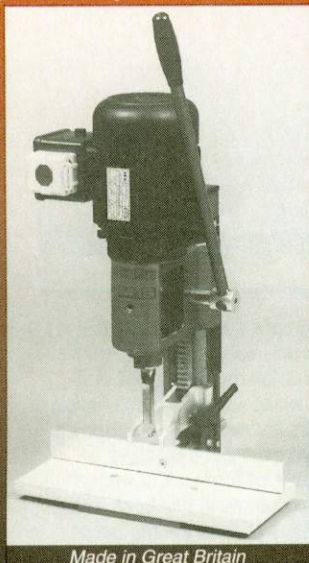
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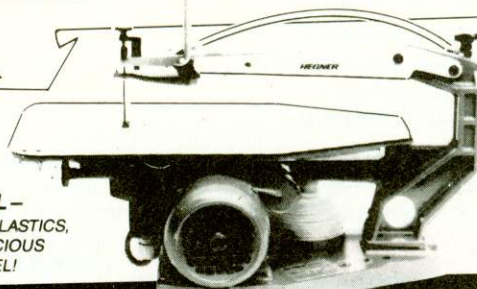


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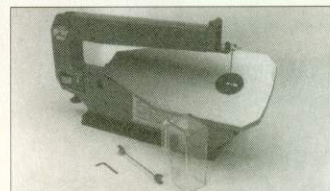
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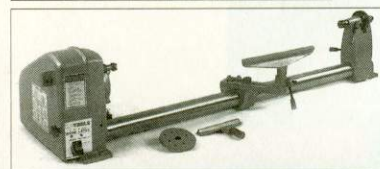
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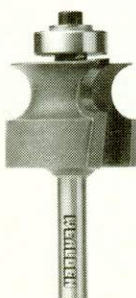
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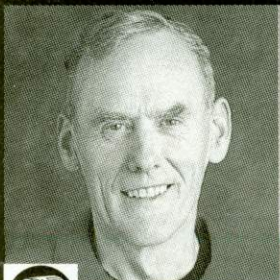
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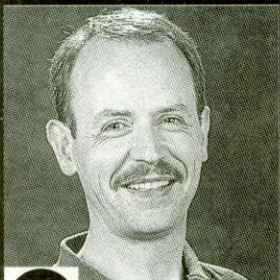
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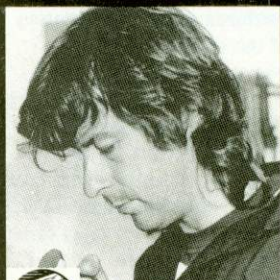
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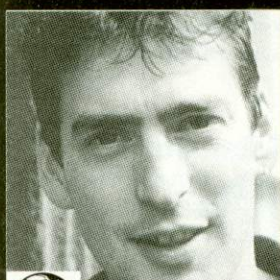
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Machinery



TOBIAS KAYE
Turning



MARK CORKE
Timber



NICK GIBBS
Supplies

Bandsaw changes

 Please describe the mods needed to change a butcher's bandsaw over to cut wood and not fingers etc...

Bill Murphy, Belfast

As far as I can see from your description there should be no serious problem about conversion. I imagine a butcher's bandsaw will have been designed for ease of cleaning and for dealing with wet waste rather than dry sawdust. I assume it already has a blade guard filling the space between the upper guides and the main housing.

You need a wood cutting blade and since the saw is unlikely to be known to the usual suppliers, you need to find the length you need. Any decent supplier should be able to supply them ready welded, maybe at extra cost or you could buy a coil, or buy or make a jig and braze blades yourself (GW 12:65 and GW 14:46).

See (GW 2:29) for the low-down on blades. I suggest you use a blade as wide as the wheels of your saw will permit but no less than $\frac{1}{8}$ in.

Since the machine would have been designed more for clean lines than accuracy it is possible that the stainless steel table may not be as flat as a woodworker's bandsaw. If you consider adding a false table make it from MDF, covered with melamine sheet (for example formica) wrong side up.

Dust extraction will be a problem. If you can fit an extractor outlet, try to get it as close to the lower guide assembly as possible, since this is where you have the best chance of keeping it from getting between the blade and the lower wheel. Wheel brushes are usually reported as not terribly effective.

Since the meat cutting will have been done freehand, there will be no provision for fitting a fence but it should not be difficult to make an L-shaped unit to clamp to the table. This could be more fiddly to use than a conventional fence. Try

something like the edge type fence described in (GW 13:62).

Jeff Gorman

Twisted wood

 I am making a cot based on your project (GW 12:66). It has solid end panels and is made from American cherry. All the wood is twisted as well as being cupped and bowed. Your article in planing wood (GW 2:68) doesn't tell you how to deal with twisted wood. If I am not careful I end up with wedges at one end. What is the solution?

Stephen Brooker, Surrey

It is difficult to tell what's wrong with your timber. Before blaming the timber, look at how your timber is stored. Timber needs to be stored in dry conditions out of direct sunlight with the air free to circulate around all parts of the plank. Keep it flat and level

as timber thrown anyhow into a badly stacked pile is asking for trouble. If you are storing the timber correctly, plane the timber flat prior to use. To do this plane up one face and then one edge (called facing and edging (GW 32:68)). From this it is possible to plane up the other faces and bring the timber back to flat and true. Look at all the possible external sources that could be giving you problems before blaming the timber.

Mark Corke

Cellulose polish

 I restore furniture and get called out to attend to scratches, chips etc... on modern cellulose finishes, mat and gloss. Could you tell me where I can get cellulose polish in spray cans?

Frank Howlett, Berkshire

Most cellulose polishes are

either applied by brush or spray. In a workshop environment cellulose is applied using a compressor and spray gun. For work that needs to take place in a customer's house I suggest that you try one of the following. Use a Humbrol spray and power unit which you can buy from model shops or artists' supplies. All types of cellulose can be applied and thinned using cellulose thinners. They also sell a range of airbrushes which may be used with a power unit for applying cellulose to small areas, Humbrol, Marfleet, Hull HU9 5NE ☎ 01482 701191.

Humbrol supply a range of Krylon Aerosol spray available in 150ml cans for £2.75. Use a test piece to see if the spray is compatible with the existing surface. Halfords sell a clear lacquer spray which has an acrylic base and is compatible with cellulose-based finishes. It is

Joint of the Month

No. 20 Secret mitre dovetail
with Jeff Gorman

Uses

① Where no end-grain is to be visible, for example under veneered work. In the course of time, shrinkage would cause the tails and pins to show through the veneer.

Advantages

① The mitres can serve to return inlays, mouldings, grooves and or rebates round corners.

Disadvantages

① Smaller pins and tails means less strength. A time consuming method. Cut your teeth on lap dovetails before trying this one.

Hints for cutting

① Prepare material with an allowance of $\frac{3}{4}$ mm or 1mm extra thickness. Accurately plane all ends.

② Mark the mitres on the edges. Note the flat deliberately left on the top edge of the mitre.

③ Mark the socket depths. Mark and cut rebates indicating the positions of the tops of the pins and tails.

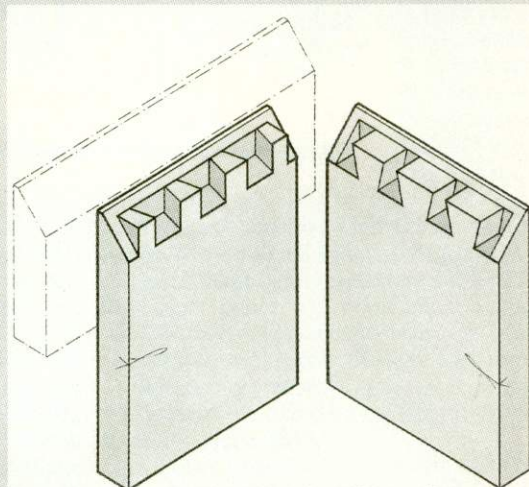
④ Mark and saw the pins at 45° to

the face. Finish the tail sockets by chopping and paring. Scribe and likewise form the pin sockets on the mating piece.

⑤ Cut all edge mitres. Use a guide block with a 45° face to guide a shoulder plane when forming the long, narrow mitre faces.

⑥ Fully dry assemble to check the fit, especially the mitres. Draw arrows on the inside showing which way they should separate.

⑦ Glue up. When cleaning up, plane down to the mitre junction. This method prevents damage during benchwork.



The secret mitre dovetail is so called as its purpose is to hide end-grain

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available in a 300 ml cans for £2.99
Stephen Hill

Modifying feet

I want to redesign the fold-down feet on my B&D benches. They are excellent products spoiled by the plastic springs that keep breaking. Where can I buy any parts to modify the feet? **T. Calcuni, Gwynedd**

These springs have been superseded by a new design of foot mechanism. B&D now use the gramophone hinges. Sad to say there is no way that you could duplicate the plastic springs in metal as the action would be entirely different.

Duplicating the action in spring steel would require a great deal of skill and would prove more expensive than buying the plastic spring. There is however a more simple solution. Fit a gramophone hinge to each leg so that the leg is held rigid when it is in use and will fold flat when the bench is packed away. It should prove fairly simple to fit the hinges using small nuts and bolts or rivets. You might even be able to fit the top end via the metal rod which at present engages the plastic spring. You may need a small L-shaped bracket to enable you to fix the other end. Gramophone hinges may be obtained from any good

hardware and tool suppliers. A gramophone hinge is a long stay which folds in the middle and stays locked in the straight position when opened and when closed, friction keeps it so. These hinges are used on box lids as in the old fashioned gramophones and early record players.
Ken Jackson

Choosing a chuck

I have a Record DML24X lathe. Can you advise me on the type of chuck to buy? It would have to be fairly cheap and allow me to specialise in turning bowls. As a beginner I would appreciate advice on books and videos dealing with bowl turning.

B. Barnett, Cheshire
Since the lathe comes with a 4in faceplate I assume you want to move on to something more sophisticated. The first holding accessory I recommend is the screwchuck. Peter Child's Turning Supplies (☎ 01787 237291) supply an excellent screwchuck for about £20. This was reviewed in (GW 7:6) and given a very good rating.

More complex chucks, or combination, chucks are more expensive. The Robot Premier chuck (GW 14:6) is £52.90 (☎ 01705 510444) and comes with one set of jaws which

Good Woodworking ANYTHING PLANNED?

1 I am looking for plans for an old style school desk and chair lift-up-lid type.
P. Yates, Chesterfield

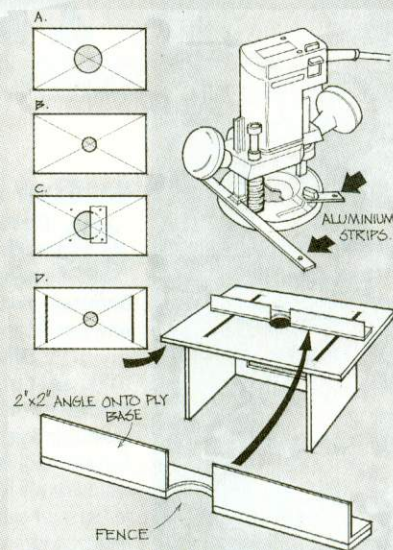
2 Thanks to Robert Sparks from Kent who has plans for a router table for Black & Decker D66 router for Mr. Gillies (GW 25:64). **NG**

3 Could you supply me with plans or details and prices for making windmills?
C. Bellwood, West Yorks

4 Where can I get working drawings to build the frame of a Victorian wing chair?
M. Gavaghan, Cleveland

5 I need plans for a cabinet to store sheet music. The storage faces need to be of the drop leaf type, hinged to the carcass.
J. Morgan, Sheffield

6 Thanks to Joe Ellin from Australia re B. Reardon's request for spinning wheel plans (GW 25:61). He suggests Jack Hill's *Making Family Heirlooms*, published by David and Charles, Brunel House, Newton Abbot, Devon. **NG**



Mr. Sparks' plans for a router table

expand into a pretuned dovetail recess of 75mm. Other accessory jaws are available but the chuck will only expand and not contract. The chuck gives a good grip, is well made and is well suited to a small lathe such as the DML.

Should you wish to go for a more versatile chuck you may consider the Multistar Duplex chuck which, with a standard set

of jaws, sells at £85.58 and is available direct from Multistar (☎ 01206 549944). This chucking system is a first class product, beautifully made with a wide range of well engineered accessories. Finally Record's own chuck the RP3000 is sold as a comprehensive kit at £105. This probably gives you all you need as accessories are included in the basic kit.

Ian Wilkie

Asbestos replacement

I make ironing boards. Where can I get a replacement for asbestos that we used to use for the iron stand?

A Norman, Derbyshire

Could you not use heat proof tiles as used in the kitchen? I'm sure other readers will have inventive answers.

Nick Gibbs

Nu-Tool new address

I found a Nu-Tool drill press model CH10 being offered for well below market price. It is slightly rusty and some bolts are missing. I found an address for Nu-Tool and wrote asking if I could obtain replacement bolts. To date I have had no reply.

A. Dadler, Oxon

It may be that you had Nu-Tools old address. They are now at Unit 4, Homeroad Road, Adwick-Le-Street, Doncaster DN6 7BH ☎ 01302 330758. Failing this, try Axminster Power Tools as their bench drills are Taiwanese

and they should be able to help with spares ☎ 01297 33656.

Phil Davy

Flexible table

I am researching a furniture project that will culminate in the making of a table that will convert from a dining to a coffee table. The research has proved difficult, with few examples. Have any of your readers any examples of such projects I could view, and if they are commercial ventures some appreciation of the method used for costing and sales.

R. Lewis, Worcs

I know somebody who has dedicated the last 15 years or so to the production of just such a table, called the ConverTable. It has just the functions of which you write plus more. We even featured Lee Sinclair in the magazine (GW 12:66). He has worked hard to get the product off the ground, and has even been featured on the Generation Game with the table.

Nick Gibbs

Guitar bits

Can you advise on guitar components such as string, pick ups, frets tension knobs etc... Where can I buy these components (electric and classical guitars)?

D. Robinson, Pembrokeshire
Try Luthiers Supplies, The Hall, Horebeech Lane, Horam,

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1 I am looking for small brass hinges with double bends to enable two doors on an oak writing bureau to open out over a 3/4in stop. I have seen similar double

hinged (flush type) on oriental fire screens. The design is to make the doors appear as part of the panelling. I need small brass pressure catches.

Frank Elliott, Kent

2 I have recently seen a pine desk with a colourless finish like satin. I was told it was patina. Can you give me any information about this and where it can be obtained?

Betty Smith, Sheffield

3 Thanks to Mr Fallows who had answers to readers' problems. French Curves can be bought from WH Smiths or Drawing Office Suppliers; Axminster Power Tool Centre, Chard

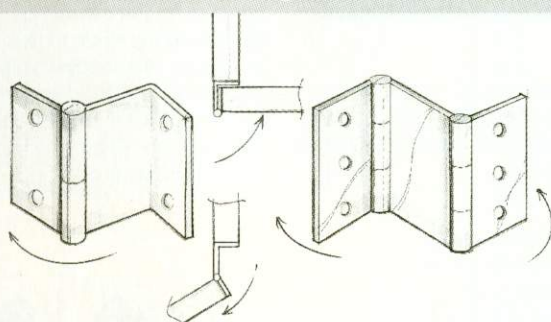
(☎ 0171 254 2384), Bedfords, David Road, Poyle Trading Estate, Colnbrook, Slough SL3 0DB (☎ 01753 680666), Lockers Wire Weaver Ltd, Church Street, Warrington WA1 2SU (☎ 01925 51212).

4 I have an angle grinder made by Perles who are I think a Swiss company. The grinder lacks a guard and I have been unable to locate a source of spares. Can you help?

P. Wallace, Dorset

5 Where can I get hinges for wallpaper tables and paravent screen hinges to suit 3/4in stock?

J. Thorn, Devon



Can anyone help Frank Elliott in his search for brass hinges?

Street, Axminster Devon EX13 5DZ (☎ 01297 33656) sell centre finding rules; Mesh radiator covers can be bought from F. H. Brundle, 75 Lawford Road London N1 5BJ

Corke goes on Call

When putting pen to paper doesn't get your workshop in order or that project finished, Mark Corke packs his travelling toolkit and sets off for a free home visit, whatever the problem, wherever the workshop.

In a series of articles Mark will visit readers' workshops to provide inspiration and ideas, technical pointers and help you get the most from your workshop. You know the saying, two heads are better than one.

If your workshop is in need of a revamp, your projects need direction, or you can't find the chisels for the chucks, this is an ideal opportunity for you to approach woodworking from a new angle. If you'd like a visit from Mark write to Corke on Call, Good Woodworking, 30 Monmouth Street, Bath BA1 2BW.



Mark Corke visits Brian Swain next month. In the future it could be you

Heathfield, E. Sussex (☎ 014353 2315), or you could try Touchstone Tonewoods, 44 Albert Road, North, Reigate, Surrey (☎ 01737 221064).

Phil Davy

Removing wax

 We have used wax polish on our dining room table for some years, but I want to bring it back to its original colour which hadn't such a high gloss. Any ideas?

Frank Pye, South Yorks

The best answer to your problem depends on how bad your table has become and on how much work you want to do. If the polish you have used is a simple wax polish, rubbing over several times with a rag wetted with white spirit (wear plastic gloves) should remove the build up of wax. This treatment is the least

likely to damage the original finish and will remove any darkening due to the wax.

If the discolouration is a change in the wood (most woods change colour in time) then the only way to restore the original colour is to completely remove the old finish, to sand the wood enough to get back to original colour, and to refinish. If your table is solid wood this should not be any real problem but if veneered it may not be possible to cut back enough without sanding through the veneer. In this case consider a coat of a coloured varnish just enough to give a good colour, and complete finishing with clear gloss satin or matt as you wish. You must remove wax first.

If the polish you used was a dry bright or similar, many contain a plastic emulsion, you have no alternative but to strip

off fully. You can just sand back or use a proprietary furniture restorer. Several are available and will help. Labels give full

instructions. Whatever you decide you must work so as to get a uniform treatment over the whole top. Austin Hilditch

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How can you avoid making that mistake again? And how do you overcome that sticky problem holding up your latest project? What is the best way to tackle that new job you're planning?

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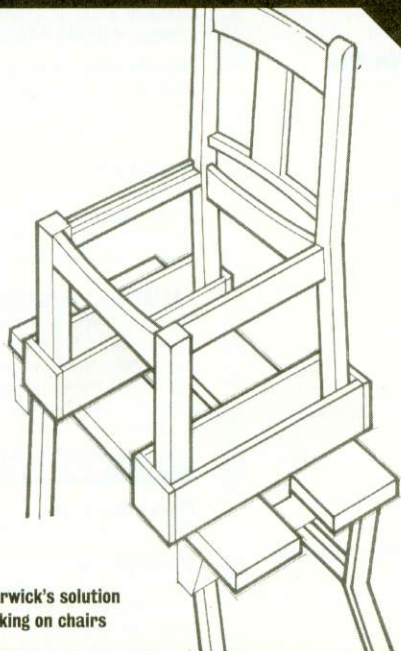
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Woodworking Answers, Good Woodworking,
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POST

How to hold chairs securely

TIP



Mr. Warwick's solution to working on chairs

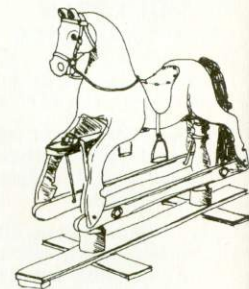
To hold chairs securely at the right height for repair or upholstery I made two wooden troughs which clamp into my Workmate.

R. Symes, Warwick

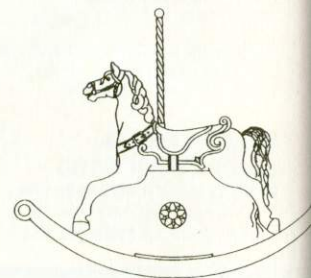
Anthony & Pat Dew



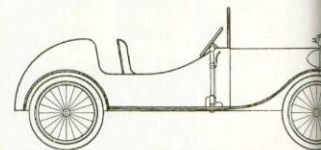
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B&D bandsaw £50. Wolfcraft turning attachment for electric drill £10. R. Pawsey, Surrey, ☎ 01428 604495.

Precision pillar drill, belt pulley drive, speed change 1/2in chuck, collect £80 (ONO). A. Taylor, Sussex, ☎ 01243 786293.

Router cutters 1/2in shank, BG Holz teflon coated TC tipped multi profile 2 1/2in dia £45. Double reversible stile and rail ogee £55. Three wing three cutter finger jointer £45. Sash bar set £45, 1/2in shank multi profile £35. Peter, Yorkshire, ☎ 01226 205425.

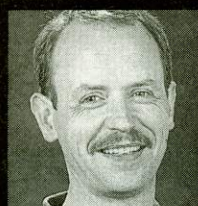
POWER-TOOLS MORE THAN £100

Triton workcentre with legs and router table £180 (ONO). Jonathan Jones, Herts, ☎ 01920 465751.

Elu MOF96 Electronic router with Elu router table £125. J. Rabey, London, ☎ 0181 527 8396.

HAND-TOOLS LESS THAN £100

Spiralux electro magnetic saw £10. Drill grinding attachment £3. Cowell's universal sharpener AS10



PHIL'S BARGAIN BUY

Technical Editor Phil Davy picks his bargain of the month and tells you why

It is rare to find a DeWalt bandsaw for only £55. I suspect that it is pretty ancient and in need of some attention. If you are prepared for some restoration work it's worth a phone call to P. Giolitto (☎ 01372 721793). The planer thicknesser from J. Roe (☎ 0191 386 8964) sounds a bargain at £175. Remember it is three phase.

£8, buyer collects. A. Tearle, Bristol, ☎ 01454 774082.

Clifton 420 shoulder plane £56. Butcher, Bucks, ☎ 01908 376966.

Craft Supplies PCC2000 Multichuck system £50. J. Rabey, London, ☎ 0181 527 8396.

Record plane £55, Zyliss vice £35 or £80 for both. P. Giolitto, Surrey, ☎ 01372 721793.

Ten webbing clamps fitted with ratchet tensioners 8m maximum working length tested to 500kg

£7.50 each, the lot, £65. P. Lee, Essex, ☎ 01277 653581.

MACHINERY LESS THAN £100

Tyme stand for 30in Cub lathe £80. Naerok bandsaw/sander, 14in throat, max height of cut 5 1/2in £85. B. Downton, Wilts, ☎ 01722 336488.

Mechanics vice 3in jaws opening to 5in £15 (+P&P). Drill vice 3in jaws £5 (+P&P). Heavy-duty hanging motor on wall bracket, 40W with flexible drive and chuck also variable-speed footswitch add 25 piece set brushes,

polishers and grinder £25. F. Rogers, Kent, ☎ 0181 658 8161.

Poolewood 12/37 five-speed lathe with two faceplates, two rests, live and dead centres and turning tools £65. J. Rabey, London, ☎ 0181 527 8396.

DeWalt 100 bandsaw £55. Hobbies Treadle saw £35, or £80 for both. P. Giolitto, Surrey, ☎ 01372 721793.

MACHINERY MORE THAN £100

Delta two-wheel bandsaw £140. Elu MFF81K with spare blades £120. Elu ADE 88 planer thicknesser stand £60. Les Evans, Liverpool, ☎ 0151 474 5296.

Record CL1 36x15 new No.1 lathe, Peter Child Masterchuck II, six Record hand-tools £450. J. Young, Mid Lothian, ☎ 0131 663 9653.

Record Drillmaster lathe, home-made machined bowl attachment rest, £50 worth of tools, more than £100 of hardwood, and heavy-duty bench, £270 the lot. K. Marsh, Notts, ☎ 01909 481330.

Planer thicknesser 10x6in, three-phase £175. J. Roe, Durham, ☎ 0191 386 8964.

Apollo Woodpecker lathe, 36in

plus accessories including Multistar chuck, Jacobs chuck, revolving centres, gouges, grinder etc, cost £995 will accept £775. R. McTeer, Merseyside, ☎ 0151 638 4526.

Elu TGS173 flip over mitre saw £475. B. Pickering, Lancs, ☎ 01772 785329.

Willow bandsaw three wheels, 14in throat, 8in cut, alloy frame, tilt table, needs new motor £100 (ONO). G. Irvine, Glasgow, ☎ 0141 942 4679.

Multico Promax wood lathe, 39in centres with one chuck and faceplate, £170 (ONO), tools available. Don Cooper, Essex, ☎ 01299 524888.

Elu DS140 biscuit jointer £200. Smart Set saw and router guide accepts 1200mm sheet material £99. Legg, Wilts, ☎ 01225 768568.

Draper sawtable 10in blade, rise and fall blade and angle, tools and manual £230. F. Stacey, Yardley, ☎ 0121 783 7182.

Scheppach TKU 12in 240V 2hp saw, mitre fence and panel extension table £250 (ONO). E. Bucknell, Peterborough, ☎ 01733 235556.

Elu 1251 radial saw £450. D. Barnett, Devon, ☎ 01647 440448.

Elektra Beckum planer thicknesser 10x6in £400. L. Hubbard, Kent, ☎ 01634 717207.

Combination sawbench five functions £500. B. Chambers, Cambs, ☎ 01945 64722.

Treadle lathe 6in swing 15in centres £70. Graduate parts chucks etc... A. Keating, Manchester, ☎ 0161 736 3739.

TIMBER

Brought from the Seychelles, **trunk cross-section of takamaka**, 4in thick 48in diameter, offers. Bob Guest Essex, ☎ 01206 844168.

MISCELLANEOUS

Modern Practical Joinery by George Ellis 1990 edition worth £12, free to anyone who wants it (£2.50 P&P). Mark Purves, 38 Nigel Rise, Dedridge Livingston, West Lothian Scotland, EH54 6LT.

WANTED

Planer thicknesser, single phase. R. Brown, Beds, ☎ 01462 816314.

Morticing chisel, drill bits in 1/2in or 1/4in size to fit the Wolf model 0112 morticer. Patrick Jones, Canada, ☎ 001 604 467 0776.

Large old treadle wetstone. John Perrin, Dyfed, ☎ 01994 240846.

Small planer jointer or planer thicknesser. John Meikle, Somerset, ☎ 01749 840201.

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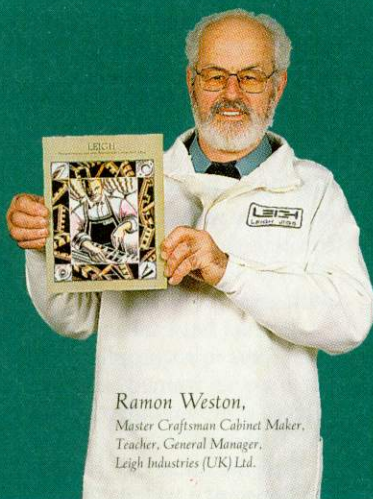


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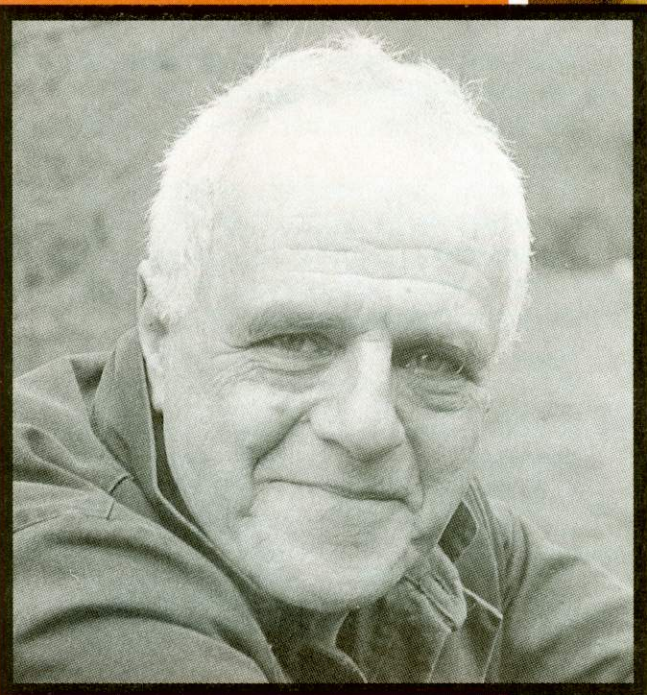
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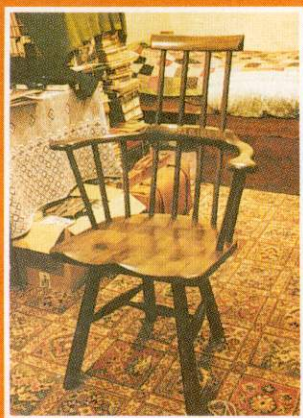
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John Brown

COLUMN



Does the skill of the craftsman lie in technical perfection or soul seeking design? Chairmaker John Brown discusses this while using his skill to build a large table



The prototype chair for the Shermans is to become a set of eight, but as is my wont they will all be individual



1 The biscuits are ash, laminated from three layers to make $\frac{3}{4}$ in thick. This is to check and split when the dowels are hammered in



2 The table's trestles are morticed together. The lower cross-piece has a $\frac{1}{4}$ in clearance cut out. The curved ends will be chiselled out later on

6 The longitudinals for the underframe are inserted and the wedges made. A rough rule of thumb for positioning the trestles is one-fifth, three-fifths, one-fifth. This works for an 8ft table



How do you categorise the way I work? Well it is to a large extent

intuitive and to be honest it doesn't always work. I suppose it comes from a lifetime experience of looking at things and is certainly uneducated in the formal sense. But when it works it really is good, and when it doesn't nobody needs to see it. Whatever else it may be, it is the source of my continuing enthusiasm for it is always new and exciting.

I have a feeling that there are many more who work as I do, rather than working to the sharp lines and cutting lists of magazine articles. Perhaps we are the equivalent of the old estate carpenters of times gone by, making a gate today, a window tomorrow and a bookcase on Thursday.

The Thought Process

Some time ago I was in an art gallery looking through a folio of unframed work. I came across a pencil drawing of the Great Cross in Nevern Churchyard. I was astonished at the intimate detail in the

picture. Left of centre, filling the page from top to bottom, was the cross, in the background a corner of the church including the imposing row of yew trees, the pathways and ancient tombstones.

No detail, however small, was omitted. Every nuance even the most minor shadow was there, the stones looked stony, the grass reached through the gravel in patches. All was illustrated. And all this with just a pencil.

It must have taken hours, even days to accomplish. Yet it wasn't even framed, and was priced, if my memory serves me, at about £80.

Just the other day I was in the house of a friend. There was a watercolour on the wall of the selfsame view, the Nevern Cross. There didn't seem to be any detail, just washy brushstrokes in pink and purple, blues and greens. In the pencil drawing the Celtic knotwork on the base of the cross was shown in fine detail, whereas this knotwork was depicted in the painting with a few squiggles, even to the extent of wandering over the edges of the plinth lines in thin air. I would estimate a

couple of hours work. The water colour cost £450. Why?

I was bowled over by the excellence of the craftsmanship in the drawing. I did not stand back to look at it, if I had I would have lost the picture. The work was an exercise in excellence. The watercolour on the other hand, conveyed the spirit of the place, the mystery. Looked at close up you could say the technique was positively childish, but viewed from the room this painting was nourishment for my soul.

This dichotomy is paralleled in woodwork. I think the problem stems from the learning process. It is easy to identify technical excellence, to describe this perfection to students, and hence to teach the craft of woodwork. It is much more difficult to teach the art of woodwork, as it is to teach the nuances of language.

There are areas of course where technical excellence is a must, architectural work, shopfitting, windows, doors etc..., but one-off pieces of furniture can be spoiled when fine detail has destroyed the soul of the piece. I am not implying that a degree of technical competence is a bad



3 The first mock up to check the proportions, the height etc... When I first decided to take on the job I had not anticipated the sheer weight and length the table would be



7 After roughing across the grain with jack planes, I worked it with a 24in fore plane. Satisfied with the flatness, I used a fine cut smoothing plane, a dumscape and sandpaper



4 The packing pieces or stiffening knees are trenched into the trestle upright for $\frac{1}{4}$ in. The top is lighter than the bottom and the curve decreases its radius as it falls



8 First fitting of the top. With the table upside-down the whole underframe was positioned and the buttons, which I had made previously, were fitted. All the screws were greased



9 A sample button with a $\frac{1}{4}$ x $\frac{1}{4}$ in lip to fit into the rebate. The screw cup stops the screw biting into the wood. The beam with three buttons is in the centre where the top has a hump



5 A complete trestle except for the main mortice for the beam. The beam was 8x2 $\frac{1}{4}$ in but when held in position it proved too heavy and finished finally at 6x2 $\frac{1}{4}$ in



10 The table assembled with the top unpolished in John Harries' workshop. This was the first time I had seen the table in one piece and it looked how I had imagined it

thing, but the ease with which it can be achieved with the aid of modern machinery can lead into a dark tunnel.

This is a difficult area to describe without implying that you should purposely make joints that don't fit. The danger is that a modern woodworker with a full complement of machines goes so far along the perfection route with sharp edges, smooth surfaces, fine joints with hairline fits, that the design becomes of secondary importance to him and the piece.

Perhaps it would be a good idea to make a piece every now and again with an axe and a spokeshave. And this is what I have done with the table, in mind if not completely in body.

Making the Sherman Table

Regular readers will remember that I am not keen on taking commissions. I find making something to other people's instructions inhibiting, and I worry that the finished piece won't please them. However if the order is for something I am inspired to do anyway, and perhaps the size of the job is something I wouldn't dare to do as a speculation, and above all if I know the clients and feel they understand my work then we have the exception that proves

the rule. So it was for Mr and Mrs Sherman.

They had previously bought an armchair from me and more recently a library chair (GW 21:40), and then they asked me to build a table with the possibility of eight chairs to go with it. My recent marriage break up has left me on the floor, both financially and spiritually, so hard work was called for to work my way out of my low situation.

The brief for the table was fairly simple. With the prospects of future moves it had to be of knock-down design, 8ft by 3ft and of

oak in colour. I have to admit that it did not occur to me when I accepted the job what an elm top of this size, which would inevitably have to be 1 $\frac{1}{2}$ in to 2in thick, would weigh. Another fact that I could not foresee was that I would lose my new workshop and move into a much smaller one. Never mind, nothing is impossible.

The Shermans were moving from central London to a riverside suburb near Kingston so it seemed appropriate to coincide the completion with the move on 1st February. My friend John Harries offered me temporary space in his workshop and help for the heavy work. Although this is 18 miles from where I live I found the discipline of getting up and going to work no bad thing.

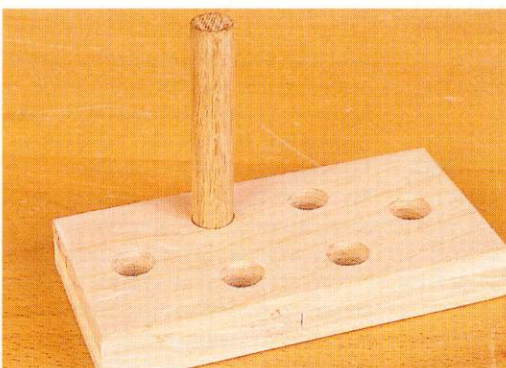
Sizing up Timber

But first I had to find the timber, and this

proved to be no easy task. I needed elm boards with 8ft of clear, usable wood to make up the top. I hoped for three pieces which proved to be the case. There was plenty of elm about which was 6ft, or even 7ft but 8ft seemed to be that bit too far. I was keen to get air dried and eventually found three fine boards in the south of the country. At the same place I also found oak in the sizes I wanted.

This is local wood, narled and knotted but quite appropriate to this job. The pieces I selected from a pile cut for lintels. The one piece I bought for the main beam which was kiln dried turned out to be useless. The faces were perfect but as soon as it was opened up the inside was full of air pockets from end to end where the drying process had pulled the grain apart. To be fair, Malcolm MacPhee, who runs the operation gave us a full refund and all in all we had a satisfactory transaction.

I had hoped to get certain sizes which were part of my design (scribbles on the back of an envelope). In the event it worked like this, for 6x6in I had 5 $\frac{1}{2}$ x4in, and 6x4in became 6x3in, 6x5in became 4 $\frac{1}{4}$ x3 $\frac{1}{2}$ in, while the main beam which I thought should be 8x3in ended up as 6x2 $\frac{1}{4}$ in. Serendipity, these measurements



I made the biscuits to hold the two boards of the top together. I then drilled $\frac{1}{4}$ in oak dowels down through the table into the holes provided. They make a nice pattern on the table top

A large, rustic wooden table with a thick top and heavy, carved legs, set in a room with a window and a painting.

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Making casement windows



Raymond Cooch explains the technique of making your own traditional casement windows

The conspicuous feature that distinguishes a traditional casement window from others is that the hinged light (casement or sash) fits inside a solid rebated frame. It is the simplest window to make, lending itself to cheap mass production with easy modification to the layout of the fixed and opening casement.

However the design pioneered in between the wars did have some disadvantages. It was difficult to render weather and draught resistant, and the control of ventilation was not easy. The design often encouraged the trapping of rain water and condensation. Its moulded section made the preparation for repainting difficult, and its frame sections, in particular the sill, were often made of large section stock.

The current trend for the stormproof type window is to reduce costs by using simple moulds, building up the sill from two smaller sections, and using more economical frame and casement sections. However these windows need greater care in design and making.

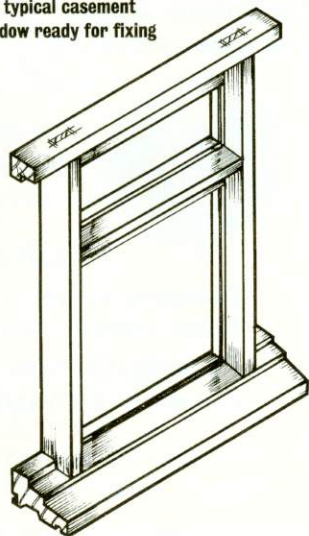
Many designs of stormproof windows are displayed in catalogues and are always available from mass produced sizes. The stormproof windows may not however fit the older window openings, therefore the traditional type windows will still have to be made to order.

When the woodwork of old buildings fails through age or lack

of maintenance, your joinery skills will be tested to the full. And so if you wish to match the original style, and need to keep the costs down, the solution may be to construct your own casement windows. Whether these windows are of traditional or stormproof design depends on the job at hand.

Both types of casement window have fixed and opening casements. On the more modern stormproof windows you hinge the opening lights and dispense with the fixed casements. The fixed glass is glazed directly into the rebates. However there are differences in the hanging of the casements of these windows. For traditional casements you use steel hinges (butts) sunk into both casement and frame. In contrast for

The typical casement window ready for fixing



stormproof windows you use cranked hinges of sheradised steel that can be screwed directly onto casement and frame, giving the casement a first time fit. This gives you a big advantage in man hours and forbearance!

Preparatory Work

Having taken all the necessary site sizes draw up a setting-out rod. From this you will also need to make a cutting list. The setting-out rod need not be elaborate draughting, but it should show all the important dimensions, that is the height, width and thickness of your proposed frames, the casements and their parts. More important than the rod's perfection is to ensure that both the frame and casements match the dimensions of the window opening.

Once the frame is made, you can check its inside dimensions and make up the casements to fit them. The ease of making depends upon the sections of material used in production. Is there a simpler joint that can be used? By using a section without moulds, will that simplify the making?

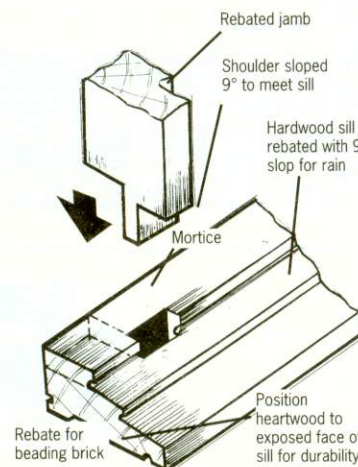
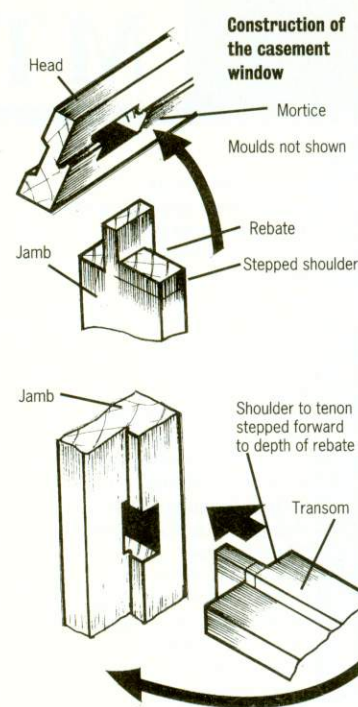
Mortice and Tenon Joints

The mortice and tenon joints are the oldest joints used in the construction of timber frames. There may be some variations of the same joint when used in carpentry, joinery or furniture construction, yet the principles used are always the same.

These joints can be replaced with dowel joints, but well-made mortice and tenon joints are more rigid and far stronger. It is important that the material sizes are all uniform so that all the members are flush on the front and back faces. Any materials bought therefore need to be checked for square, width and thickness with a square and a marking gauge. A skim with the plane may be necessary to bring the material square and all sizes the same.

All marking out should be done from the rod, which should clearly show the exact height, width and thickness of the frame and its casements. Also detail any moulds, position of all mortice and tenons, and widths and depths of rebates. Always allow 20mm extra to the lengths of members. Not only does this add strength to the stiles and jambs when the mortices are cut but it also protects their ends during working.

Joints should be marked out and cut with care. The main points



to remember are that thin tenons are weak and wide mortices weaken the stiles or jambs to the frames. Not only are faulty joints weak they may cause the frame to be in twist. Though the problem of sloppy fitting tenons can often be overcome by using a modern gap-filling glue, this is not easy with combed joints.

The length of the tenons depends on the design of the joint and the thickness of the timber to which it is to be joined. For these frames use full-length, through tenons. Remember to pair the jambs of the frame and stiles of the casements. Hand the head, transom and sill to the frame, and the top and bottom rail to the casements. The window itself may also be handed. Where small horns are left on the head and sill of the frame, use common mortice and tenons with long-and-short or stepped shoulders.

The thickness of the tenons is

usually one-third of the wood used. In all the joints shown its thickness is dictated by the width of the mortice chisel that cuts it.

When corner joints are used for timber that is of the same section it is important that both of the outside faces of frames are kept flush. Do this by using face side and face edge marks. Keep all face edges inside and face sides to the front of the frames.

For the traditional type casement window you use a haunched mortice and tenon with square shoulders. Here the haunch prevents open joints and allows the tenon to be wedged. It also prevents the tenoned rail from twisting. Where long and short shoulders are used one shoulder is stepped forward, equal to the depth of the rebate.

Working from the Solid

When working the section from the solid material, first mark the sections on the ends of material. Then cut the mortice, the tenon shoulders, the moulds and rebates, and finally the tenon cheeks.

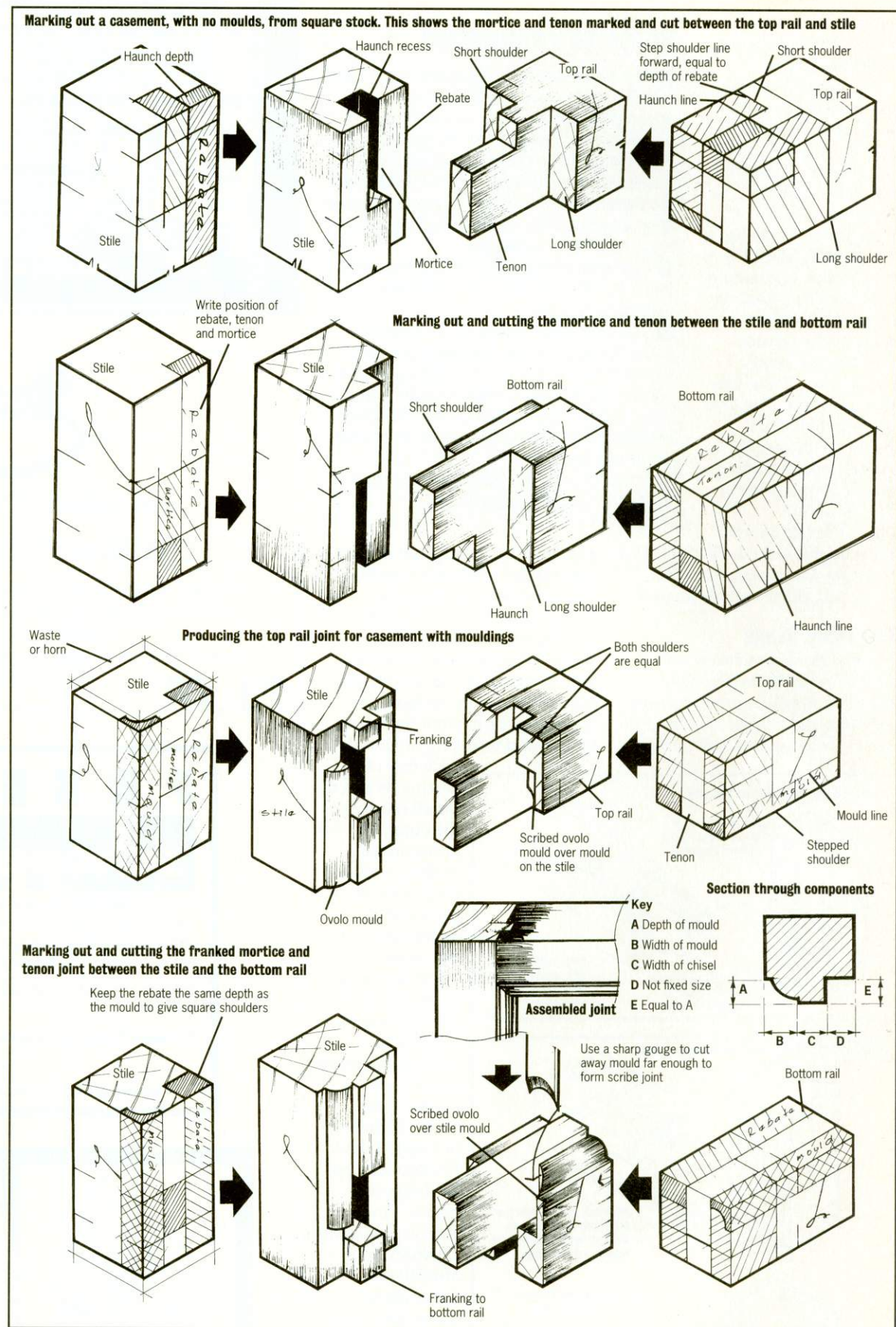
Before you can fit mortice and tenons, you need to work the scribe joint on the rails. Do this by using a sharp bevel-edge chisel and the mitre template. Pare away the mould. With a sharp gauge cut the mould vertically to remove a section. Using a small backsaw cut through the mould on the stiles and with a sharp chisel remove this section to form the franking. Now try the joint for fit. When satisfied apply glue to the top end of the cheeks of tenons, cramp and wedge up the frame. When doing so check frame for square and being out of twist.

Remove all cramps, cut off protruding ends of the wedges and tenons, then using a sharp, finely set smoothing plane, clean up the frame. If using pre-moulded and rebated sections, mark out joints.

Franked Mortice and Tenon

To keep both shoulders square make the depth of both the rebate and the mould equal. Stepping forward both shoulders allows for one shoulder to step into the rebate. The other is scribed with the ovolo mould at its intersection while the stile and the joint is franked. You cut the joints for both the frame and casement by marking out the mortices and tenons (the thickness of your mortice chisel), locating them as near to the rebate as is possible.

The haunch or franking (which



is a reversed haunch) should not be more than one-third the width of the tenon. Normally their projection equals their thickness. When long-and-short shoulders are used without moulds, haunches need to project their own thickness deeper than the rebate. Machine

cut mortices are easiest and quickest to cut, though most of us will cut them by hand. In doing so it helps to remove the waste using a wood bit in a bench-mounted drillstand or portable hand drill. When using the latter ensure that it is held firmly and vertically. To

prevent breaking out of the reverse face of stiles and jambs, always ensure that the depths can be set. Then with the wood cramped firmly to the bench use a sharp chisel to remove the remaining waste and clean out all mortices. Tenons can be cut using a fine-

toothed saw, a bench-mounted circular saw, or a portable router.

To keep the setting out, marking out and making of the frame simple, I have not used any moulds. These may add to the frame's appearance, but complicate its making. An alternate mould is the pencil-round-mould, which can be added on all the inside edges opposite the rebates. There are two ways available for doing this after assembly. The first is by working the moulds with a small bullnose plane, adding a small mason's mitre at its intersection.

Otherwise use a router with suitable mould. Then clean up the frame and casements with smoothing plane and glasspaper.

Assembly Stage

The traditional practice was to paint the joint at the assembly stage. Paint, while providing little adhesion, did at least seal the grain and to some extent delay rot. Now,

Rules to remember

① The thickness of the tenon should be one-third the thickness of the timber used but is governed by the mortice. This width should be one-third of the stile. Yet its exact width will depend on the chisel size used. The position of tenon is subject to the width and the thickness of the stiles. For through tenons allow an extra 3mm on their length, which is trimmed off after assembly.

② The width of tenons should not exceed five times its thickness, (its maximum width not exceeding 100mm).

③ The width of the haunched or franked tenon should be between one-half and two-thirds of the timbers tenoned and its projects equal to its thickness. If the tenon is wider than two-thirds the portion for the haunch or franking left on the mortice would shear when tenons are wedged.

④ Where there is a rebate it is convenient if the tenons are set alongside this.

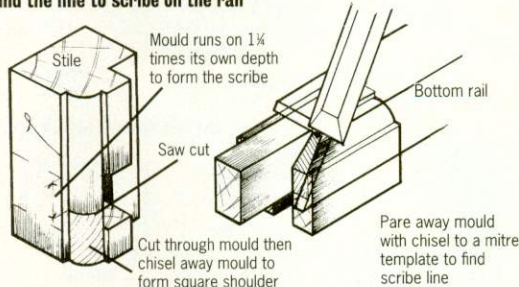
with modern waterproof adhesives a good joint (and sealed grain) with strong holding can be made.

Apply glue and clamp up, making sure all the necessary checks for square and twist have been carried out. The tenons are dowelled and not wedged. The final tasks are to work the fitting rebates and throating around the

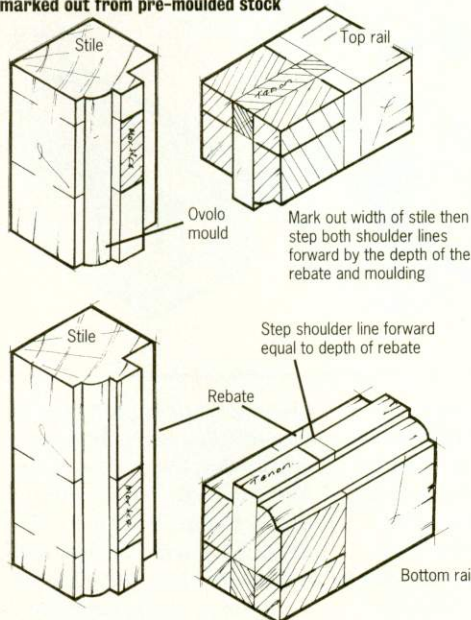
back face of casements and the pencil mould on the outer face. No horns are left, making working easy. You can carry out all operations with the router.

However where horns are on the sill, it is best to cut off the upstanding rebate leaving a level surface upon which a brick can be bedded down. Finally clean up the frame as before. You should only apply a preservative after all the trimming of tenons etc... and cleaning up has been done. It is good practice to stand all the ends of members in preservative first. Then coat them, and allow to dry before assembly.

Find the line to scribe on the rail



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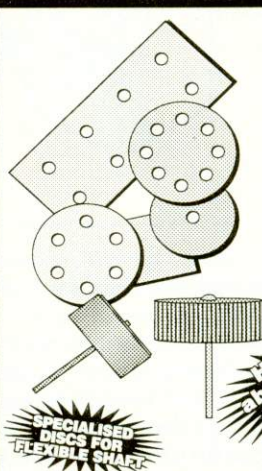
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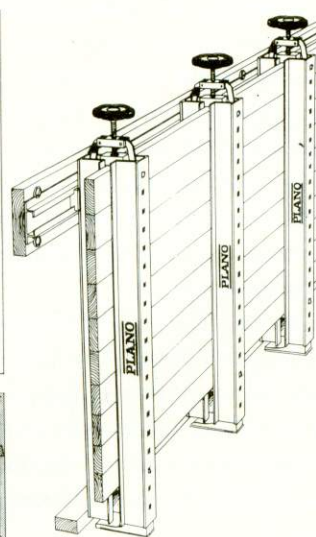
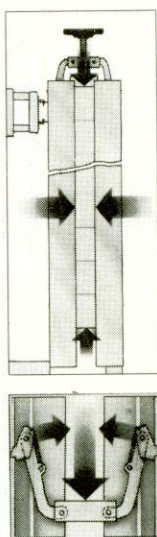


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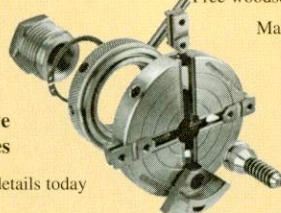
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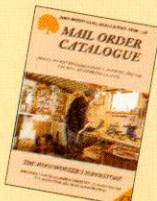
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Good Woodworking is designed to build up into a valuable reference for years to come. So every six months we produce an index for you to find a project, the definition of a bit of jargon, a test report, or the review of a book or video. The technique you are attempting or the problem you are facing may have been covered before. This index refers to issues 25-30 (November '94 to April '95). For back issues or for an index of issues 1-24 call ☎ 01225 822510.

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Good Woodworking

WEEKEND WOODWORK

Five projects readers have made in just a few hours

WEEKEND WOODWORK

PROJECT
£2
COST

LITTLE BOXES

The ideal way to use up offcuts and make attractive individual gifts with Jim Sutherland's boxes

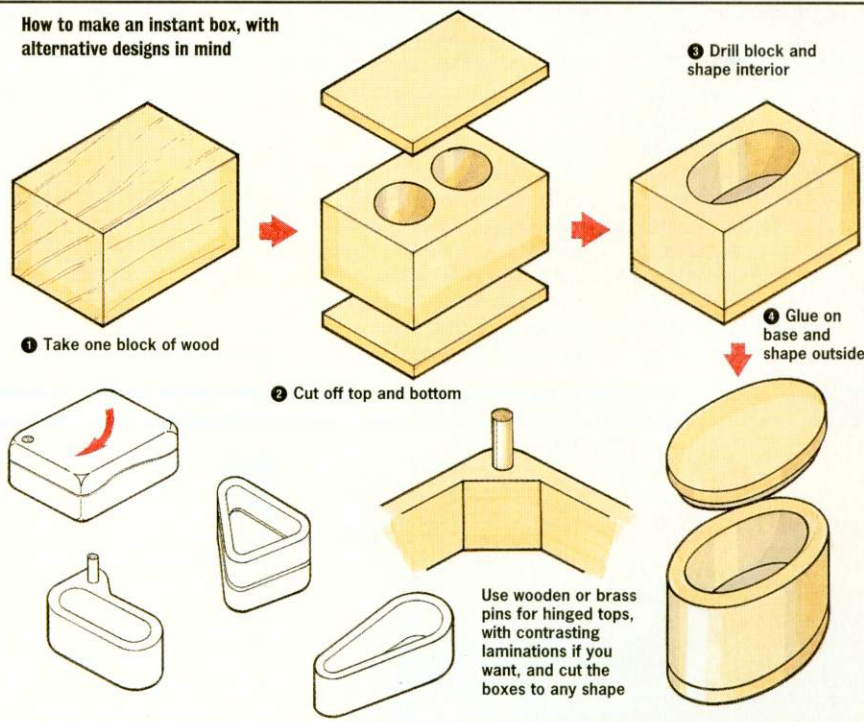
Little boxes are an ideal way of using up odd scraps of wood and can make an attractive gift. Unlike my previous boxes in the June 1993 issue of *Good Woodworking* (GW 8: 38) they can be made without using a router and allow plenty of scope for individual design.

1 Choose a block of wood with a distinctive grain

pattern and cut off the parts which will form the base and the lid. If distinctively grained wood is not available laminate in a contrasting timber; an oblique lamination can be very effective. You could cut the block with a curved line and use layers of veneer as decoration.

2 Bore two holes through the remaining block and cut out the inside shape of the box with a coping saw or bench jigsaw. Owners of a

How to make an instant box, with alternative designs in mind



powered fretsaw will of course use that. Smooth the inside shape before fitting the lower part of the lid.

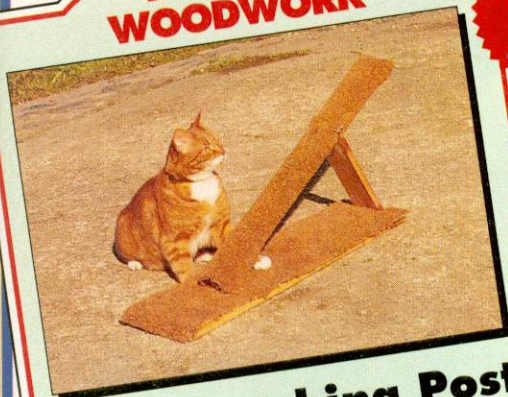
3 Glue the base to the body. Cut out a thin piece to fit inside the box and glue that to the underside of the top. Cut the outside of the box to shape. Fit the lid and cut to shape. Sand and finish with wax polish.



The rebated top is created by gluing two pieces together

WEEKEND WOODWORK

**PROJECT
£5
COST**



Cat Scratching Post

Treat your cat to Jack Hudson's version of a cat scratching post

I was surprised to see how expensive and poorly designed commercial scratching posts are for cats. For my post only four pieces of scrap timber are needed.

Design and Assembly

1 Position the post at a 30° slope. The long base board projects forward. It should not be shorter than 700mm, nor narrower than 150mm. Cut out the top of the strut to fit round the post and cut a tongue at the lower end to fit into a slot in the base board. Slope the slot at 60° to fit. Cut this with a saw and a mortice

chisel. Secure the board with a screw in the strut at the bottom and two screws in the post at the top.

2 For the simplest fixing cut a U-shaped base block out of 12mm plywood and pin and glue this to the base. Mark off the lower end of the scratching post at 30° and saw it with a back saw. Drill and countersink for the screw up through the base to hold the bottom of the post firmly.

3 A more complicated method of fixing the post to the base board has the advantage that the post can easily be removed by pulling out the pin. Saw away the two base corners of a scrap of 25mm thick hardwood and leave a 25mm square pin

about 25mm long. Mark the centres on each end and mount it on the lathe.

Turn a 20mm round spigot on the post. This fits into a 20mm hole drilled in the base board. Saw the 45mm long cuts and chop out the slot for post to fit into.

Cut an 18mm tenon with 60° slope on the bottom of the post. Offer everything up, drill through the yoke and post for the pin which may either be a bolt or a length hacksawed from a 6in nail. Mark off the waste on yoke and post and saw off. Glue to the base.

4 The covering must be hessian backed carpet. The base board is covered with a carpet piece wider than the

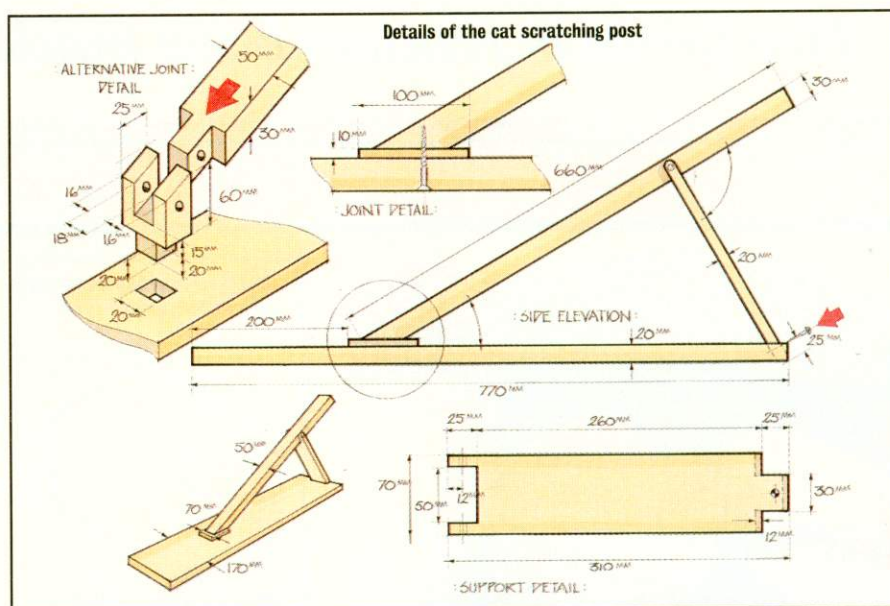
board by 10mm. Do not fold it over because it increases stability by projecting all round. Cut a hole for it to fit round the base of the post and a tack secures it. Fix the carpet

before the post is fixed in position. Roll it over the top edge of the post and cut the ears away. Wrap the carpet round the post and tack. Cut the carpet to go round the ends of the struts where they



The scratching part of the post joins the base board with a yoke. Shade the waste and then cut to form the tenon and the bridle joint

screw to the post. Push the post into the strut, screw in the two top screws and fix the base. With the U-shaped base drive a screw up through the base boards, with the second design push in the base pin.



WEEKEND WOODWORK

**PROJECT
£4
COST**



COTTON REEL HOLDER

Jack Hudson explains how to make a store for reels

My idea is to make a tidy for cotton reels. There are three sizes of reel on the market today, with large ones 38mm diameter and 44mm long. Modern plastic ones are either 26x56mm or 15x43mm. Make the handle of the holder from 38mm square stock, and the base from a 165mm blank, 38mm thick. I've used yew for this piece, but almost any hardwood will do.

Making the Reel Holder

1 Bandsaw the base slightly over 160mm diameter and mount on a faceplate. You can hide screw holes with leather or baize later. Mark out a 90mm circle and take the outside portion down to 20mm thickness to leave a

raised central platform about 38mm thick. True the faces and mark the centre, then remove from the lathe.

2 Draw circles of 30mm and 63mm radius on thin card and set out eight points on the outer circle at 45° intervals. Mark another eight points on the inner circle between the outside points. Punch through these points onto the wooden base.

3 The reel pins are made from 150mm nails, with the heads cut off and both ends rounded smooth. You need them to be about 105mm long.

4 The diameter of the nails should be about 6.5mm. Drill the 16 holes to 12mm deep, but do not fit the nails

yet. Instead turn the handle with a 19mm diameter spigot for fitting to the base.

5 Remount the base on the faceplate and bore the central 19mm hole with a drill bit in the tailstock. You may want to add ornamentation to the base by turning grooves on the face. If you do this make sure the two circles of nail holes are left. Sand and finish the base.

6 Remove the base from the lathe and faceplate and glue the handle firmly into the base. Then drive the 16 nails gently into the holes.

7 To vary the design you may consider sloping the outer ring of spikes outwards a little. The inner ring could have shorter pins.

It does not take long to make these turning devices, but once made you will wonder how you ever managed without them. They are indispensable for making accurately turned spigots for drawer knobs, balusters and spindles of any kind which have to fit into pre-drilled holes.

Making the Sizing Plate

1 Make the jig from a 130mm square piece of 4mm mild steel plate. Mark out with a scriber slots in the following sizes: 6, 8, 10, 12, 16, 20, 25 and 30mm. With a fine hacksaw cut the slots. Drill the corners and hacksaw out the bottoms. Dress the edges smooth with a file. This makes them slightly on the big side, which guarantees that your spindles are too large and will be a snug fit

after sanding. The burr left from filing also makes it a cutting tool.

To use the sizing plate, mount the work between centres and round off the corners. Mark the length of the spigot. With a parting tool cut a series of slots down almost to the size of the finished spigot. Cut away the waste with a gouge or skew chisel. With the work running fairly fast push the sizing jig straight down on to the spigot until it has cut the exact diameter required in several places. It may leave a series of brownish burns which you can work to as you trim smooth with the chisel. Run the sizing jig up and down to test for accuracy.

Holes Gauge for Sizing Spigots

2 Take a waste piece of hardwood at least 30mm

thick and drill a series of holes with your own wood bits to use as a sizing gauge.

Offer the spigot up to the sizing gauge and by sanding or paring it a little you will obtain a tight push fit. Drill a hole in one corner to hang the jig by and put a screw eye in the end of the gauge.

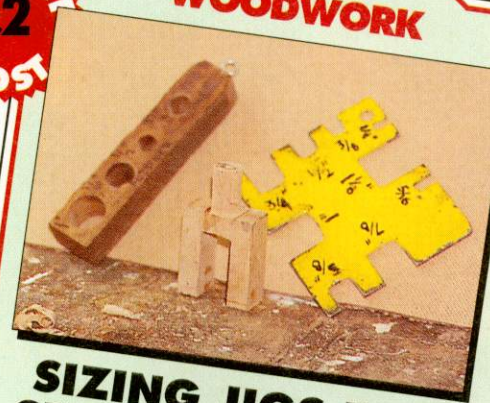
A Sizing Jig for Chucks

Busy turners who use a combination chuck will frequently need to turn the dovetail grip. According to the type of chuck, you need to make an accurate ring.

A larger sizing jig can be made to cover larger diameters according to your needs. It is cut and filed out of 4mm mild steel plate in exactly the same way as the smaller jig. A nicely turned handle may be added with a screw eye to hang it by.

PROJECT £2 COST

WEEKEND WOODWORK



SIZING JIGS FOR SPINDLE TURNING

Jack Hudson's guide for making useful jigs

PROJECT £30 COST

WEEKEND WOODWORK



SIMPLE SHELF

Jim Sutherland explains how to gain more storage space for a growing library

A growing collection of Good Woodworking and books means a need for storage facilities. Because of demands on time, and pocket my design had to be made quickly and at low cost.

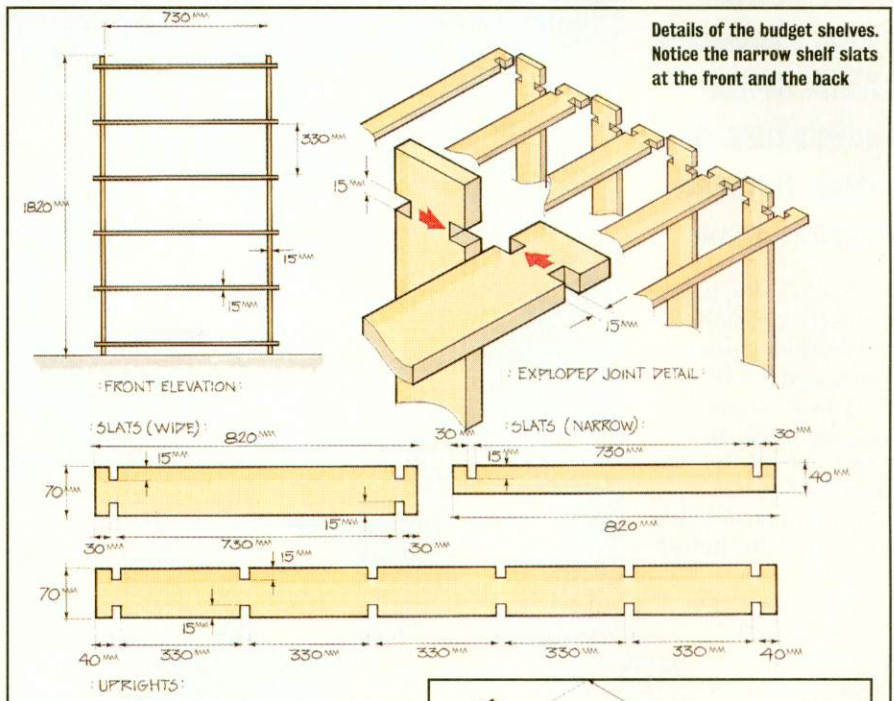
Bookshelves made from man-made board sag under the weight of books, while solid wooden shelves are much more expensive and need joining boards to give adequate shelf width.

I opted for a design using slatted shelves joined to

slatted uprights with cross-halving joints and ended up with a large piece of furniture made from solid pine and costing only £30.

Making the Shelves

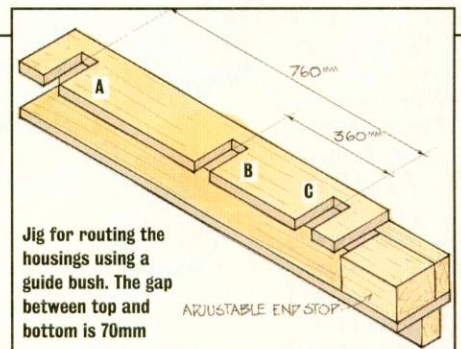
1 Cut the halvings using a router with guide bush attachment and the special jig. It took me an hour. It is important to make sure that all the timber is prepared to the same thickness, whether bought prepared or planed yourself in the workshop.



2 Clamp the slats in the jig, four at a time and rout halvings at both ends to ensure perfect alignment. When routing the narrow slats place a 30mm packing piece underneath to raise them to the correct level.

3 When routing the uprights, use jig slots B and C to cut the first two. Move the halving cut at B so that it lines up with jig slot C (a T-shaped block can be inserted to keep it in position) and cut the next

halving at B. Repeat this until halvings have been cut at six locations. Then chamfer the outer edges and assemble. Varnishing a piece of furniture like this would be my idea of a



nightmare. I opted for Rustin's Danish Oil which is easy to apply and gives a low lustre but protective finish.



WITH
TOBIAS KAYE

POWER SANDING

*Get the best results
from power sanding*

Tobias Kaye looks at the different types of power sanding, explaining the foam drum and miniature pad systems, and the techniques used

Sanding is a dry, dusty occupation that the wood never enjoys, but which seems to be a necessary evil. I enjoy grinding the gouge up so sharp that it hisses through the wood leaving no broken grain, but success of this depends on the timber I am working.

A brittle timber or a shape with intricate details will have broken grain however you handle your tools. A bit of good quality flexible aluminium oxide abrasive is sufficient to overcome the damage.

For a while I became wedded to my drill powered pads. I was convinced they were so much faster than hand sanding. I have now changed my mind and believe that hand sanding can be every bit as quick as power sanding and costs a lot less, particularly in detailed shapes or woods



For some time I was convinced that power sanding was so much faster than hand sanding, but now believe that both methods have a place in the finishing process

TECHNIQUE TIP
Ratchet spindle

TOOL TIP
Which drill to choose

FINISHING
Spotting scratch marks

POWER SANDING
Tobias Kaye looks at power sanding systems and techniques

BOOK REVIEW
Polychromatic turning

DESIGN
Trunnion boxes

TOOL TEST
Screwchucks

that don't break up much. However, in some timbers and shapes it can be a great advantage to have a powered sanding system, like making a bark edged

bowl. Dealing with poor tool finishes or rougher wood are also areas where power sanding is popular.

Using Power Sanding

There are three systems of power sanding in common use. There is the large diameter disc, commonly 5in, attached to a variable-speed hand grinder, about

750W. People doing large work and using rougher woods or techniques tend to swear by this method. I have not tried it.

For aggressiveness there is the foam drum method, again for larger pieces and for external curves. It is of little use on internal curves. I have used this system extensively on larger bowls.

The most popular

system is the miniature pad, usually foam fronted for a softer finish, in 1in, 2in and 3in sizes, with the 2in generally favoured. The advantage of the hard pad is that it removes the wood faster. The advantage of the foam fronted pad is that it leaves fewer scratches.

Foam Drum System

The foam drums are

Shifting scratch lines

Scratch lines from the abrasive can become glazed into certain types of wood and seemingly become impossible to shift. When this happens I take a squeezed out wet cloth and dampen the grain surface very slightly. Once it's dry again subsequent sandings improve the surface. On sycamore I have occasionally had to do this six or so times on one piece.

available in most hardware shops under the name Oakey Supersander. This is a dreadful example of British Industry not caring for its customers. Oakey is a brand name of English Abrasives. I have written on more than one occasion to English Abrasives expressing my concern at the quality of design and materials which goes into this product.

I have listed some of the problems that I have had with the drums and solutions which could be adopted. I've mentioned that the foam in the drum is not securely held on the arbor so it can spin freely. The drum comes apart when the drill is reversed. The foam is of poor quality, and occasionally is so badly cut or assembled that the drum does not run true. I have had no answer to these letters.

After my last letter I noticed that they now supply the drums unassembled such that the customer has to carry the can for any part not being sufficiently tightened. They

did however change the quality of foam which is an improvement.

The abrasive belts supplied with the drum are of a quality on par with the drum itself. Luckily many manufacturers produce belts to fit these drums

and SCM Trade Supplies of Brighton carry a stock of the best ones made by Hermes (☎ 01273 559660). Nobody else manufactures these foam drums, I presume due to a patent.

At one time I was buying drums from another source, and the rep said they were unloading the rest of their stock cheap and would not be making any more. I bought a quantity which lasted several years before I had to go back to the English Abrasives product. It was partly from this experience that I offered suggestions for improvements.

Belts available for the foam drums come in a wide variety of grits. I have used belts as coarse as 40 grit which work almost like a rasp, removing large quantities of wood surprisingly quickly. Such a coarse belt can therefore be used to shape wood.

Systems Compared

The advantage of the foam drum over the mini pad system is that the belts last considerably longer as well

Book review

Polychromatic Assembly for Woodturning

BY EMMETT E. BROWN
AND CYRIL BROWN
Distributor: Stobart Davies
Price: £12.95 (softback)

This book is about building up blocks of different coloured woods into a blank for the turning process. There are many ways of doing this, whether it be simply gluing two pieces together to get a bi-coloured bowl, or drilling and inserting plugs of a different coloured wood, by assembling myriad blocks at carefully measured angles. The item on the cover photo by Giles Gilson, shows carefully cut and assembled marquetry pictures on a block, from various woods before turning into a beautiful vase. This is a highly detailed book by experienced practitioners covering the many possibilities in exhaustive detail.

Staged projects lead you through the various possibilities. To my eye, the vast majority of these are grotesque. All are clearly well executed and some of the simpler items are fun, even though I do not find them deeply attractive. With any complex technique it demands a high degree of artistry to overcome the impression that the item has been made purely as a technical exercise. There are one or two items in the book which reach this level for me. The colour photos on the cover are all of masterpieces by other people than the authors. However, if this is

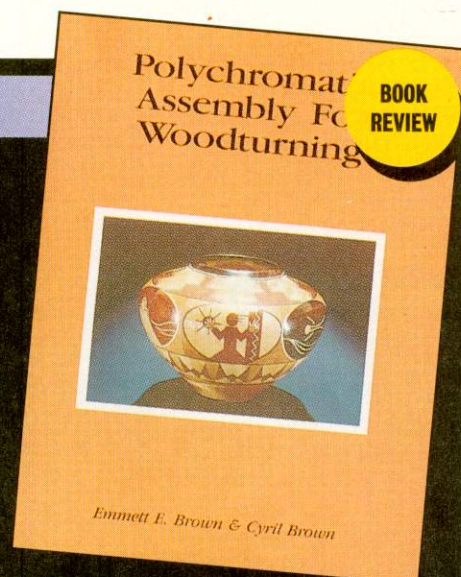
as removing material faster. Typically a belt costing three times as much as a disc lasts 10-20 times longer and removes wood twice as fast as the 3in pad.

I keep a range of belts

down to 320 grit but still find that for the finest finish, hand sanding or the little pads will produce a better finish than the belts. This is usually because the drums are not rotating

accurately and thus hit the wood harder on one side than the other.

A variable-speed drill is essential with the drums, because the slower the drum is rotating, the finer

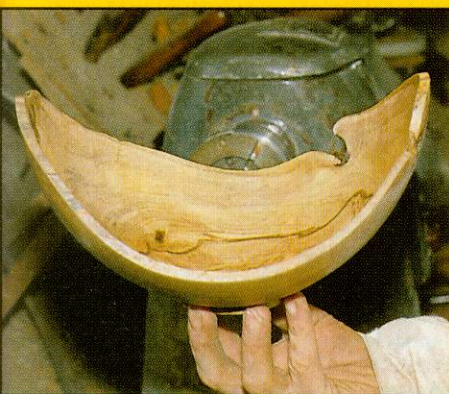


a technique that attracts you, the book is a useful technical manual for learning its intricacies. The text is technical and informative without attempting to be entertaining. The sketches are hand drawn and comprehensible although they could be clearer. There are a number of black and white photos, both of jigs and of finished work, most of these are muddy and unclear. In summary I would say this is a good technical manual whose cover photos are inspiring but that's as far as the artistry goes.

GW VERDICT

TECHNICAL CONTENT	●●●●●
ILLUSTRATIONS	●○○○○
VALUE FOR MONEY	●●●●○
RRP inc VAT	£12.95
STOBART DAVIES	☎ 01992 501518

Make a bark edged bowl using power sanding techniques



I chose a bark edged bowl to illustrate power sanding techniques as the wings of these cannot be successfully sanded with the bowl rotating. This piece of wet holly was cut to provide good high wings and has ended up a pleasing shape. A useful tip when making bark edged bowls is to ensure that the curve is continuous from foot to wing tip. A common fault is a ridge in the curve at the point the wings start, often followed by wings going almost straight from there. Gouge control to avoid the deadly bounce consists in holding the bevel in line with the cut, but not resting it on the wood. This takes practice.



1 I have chosen a piece of holly for this bowl, cutting it to shape on the bandsaw. Notice the wood shape



2 Rather than line up between centres I decided not to mess around and simply screwed on the faceplate

the finish available from it. Also, I find that a drum rotating at 800-1000rpm, will remove nearly as much wood as a drum rotating at 2000 or more but the belt life will be vastly extended.

Static or Rotating

There are two specific techniques for using any powered sanding attachment. It is possible to use them with the work held static concentrating on those parts of the grain that have been left rough.

In using this technique, frequently, you have both hands on the drill and the work, especially if it is of a larger diameter, will tend to be rotated by the sanding drum. Jamming the spindle solid is helpful but that means that you cannot move the work on to the next patch in order to sand that without unjamming the spindle again.

Consequently, I have developed a method using a wooden wedge, fitted between the bed and the chuck. This allows the bowl to be hand rotated but will not be turned by the drum.

All you need is a simple wooden wedge, about 1½in thick, with a slight taper from one end to the other, and of the correct depth to fit between the bed bars and the chuck. Pressure against the chuck is maintained with an elastic band fixed from the wedge to a point behind the lathe.

This system is a delight to use with powered sanding equipment, as it resists the rotational forces

and yet allows you to reposition the bowl to work on the next part quickly and easily.

With the bowl held static, the best technique for removing large quantities of wood is to oscillate the rotating drum backwards and forwards along its axis as it is sanding. This evens out the wear on the belt and improves the rate at which the belt cuts.

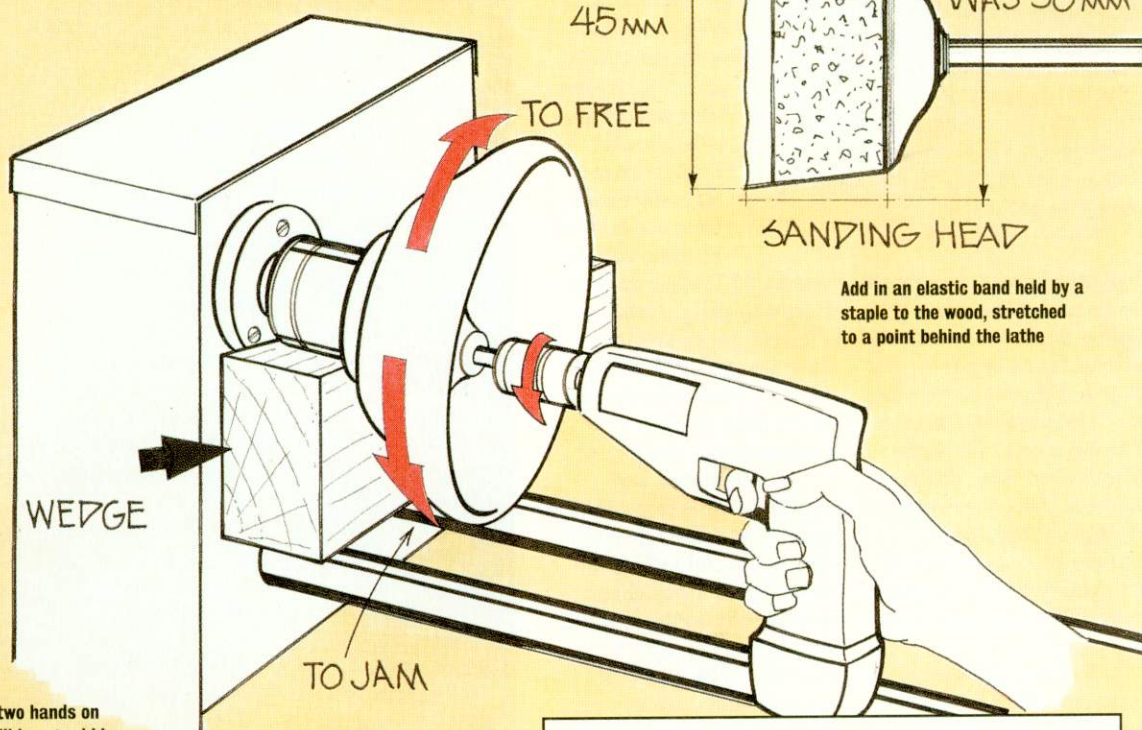
When removing an area of broken grain, it is important to work the

whole area around the patch and not just cut away the broken grain lest you be left with a detectable hole in the surface of the bowl.

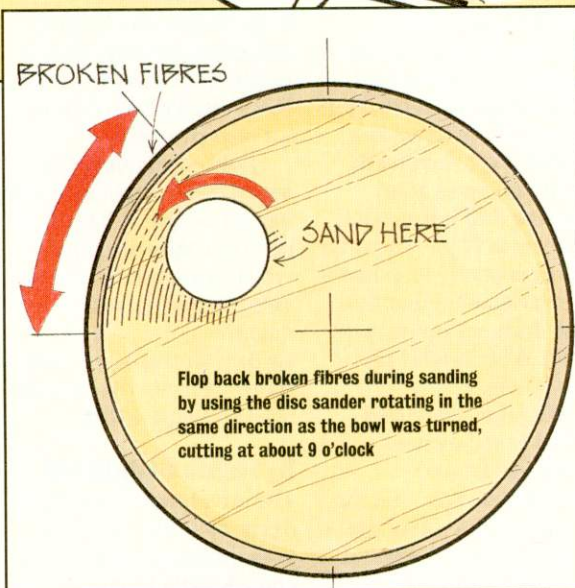
Note at this point that sanding will soften inaccuracies in the shape of your work but it also changes the delicacy of line. This is more of a problem when power sanding than when hand sanding, and is another reason to develop a good cutting technique and minimise your sanding.

The other popular

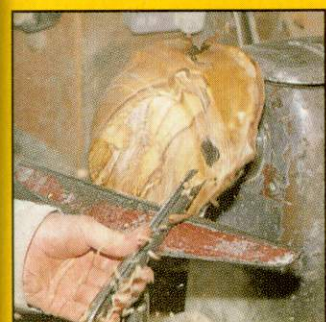
To stop the workpiece spinning when sanding with a pad I fit a wooden wedge between the bed bars and chuck, held to the wall with an elastic band. I reduce the diameter of the pads



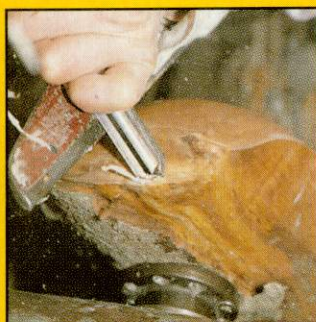
Using two hands on the drill is a good idea



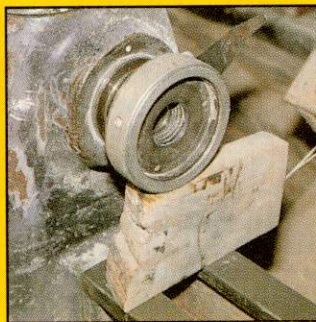
Turning the bowl and starting to sand



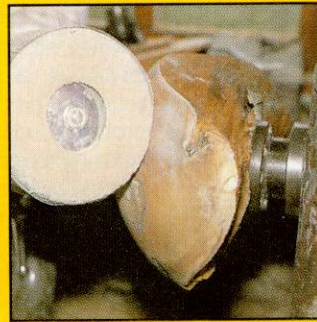
3 I've used my favourite ⅝in Superflute gouge for roughing the outside shape of the bowl



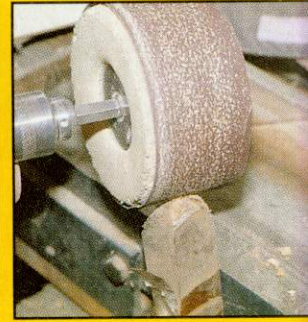
4 Prior to sanding the best finish can be obtained from the lower wing of the gouge, taking care not to bounce



5 When using the outboard spindle I have to position the sanding wedge inboard retained with an elastic band



6 With the bowl held steady by the wedge I sand the outside with a 150 grit Oakey foam drum to remove rings



7 I have used shoe soles to clean sanding belts, but here have a Liberon cleaning stick. Note belt slip

Burnish for a fine finish

Burnishing with shavings is an often recommended trick for a glowing surface. If your sanding has been cursory this is effective. If you have sanded well removing all scratches right down to 240 grit or finer you will find the dust on the abrasive burnishes beautifully. A handful of shavings will make scratches on a surface that has been really well sanded.

TECHNIQUE TIP

edge so that more of the abrasive is in use.

I frequently use this process so that a 2in pad is reduced to nearly 1½in, even at the Velcro surface. This means that the disc is hanging over the edge of the pad, which makes it more flexible for getting into tricky corners, like up under an overhanging rim.

The technique for using the pads on the outside of the bowl is similar to that of the drums. With the bowl either rotating or static, I angle the drill so the pad is cutting at three or nine o'clock of its circumference, moving downwards, keeping the abrasive process in line with the bowl's rotation.

Using the pads on the inside of the bowl, I tend, most of the time, to have the bowl static, held with the wedge system and work on that surface of the

method with power sanding is to have the work rotating as well as the drum or disc. The simplest way to do this is to work on the up moving side of the wood with the abrasive moving downwards. This is why it is so important to have a reversing drill for power sanding. With the wood moving up and the abrasive down, the system holds the weight of the drill for you, giving you the most control over the sanding process.

The way you angle the drill affects the results you get. If the abrasive is cutting across the movement of the wood, it will remove material fastest but leave more noticeable scratch marks than if it is moving in line against the rotation. The amount of pressure you apply is a matter of experience. I think a medium to light pressure is the most effective in the long run. One good reason for keeping it slow is that pressure generates heat, heat blunts the abrasive.

Mini Pad Methods

Moving on to the mini pad system and looking at the

three different sizes of pad, I found the 3in to be the most economical to run and useful down to bowls of 10in diameter. Most people favour the 2in system, which easily handles bowls down to 6in diameter.

One simple alteration that I make to the pads as soon as I buy them is to run the side of the pad, while it's spinning in the drill, against a disc or belt sander, so as to reduce the diameter of the hard rubber backing behind the foam. This gives the pad a softer

Getting rid of scratch marks

Getting a really fine finish requires a combination of patience, elbow grease and experience. With powered abrasives you will need to hold the drill really steady. Any judder leaves deeper marks.

You will need at least one light that you can move to shine on your work from different angles. Look at two places particularly. Firstly where the light reflects brightly on the wood, secondly at that point where the light blends into shadow. These places highlight scratches and broken grain respectively. A critical eye begins to discern which scratches are from this grit and which are from the previous coarser grit. A patient perfectionist perseveres until none of the coarser marks remain.

From 180 grit upwards I find that the visor of a dust helmet obscures defects I will see later so I change to a dust mask. From 240 upwards I repeat the power sanding with hand-held abrasive for that burnished look.

Tobias Kaye's monthly look at shape and form

Turning by design

No.28 Dave Regester

This is a piece of useless woodturning that I find beguiling. It is generally my opinion that something should be both useful as well as beautiful but these little boxes I love to play with even though I can think of no use for them apart from possibly storing one spare shirt button. It is the way that the many moving parts all fold up into a neat calmness that entertains me so much. It is the way that all the parts come apart and yet will not come free that amuses me. You can see that some of these boxes are simply a lid and a free ring on a central stem which will move but will not come off the central stem. Others are more decorated and some have a large quantity of free rings rattling round. My favourites are perhaps the fairly simple ones where there is one free ring on the foot, one free foot at the top, and the free moving lid with possibly one more free ring inside. Boxes in which free ring sit upon free ring upon free ring in stacks (of two, three or more) begin to me to look a little chaotic. There is however for me a pleasing feeling in an item that will shake loose and seem to be all bits and pieces at one moment and yet will not scatter around and being stood upright virtually reassembles itself into a sense of order and tidiness. I find this movement from contained chaos to ordered peace a very pleasing one which these trunnion boxes express most clearly.

DESIGN

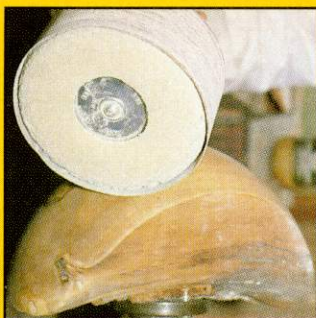


Dave Regester's Trunnion Boxes

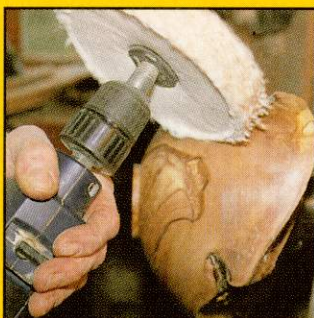
(about 4in tall) have no function, but the neat calmness entertains me so much. My favourites are the most simple with a single captive ring. I find the boxes with lots of free rings are a bit chaotic



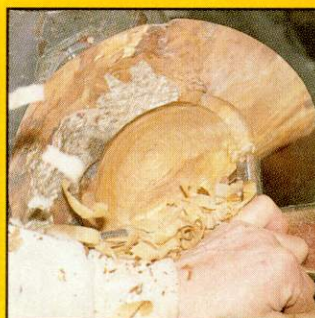
3 With finer grits you can work in the direction of the grain or of rotation. These leave less visible marking



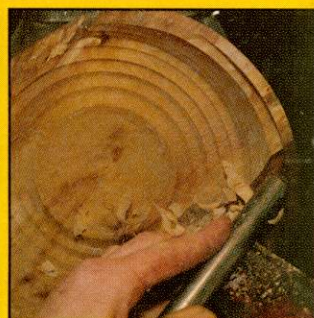
9 With the bowl spinning you must keep clear of the ends of the wings for fear of rounding them over



10 One way to polish a bark edge bowl is with an unstitched mop held in a drill, with the bowl static



11 When it comes to hollowing you will find the lower wing of the gouge again gives the sweetest cut



12 To refine the wings bring the rest in line, take the wings to final size and step down to the centre

bowl which was rotating upwards, having the abrasive moving downwards, so that I am cutting against the tool cuts, thus flopping over fibres that were bent by the cutting edge.

My preference is to keep the disc rotating slowly with a medium pressure, moving the pad in semi-circular sweeps across the affected area, so as not to dig a hole in the wall which happens easily with the small diameter discs. Just how good a finish you can get with this method depends on your critical eye.

You need a good light which you can move to shine on the work area and assess the sanding to see that you are convinced there is no damage left from a previous cutting activity. When the worst damage on the surface has been inflicted by the sanding disc, it is time to move on to a finer grit. You will find it particularly difficult when cutting with, say a 120 grit, to be certain

Turning tool test

Model 88 Screwchuck

Glaser Eng Co Inc, PO Box 95, El Segundo, CA 902450095, USA

The Glaser Engineering company in California distinguishes itself for the care and precision which it brings to ordinary woodturning tools. Their screwchuck which I received recently is a paramount example of this. The centre screw is machined from a very high grade of steel, so that the threads can be cut extremely fine. This means that the chuck slips very easily into the hole drilled for it and once there, holds with maximum security because of the small amount of wood space occupied by the steel thread. This central screw is fitted into a light but strong alloy body and retained at varying degrees of protrusion by a simple washer and



grub screw system. Around the main body of the chuck you can slip either a miniature collar of steel tubing or a larger collar. This tapers so that the area of surface against the wood depends on which way up you put it. This gives you three contact sizes of 40mm, 65mm and 90mm respectively offering maximum access to the back of the workpiece. In use the chuck offers swift powerful holding even into end-grain, a situation in which screwchucks do not excel. It

is not just its excellence in use but the quality of the materials and of the design and of the workmanship which makes the chuck such a pleasure to use. Like any true craftsmanship, the resulting price is considerably higher than mass produced equivalents. However if you are a regular screwchuck user the amount of thought and workmanship that has gone into this humble tool can only bring pleasure every time you use it.

GW VERDICT

DESIGN AND MANUFACTURE	●●●●●
VALUE FOR MONEY	●●●○○
OVERALL	●●●●●
RRP inc VAT	\$85 (£50)
GLASER ENG CO INC	☎ 001 3108237128

that the scratch marks have not been left by the previous 60 grit, but a critical eye quickly builds experience in this matter.

Sanding on the Inside

Working inside a bowl, my

general technique is to remove the broken patches of grain first with the bowl held on the wedge and then set the bowl spinning and sand in the areas that you have been working on with a general overall sanding.

After that, move on to the next grit and repeat the process, removing the sanding marks in the areas you first had to concentrate on and then sanding over all with the bowl spinning.

Avoiding the Dimple

Note that with the little pads the centre of the bowl sands away more easily than the rest, leaving a dimple in the middle.

You can either counter this by hand sanding,

which has the opposite affect (of leaving the middle raised up) or with more skill, sand across the dimple, with the bowl static, to even the surface.

Destroy Crisp Shape

Sanding up to crisp edges with any power system is a delicate process, if you are not going to round over and destroy the crisp shape of your turning work. Basically the rule is to keep the abrasive running up to the edge and not in any degree hanging over it.

A useful tip is to watch that the drill does not judder at all, for if the sanding pad is allowed to kick even slightly, it leaves much deeper circular score

marks than if it is held steady over the surface.

As I said at the beginning, I have found it takes more time to remove the circular marks left by the sander than I would have spent removing the broken grain if I had been hand sanding. This is however not always the case and power sanding is frequently a fast, effective and expensive way of sanding your work.

Which drill for power sanding

If you are choosing a drill specifically for power sanding, my recommendation is to seek a lightweight drill of about 400-450W with electronic speed control and forward and reverse. Look through the adverts in this magazine to find a good discount on such an item.

I have seen drills by Skill that fit this bill perfectly. I have used drills by Wolf, AEG and Bosch, preferring them in that order. I use a Makita slow speed drill, whose chuck runs at 1000rpm. I find this makes the abrasive on both the discs and the pads last longer. Even this drill I tend to run at below top speed using the electronic speed control.

TURNING
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MONTH**
POLISHING
TURNED WORK

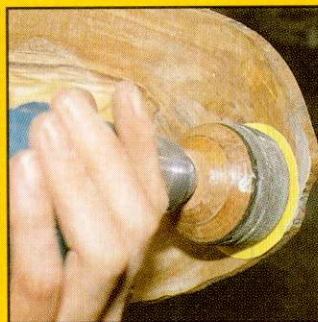
Moving to the power pad sanding disc



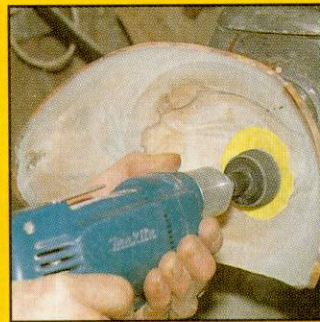
13 Pick up the ridges and hollow to the bottom, with the rest back to the straight across position



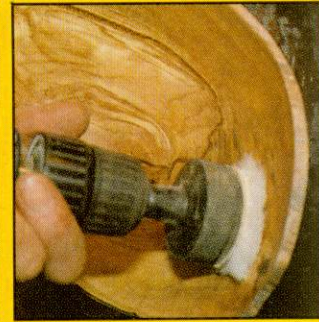
14 It is a common fault to leave bark edge bowls too thick at the base. Check with calipers (GW 25:74)



15 My 3in pad has been ground back to 2 1/2in to allow the disc to get up under overhangs. Keep wing edges crisp



16 Only the edge cuts inside a bowl, so put a 3in disc on a 2in pad. At the centre you can spin the work too



17 I use a 2in lamb's wool bonnet (from CSM Supplies) to polish the wings, heating and melting the polish

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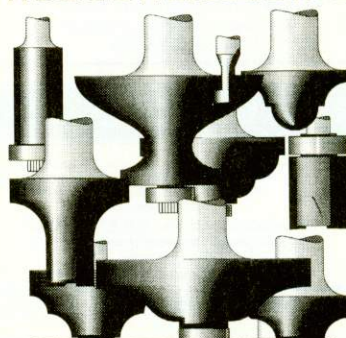
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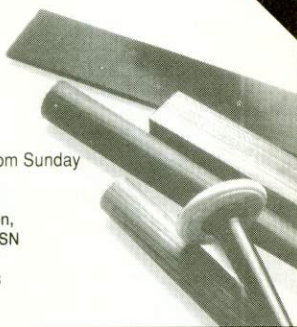
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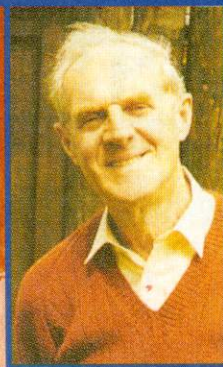
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Finishing touches



Scandinavian oil, Danish oil, teak oil and others, are mostly based on natural oils, although some contain synthetic resins, including polyurethanes. Most apply better and are quicker drying than the basic oils.

Ease of Application

The first thing to note about oils is how easy they are to use. Prepare the wood as for any other finish, then simply flood onto the surface with a brush or rag. Allow the oil to soak in (most need only a few minutes, some a little longer), then wipe surplus off with a rag. Wiping off is essential, otherwise what is left on the surface will leave a varnish like film which can be uneven.

Sometimes one coat is enough, but you will probably need two, or even three on new wood. Rub down between coats to take out any raised fibres, or use fine wirewool (000 or 0000) to put

on the oil. Wipe off surplus with a rag. Do not use wirewool on oak or woods that can be stained by iron.

Differences in the Oils

The main difference between oils is the drying time. Remember that typical times can be more than doubled in the cold. The final finishes differ little, they all look about the same. In most situations long term performance is similar, although china wood oil gives a harder, more heat resistant finish than linseed. But if you want a hard finish choose polyurethane.

Chinese wood oil is a little thick to apply, so you need to thin it. Try 50 per cent first, but go up to 1:1 if it is not penetrating readily. Use white spirit or turpentine. Linseed oil can be applied without thinning, although it penetrates better if warmed, or thinned. Use up to 50 per cent thinners.

situations they need more frequent periodic refinishing.

Clean off the surface, making sure you remove any wax, and simply go through the process again with the original material. If you forget, or run out, it is unlikely to matter much if you use a different oil, although some manufacturers recommend full cleaning off.

When refinishing it is always best to apply thinly, both thinning and putting on sparingly. One coat is usually enough, but apply more if you need to. Always wipe off fully if you want to keep the oiled appearance. Spread used rags outdoors to dry before throwing away, to avoid risk of their igniting.

Little routine care is needed. Rub dirty places with a damp cloth. If dirt is difficult to get off, try moistening the cloth with white spirit. Some manufacturers recommend wax polishing. If you do, do not polish often, and be sparing, otherwise you will finish up with a wax polish, which is nice, but it is not an oil finish.

Oiling is a traditional way of finishing wood. It brings out the colour, seals against dirt, but does not result in the surface film you get with polishing or varnishing.

There are a lot of oils, some are basic, some are formulated. All are known as "drying oils", that is after you apply them to the wood they oxidise, or polymerise to a solid. It is a fallacy that oil finishes do not dry, they do. They would not give a satisfactory finish if they didn't.

A non-drying oil, like lubricating oil, initially looks good, but remains oily for ever, picks up dirt, and soon looks shabby.

Popular Natural Oils

Linseed oil is the most widely used. It is a natural oil obtained from the seeds of the flax plant. Two types are sold for oiling wood, raw, which is the basic natural product, and boiled. Raw oil is slow drying taking several days, whereas boiled oil has been modified to dry quicker, taking about six hours.

Unfortunately, some products sold as "boiled oil" are technically blown oils. These are also modified to improve drying, but in a different way drying is quicker than it is for raw oil, but longer than true boiled oil. They usually take well over a day to dry.

The only other natural oil widely used is Chinese wood oil, often called tung oil. It comes from the seeds of a tree native to China, although much now comes from Africa. It dries quicker than raw linseed oil, but it is still slow drying taking two or three days.

Proprietary oils, finishing oil,

Refinishing and Routine Care

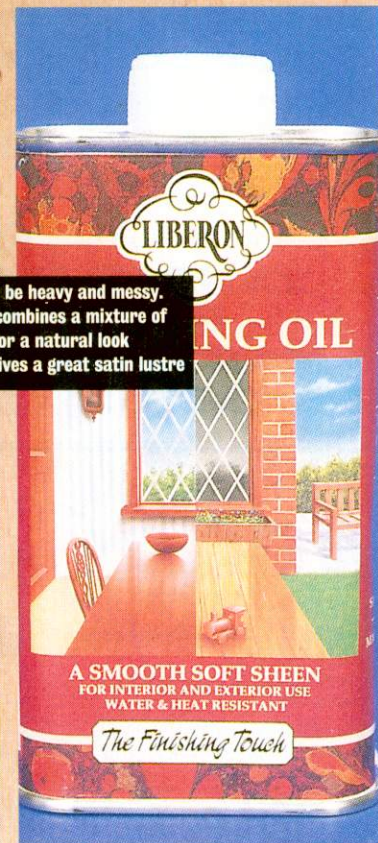
Oil finishes may not be as long lasting as varnish or polish, and in high wear



Natural oils are popular, but can be heavy and messy. Organoil, an Australian product combines a mixture of oils to overcome this (GW 19:8). For a natural look Liberon's Finishing Oil (GW 12:6) gives a great satin lustre



Oils: the traditional and easy way to give wood a fine finish. There is a wide range of products on the market for you to choose from, the only real difference being the drying time. The end effect and length of wear are similar. Oil finishes are easy to maintain and retouch



Austin Hilditch is a finishing expert who was the former Technical Director of Cuprinol, manufacturers of wood preservatives. He is now retired.

Good Woodworking

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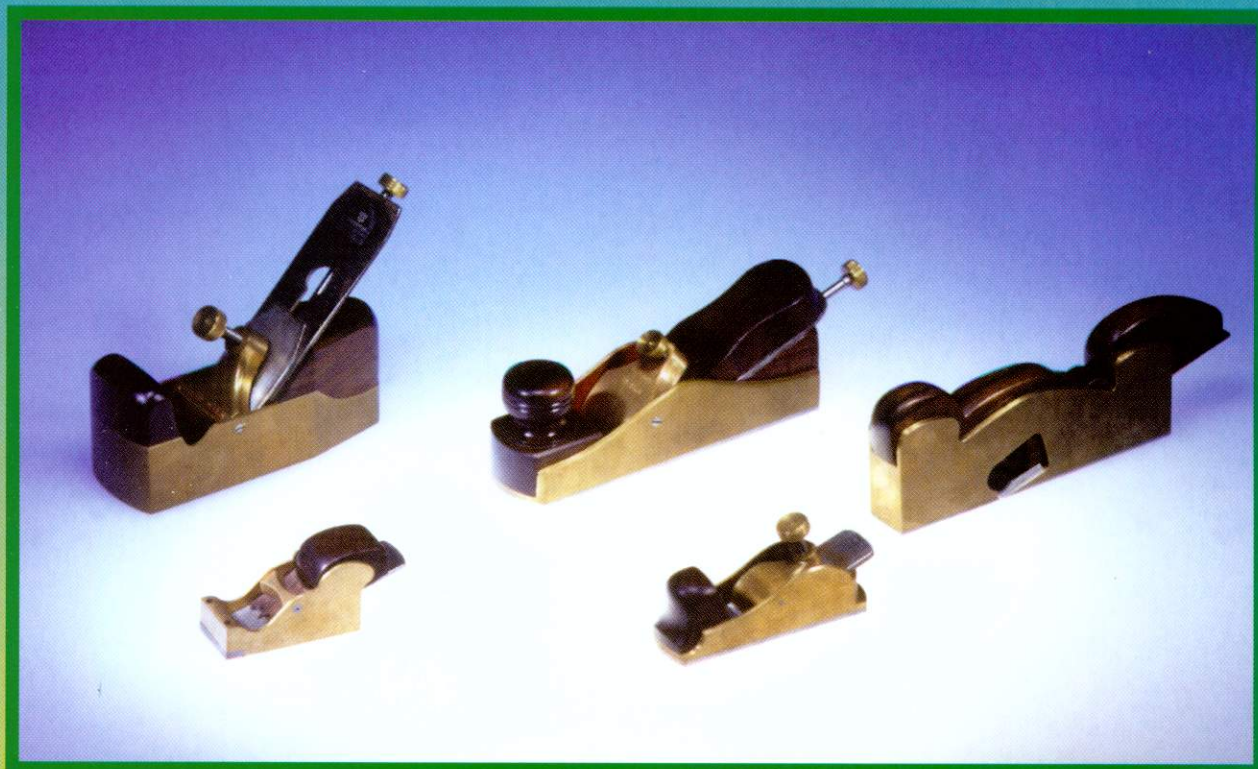
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