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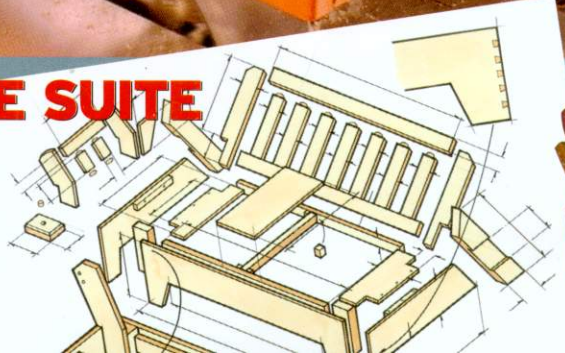

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Conte

We aim to offer the best advice, projects & techniques, plus the most authoritative tests. All testin

Walking past a music shop the other day I noticed a rather nice flamed maple body electric guitar in the window. At least I thought that's what it was. Stopping to take a closer look, it was evident this budget instrument was a fake, or rather the wood itself was. After a bit of research I discovered that the surface was actually a photographically produced image of flamed maple. It looked stunning, but left me a little perplexed. Disappointed to find that real wood had not been used, but on the other hand pleased that some gorgeous timber had not been wasted on what was no more than a cheapo instrument. Would the buyer really care what the guitar was made of? Probably not, as long as it looked good and sounded OK. But it did get me wondering what the experts would think if it should turn up on the *Antiques Roadshow* sometime in the next century...

Phil Davy
Editor

Two Draper power tool kits to be won!

Turn to page 71 to find out how you can win one of these great kits!

Three piece suite

A luxurious upholstered sofa and armchairs, all for under £700 ***p6***

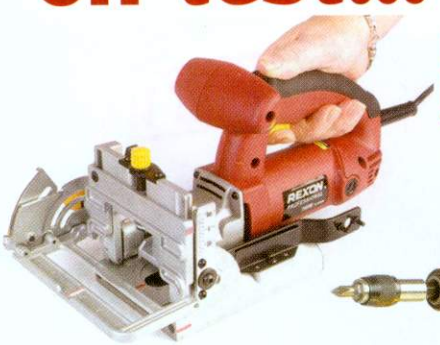
Corner display

An elegant cherry display cabinet for any room corner ***p36***

Turn a birdbox

Give your feathered friends a great nesting box this spring ***p90***

Great new tools on test...



Rexon biscuit jointer

Dare to be different... ***p22***

Impact drivers

Three top-notch drivers for when space is tight ***p58***

DeWalt cordless vacuum

The latest in battery technology – and it's a winner, we're sure! ***p19***

Sharpen up

Part 1 of our sharpening Masterclass for all edge tools ***p32***

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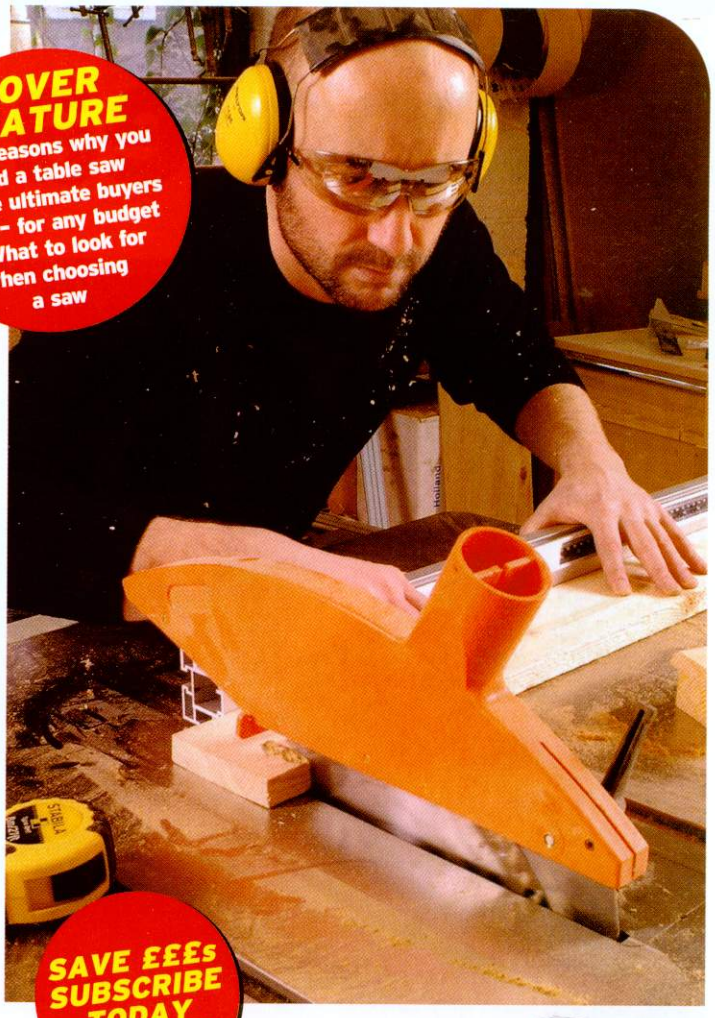


COVER FEATURE
- ✓ 10 reasons why you need a table saw
- ✓ The ultimate buyers guide – for any budget
- ✓ What to look for when choosing a saw

PROJECTS

FEATURES

TURNING

REGULARS

TOOL TESTS

Table saw buyers guide

We tell you what to be looking for and recommend machines for all budgets

p41

Three easy pieces

Pull-out plans - p49

The free pull-out in the centre pages of this magazine contains detailed plans for building the sofa plus full cutting lists for this and the armchairs and information about the upholstery.

A complete three-piece suite built in just 60 hours and for only £610 may be hard to believe, but it's exactly what **James Hatter** spent when he made this super set of comfy arm chairs and a sofa

Having had our last three piece suite for a number of years it was time to renew. The factors considered were comfort with strength, safety (flame retardant cushions), a pleasing appearance, sensible size relative to the room, washable covers, and an acceptable cost.

Wood-framed suites have been around a long time, and there are many excellent designs. They were popular in the 1960s but recent home magazines suggest they may be having a revival. This design, although unusual, is for either a living room or a conservatory, and attempts to display the beauty of the wood, and include comfort features associated with conventional suites by the choice of upholstery, component sizes and shape.

The overall width of each armchair is 950mm, and the sofa 1550mm. All have an overall height of 760mm and depth of 850mm. Modify as required.

A chair's comfort is subjective and depends on many factors. Books on ergonomics give a guide to average sizes and angles. In general, easy chairs have a larger backrest angle than conventional ones. Guideline figures and our previous suite gave me a seat angle of 5° and a 22° back. Seat and back height, length and width, arm rest features and foam density must also be considered. Nominal seat height depends upon front panel height and the thickness of the cushion, the actual height will depend on how much cushions compress.

The heights of the front and back legs give a fairly high seat position with the grade of cushion foam used, suitable for average and tall users. If you prefer a lower seat height then reduce the length of each leg, and/or choose softer grade foam.

American white Ash was chosen as the main timber because of its strength, light colour and attractive grain pattern. English oak for the in-fills gives contrast and interest. I used a nominal 25mm thickness throughout.

Design and Construction

The rails and legs of the front and

Jointing the main seat rail assembly

09 The side and front seat rails are made up from a sandwich of oak and ash boards edge jointed together

10 The front leg sections are butt-jointed on in a similar manner to form the complete leg rail section

11 Crosscut the finished panels square and to exact length ready for dovetailing the front leg joints

12 The back legs are a sandwich of boards cut so as to leave an angled housing to accept the side seat rails

end panels are formed by edge joining lengths of ash and oak. The rear legs are surface jointed lengths of 20x100mm ash. A slot is left in each rear leg to allow the rear of the end panel to be joined. The front and end panels are joined using through dovetails. The backrest has vertical slats of a different thickness. Biscuits joint the backrest frame, as well as the slats in the arm rest cradle. Mortice and tenons could be used.

Commercial suites often have a sprung base but I decided to rest the seat cushions on 9mm ply panels with gaps for ventilation, and rely on the recommended grade of foam to give the required level of comfort. Battens or webbing could be used to support the seat cushions, or 60mm wide strips of plywood spaced 50mm apart to allow a slight flex.

Panels and Legs

1 The front panels consist of the edge joined rail and attached legs. The length of each panel is initially made 10mm longer so that they can be accurately cut to the correct length after the necessary edge joining of the components. I used a sliding mitre saw with a length stop to cut all the components.

The sofa front panel requires two 1410mm lengths of 44x20mm ash, two 125mm and one 40mm lengths of 70x20mm ash and two 560mm lengths of similar oak oak.

Lay out the components on a flat surface in the following sequence: 1) a 1410mm length, 2) a row consisting of a 125mm length of ash, 560mm of oak, 40mm ash, 560mm oak and 125mm ash, 3) 1410mm of ash. Edge join all, then cramp and allow to set.

Each armchair front panel is made in the same way, with the top and bottom parts being 810mm lengths of ash, with a centre sequence of 125mm ash, 560mm oak, 125mm ash.

2 The legs of each panel are made by edge joining 125mm lengths of 70x20mm ash, 42x20mm ash and a 70x20mm oak. The oak is at the foot of each leg. You will need two of these for each front panel and a further one for the front of each end panel. After the leg blanks have been formed, make an angled cut with 125mm at the top and 95mm along the foot end, this corresponds to an angle of 9.5°.

Edge join a leg to the end of each front panel, using one size 20 biscuit and glue, then cramp.

Accurately cut each front panel to size by taking 5mm off each end. I used a radial saw, but a circular saw with a straight guide can be used. Use a fine cross cut blade to give a good finish for the dovetail joints.

3 There are two end panels for each armchair and sofa. Each is a sequence of 125mm of 70x20mm ash, 530mm oak with one end cut at 18°, and 200mm ash with one end also cut at 18° to match the oak, all glued between 810mm lengths of 44x20mm ash.

Attach a leg shape towards the front of each panel using one size 20 biscuit and glue. Take 5mm off the front edge of each end panel and then measure 795mm from the front edge to a point on the bottom of the rail. Mark an angle of 18° inward from this mark and cut to the line.

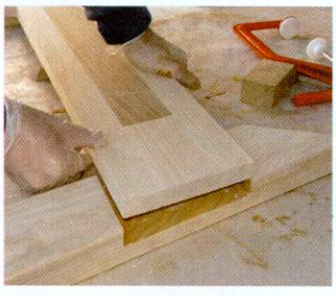
4 The back legs are laminated from two thicknesses, and have an angled housing formed on the outer face, into which fits the rear of the end panel. Each leg is a 540mm length of 100x20mm ash, with a 45° cut at the top end and 18° at the foot end. On top of this are glued a 225mm length of 100x20mm ash at the foot with 18° cuts at either end, and a 180mm length with an 18° angle at one end and a 45° angle at the other.

Add the lower piece, matching the edges at the foot end, using polyurethane glue, and cramp to hold. Make a 158mm wide spacer to simulate the rear of the end panel rail, and butt this against the bottom piece, then glue and cramp the upper piece. Make sure edges line up to give the appearance of a 100x40mm leg.

Upholstery

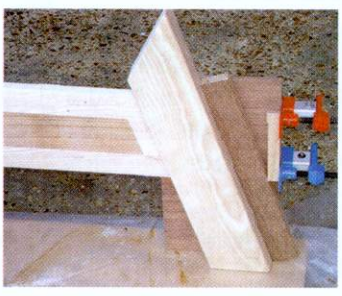
The armchair has a seat cushion, a backrest cushion and two arm rest cushions. The front seat cushion overhangs the front rail by 30mm and the back cushion continues above the top of the backrest frame by 80mm. The sofa has two seat and backrest cushions. Each arm rest cushion is shaped and is held in place at an angle by a 27° angled cradle. Several alternatives were considered, including having a cushion rested on a flat wood arm rest and having stud fasteners, or Velcro, or ties to hold them in place. If you prefer a wooden arm rest then you could modify the arm rest frame accordingly.

With any loose cushion armchair there is always a tendency for the cushions to move in use. This was not found to be a major problem, but if you prefer, you could add Velcro or ties to anchor the cushions. See our pull-out plans for more details on upholstery



05 Check the fit of the rail. The end of this will be angled to sit flush with the leg's rear edge

06 Through dovetails joint the front and side seat rails. Cut these by hand or use a dovetail jig. James used a Trend jig



07 You'll need to make up a simple cramping jig to help apply pressure as you assemble the seat frame

08 Sit the assembly on a perfectly flat surface as you assemble to ensure there are no twists in the finished frame

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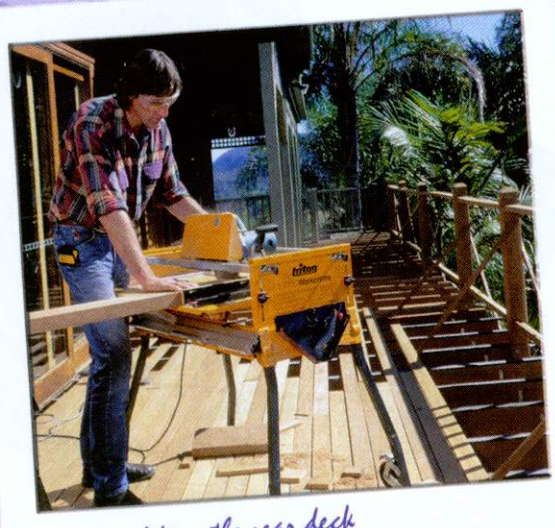

Gary building the rear deck

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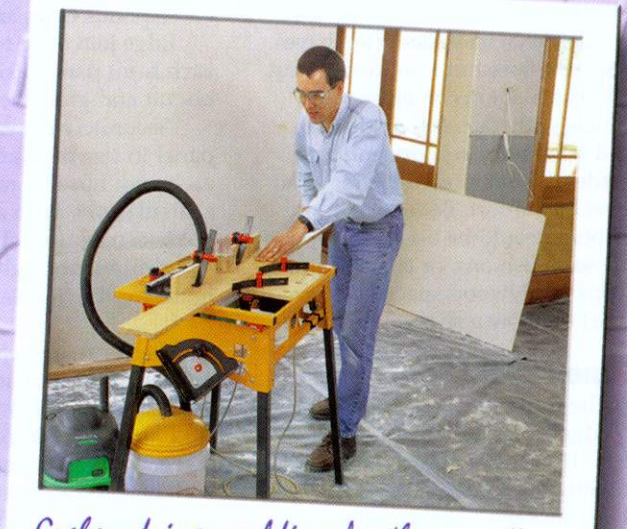

Graham doing mouldings for the renovation

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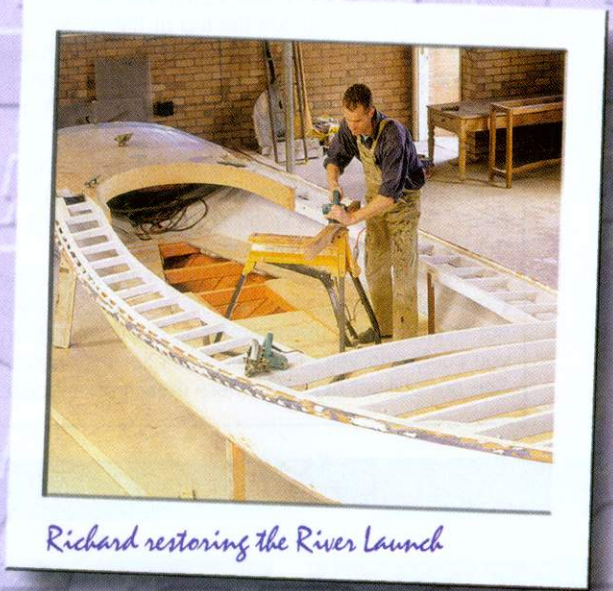

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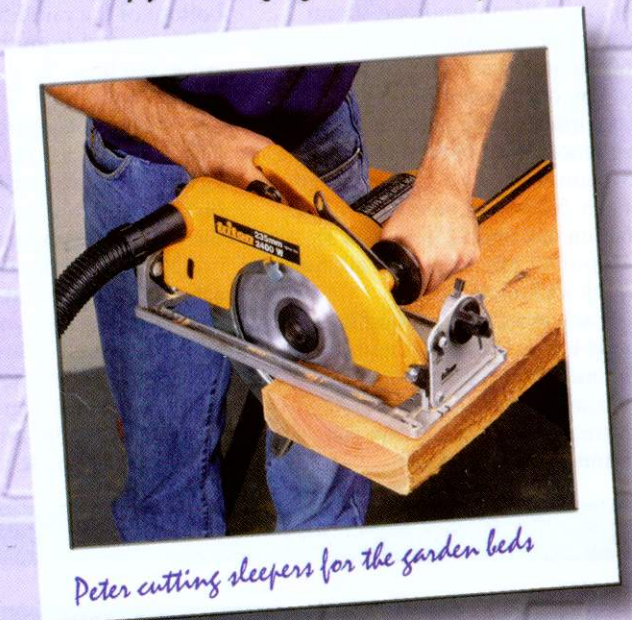

Peter cutting sleepers for the garden beds

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After the glue has set, measure 182mm down from the top edge of the bottom attachment then trim the foot end at 18°. Measure 530mm from the bottom of the leg and trim the top off at 45°.

Attach each end panel to an appropriate back leg using two 4x35mm screws and polyurethane glue. Counterbore the screw holes for oak plugs.

Back and Arm Rests

5 The overall size of each arm chair backrest is 804x610mm, and the sofa frame 1404x610mm. The bottom of each has a notch cut either side so that it fits within and rests on the end panels. The bottom also has a seat support.

Each back frame uses 100x20mm ash for the outer stiles and rails. The vertical slats are 20mm and 18mm thick, flush to the inside face so the 18mm slats give a recess at the back. They are joined with size 20 biscuits.

The armchair backrest has two 610mm lengths of 100x20mm ash for the outer stiles and two 604mm lengths for the top and bottom rails. Three 410mm slats are spaced equally between the outer rails, the centre one is 100x20mm, the others 100x18mm, for a 76mm slat spacing.

The sofa backrest also has two 610mm lengths for the outer stiles, while the top and bottom rails are 1404mm long. The centre slat uses 70x20mm stock and either side is the same pattern used with the armchair back frame. The slat spacing here is 67mm.

6 Each outer frame joint uses two size 20 biscuits, the others a single size 20 except the 70mm central slat which uses 10s. Mark the positions for the members and cut the required slots referenced off the inside face of each.

Each outer stile requires a 22mm deep notch cut in the bottom outer edge. The notch is 130mm long with a 22° angle cut at top. Cut the top corner off each stile for decoration. Sand all components and slightly round over all non joint edges.

Assemble each frame, check for square then apply cramps from rail to rail. Attach each stile using two size 20 biscuit at each joint. Apply cramps stile to stile.

7 The front of the arm rest is made by edge joining lengths of ash either side of a length of oak. Make a 6mm MDF template, giving a 27° outward facing support for the arm rest cushion support frame, then cut the shape in the blank.

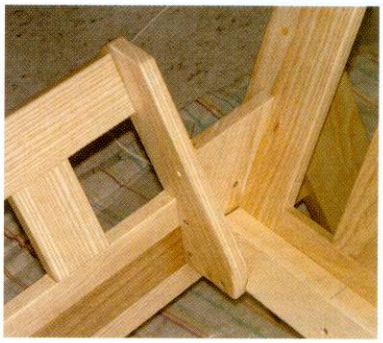
Make another template to the shape of the front arm rest supports and transfer to the blanks. Cut out with a mitre saw or bandsaw, trimming to exact shape with a router.

The rear arm rest pieces are simpler but use the relevant part of the MDF template, and are cut in the same way.

8 Join the top rail of the arm rest cradle between the front and rear arm rest pieces with 8mm dowel. The holes go all the way through each arm rest piece and it is helpful to make a template to ensure accurate placement. The arm rest template previously made can have the guide holes included. I used an 8mm straight cutter in a router with a 15mm guide bush, therefore the guide holes were 15mm. Accurately mark the position for the end of the arm rest rail and for the dowel holes. Another template will be used for guiding the 8mm cutter into the ends of the arm rest rail so clamp another piece of 6mm MDF behind the arm rest template and drill the 15mm guide holes through both templates. Attach strips of wood to the second template to align the rail end to the dowel guides.

Cut the dowel holes in the arm rest front and rear pieces by aligning the template to the edges, then adjust the 8mm bit to a depth of 22mm and plunge the bit through each guide hole.

9 The arm rest top rails are 410x70x20mm ash. Clamp the second jig to each end in turn and plunge the 8mm bit to give the corresponding dowel holes.



Top: The sofa awaiting its cushions. The arm chairs are built almost identically – only a few length dimensions vary

Middle: You can see here the reinforcing of the front leg joints

Bottom: Details of the rear arm rest cradle and the back rest supports

TOOLS YOU'LL NEED

James used a **Trend T5 router** mounted in the **Trend PRT Router Table** and a **Trend DC400 Dovetail Jig**. He also used a **DeWalt DW712 Sliding mitre saw** and a **Biscuit Jointer**

Adding the back rest

09 The backrest consists of a frame and slats biscuit joined together. You could use mortice and tenons if you prefer

10 The slats are joined with a single biscuit but the main frame has two parallel biscuits for more strength

11 The assembled frame notches over the side rails and is then screwed to the back legs

12 A spacer piece screwed and glued to the side rails and backrest will then support the rear arm rest cradle

PROJECT GUIDE
Difficulty
Intermediate
Time
60 hours
Type
Furniture

Increase the plunge to 25mm into the rail ends to allow the 840mm dowel to be punched through to accept an ash or oak cap.

10 Two angled slats are required for each cradle from 110x70x20mm ash; bevel the bottom edge at 27°. Cut matching size 10 biscuit slots at the ends of the slats and the top rail, angling the jointer fence for the bevelled edge. Cut matching slots in the top of the end panel.

Dovetailing the Panels

11 Sand all components, blending the joins between panels. Round over edges using a 6mm round over bit in a router, avoiding any joint edges.

The front panels are joined to the fronts of the end panels using through dovetail joints to give a decorative and strong bond. These could be hand cut, or use a dovetail jig with a joint length capacity of 340mm (300mm for a lower nominal seat height).

I used Trend's DC400 dovetail centre, which has a 400mm capacity and the advantage of allowing a choice of dovetail spacing. I chose eight tails spaced 47.5mm apart.

12 Cut the tails first to the ends of the front panels with a dovetail bit. Run samples to check the depth of cut. Workpieces are clamped under the front clamp with the face side towards the jig.

The sofa front panel is 1400mm long so you will need to set the jig high enough to allow this to be clamped effectively. I lifted a Workmate with the jig clamped to the top on to a table.

Cut the matching pin joints at the front edge of each end panel. Set up the jig by replacing the tail fingers with the pin guide fingers. Use a straight cutter in the router and adjust the depth as before. Run samples and test the fit in the tails cut previously.

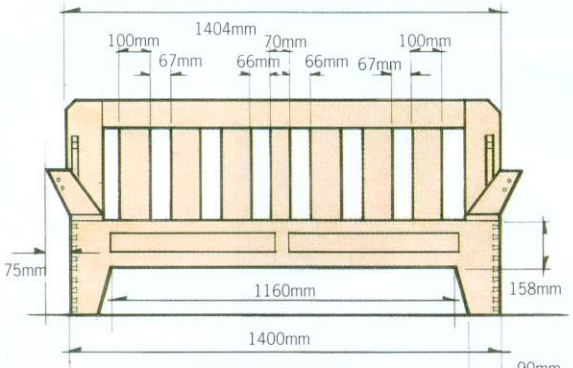
Clamp the front edge in the jig front clamp with the face away from the jig, and carefully cut the pins from left to right. Check the fit of all joints. Lightly file or sand the pin edges if tight.

13 Cut two triangular pieces for each armchair and sofa to connect the bottom of the backrest frames to the end panels. The rear arm rest is attached to the front of this. Draw a guide line 70mm from the top edge to line up to the top edge of the end panel when assembling.

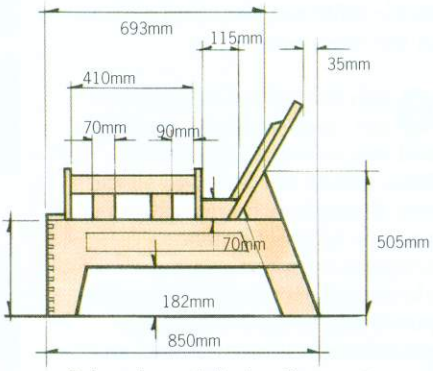
Seat Supports

14 In addition to providing support for the plywood panels these also strengthen the carcase. Armchair front supports each use a 610mm length of 70x27mm pine, while the sofa requires 1250mm. Cut a 5° bevel along the top edge of each front support. Drill 4mm clearance holes and countersink for screws

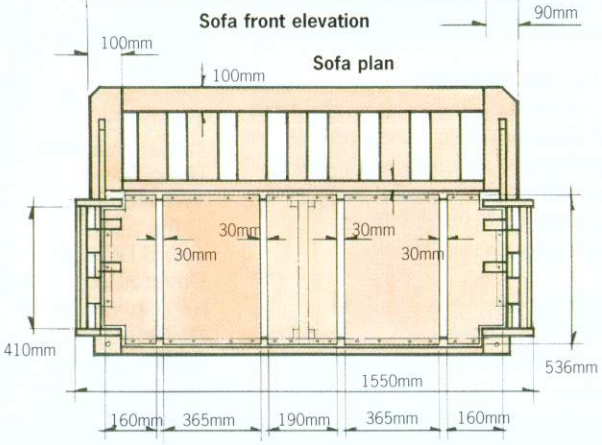
ELEVATIONS: Sofa & arm chairs



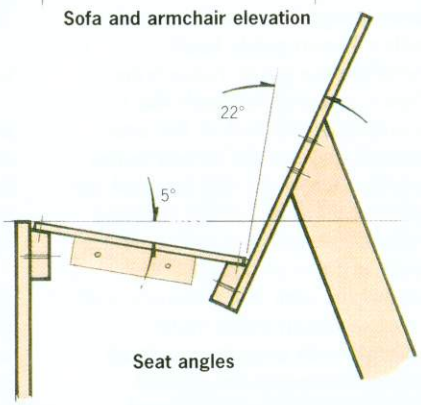
Sofa front elevation



Sofa and armchair elevation



Sofa plan



Seat angles

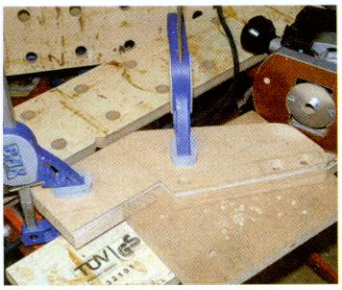
Costs

Armchair	
Finished timber frame	£66
Foam cushions	£39
Covers (as specified)	£65
Total for each chair	£170
Sofa	
Finished timber frame	£102
Foam cushions	£69
Covers (as specified)	£99
Total for the Sofa	£270

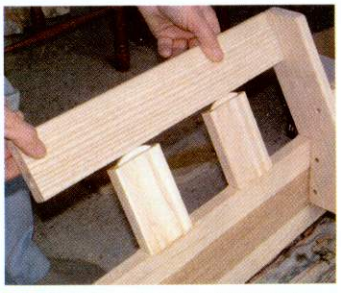
Cost of 3- piece suite £610

Adding the arm rest assemblies


13 To save timber the arm rest cradles are made up from one piece with extra blocks glued on as shown


14 Use a template to ensure all cradles are the same. Cut to rough size then trim with a router against the template


15 The arm rest cradles are notched over the side rails and screwed to the back rest spacer as shown


16 Cut biscuit slots to joint the slats between the seat rail and the top arm rest rail

to attach to the inside of the front.

Back supports are 710mm long and the sofa one 1310mm. These require a 22° bevel along the top. Cut a notch at the front to allow the rear arm rest to be joined.

The sofa has an additional seat support member positioned midway along the sofa frame. This is 480x70x33mm pine with a 5° angle at the front end and 22° at the back. It's attached to the front and back seat supports using short lengths of 20x20mm pine. End supports are each 300x70x27mm.

Assembly Procedures

15 Dry fit each chair prior to final assembly to enable components to be identified, test fitted, and pilot holes drilled. It is useful to make two cramping aids because of the angle of the back leg. These can be a square of plywood with a batten attached at the leg angle. Add a strip of sandpaper to the angled face to stop it slipping. The back end of the cramp will then be square with the front end when cramping the front panel to the end panel.

For each carcase, lay the front frame face down on a flat surface. Apply glue to the tails and the pins at the front of a left and right end panel. Join the front of each end panel to the front frame.

Rest the part assembly the right way up and cramp using the aid. Apply glue to the top angled faces of the back legs, then place the backrest frame so that the top of the notches rest on the top edge of the end panel and rests back on the leg's angled top. Use 4x40mm screws through the frame into the top of the leg.

16 Apply glue to the angled face and the area below the guide line of the triangular supports. Push the angled face against the backrest and against the inside of the end panel using the guide line to give the correct position. Attach using three 4x35mm screws into the end panel and two through the backrest into the triangular piece.

Line up the bottom edge of the rear seat supports with the bottom edge of the backrest and fix.

17 Attach the front seat supports 9mm below the top edge of the front panels, using 4x40mm screws and glue. Attach a 180x70x33mm pine block to the inside of each front corner using three 4x45mm screws and glue. Have the top flush with the front and end panel top edge to take a top cap fitted later.

For the sofa, attach the additional central seat support between the front and back seat supports using 4x30mm screws, glue and the small pine blocks.

18 The front legs are further strengthened by two additions. First, 158x45x45mm pine is joined to the inside leg corner using 4x50mm screws through counterbored holes, and to the pine block above by a 10mm sliding dowel to allow for timber movement. Drill a 10mm hole 25mm deep at the bottom of the upper pine block – you will need a long shaft drill for this, or drill it before permanently mounting the top block. Insert a dowel marking pin and push the lower block onto the pin to mark the position. Drill a 10mm hole 25mm deep at the mark. Cut a part 45° bevel along the outer corner of the block, and attach it using a dry 10x40mm dowel and two 4x50mm screws through counterbored holes. The second measure is to attach a 250mm length of 20x20mm ash, with the bottom end angled at 9.5°, along the inner edges of each front leg using three 3.5x30mm screws.

19 For each arm rest cradle, attach the rear piece to the front of the triangular piece using glue and three 4x40mm screws. Also join to the rear seat support using a screw. Join the two angled slats to their positions at the top of the end panel using a size 10 biscuit and glue.

Apply glue to the top ends of the slats and to the matching position on the bottom edge of the arm rest rail. Also apply glue to the rear end of this piece and the matching position on the rear arm rest piece. Insert size 10 biscuits in the slots of the slats and join the rail to the slats. Insert two 8x40mm dowels with glue through the rear arm rest piece and tap through into the end of the arm rest rail. Apply glue to the lower part of the front arm rest piece and to the front end of the cross member.

The upholstery company sent test cushions to try out before committing to the upholstery

MATERIALS YOU'LL NEED

Timber
James used predominantly 1in ash with oak panel details, sourced from Santer Joinery, Burgess Hill, West Sussex.

Finish
Rustins Acrylic clear matt varnish.

Slide guides
Select Hardware Ltd (☎ 0121 550 2323)

17 The top rail is then butted between the front and back supports and screwed. Cover the heads with plugs

18 Frame around the seat rails with battens to reinforce the assembly and support the seat panels

19 The front seat rail dovetail joints are reinforced from behind by blocks slot screwed in place

20 The lower block behind the legs is dry dowelled to the bottom of the upper block and slot-screwed lower down

UPHOLSTERY DETAILS

The cushions and covers were made by **Foam for Home Direct** in Bristol. Templates for the cushions were sent together with pictures. They have details of the cushion sizes and features, and a range of cushion cover materials that they can supply at a favourable price to GW readers. If you modify the sizes given, contact them for their expert advice.

Attach the front arm rest piece to the block fitted to the front panel using three 4x40mm screws. Drive two 8x40mm dowels with glue through into the front end of the rail. Tap all the dowels through to leave a recess for the ash plugs that will be fitted later. Apply a cramp between the front and rear arm rest pieces. When set, remove the cramp and insert ash plugs.

20 Prepare a top cap to cover the top of each front corner block from 100x53x20mm ash with front and side edges chamfered. Drill and counterbore a single 4mm clearance hole centrally, then attach using a 3.5x35mm screw and glue. Fit an oak plug.

Seat panels

21 For each seat cut two 160x536mm panels from 9mm ply, with notches to clear the front and rear arm rest pieces. Drill and countersink 3.5mm holes for attachment to the seat supports. Rest a panel in position and mark a line of the bottom edge on the inside of each end panel. Use this to line up the top of the seat end supports and attach with 4x40mm screws and glue. Screw and glue the notched ply panels to provide bracing at the corners of each seat. The armchairs also have a central 9mm plywood panel measuring 365x536mm.

The sofa requires two 365x536mm panels and one at 190x536mm. Attach the 190mm panel centrally along the sofa seat. Attach the 365mm panels centrally within these. The gaps provide ventilation for the cushions.

22 The end seat panels slope down at an angle of 5°, so to keep the arm rest cushions level, two short supports are attached at the bottom of the cradle. One is an 80mm length of 44x30mm ash with a 5° bevel along one edge. The other is 80mm of 44x15mm ash, also with a 5° bevel. Rest the bevelled edge of each onto the end ply panel and position so that the top edge is 5mm below the top edge. Attach with a single 3x16mm screw.

The backrest cushions are held centrally within the backrest frame by a stop at either end. These are each a 280mm length of 44x20mm ash with a 27° angle cut at both ends. The top end also has the corner cut off. Drill two 4mm clearance holes and counterbore for oak plugs. Position one on each backrest stile 22mm from the outside edge of the frame with the bottom edge resting on the top of the triangular piece. Attach using two 4x45mm screws and glue. Cover the heads with oak plugs.

23 The space inside each triangular piece is covered by an ash infill. Each is a 100mm length of 55x20mm with a 27° bevel cut at one end and the inside corner cut off the other end. The infill is attached to the inside of the triangular piece using an 88mm length of 20x20mm pine, with a 27° bevel at one end. This is first attached to the underside of the infill using a 3.5x30mm screw and glue, then to the inside of the triangular piece using two screws.

NEXT MONTH

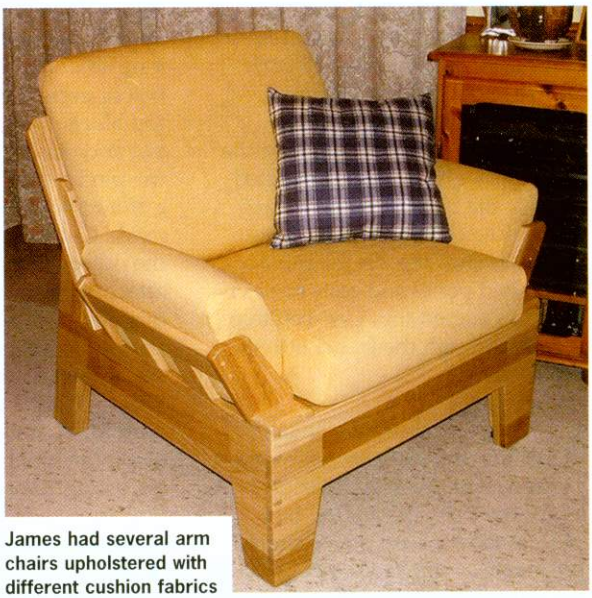
Revamp your bedroom with a stunning Mackintosh-style bed design from Steve Maskery

Finishing touches

Give all frames a final sanding and round all sharp edges. A belt sander is useful for cleaning up the dovetails and the wood plugs.

Apply a dilute coat of clear water based varnish. I used Rustins Interior Acrylic matt varnish. Denib as necessary, then apply two further coats at full strength. Stir the varnish well before and during use. For best results with water based finishes use a synthetic bristle brush.

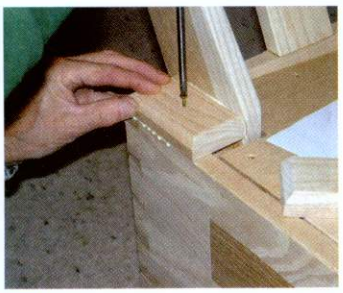
Castors could be used to ease movement, but I preferred slide guides because they are effective and unobtrusive. These are polyethylene based discs, attached to the bottom of each leg by a central screw or adhesive pad. They work on wood floors, vinyl, ceramic tile, and carpeting. Two sizes were used, 64mm dia for the front legs and 38mm for the back. Attach with the screws provided.



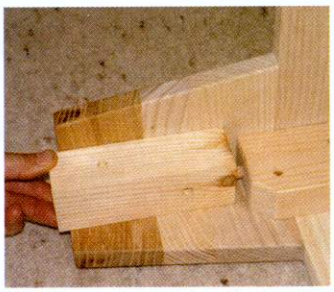
James had several arm chairs upholstered with different cushion fabrics

Cover strips and seat panels

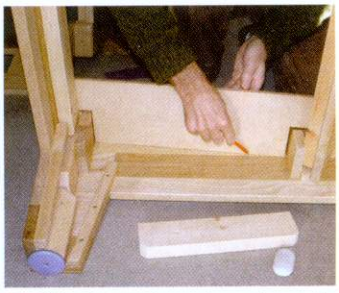
21 Stops to keep the rear cushions in place are screwed and plugged to the back rest frame



22 Add cover blocks to the tops of the front rail corner joints. These are plugged after screwing in place



23 You can see here how the lower leg reinforcing block dowels into place in the upper block to allow for movement



24 Notch the outer seat panels around the side structures, then fit the middle panel then infill between these

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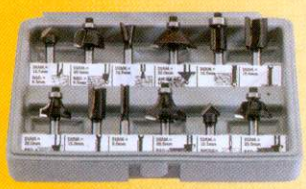

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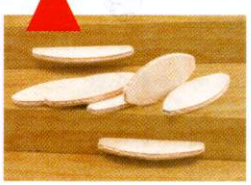

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REF: WOOD B

Letters

Something to get off your chest about the world of woodworking? Write to us at Good Woodworking Letters, 30 Monmouth Street, Bath BA1 2BW

Travel adhesive

Regards Mike Ninham's excellent article on how to build a travel guitar, I would like to make one comment. He recommends the use of Titebond II. Unfortunately, although this is a moisture resistant glue, it has been found to have limited application in guitar making as it never dries hard (thus having a damping effect on the sound) and has a reputation for creeping joints, especially joints that are always under tension. For travel guitars, Original Titebond is adequate, although some luthiers recommend the use of epoxy such as Western Systems or a polyurethane glue, neither of which are as easy to work with as Titebond.

Mike mentions Touchstone Tonewoods as a supplier and you should perhaps include David Dyke Luthier Supplies in Horam, East Sussex as well as Craft Supplies.

Can I also suggest that readers interested in instrument building visit the Musical Instrument Makers Forum at www.mimf.com, which is an excellent resource and support for instrument builders.

Stuart Ketchin, via email
www.woodburnguitars.co.uk

Late praise

Having just finished building my workshop, I gathered all my old magazines together and came across Issue 1 of *Good Woodworking*, November 1992 price £1.95. It contained 98 pages, the same as today's issue. It makes today's mag great value for money when you compare other prices from 1992. The editor Nick Gibbs then said he looked forward to hearing from readers – is 11 years too long? I have just renewed my subscription so I must be happy.

Keith Barton, via email

Visible scales

Having not taken up woodworking until about five years ago, and having three granddaughters, I decided to try my hand at building a dolls house. Having the use of only one arm I had some difficulty holding wood in place until it was glued and nailed. It took me some time to discover Axminster had the answer in spring corner clamps, then bingo, I was up and running and have added lots more clamps easily used by a one armed person.

I have bought many tools and am now able to make jigs, etc, to enable me to use them safely single handed. A Proxxon table saw and a DeWalt 738 bandsaw have the same problem. The scales are difficult to read with my ageing eyesight, as they both are just marks in the casing. To overcome this I drew a paintbrush loaded with white paint over the scales and

Readers Gallery Geoff Whetren, Devon

Two years ago, my husband Geoff, now 48, was inspired to take up woodturning. He bought an old Coronet Minor and some tools and started, completely self taught, to make small bowls, a few egg cups, candlestick holders, pen and pencil holders, etc.

He graduated to an Elektra Beckum lathe and now has a new Axminster lathe and belt disc sander, plus dust extractors, drills, bandsaw, Tormek, etc.

Trips to Axminster tools and Yandles of Martock for wood are always of interest to me, with so many different foreign timbers, most I've never heard of before.

The sectioned bowls and dishes were made by Geoff over the past few months. They are all his own ideas from plans and measurements he has worked out and taken to completion, using many foreign and British timbers to give beautiful mixes of colours and patterns, I call his work 'painting with woods' as he uses the gorgeous colours, muted and vibrant, to their best advantage.

Perhaps many woodturners would not have the patience to spend time with calculations of lengths and angles, cutting small pieces of wood, sanding them and then sticking them together to form rings; then sticking ring upon ring then gluing them on a base. There's hardly any wastage, unlike turning solid blocks of wood into bowls.

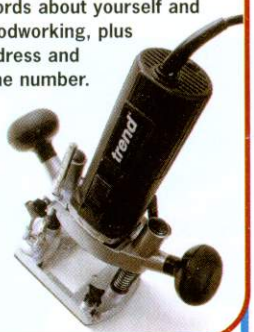
I can assure turners that the results of this 'labour of love' produces stunning bowls, and time is well spent. I'm not a wood-turning widow, I enjoy my husband's work and what he produces - and I get first choice of his works of art - we 'share' his adventures in wood. Geoff's last bowl, about 15in diameter, was admired and bought by the builder installing a new kitchen for Geoff's mother. He watched the bowl being made from start to finish - an enjoyable experience.

I'm really proud of Geoff's artistry and final products.

Caroline Whetren

WIN a TREND router

Each reader whose work we feature here will receive a Trend T3 router. Send us some sharply-focussed, 6x4in colour prints and a few words about yourself and your woodworking, plus your address and telephone number.



We would like to hear what you have to say about woodworking, good or bad. Please send your contributions to:
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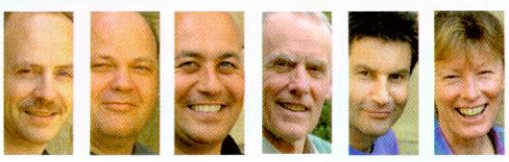

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immediately wiped away the excess, and I can now read the scales with ease.

Anyone disabled will find a way round a problem in the workshop, and with perseverance do just as good a job as anyone else

Bob McCabe, Inverness

Vanity rules

In response to Mr Brian Creasey's comments on the Morgan Design article in GW 143, we find his personal opinion on our appropriate use of safety glasses to be true and correct. We hope that he can accept that our vanity was stronger than our need to deliver safety to the hobbyist and hope to ensure him that in a normal working day everyone wears safety goggles.

Morgan Design have talked in depth about his comments and accept there is no excuse for not following in the footsteps of the great Norm Abram with emphasis on safety in the workshop, and should another opportunity arise for a magazine article we will be very safety conscious, wishing to deliver the correct image.

I would also like to take this chance to explain the title and discipline of 'wood engineering'. As a successful and highly motivated business dedicated to producing furniture at the highest quality, I feel that, in our present environment, society needs to accept that cabinetmakers are progressing to the next level of excellence. I find it amusing yet essential to think that our calculations for timber movement are now so accurate and so precise that it feels we are on a long term quest to prevent any timber movement. We are almost in denial that timber doesn't naturally shrink or contract throughout the seasons. This explains my expression 'wood engineering', as I believe F1 racing cars wouldn't accept this kind of discrepancy so why should the furniture make?.

I gracefully accept my mistake for not enforcing guards and glasses, and would like to invite Mr Brian Creasey to our workshop so we can hear more of his comments and push our quest forward for the ultimate level of wood engineering. We do feel that we understand high levels of safety, quality and the environment issues that surround us, but accept you can never know it all. As my tutor said to me once: "You never stop learning and when you do, everyone stops listening."

George Morgan, Morgan Design

Letter of the Month

In association with trend routing technology **WIN** a **TREND** router

Cost effective batteries

Readers who are looking for a more economical way of replacing power tool batteries may be interested in Eurobatteries.com, a UK company that supply a wide range of batteries and packs.

Whilst they list replacement battery packs for power tools at competitive prices, my preference is to dismantle the tool's pack to ascertain the size of the cells, which may then be purchased in the quantity required and re-assembled in the original case. Only basic skills, the ability to solder and common sense are needed for this. Eurobatteries have some helpful hints on their Website, the most important being to ensure the correct polarity.

I've used this method for many years and indeed have recently replaced the cells in three Bosch 12V tools at a total cost of about £70. Eurobatteries even provide a post paid return label that you can use to have old cells recycled!

If you are worried about the tool's guarantee, this will have undoubtedly expired by the time cells need replacement. Provided the original insulating material and padding is used there is no reason why a rebuilt unit should be any less safe or reliable than the original. However it's always worth considering the condition of the rest of the tool before spending any money on new batteries from whatever source. In my experience the DIY range of tools may not outlast the original batteries by very long if they are used heavily, although the more professional tools may last for 3 sets of batteries or more. I have no connection with Eurobatteries.com, but have found their postal service to be excellent, and the Web site to be easy to use and comprehensive.

Richard Ferguson, Hampshire

Readers might also like to try www.re-cell.co.uk, another UK battery replacement service who rebuild cordless tool batteries at prices far less than retail prices.

The Letter of the Month wins its author a Trend T3 variable-speed router, plus a box of cutters. For details of Trend tools and stockists ☎ 0800 487363 www.trendmachinery.co.uk

Old Wives' Tales Considered by Jeff Gorman

Patent Your Tool Invention

When considering patenting an invention, consider not only the costs, but also whether you will ever have the financial resources to prosecute an infringer, should this happen.

Catch 'em young

In the End Grain article in GW 144 Nick Wells is concerned about the machines taking over! Is he related to another author with the same surname, a certain H.G. Wells who wrote *The War of the Worlds?* It seems to me that under the free market economy you are allowed to buy what you want and the stockists will only stock what we the general public buy. If you prefer power tools then buy them, if you prefer hand tools buy them.

I agree that in some cases hand tools are quicker than dragging out the thicknesser or planer, setting it up, putting on glasses, visor, ear defenders and dust mask – then the time to tidy up and all the fine dust generated by these machines.

As a magazine, which tests many tools, both hand and power, could you not put pressure on manufacturers to produce quieter running tools, not just bigger and brighter, with soft grip, etc. This would help both a users hearing and the patience of neighbours who I imagine must hate weekends when a DIY project is under way.

With regards being taught woodwork at school, my 12 year old daughter, who attends Lornshill Academy, has had three one-hour lessons each week since she started in August. This has included design, theory and practical. Her teachers are fun but most importantly encourage the children. Let's not always belittle the education system. My daughter has the advantage of being able to practice in my workshop after school and at weekends. My younger daughter, who is 10, can turn basic spindles on the lathe.

Over the years I have got a lot of pleasure from helping them make items for school projects, from working models of a French guillotine to axes and shields for Viking and Jacobite projects.

If we are not happy with the education of our children then take matters into your own hands and teach them – they won't learn if you don't. Start with the safety of all tools. Show them how to use them, and what they can do, and this respect and information will stay with them forever. From tiny acorns mighty oak trees grow. They might not carry on working with wood, but knowledge is power and they may hopefully be able to use some of it in later life. Lets hear it from all the under 16's out there who enjoy helping mum or dad in the garage or showing them what to do...

S. Graham, Clackmannanshire

NetWorks

There's all manner of useful information to be found on the Internet for the woodworker. We help separate the screws from the sawdust

A versatile site

Daily Trivia, Hand Tools, Events, Looking for Something, Classified, Turning Critiques, Benefit Auctions, Volunteer Tent, Articles and Reviews, Badger Pond Articles & Reviews, Shop Shots, Russ's Corner, Splendid Splinters!, Tales From Grandpa Augustus, News & Views, Links (over 1000 in 24 categories so far), Book Reviews, Book Lists, Wall of Fame, Mug Shots, Badger Pond Shop Tours, Badger Pond Message Archive CD, Jim's Sources... Whew! These headings inadequately summarise offerings hosted by Ellis Valentine at **www.woodcentral.com**

WoodCentral

Art marquetry

From the International Marquetry Gallery at **www.artmarquetry.com** I found this work by Australian Michael Retter. Paul R. Dean, Marquetarian and Web Page Designer, introduces the site by saying 'If you are interested in starting to do it, or wanting to find out what other marqueterians are doing, then this site will interest you'. The offerings include *A History of Marquetry*, a review of all the books Paul has found on marquetry, a list of known suppliers of materials and tools, a list and description of the various tools and processes and in addition to the gallery of eight makers, links to marquetry sites.

Boxes galore

Working through a series of studio woodworker's sites, I was struck by several (to me) baffling references to 'Accent Furniture'. This turns out to refer to mantel and other clocks and decorative boxes of various kinds. With some diligence, you can find the sources of this illustration from the following sites:

- **www.pflwoodworking.com**
- **hem.spray.se/per.brandstedt/index.html**
- **www.boxesbyboudreau.com**
- **www.blueheronwoods.com/JeweleryBoxes.htm**

Top violins

The Derek Roberts Violins site **www.violins.demon.co.uk** is a family business that describes itself as offering 'top quality services and sales to all orchestral string players, including violins for sale, violas, cellos and double basses, bows, cases, accessories and strings'. He includes a well-photographed series of articles that show how, day by day, a violin is made by hand by a professional violin maker in the traditional way. Derek Roberts has workshops in Leamington Spa, Warwickshire and in Pembrokeshire, Wales and at Warwickshire College teaches an evening class course for part-time students in violin making.

Signposts

- How-to VHS videotapes (including a sample file). Click on 'Newsletters' for good advice: **www.finefurniturefinishing.com**
- Crosscut saw maintenance for Green Woodworkers **www.sctrails.net/Trails/LIBRARY/FSPubs/fspubs.html**
- Materials for restorers and a Discussion Forum **www.vandykes.com**
- The D&S Scary SharpSystem **http://www.shavings.net/scary.htm**

Gleanings from the Net

Harvested by Jeff Gorman

Safety – Unexpected Switching
A woodworker reports that when he anticipated using his power tools again, he used to leave them plugged in. After using his orbital sander, he turned it off at the switch and moved away to another workbench. A few minutes later he heard a noise and saw his sander 'dancing all over the workbench'.

What had happened? The switch has a dust protector boot. He thinks it had actually not fully seated in the off position; teetered in the middle position, then finally flipped back to the on position.

Intimidating Wood
Charlie Belden: I've been gathering, collecting, scrounging and buying some really nice wood over the last couple of years, so I've got several hundred square feet stashed away.

Here's my dilemma. Some of it is at least 50 years old. It was acquired though some good luck, so finding more is not likely. For this reason I'm having a really hard time using any of it for a project. It's just too intimidating - too rare, too expensive to replace; too beautiful to do it justice with my limited skills and experience. I can visualise a piece that would use some of it, and I know I could probably do a fair to good job of building the piece, but I put it off. Maybe in a year or two when I've got more experience and skills and a few more solid wood furniture projects under my belt; bought that new tool; finished the workbench and set up a space for finishing. Maybe then!

Dovetails, Stratum by Stratum
Nichael Cramer: I've always said a good archaeologist could go through my house, dovetail-by-dovetail, and sort them out in the precise order in which they were made.

More seriously, though, I've read in more than one place accounts of old-time woodworking shops where they would save up all the dovetails on the various projects and then do them in one afternoon. The idea being that by doing them as a batch, you get those angles down in your muscle-memory much better than doing one or two every so often as they come up.

Self Sufficiency in the Young
Joe West: In my junior high shop I spent the first few weeks making a house address sign for my father. I planed a pine board from ¾in thick down to ½in with a Stanley Jack Plane. I was so proud of the finished product I wouldn't let my father hang it on the house in the weather. It hangs in my shop now. I learned a lot in my three years in shop. I made a toolbox, a stool, several bowls, and small stuff. I've never got over the feeling of self-sufficiency I got from finishing a project and I think it's a big reason I'm into woodworking now. I think it's a real shame most (American) middle schools don't have a workshop. It's a time in a kid's life he needs to feel like he can do something for himself. It's one of the things that help a young person down the path from kid to adult.

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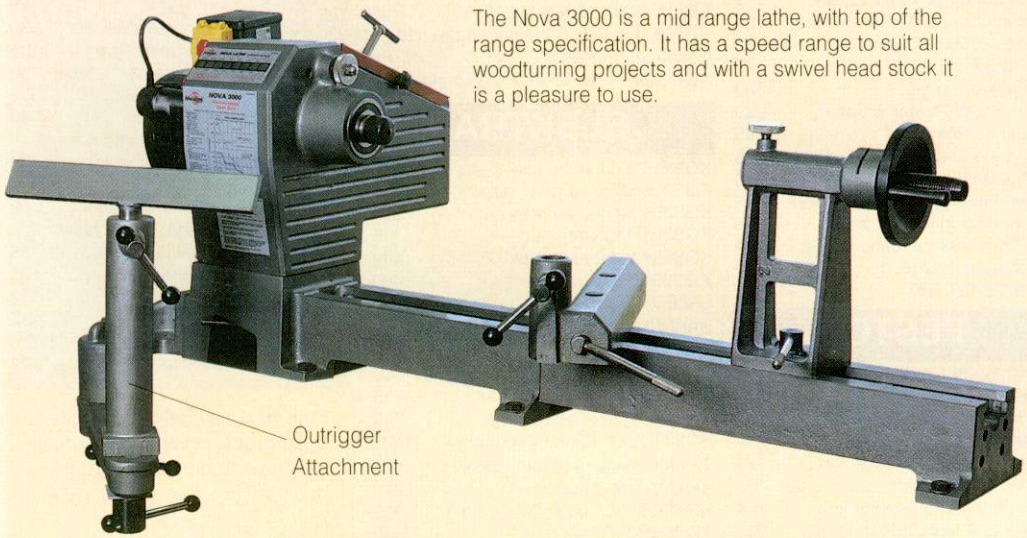
- *16" over bed - 29" with optional outrigger*
- *1¼" x 8 spindle thread*
- *24 division spindle*
- *2 MT head and tailstock*
- *Full swivel head*

NOVA 3000 LATHE

The Nova 3000 is a mid range lathe, with top of the range specification. It has a speed range to suit all woodturning projects and with a swivel head stock it is a pleasure to use.



- *Attractively priced, ideal first lathe*
- *One of the best selling lathes in America*
- *Robust cast construction*
- *Swivel head stock*
- *16" swing over bed bars*
- *Outboard swing 29"*
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- *24" between centres - 20" extension bed can be added*
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- *1¼" x 8 spindle thread*
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- *Optional outrigger attachment available (Shown)*

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On Test

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DeWalt DC500 Cordless Vacuum

£205.63 ☎ **0700 4 339258**

www.dewalt.com

DeWalt are never shy to tread the path of innovation, as witnessed by their superb DC500 portable extractor. I say extractor rather than vacuum cleaner as, although it will pick up both liquids and general dust, the tool has 99.7% efficient filtration, trapping particles down to 0.3 microns. So it's ideal for hand-held, dust-generating power tools such as sanders and routers.

The filter is similar to the air cleaner in a car, with baffles filtering the air. This one is made of Gore fabric, the same stuff used in Gore-Tex waterproof clothing, so can stay in place whether you are picking up wet or dry refuse. An additional benefit is that it can be cleaned under the tap, so it to be used again and again. A big bonus as standard vacuum filters can be expensive.

Despite this excellent feature, the DC500 has another trick up its sleeve. Although equipped with a mains lead, and available in both 230V and 115V for site use, it's also battery powered. A toggle-locked flap on the side reveals a battery port. Anyone with a DeWalt cordless tool (12V to 18V) can use the battery in the extractor and cart it anywhere it's needed. True portability, and a fantastic idea.

It's a pity there is no battery charging facility built in for when you run it on mains power, though. Of course, you'll get more suction time on a higher capacity battery. As a guide, an 18V battery will shift the equivalent of about two 25kg bags of cement on a single charge.

You don't lose suction on battery power, either. Airflow is 954 litres per minute, so this won't be a match for an industrially-rated vac (typically 1000W to 1200W) with an airflow averaging three times this amount. Even so, the 300W motor is more than efficient enough to deal with the standard day-to-day dust and debris, and plenty more. Far more effective than your household Dustbuster.

I hooked up the tool to both a sander and a circular saw and it coped easily. A quick run around the workshop benches soon had them clean. Although a frowned-upon practice nowadays, you can insert the hose into the port on the other end to turn it into a blower. This means you can clean underneath machines with ease.

If you pick up fluids, you don't have to unclip the reservoir tank when full. There's a screw-on bung on the side, making it a doddle to empty. The hose is quite short, but is made of rubber so is very flexible and stretches easily, enabling it to move freely as you work any tool it is connected to. For standard pick up jobs the DC500 comes with a crevice tool and a wide nozzle. A power tool adaptor is supplied and these are all stored onboard.

Tank capacity is 7.5 litres, so it won't be much use for big stationary machines, as it will be overwhelmed by volume. The DC500 is designed as a portable extractor, ideal for small general clean-up jobs, power tools or even connecting directly to the crown guard of a table saw. Chances are the car will get a regular clean as well!

Being DeWalt, I assumed this tool would be expensive, and so was stunned when I found out the selling price. The DC500 goes out for about £117. Bargain of the year?

GW verdict

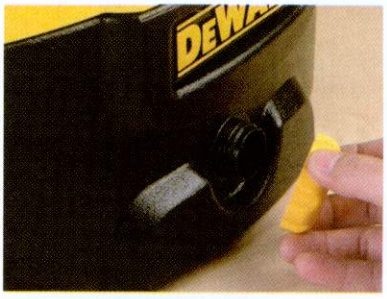
⊕ Battery or mains. Re-usable filter

⊖ No built-in battery charger

Value for money ●●●●◐

Performance ●●●●◐

The wet/dry filter is easily removed. Made of Gore fabric, you can rinse it clean



A drain plug on the side makes it simple to empty fluids from the tank

You release a latch to open the battery compartment cover. The battery slots in

Prices

We show manufacturers' list prices where possible, including VAT. Value for Money ratings are based on these prices. Many items will be cheaper in the stores, so it pays to shop around

What the performance ratings mean

●●●●● Superb. Can't be faulted

●●●●○ Excellent performance

●●●○○ Good, but not the best

●●○○○ Scope for improvement

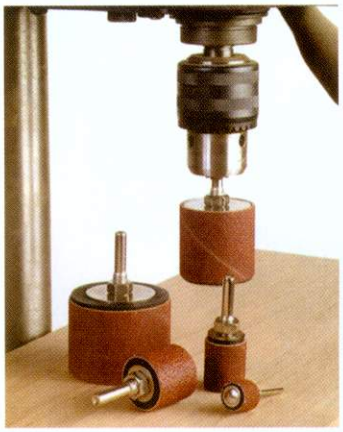
●○○○○ Don't bother

Sanding Drum Kit

£9.99 ☎ 0500 414141

www.screwfix.com

Pillar drills are often underestimated for woodworking. But once you have one you wonder how you ever managed without it. Beyond basic drilling work, adding a drum sanding attachment increases its potential, making it easier to shape and clean up internal and external curved surfaces.



Drums have been about for years, either as hard rubber, soft foam or pneumatic types, but they can be expensive. Screwfix Direct's neat 25 piece kit should surprise a few people as it sells for less than a tenner! You get five various diameter, hard rubber drums, from 13mm up to 50mm, so really tight internal curves can be cleaned up. You also get 20 sanding sleeves, four for each drum. A set of 10 replacements costs £4.69. Fitting a sleeve is a matter of simply sliding one over the drum and tightening the left-hand threaded nut against a flat washer. This bulges the rubber drum enough to grip the sleeve. On the larger drums the sleeves slide on easily, but the smallest one was a tight fit before tightening. The 6mm shanks are simply gripped in the drill chuck and you're ready to go.

Drums and sleeves diminish in their sanding depth as the diameter gets smaller (the 13mm has a depth of 13mm and the 50mm is 38mm) making thicker materials difficult. But for the model maker or sheet material user they're a boon. Drums should be used on a medium speed setting to prevent scorching, and they work very well on hardwoods and softwoods, as well as veneered plywood. Resinous properties of softwood tend to clog the abrasive, but a belt cleaner can be used to restore them. To be honest, even if you rarely sand curves, at this price this set is worth having just for the odd occasion you may need them.

GW verdict

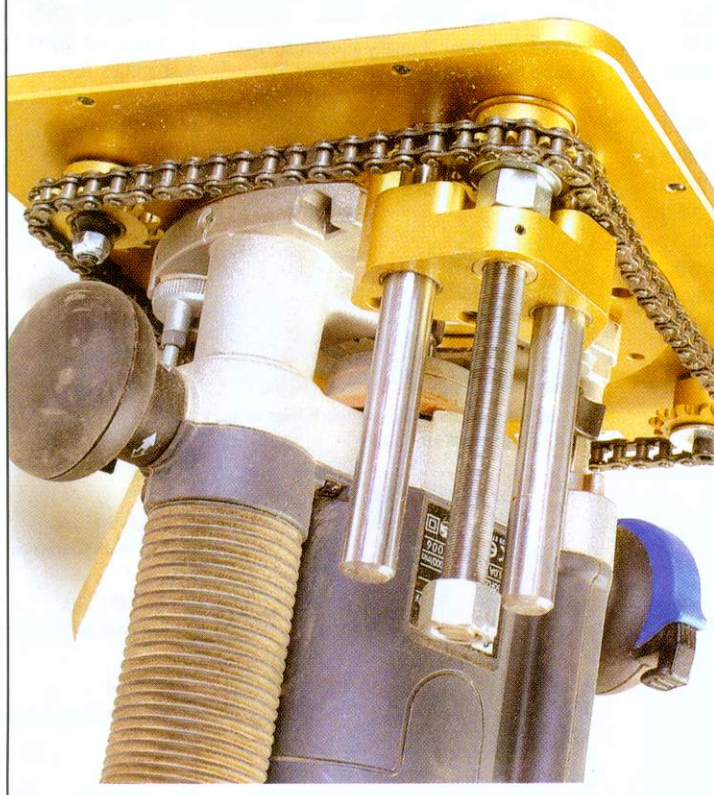
- ⊕ Good diameter range at low cost
- ⊖ Limited sanding depth

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

Woodpeckers UniLift

£185.00 ☎ 0118 972 2266

www.woodworkersworkshop.co.uk



Progress from basic hand-held routing to inverted table work and there seems more variation of tables than routers themselves. At the hobby end of the market you may find an entry level table adequate, but for prolonged use or precise adjustments you need to look higher up the scale. Most tables have their benefits, but invariably there is something you wish could be better. Making your own table is often the best option, as you eliminate shortcomings by building to your own needs. Woodpeckers offer the best of both worlds, supplying router plates and tables plus an accurate fence so you can build accordingly.

Whatever your decision, the UniLift router plate is a superb piece of kit as a basis to build around. The insert measures 235x300x9mm and is made from anodised aluminium. A sub-plate is hung below, to which the router is fixed. Being American, this plate is designed to take routers other than European ones. The manual states it will take eight models: DeWalt DW621, DW625, Freud FT2000, Hitachi M12V, Makita 3612C, Trend T9, T5 and Triton. The sub-plate is peppered with a variety of fixing holes, other European routers may well fit. Check with Wood Workers Workshop first.

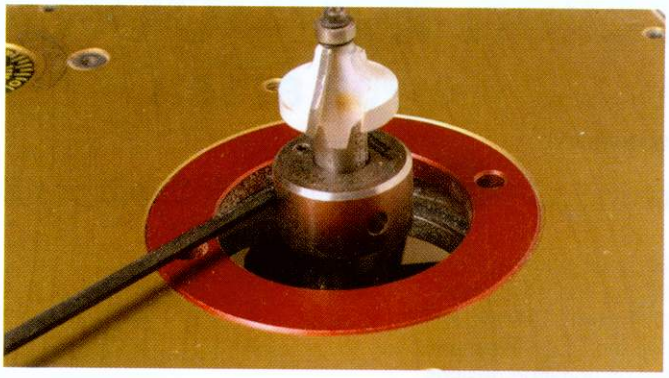
The sub-plate bolts to two substantial guide blocks on opposing corners. Rods running through guidebushes in each block keep the plate parallel and smooth running. The router is fitted by unbolting the sub-plate, using the hex key supplied.

Once in place, two threaded posts link the sub-plate to the main one to raise and lower the router. This is where the UniLift

Xtreme Xtension

£55.95 ☎ 0118 972 2266

www.woodworkersworkshop.co.uk



Despite its undoubted versatility, if the router has a failing, it must be the loss of plunge when inverted in a table. In some cases this is minimal, but on a professional insert such as the UniLift (below) the loss can be enough to prevent some cutters being used. Collet extenders are available to enable these bits to be used, but these still need a spanner to tighten them up. Under load you can experience slight "flexing," though.

The Xtreme Xtension is a collet extender with a difference. It doesn't need a spanner to fit the router bit, just the hex key supplied. The bit sits in the hole in the cone-shaped extender and a large hex screw on the side tightens it. This locks a metal wedge within the extender against the shank. A rubber washer in the collet grips the shank to stop it falling out before you tighten. The beauty of the system is that it needs only half a turn of the hex screw to either tighten or slacken the extender against the shank, so changeover is exceptionally quick, a matter of seconds.

The Xtreme Xtension is made from a single piece of fatigue-proof steel, and its squat cone design means flexing is eliminated, therefore increasing safety. When fitted overall length is extended by about 38mm, more than enough for most applications. This device is designed only for fixed table work, and at speeds less than 24,000rpm.

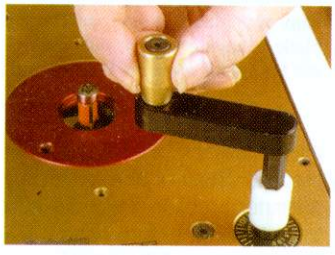
Packaging gives full instructions on fitting, pointing out you may need a few attempts to seat it squarely in the router collet. It will vibrate if fitted incorrectly. The extender went in perfectly each time I tried it, and ran with no vibration at all.

Results were equal to that of the cutter used directly in a standard collet. The extender comes complete with a reducer sleeve so you can use ¼in shank bits as well. An optional extra, but one well worth having, is the T wrench for fast changeover. This adds another £5.55 to the price.

GW verdict

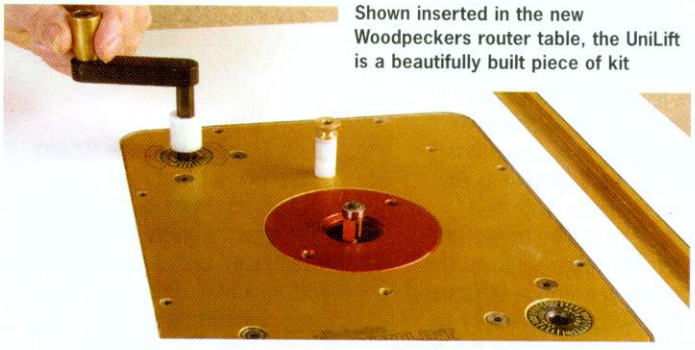
- ⊕ Fast cutter change, solid build
- ⊖ Care needed for initial set-up

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



The cranked handle is simply rotated to adjust cutter height

The reducer rings lock in place and are released with the tool provided



Shown inserted in the new Woodpeckers router table, the UniLift is a beautifully built piece of kit

excells, as height can be adjusted from above. A crank handle locates in a hex socket over either threaded post. This means that if one of the holes is obscured by a fence or feather board you can still adjust the router freely.

Woodpeckers' fence system comes with high and low facings, so two cranked height adjusters of differing height are supplied, so you can adjust the lift easily if the fence is close to the adjuster hole. You can have a very fine or faster, coarser adjustment. This is down to your choice of thread pitch when you buy, either 1/16in or 1/32in per revolution, indicated by the graduated disc over each adjuster. Being American, these are in Imperial only.

The threaded rods are linked by a chain drive so the action is very smooth with no racking. Once a height is set the position is held by tightening a hex screw in the top of the plate which locks it firmly. The problem with thick plates with lower adjustment assemblies is that you lose some of the plunge capacity. Woodpeckers have addressed this by recessing the underside of the plate to enable the sub-plate to sit up higher, minimising plunge loss. Even so, you still lose about 14mm so you may need longer shanked bits to compensate.

I fitted an Elu 97E (now the DeWalt DW621) into the UniLift. As we had the Woodpeckers table tool, I dropped the plate into the opening. There are a couple of neat touches on the plate. A series of eight jacking screws around the edge enable it to be set perfectly flush with the top. Also inset into two edges are sprung ball bearings to take up any discrepancy in the opening for a snug fit, so you can cut your opening slightly deeper than needed and also a little slack. This play is a good idea as it makes it easier to lift the plate out to change cutters than scamble around underneath. Three aluminium reducer rings allow for bits of varying diameters. These lock firmly into place, flush with the plate surface.

I made some round-over cuts with a bearing-guided bit and cove cuts using the fence. The UniLift performed perfectly, so is practically impossible to fault on actual performance, only on its limited plunge. Quality and build is superb.

Price is the critical factor, and £185.00 won't have many weekend woodworkers reaching for the credit card. But if you're serious about your work and want a high quality plate to base a router sytem around, the UniLift is well worth a look.

If too much of a strain on the budget, a second plate, the PlungeLift, is built to the same high standards, but has only one height adjustment position. This costs £105 incl VAT.

GW verdict

- ⊕ Build quality, smooth adjustment
- ⊖ Router plunge reduced. Cost

Value for money ●●●◐○
Performance ●●●●○

Rexon BJ1000RA Biscuit Jointer

£189.89 ☎ 01709 876611

www.rexon.net

Motor: 750W **Speed:** 10,000rpm **Depth positions:** Six

Biscuit jointers, whether the budget models tested in GW145 or professional machines, are based on bodygrip designs. This makes most cumbersome and tiring to hold over a long period. The exception is Lamello's Cobra, with a sander-type design for easier control.

Picking up Rexon's hoop-handled BJ1000RA was therefore a pleasant surprise. Although still quite front-heavy, its smaller sculpted grip makes it easy to control. Compared with standard jointers it's bulkier, but ergonomic advantages are greater.

The trigger has a lock-on button like those found on drills and jigsaws, positioned either side of the handle for left or right hand use.

An aluminium baseplate (120x160mm) has a milled finish for accurate referencing. The flip fence, also cast aluminium, has a milled and polished face to prevent it marring the workpiece. This fence is clever, with two adjustable scales to set the angles for mitre jointing. The standard position sets from 0° to 90°, with a secondary thumbscrew releasing the fence to gain a further 45°. This enables the fence to hook over a mitre in the acute position to minimise slipping. The 165x65mm area of the flip shoe offers good support, but unless the weight of the tool is supported I found the fence could flex slightly before the cutter engaged. This didn't affect the finished cuts I made during testing, though.

The flip fence locks off with a single locking knob. Height is set with a central screw which makes it very easy to finely adjust the setting. Unusually for a tool from Taiwan, the height scale is graduated in Imperial only. Not really a problem as cuts are generally made from a reference face rather than a predetermined setting.

If you need a fully compliant machine that for Simplex and Duplex fittings, then the Rexon fits the bill. It has turret positions for both of these, along with the three standard biscuit sizes and a maximum depth position. The turret is sturdy, built to take the knocks of trade use. The pin behind it has a locking nut to adjust the depth if the blade should be resharpened.

Blade changing is simple enough. A large hex bolt at the rear of the base unscrews to enable the base to slide away from the body. There's a spindle lock button on the motor housing and a wrench (stored onboard) is used to remove the nut.

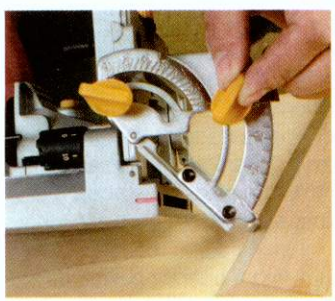
The Rexon performed very well, enabling both horizontal and vertical plunge cuts to be made without struggling to hold the machine. We checked the cuts for parallel, using both the fence and the base as a reference. Slots showed excellent accuracy, perfect off the base, and only 0.1mm out on the fence using No.20 biscuits. Rexon's new jointer is a winner I reckon. I wonder how long it will be before other manufacturers follow suit?

A fabric dustbag is provided and clips over a port at the rear. The blade changing wrench slots onto the baseplate when not required

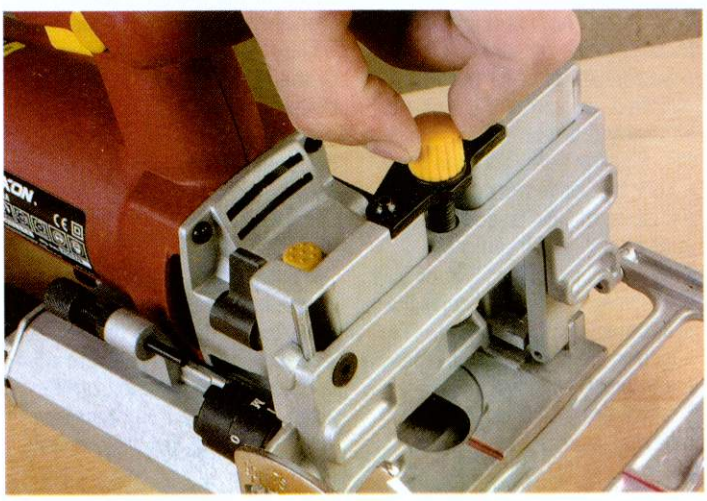
GW verdict

- ⊕ Ergonomics, double-tilt fence
- ⊖ Slight flexing in fence

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



The twin fence can be adjusted for locating over acute mitred edges



A threaded adjuster controls fence height (right). Rubber bumpers either side of the blade opening stop the jointer slipping on smooth surfaces

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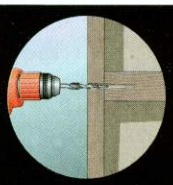
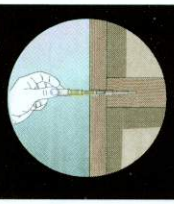
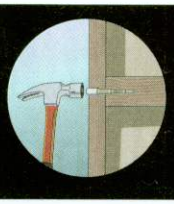
EASY AS .. 1  Drill stepped pilot hole

2  Add glue & insert

3  Tap down

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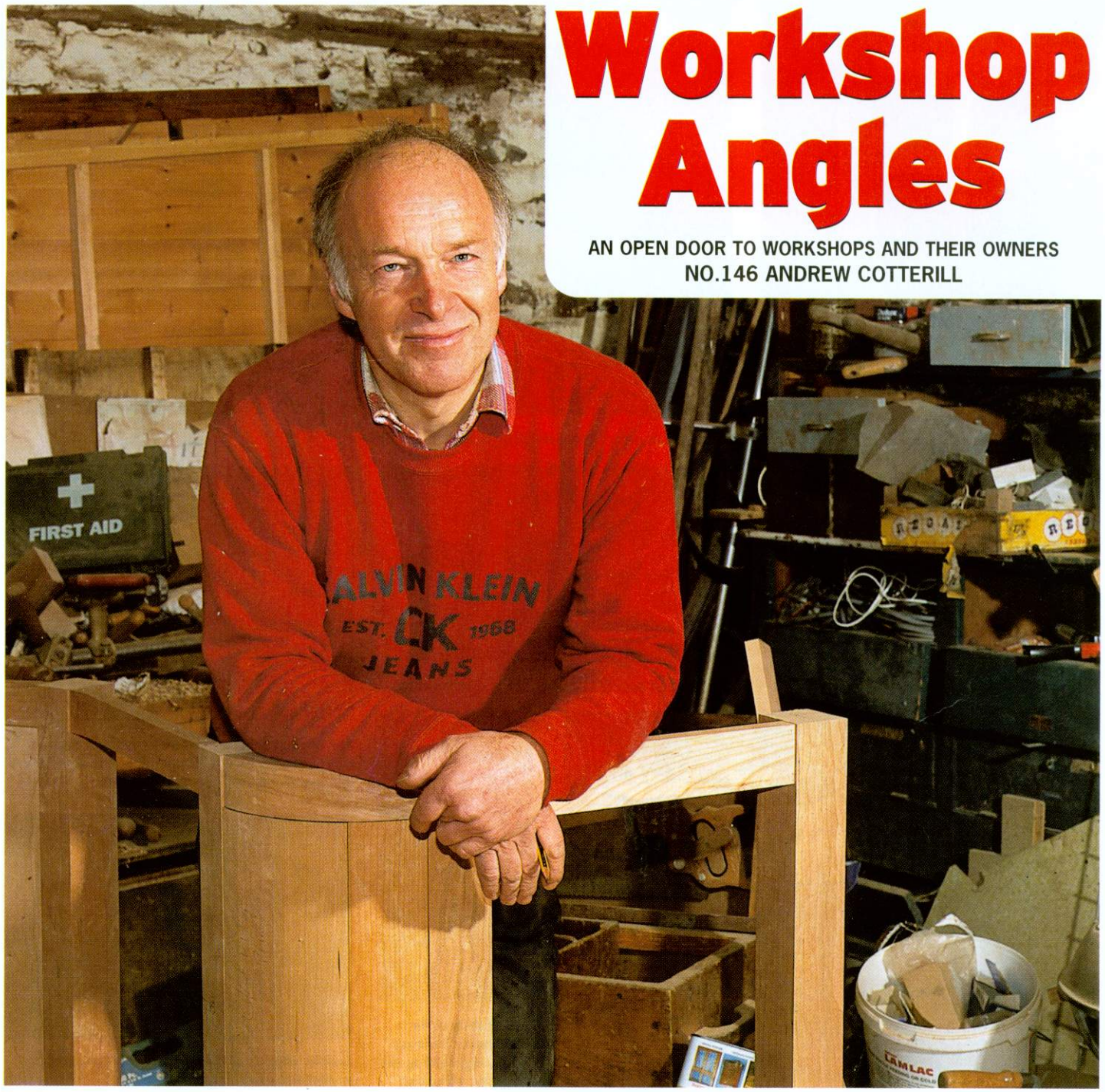
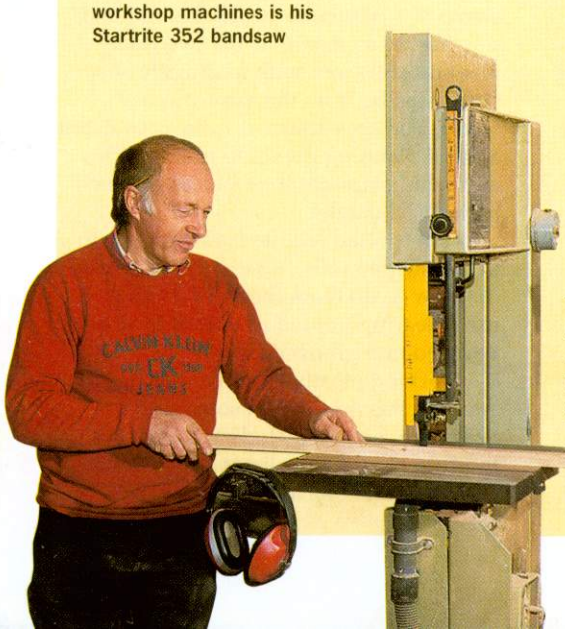




One of Andrew's most useful workshop machines is his Startrite 352 bandsaw

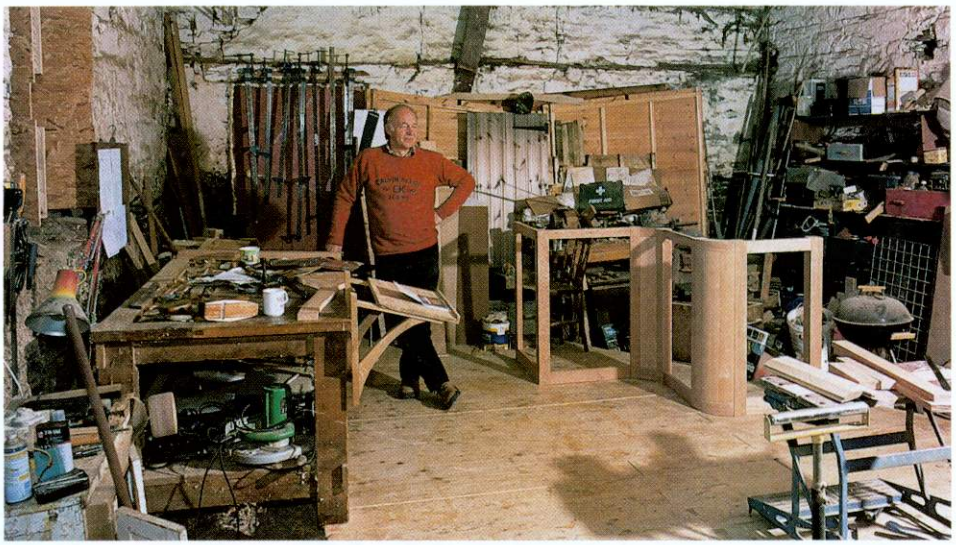
Many professional furniture-makers work alone, committed to producing work of the highest quality. Often tucked away in fairly remote locations, they're unlikely to become rich and famous, but are content to earn a living from what they enjoy doing most. One such maker is Andrew Cotterill, who is based on the west coast of Wales.

A self-taught woodworker, Andrew worked for a boatbuilder for a short time before repairing furniture for a pine stripping business. He has now been on his own for some 30 years and has developed a unique style of furniture which is immediately recognisable. Not a lover of straight lines, his chests, cabinets and sideboards in native hardwoods demonstrate an Arts and Crafts influence, but with flowing curves accentuating the timber. Rather than cut out a flaw from a piece of wood, he'll design it into the piece he's making. So a particularly knarled bit of oak could become a prominent panel, for instance.

Trademarks of his furniture are the hinges, which are entirely from wood.

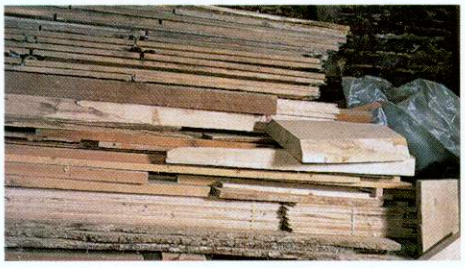
"I was commissioned to build some modern furniture for Tretower Court, a medieval manor house near Crickhowell. For some reason I specified wooden hinges without knowing how to make them! It was a very damp place so I decided not to screw them in position, although they were separate. I had to work out a way to fix them, so I used ➤

Bench planes are stored in this old cabinet...



Andrew's temporary barn workshop is basic but sufficient

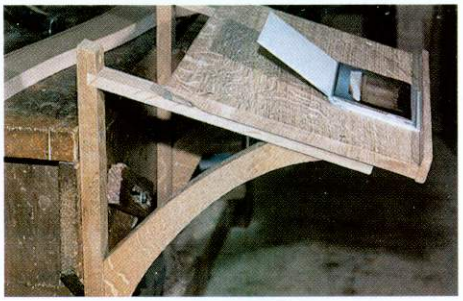
...while saws live in a traditional tool chest



Waney-edge boards stored at one end of the shop

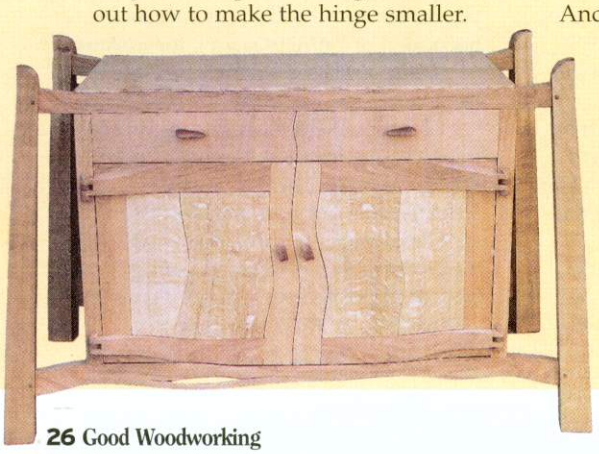
The original floor of the barn consists of pebbles from a nearby beach. Raised timber decking at one end makes it easier for Andrew to work

Reception desk for Aberystwyth Business Centre, highlighting the character of the ash



Andrew uses an elegant oak lectern to display a portfolio at exhibitions

tapered stopped dovetail housings on the face of the door and the hinges were driven against the shoulder. Then I wanted to use the same idea on an ordinary-sized cupboard door. It took about a year of experimenting to work out how to make the hinge smaller.



The breakthrough came when I turned the structure of the door round, so that the hanging stile was morticed into the rails. Once I'd done that I could form the hinge from the rails," he explains.

The same sort of technique applies to Andrew's chests, where the hinge is formed from the top of the leg.

"All the door hinges are done like that. I normally cut two back-to-back on the bandsaw. Upper shaping is with an Arbortech and fluted gouge. Oak cuts beautifully, and I leave the gouge marks on.

"Door hinges have to be made precisely, drilled on the morticer."

This oak sideboard, suspended in an outer framework, is typical of Andrew's unique style. Knuckle hinges are wood

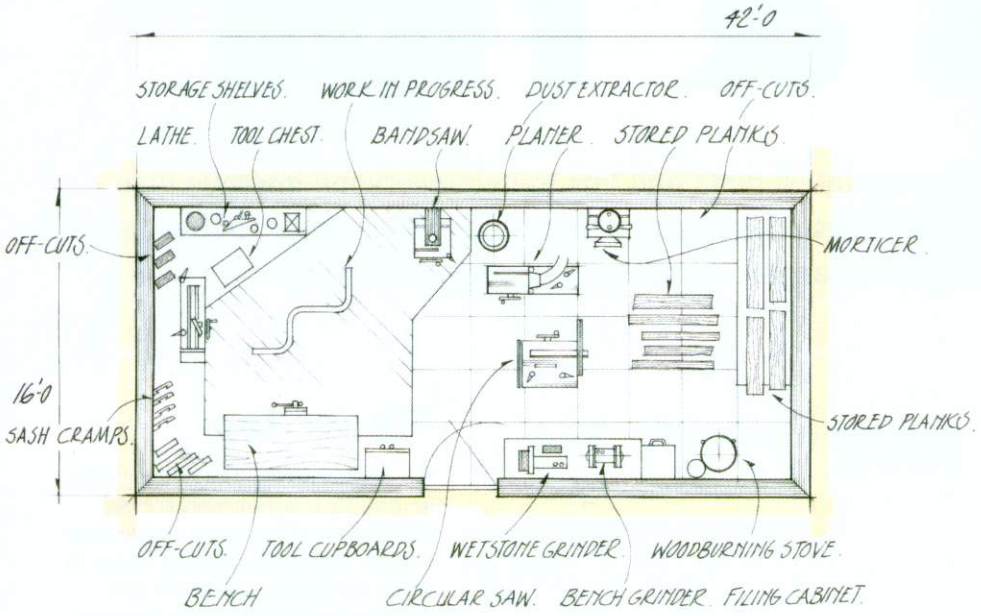
So are stiles and rails dictated by the shape of a particular board, I wondered?

"Yes, to an extent. If the two door meeting stiles join with a squiggly shape, both must be from the same piece of wood. The appearance is quite casual, but a lot of planning goes into it. If I made everything straight it would be so much easier!" he laughs.

Panels often require curved edges to fit the shaped rails. "Once you've sussed out how to do them they're very easy. I use a bearing-guided router bit to cut the tongued and grooved edges."

Working mostly in native hardwoods, Andrew has invested in some fairly heavy machinery, including a Multico morticer, Sedgwick planer, Mini Max table saw and Startrite bandsaw.

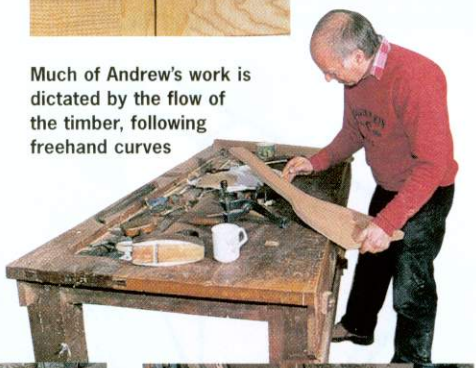
SHOP LAYOUT: Andrew Cotterill



Dimensions: 42x16ft

Chisels hang in a rack on the wall above the workbench

Door detail of an ash cabinet. The panels are rippled ash and contrast with the plainer rails and meeting stiles



Much of Andrew's work is dictated by the flow of the timber, following freehand curves

This bar is from American cherry (left)

Andrew uses a Multico HMT morticer for drilling as well as morticing tasks

This Fulgora stove runs on timber waste and keeps the workshop at a reasonable temperature

"I don't use the circular saw much, which tends to get used more as a bench. When I bought the bandsaw I got the best I could afford, a British-built Startrite 352. But I tried three tables before I found a good flat one..." he reflects.

"Once I got the bandsaw I could cut any shape I wanted. As a result I was able to achieve what I think is something elegant, in a rather lumpy way! Normally I use a ¾in blade which is fine, as curves tend to be fairly shallow. For the curved panels I'd be lost without a router."

He'll sometimes use a jigsaw for cutting tighter curves.

A champion of hand tools, Andrew finishes every piece of furniture with a bench plane, gouge or spokeshave, rather than abrasive paper.

"I leave the plane and chisel marks in. I find a smoothing plane is better than a scraper, which tends to raise the grain."

Andrew's preferred finish is Danish or tung oil. "Many people do what I term the Parnham House finish. Work is so highly finished you can't see the wood for the coating."

Most timber is bought in the Midlands. Andrew makes the journey two or three times a year, buying a vanload of mostly European oak and ash.

"When you buy waney-edged boards it's difficult to calculate accurately. It's easy to panic and buy extra boards, especially when they're quartersawn," he admits.

Andrew Cotterill is certainly flying the flag for contemporary British hand-made furniture. Long may he continue.

www.cotterillfurniture.com

Words by Phil Davy
Photos by David Askham

No two pieces of furniture are identical. Quartersawn oak panels on this chest mimic the shape of the rails

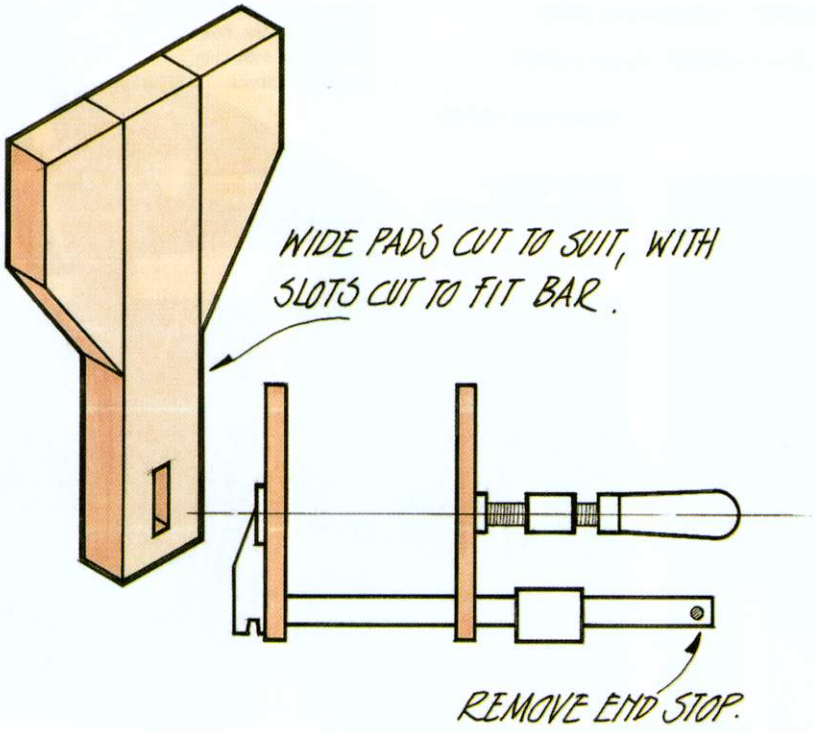
Hints & Tips

Pete Martin rifles through your latest hints and tips to help everyone improve their woodworking. This month includes adapting cramps, hand drilling plugs, better tapping and drilling chair legs at various angles – oh, and a use for odd socks!

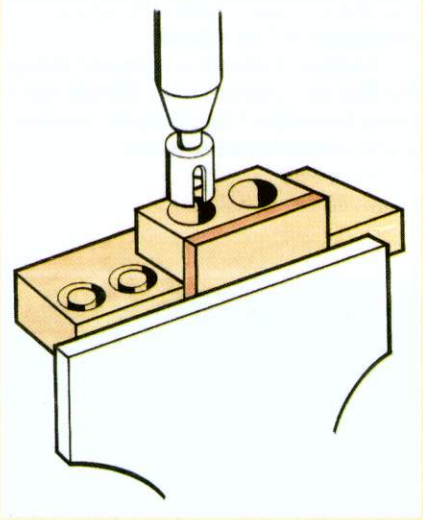
Deep throat

Being in need of a deep throat clamp to glue up a guitar bridge, I modified a sliding bar clamp by grinding off the rivet and removing the sliding adjuster to add on two longer pads in 12mm ply to suit the job.

M. Ninham, Evenwood



Jig'n plug



Cutters for making cross-grain plugs for covering counterbored screws are intended for use where the drill chuck is rigidly driven, as in a drill press. My only power drill is hand-held. I made the simple jig shown so I could use the drill in my hand to make plugs.

It has holes drilled to pass the plug cutter. I used the wood end grain, so any wear should be even. I made this wood thickness to act as a guide to depth. When the drill chuck reaches its surface, I know a plug is fully cut. A piece of plywood allows the jig to be held in a vice or with a cramp.

Ronald Voyce, Berkhampstead

Tip for tap

P.A. Jellyman's letter (GW 120) regarding his difficulty in tapping holes in metal reminded me of the torture that I've gone through. Taps and that fiendish device for driving the tap (the tap wrench) were designed by engineers to suit engineers' fingers, not woodworkers' fingers!

The solution is to use your drill stand or pillar drill for both the drilling and the tapping. Drill the pilot hole using exactly the size of drill bit specified ('near enough' is not near enough at all!), and then replace the drill bit with the tap. If the hole is a through hole (as opposed to a stopped one) you'll probably need only the tap that the manufacturer has ground with a long taper.

Pull the power plug and hand guide the drill head down until the tap meets the hole. continue the downward pressure at the same time the chuck by hand. You may need to use the chuck key for extra torque; a little oil helps too. The tap will now start to cut the thread. Continue until the thread is fully cut through the workpiece.

Release the downward pressure and unwind the tap out of the hole.The result will be perfectly cut, crisply threaded hole ready to welcome your bolt or setscrew.

Readers should note that the workpiece should be clamped down and that the lateral relationship between the drill head and the workpiece should not be altered between the drilling and tapping operations.

The trick can't be done using a drill with a keyless chuck; as the tap tightens it acts as a spindle lock and the chuck unfastens, so if you've an old-fashioned drill with a keyed chuck and you're about to bin it, don't – it will still tap holes even if it's burnt out.

Rupert Farrfesh, South Yorkshire,

Use for odd socks

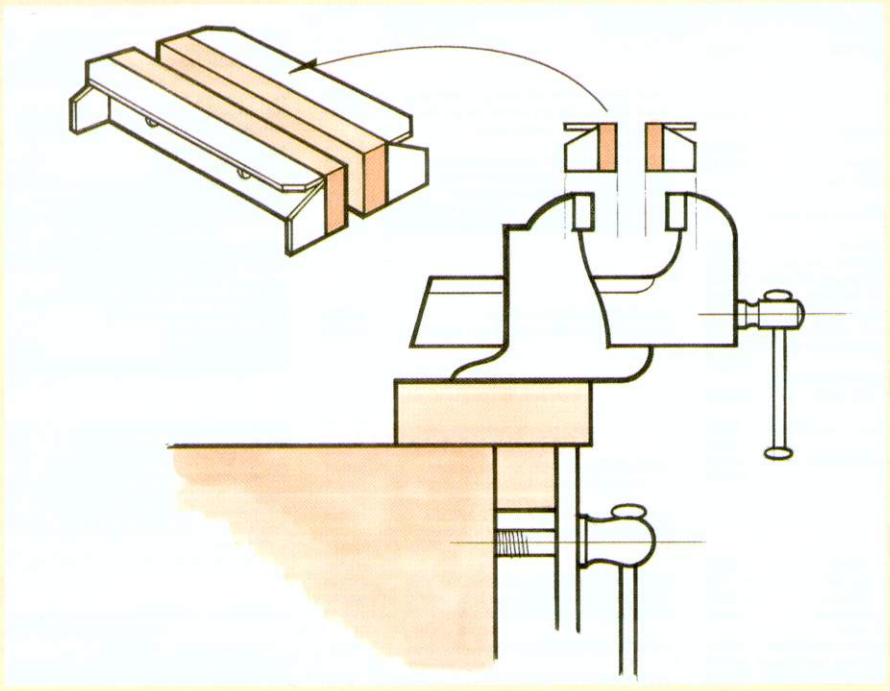
It is usually the case that most men get socks for Christmas. So what happens to the old ones? I have started to use mine to protect my wood planes and other woodworking tools from damage and from the conditions in my garage/workshop. I hope this helps others!

Stephen Hawkins, Norwich

Smooth grip

Like many other woodworkers, I keep a metalwork vice on a block to mount in the bench vice when needed. For some small woodworking I find it convenient to grip the piece in the metalwork vice for the sake of the extra height. The jaws mark the wood unless padded and positioning pieces of scrap wood can be tedious so I made the auxiliary jaws shown. Two pieces of thin sheet metal were cut to bend round the jaws and pieces of parallel hardwood were screwed through them as facings. The wood can be replaced when worn, but my first ones (made of beech) seem to be going on for ever.

Tom Rowlinson, Edgeware

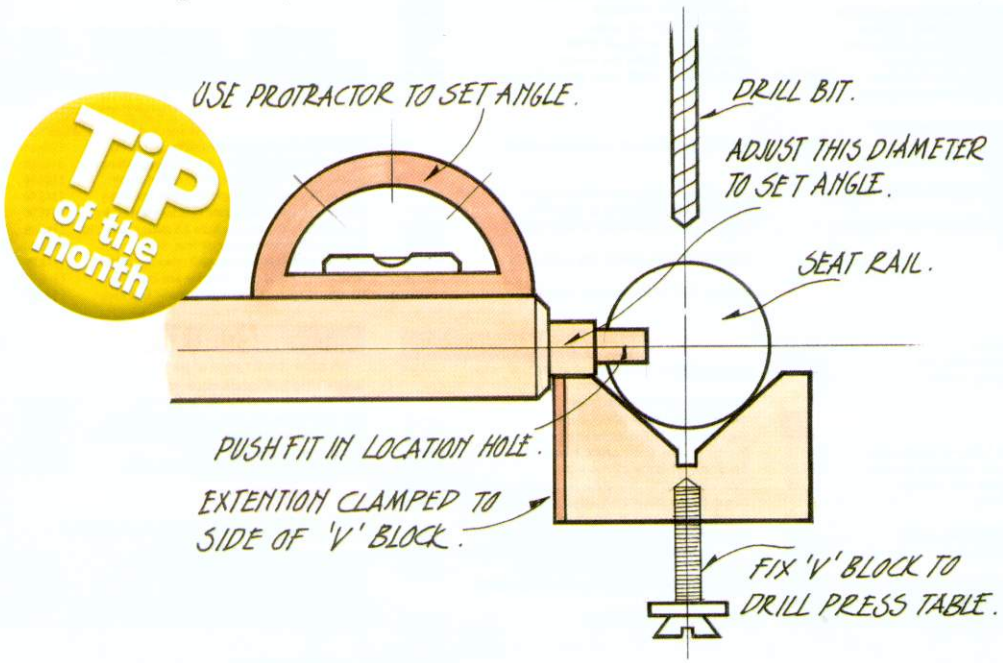


Drilling angles

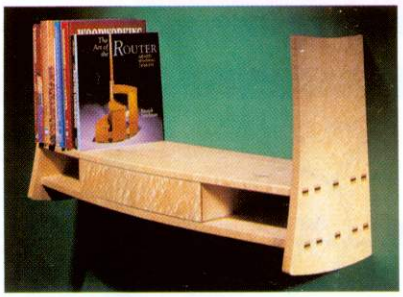
Whilst making a rocking chair I was faced with the problem of drilling holes accurately around the periphery of the seat rails at an angle relative to other holes in the same shaft, 'some distance apart'. This to set the rake of the back rest. I came up with the following method:

Set up your 'V' block on the drill press and drill all the holes in the same plane. To drill the holes at an angle to these, turn a dowel to a nice push fit in the datum hole/holes. I turned the dowels on square stock, which aids locating the protractor. This makes setting the radial position of holes a simple operation. If the hole centres are too far apart to locate on your 'V' block, clamp a length of stuff along the side. The log'n dowel can be double ended. Mark on angle and store for future use.

L. Crabbe, Coventry



win a LEIGH JIG!



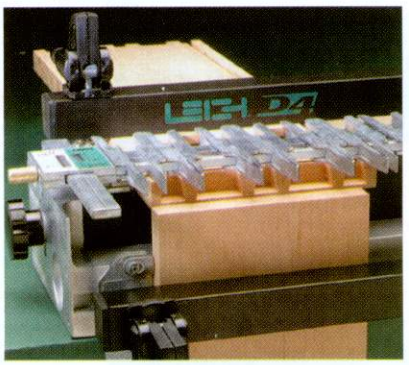
Stop for a moment.
Think a while about your workshop. What clever tips have revolutionised your woodworking, making it easier, safer and more fun?

Perhaps you've picked up hints from other woodworkers or just worked them out yourself. However large or small they are, other readers are bound to benefit from your tips. So send them in to us at *Good Woodworking*, along with simple sketches or photographs if necessary. It's well worth the effort as each month we will award the winner a £35 **BriMarc** voucher, while each of the runners-up will receive a £25 voucher.

The **BriMarc** catalogue, which we'll send to the winner and all the runners-up, is jam-packed with great ideas that have been turned into clever woodworking tools. If you would like a **BriMarc** brochure and details of your nearest stockist just telephone ☎ **0845 330 9100**.s

Send your ideas to Hints and Tips, *Good Woodworking*, 30 Monmouth Street, Bath BA1 2BW . Don't forget to include relevant sketches and photos.

Tip of the year



In addition to Tip of the Month, we will also award a **Tip of the Year** prize to the best idea published in these pages during the year. The winner will receive a complete **Leigh D4 Dovetail Jig** worth £375 from **BriMarc**. This innovative Canadian jig was tested in GW 86 along with nine other dovetail jigs and was highly recommended by editor Phil Davy. It handles material from 3mm to 30mm thick and up to 610mm wide. It's beautifully engineered and simple to adjust.

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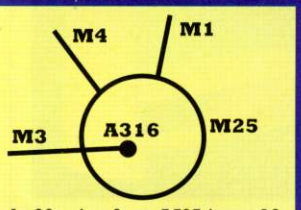

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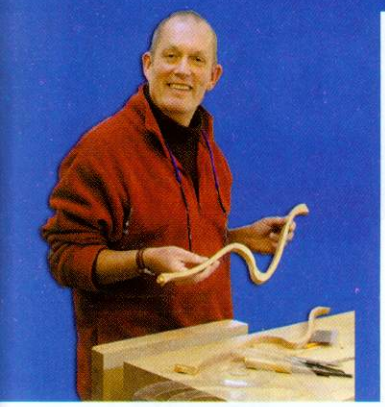


MASTERCLASS

***David Savage's* expert comment from his own furniture training workshop**

Time to sharpen up

Sharp tools matter in woodworking – and you don't need David Savage to tell you this! This month David shows you how to polish up the back of your chisels properly prior to final honing

Had I told my learned editor that this month I would be writing about sharpening I would have received a very discouraging groan: "Hasn't everybody and their dog written about that subject?" Well yes, everybody and their dog has written about sharpening, but it is also very important, and I haven't written about it for a very long time.

Last month I talked about flatness, and how the back of a chisel must be absolutely flat for the full length of the blade (or most of it) in order for the tool to function well in its main purpose of creating flat surfaces in wood.

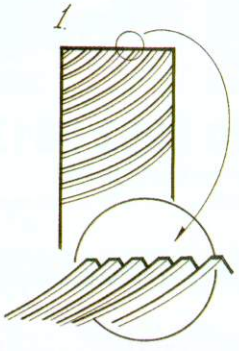
The chisel is a hand held tool and as such is what the late Professor David Pye would call a tool for 'workmanship of risk'. The flat surface at the back of the cutting edge is the only jigged surface that we have to assist us in creating that flat surface. If it's bent or hollowed, as most new chisels these days seem to be, then your chance of achieving your objective is minimal. That is point number one.

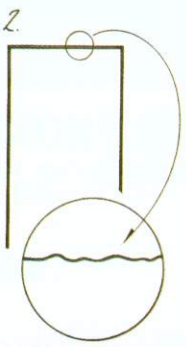
Point number two is that, on the back of the chisel, that flat surface towards the cutting edge should be highly polished. The polish is there to remove the scratches on the back of the blade usually incurred in manufacture. Leave a blade with these scratches intact and its cutting edge when examined under a magnifying glass will have an edge rather similar to that on the cutting edge of the saw. These scratches translate out to the absolute cutting edge, and this kind of an edge is great for cutting meat but not especially great for preparing wood, which is why kitchen knives can be sharpened in a very different way from woodworking tools.

Woodworkers require a cutting edge that comes to a point that is so fine that it will not support daylight. I will repeat that, because it strikes me as a pretty mind boggling concept – that the edge a woodworker is seeking is so fine that daylight can't land upon it. I'll come back to this.

Polishing the Back

We step towards that mind boggling end first by polishing over the back of the chisel. This is a laborious task that thankfully only needs to be done once. In our workshop we exclusively use Japanese water stones for this purpose. I would suggest that you have three stones, an 800 grit stone for helping to deal with those irons that are not





Left: Magnified coarse ground surface

Right: Magnified polished surface

Above:
Sharpening is a messy business so we keep a dedicated area for flattening our stones

Right:
Flattening a stone on a sheet of glass and some wet and dry paper

"Woodworkers require an edge with a point so fine that daylight can't land upon it"

as flat as you would want, a 1200 grit for general honing, and a 6000 grit for polishing.

All these stones are very soft so it's very important indeed that they are kept flat. To do this we use a flat sheet of glass and a piece of wet and dry paper, usually 400 or 600 grit. The paper is laid on the glass and the stone rubbed on it to keep it true. This is done with water to flush the paper clean.

If you have been using the stones for a little while, you will see a slightly dirty hollow or oval appearing, surrounded by the flat areas newly cut by the wet and dry abrasive. This shows how the stone has become hollowed in use. When all of the stone has been touched by abrasive and a new clean surface has emerged, then the stone can be used again for flattening and polishing. Remember too that if the paper is not on a truly flat plate glass surface you will not achieve what you want. I know its all a great faff but believe me it is worth the effort.

I would suggest that you set one of those kitchen clocks for one minute and don't let yourself use any of these finishing stones for more than this without checking its flatness on the glass sheet and wet and dry paper. Fail to do this and you will inevitably end up chasing your tail. Flattening and polishing a surface with a Japanese stone that itself is not flat is a great way to waste your time.

Through the Grits

Start off with the 1200 grit stone, which should be kept emersed in water. Rinse the stone with a little water then rub its surface with a small Nagura stone to form a cutting paste. Now you can start rubbing the back of the blade on your stone. Do this for 30 seconds or so then rinse the blade off and have a look at the back. Is there an even grey surface all over your chisel? Probably not, in which case you will have to carry on.

Most people find themselves doing this for a considerable amount of time to create that flat polished surface right across the edge of the chisel. It's essential that this is worked from corner to corner as, very largely, it's the corners that do all the work on the chisel. It's also essential that your chisel has absolute close contact with the sharpening stone across its whole width at the sharp top edge. You are going to be rubbing this on a very fine abrasive stone later and you want the chisel to be in absolute contact with that stone. If it's at all bent up and one of the corners isn't touching then it's not really going to function well when you hone an edge.

Once you have got an even grey surface over the whole of the area you can check it by moving on to a finer stone. If you are moving from a 1200 grit your next stone will be the gold 6000 grit stone.

Carefully wash off any residue from the chisel, check the gold stone is flat and create a small sharpening paste on it with your Nagura stone. Now rub the back of the chisel on the gold stone. Within 30 seconds you will know how flat your chisel is because the gold stone will only touch and polish up certain areas of your chisel and not others. The areas it's not actually touching are low and those areas it is touching are a bit high. Go back to your 1200 grit stone at this stage rather than persevere on the gold stone. This is not a flattening stone, it's a polishing stone. So, turn to the 1200 grit, check it's flat, and resume the flattening and polishing process.

Creating a cutting paste on a 6000 grit Japanese polishing stone with a Nagura stone

I am confusing these two terms of flattening and polishing for you. Basically they are the same operation. The gold stone will not polish a surface that is not itself flat so we only achieve a polished edge on the back of the chisel by making it flat.

You may find that when ➤

you begin the polishing process on the 1200 grit stone you have so little impact on the edge of the back of the chisel that you need to go to a coarser stone. In this case the 800 grit stone is quite useful. I must, however, sound this warning note again and again – you have to keep all of these three stones flat if they are to function properly. Give yourself a minute then check it for flatness by rubbing it on the plate of glass with the wet n' dry paper.

OK, so now your chisel back is polished from corner to corner and back maybe 10-20mm from the cutting edge. You can hold it out at arms length and just about make out your right eyeball in the reflection on the back. This is what's called a really good job and you should feel very pleased with yourself. If you had been working with a Japanese chisel you may well have saved yourself a bit of time here because these blades are hollowed out on the backs to make this whole process slightly easier.

Grinding Angle

Next we are going to turn the chisel over and grind a cutting angle on it. This is an angle probably of 25° measured from the polished back. Check this carefully. Some chisels, especially Japanese ones, tend to come into the country with an angle of 30° ground on them.

This ground angle is quite distinctly different from the honed angle. The ground angle is achieved with a grinding machine which can be set up or jigged up to produce an exact 25° angle. We use a water-cooled grinder in this workshop. This is quite important as chisels are made from carbon steel. This is a steel which is hardened by heating it to cherry redness then tempering (or quenching) it in a bath of oil or water, so giving it a fine crystallized structure which will accept a sharp edge. If you were to use a dry grinder on a steel like this the chances are that grinding process would create so much heat that the structure of the steel would be changed or impaired. This is called 'blueing' the edge. Literally it's creating so much heat in the edge that a small blue patch shows up on the back of the iron.

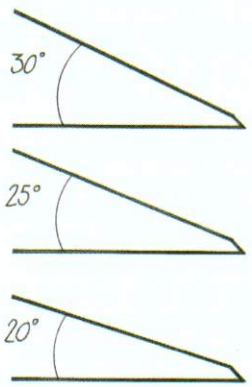
The blueing is easily rubbed away and forgotten, but what it should have told you is that the steel has changed and will no longer hold an edge as well as it would have done had you not applied so much heat. Be warned – carbon steel cutting tools are heat sensitive.

It's important your grinder has a good set up for creating this ground angle. Try not to do it by hand, but have a jig or fixture that presents the tool to the cutting wheel at a fixed angle. You need to set it up to grind the edge without too much risk of wasting the steel and you need to be able to take the blade off the jig have a little look then put it back on the wheel again at the chosen angle.

Yet this is not the full story. Next month we'll talk about honing, which is what we do to the ground angle we've just produced. The ground angle is coarse and agricultural, whereas the honed angle is a refinement, a polished edge produced on that machine-made ground angle that will create that surface that is so sharp that light won't land upon it. More of that next month.

Grinding angles

A 25° grinding angle is not arbitrary but one chosen as a compromise between strength and sharpness. If you were to choose a lower ground angle, say one of 20°, you would have a cutting angle that was more acute, more pointy and sharp, but the end would be more fragile. At 30° your cutting angle would be strong but would require much greater force to drive it into the timber and effect the cut. A 30° angle might well create a strong edge suitable for malletting whereas a 20° angle might produce a cutting edge more suitable for fine paring and delicate shaving. 25° is a general all-purpose grinding angle.

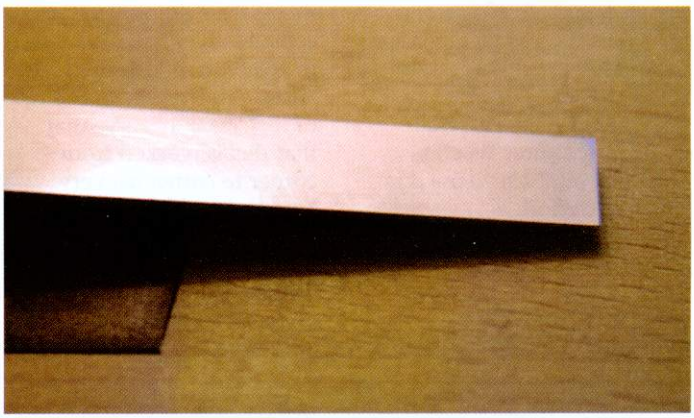


"I know it's all a great faff but believe me the effort is worth it"

Top: Striations on a chisel back from the coarse stone. These will go as you polish

Middle: Too much heat on this chisel has caused the edge to blue slightly

Left: Working the chisel back on a polishing stone



Corner classic

A leaded glass door is the finishing touch for **Steve Maskery's** cherry corner cabinet. Read how you can make this elegant piece

PROJECT GUIDE
Difficulty
Intermediate
Time
40 hours
Type
Furniture
Costs
£90

TOOLS YOU'LL NEED
A **router** for morticing and cutting the mouldings and a **biscuit jointer** for the carcase construction. A **table saw** is handy for cutting sheet materials

My wife and I have talked about something for the corner of the dining room for some years. Until now it has been occupied by a tracery-front, repro bureau in yew veneer, nice enough I suppose but a bit twee for my taste. My wife bought it before she was introduced to the delights of Steve Maskery Specials. So when she brought up the subject of replacing it, I didn't need telling twice.

I decided to make the basic carcase from cherry MDF. I have used solid cherry for cabinets in the past, gluing up panels from narrower boards, but it's a lot of work, is expensive in materials, and the panels are never seen properly, so I took the MDF option. From one sheet I could get the two sides, three triangular pieces for shelves and have enough left for the bottom and shelf of a small sideboard.

I mounted the board on to a cutting frame my friend and neighbour Brian and I made (see GW 143) and, using a trimsaw and cut-off jig, I soon had the board cut into manageable-sized pieces, and was ready to start.

Making the Cabinet

1 Cut out the top, bottom and shelf first, taking care to get them all the same and the angles an accurate 45°. The front edge of the shelf will be seen so will need lipping before cutting, but the top and bottom can be left raw MDF.

Although they don't really need it, I also lipped the carcase sides top and bottom with a couple of millimetres of cherry. These edges won't be seen when it's up on the wall but I did them anyway. Bevel the back edge of each to 45°, determining the width from either a rod or by marking it directly from the shelves.

2 Cut three biscuit slots in each joint between the top and bottom shelves and the carcase sides. The top shelf is flush with the top of the sides but the bottom is raised up by 60mm so that its top face sits flush with the top face of the lower rail in the front face frame when it is fitted.

Gluing up can be tricky! I had to use two opposing clamps on a triangular packing piece to get a

Carcase and face frame construction

01 Cut the three shelves to shape. The middle shelf will need its visible front edge lipped before cutting to size

02 Gluing up corner cupboards is always fraught. Triangular blocks cramped in place can help this process

03 Use a jig and to ensure all shelf bracket holes are identical. A tape flag on the drill bit helps assess the depth

04 Mark out the face frame stiles as a pair. Steve used loose tenons on this frame, routing the mortices

proper grip on it. I'll know when I've died and gone to heaven, because I'll have enough clamps!

3 Drilling holes for the shelf supports is next. Rather than drill these with a jig before assembly I did this the low-tech way, using a length of MDF with a central row of 6mm holes at 50mm intervals. You register one end against the bottom of the cabinet and a side against the carcase wall, and drill by hand through the holes. A piece of masking tape on the drill bit tells you when t's time to stop. It's easier to do this now than with the face-frame on.

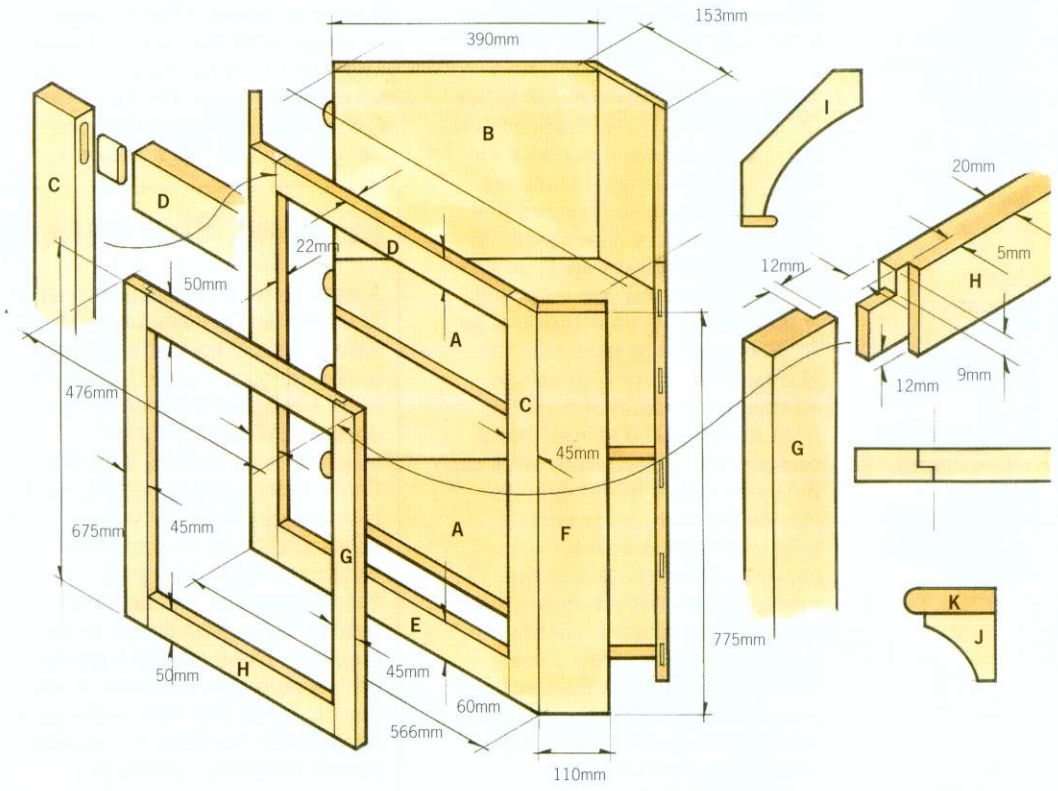
I later found the shelf had a tendency to tip. In retrospect it would have been better to drill holes nearer in the narrower front sections to which the face frame is glued. I'll know next time. With the inside of the cabinet complete, glue on the back and pin in place.

4 Now for the face frame. Where possible, I like to make my frames and doors out of the same board, so that the grain is harmonious, and that's what I did here. A triangle drawn across the board keeps the pieces in order.

Lay out the pieces for loose tenons. Again, this is where a rod ensures that you make the overall frame width wide enough to allow for bevelling back the stile edges. I regularly use loose tenons, the mortices being cut in my vice with a router. The jig was described in GW 118. One great advantage of it is that, because the face is always referenced against the same jaw, the joint always ends up exactly flush, with minimal clean-up. There is no reason not to use standard mortices and tenons if you prefer.

5 When the frame is made and glued up, bevel its outer edges at 22.5°, aligning the inner arrises with the angle on the carcase. Cut

DETAILS: Cabinet construction

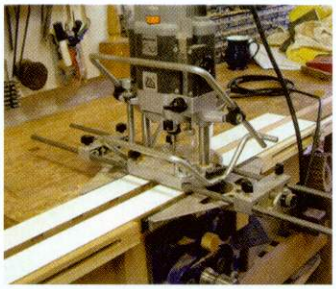


biscuit joints to joint frame to carcase. As with jointing the carcase, note that the top rail is flush with the top of the carcase, and the top of the bottom rail with the top of the lower shelf.

When you're happy with the fit, assemble the face frame on to the carcase, carefully aligning the mitred corners with the inner edges of the frame. Cramp the middle of the frame in place, the central cramps bearing on the narrow carcase back, then add other cramps at an angle if needed to pull the edges into place. You could cramp the whole face-up on a Workmate, using the jaw table to provide outer cramp bearings.

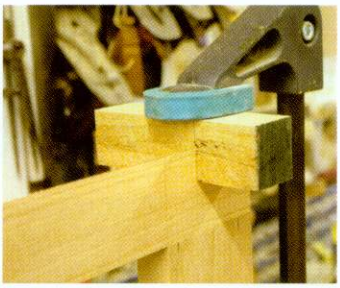
6 The two outer side panels are also solid wood, cut so as to mitre against the face frame edges then overlap the squared outer edges of the carcase by about 12mm. Gluing the side to the face-frame and carcase is not easy. As the two bevels are clamped together, they tend to slide out of alignment. I used every clamp I had and again had to make

The lower shelf is inset up the carcase sides so as to be flush with the top of the lower face frame rail

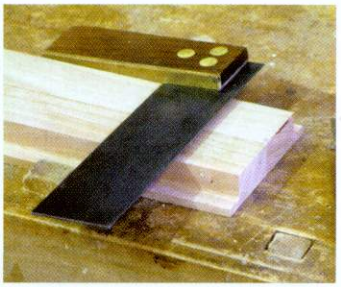


05 Steve's morticing jig for the router proved useful again and is great if you don't have a dedicated morticer

06 The finished mortices. You could cut the mortices in the rail ends for the loose tenons in the same manner



07 The bevelled stile edges made it awkward to glue up. Consider bevelling the frame after assembly



08 The door frame sections are rebated first then marked out for mortice and tenon joints in this case

MATERIALS YOU'LL NEED

Timber

The carcase is ready veneered cherry MDF, with solid cherry on the front frames. You'll need about a cubic foot of 1in thick cherry.

Glazing

The glass is Flemish pattern from a stained glass merchants (see Yellow Pages), while the leading is stick-on stuff from a DIY store.

notched blocks. Have a dry-run first. Biscuiting the joints helps but biscuiting the outer corners can prevent the mitre joint pulling up tight. Take your pick.

7 There are many ways to tackle the door, and a bit depends on how fancy you want it, and your available technology. I wanted a plain door, because I figured that sticking would be a bit too much for the leaded glass panel. Go for a raised panel and you may well want sticking on your inside edge.

Rebate all four pieces for the glass with a 12mm wide rebate worked to about 5mm from the front face. I used a spindle but a router works just as well. Mark off the joints with a marking knife. Remember that we are cutting long and short shoulders here, because of the rebate. Cut the mortices first with a hollow chisel morticer or a router (squaring up holes afterwards with a chisel. Note that one face of the mortice should be flush with the rebate shoulder, even if this makes the ensuing mortice off-centre.

I cut the corresponding tenons using my tenoning jig for router. Because of the long and short cheeks, I cut all the short ones first, then reset the cutting depth and did all the long ones.

8 When glued up, the finished door is carefully fitted to the opening, until the gap is uniform all the way round. I like to align my hinges with the rails – it looks good – and to fit the hinges I use a router jig and bush. The jig is made accurately for the type and size of hinge I use, in this case a 2in solid drawn brass butt. I normally recess my hinges wholly into the door, and just to the surface of the frame. The advantage of this is that you do not have to worry about getting two recesses to line up with each other. The disadvantage is that you have no reference point on the

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Top, bottom, shelf	3	Ven MDF	653mm	330mm	18mm
B Carcase sides	2	Ven MDF	775mm	390mm	18mm
C Face frame stiles	2	Cherry	775mm	50mm	20mm
D Face frame top rail	1	Cherry	566mm	50mm	20mm
E Face frame bot rail	1	Cherry	566mm	60mm	20mm
F Front sides	2	Cherry	775mm	110mm	20mm
G Door stiles	2	Cherry	675mm	45mm	20mm
H Door rails	2	Cherry	476mm	50mm	20mm
I Crown moulding	1	Cherry	850mm	85mm	22mm
J Bottom moulding	1	Cherry	850mm	22mm	20mm
K Cap beadings	1	Cherry	2000mm	24mm	6mm
L Knob	1	Ebony	30mm	30mm dia	

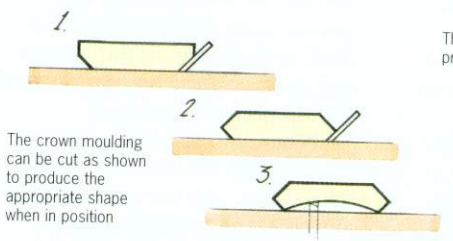
Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

Making the mouldings

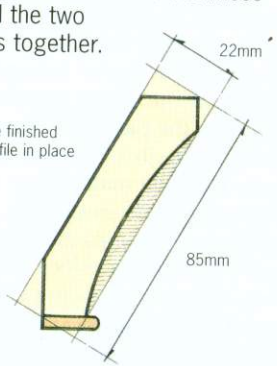
A large crown moulding is difficult to create for the home woody. I have a spindle moulder but not the tooling for such a cove. I wanted it to be a reasonable match for my dresser (GW 103) and was reluctant to do anything different. Only a short length is needed, so it is feasible to rough out with a series of cuts with a cove cutter and router table, constantly changing position and depth. It's tedious, but a good finish can be produced. Finish off with a goose-neck scraper and abrasives. If you don't fancy all that work, make up a large-section moulding by stacking smaller mouldings, ovolos and ogees, keeping the layers flat. I did this on a break-front bookcase (GW 71) and hi-fi cabinet (GW 105). It also makes it easy to mitre.

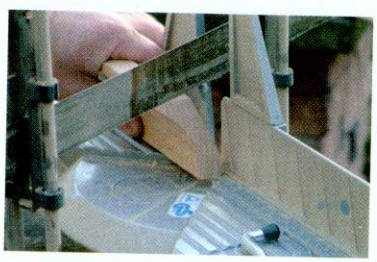
Various mouldings used are:
1) 5mm beading top and bottom, glued and pinned.
2) 12mm radius cove on bottom.
3) Crown cove on top.

If you have a compound mitre saw you can cut the stock flat by tilting the blade 20° and the fence by 10° to the left for one side and 10° to the right for the other. To glue them up I used quick acting polyurethane glue and gaffer tape, which has just the right amount of stretchiness to pull the two pieces together.



The crown moulding can be cut as shown to produce the appropriate shape when in position

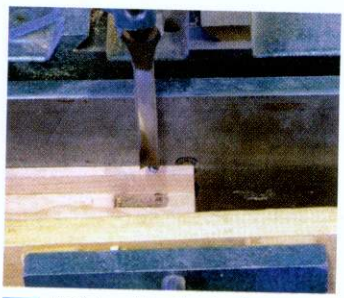




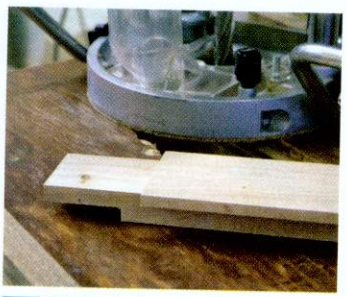
Hold the coving at the correct finished angle to mitre in this manner

Cut the beadings by moulding the edge as shown then cutting to thickness/width

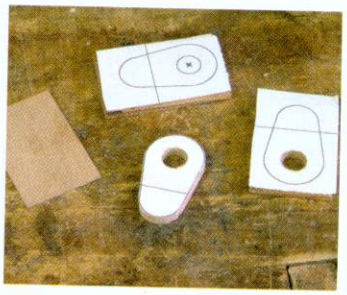
Making and hanging the door



09 Don't forget to allow for the haunch and the rebate when marking out the length of the mortices



10 The tenons have one long and one short shoulders to accommodate the rebates. Rout or cut by hand



11 The spinner that holds the door closed is a piece of home made cherry plywood for strength

12 Hinge jigs are worth the trouble to make if you use the same size hinges regularly and allow accurate work

frame for the hinge. I get round this by cutting a C-shaped template from the same jig as is used for the hinge recess. I then tape this to the frame which gives me a temporary recess in which to locate the hinges. I also use those hinge drill bits which give you a nice clean hole in the centre of the hinge hole. It makes it quite feasible to get it right first time.

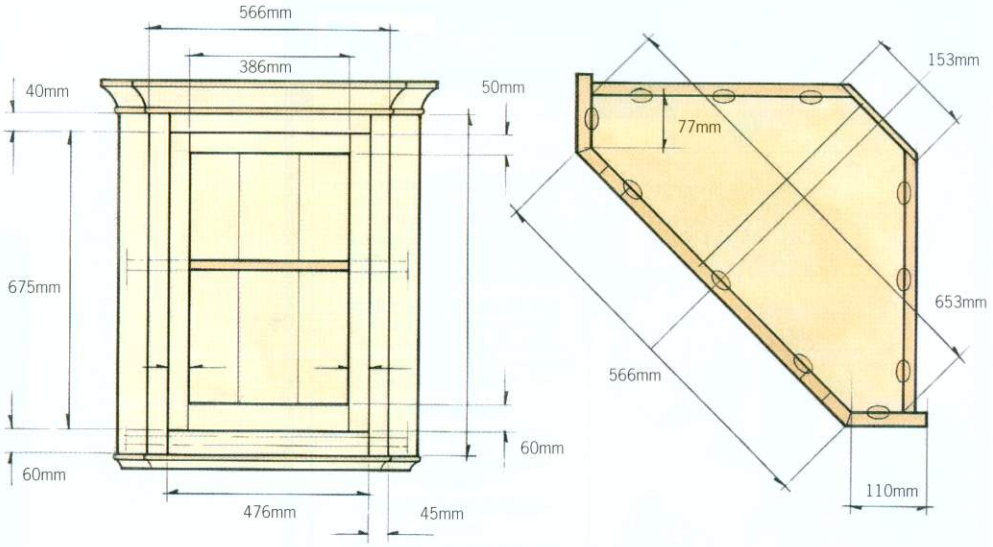
9 The turned ebony knob is a little below centre and has a spinner on the back of the door to close this. I have used these in many of my cabinets. For the spinner, first make some cherry ply, from three bits of bandsawn veneer and two pieces of standard veneer. The resulting blank is very strong indeed. Drill a 12mm hole for the spindle, then cut the spinner and sand to shape. A slim screw will keep it fixed to the spindle when the knob is fitted. Glue a stop behind the face-frame at the top, so the door closes against that, and the spinner draws the door flush all round.

10 For the glass beading, I cut lengths of cherry 15mm by 12mm and then angled one face. I have a jig for my thicknesser to do this. It is simply a sled with a stop on one end so it doesn't get pulled into the machine, and a strip under one long edge to give it tilt. The edges of the narrow face are rounded over nicely, as they are seen when the door is open. Hold in place by brass escutcheon pins.

11 The glass is from a stained glass merchant, and is about four times the price of ordinary Flemish. I found the pattern of Flemish way too big for the piece, and I wanted this to match a dresser in the same room, which already has glass panes in. Some self adhesive leading strip, from replacing some windows in the house, is simply stuck on like Sellotape. Just make sure you get the spacings right between panes.

12 To mount the cabinet on the wall, first cut two battens, and fix one to the wall at the appropriate height. Offer up the cabinet and scribe the overlapping edges of the narrow sides to match the wall. Luckily my wall were pretty straight and I needed do no scribe work at all! I just drilled through the back of the cabinet and screwed it up. I then went underneath and fixed up the other batten. The crown just sits on the top.

CONSTRUCTION: Plan and elevation



Jargon Busting

Sticking
Another name for the mouldings applied to frame edges, whether by hand planes or with a router or spindle moulder.

NEXT MONTH

Discover how to turn a chess board and make a complete set of chess pieces to a traditional design

Note how the stick-on leading strips are applied around the glass edge as well as through the centre

13 A small jig helps Steve to mark the hinges on to the carcase frame and drill accurately for the fixing screws

14 The lower moulding was simply glued and pinned in place and the small pin holes filled

15 Make sure that the inner glass beadings will not foul the spinner once they are fitted

16 You could make your own knob if you have the turning skills otherwise buy a suitable style to match the cabinet

Choosing a table saw

For many woodworkers the table saw is the powerhouse of their workshop. But how do you choose the right model? The *Good Woodworking* team steer you through the machinery maze and recommend three saws for different budgets, from entry level to professional

Contents

The most important machine in many workshops must be the circular, or table saw. The fact that it generally sits in the middle of the floorspace means you can't ignore it, even if it only gets used occasionally. But think of its versatility. This saw can be used for ripping rough boards to width, cross-cutting timber to length, sawing compound mitres and dimensioning sheet materials accurately. And all with a fair degree of precision, if you have the correct machine. Whether your woodwork demands all or just one of these procedures, choosing the right saw for your workshop can be a headache, though.

Budget Buying

The first consideration for most of us is budget. You can pay under £100 to several thousand for a table saw. Obviously a budget DIY model cannot be expected to perform anywhere near as well as an industrial machine. But you don't need to necessarily pay a fortune to find a saw that you will be happy with.

Similar criteria apply no matter how much or how little you pay. If the saw does not cut accurately you'll find it frustrating to use, irrespective of the cost. You don't want to buy a machine and find it will need replacing a year or two later.

Think about the sort of woodwork you expect to do. Do you want to cut mainly softwood? If so, a powerful motor may not be necessary and a budget machine may do the job. Converting hardwood boards on a regular basis will call for something heavier, possibly with a cast iron table. If you work a lot with MDF or plywood, a sliding carriage is useful. If you will be dimensioning 8x4ft sheets a panel saw may be worth considering. These are not cheap, though, and will be far too big for many workshops.

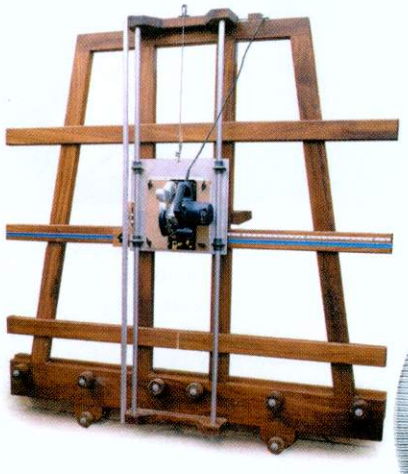
A sliding carriage is good for precision cross-cutting and mitres too, but it does not have to be huge.

Space in many workshops is at a premium, so a compact saw may be essential. If you have a garage workshop, will you need to get the car inside when you've finished work? If so a benchtop or folding saw could be the answer.

Follow our guide to help you decide. And don't forget you can always get out that old handsaw...

10 reasons why you need a table saw

- **Ripping:** The fastest, most accurate way to cut timber to width. With a batten pinned on temporarily as a guide you can even cut waney-edge boards.
- **Cross-cutting:** With a mitre fence or sliding carriage you'll be able to cut timber precisely to length. A flipstop makes identical repeat cuts a cinch.
- **Mitres:** Accurate angles are easy to cut. You can set the mitre fence with a sliding bevel or rely on the built-in protractor scale.
- **Bevels:** Tilt the blade (anywhere between 45° and 90°) and you'll be able to rip or crosscut with bevelled edges. In conjunction with the mitre fence you can cut compound mitres.
- **Tapers:** Make up a simple jig from MDF and you'll be able to produce tapered components easily and safely.
- **Tenons:** Provided you ensure the blade is suitably guarded, you'll be able to cut tenons. This will probably mean making a tunnel guard, but never be tempted to use the machine with the crown guard removed. Practice on offcuts first.
- **Panels:** Using a sliding carriage, a table saw is the best way to cut panels to size accurately and squarely.
- **Save money:** You will be able to convert rough boards easily. Perfect combined with a planer thicknesser.
- **Save time:** Fitted with the appropriate blade, you probably won't need to clean up sawn edges, especially on sheet materials.
- **Safety:** You should be able to rip, cross-cut or mitre without your hands anywhere near the blade. Using a hold-down, pushstick or fence makes table sawing safer than using a portable power saw.



If you only need to cut sheet materials, it may be worth considering a vertical panel or wall saw. This one is made from hardwood and uses a portable circular saw. We explained how to build one in GW 143

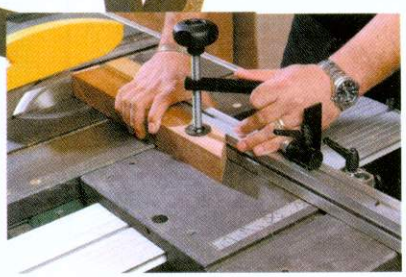
Under £600: Kity 419

tested GW 135

Here the Kity 419 is fitted with sliding carriage, two steel extension tables and floorstand

Phil Davy recommends: Although the compact Kity 419 does not have a cast iron table (it's hardened alloy), it has an induction motor. This makes it one of the quietest, smoothest-running precision saws at this price level. It can be mounted on a bench top or floorstand.The sliding carriage is a very useful option and costs about £250.

Kity UK
☎ 01322 422650
www.kityuk.com

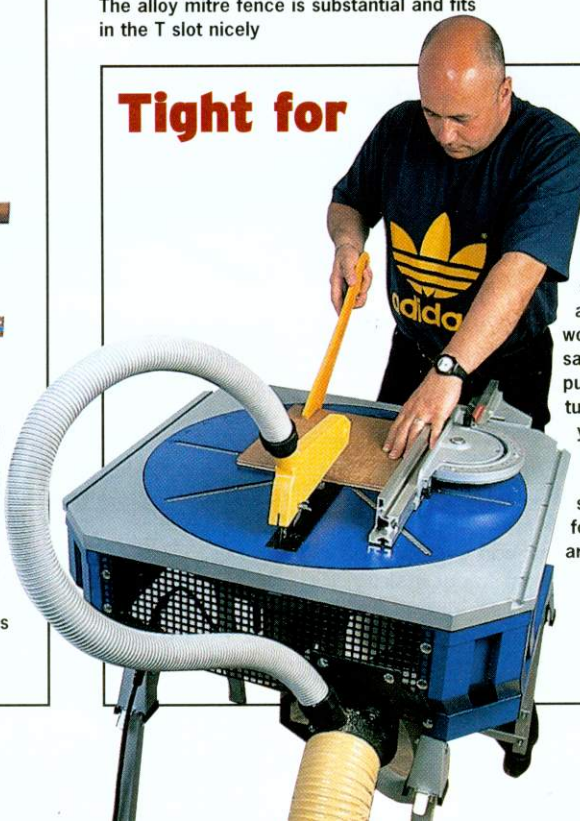


Although the sliding table is small, it glides smoothly and includes a hold-down

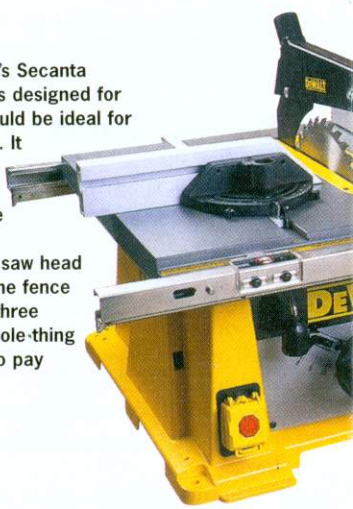
The alloy mitre fence is substantial and fits in the T slot nicely

You can slide the aluminium rip fence back or reverse it when cutting thin material

Tight for space?



Elektra Beckum's Secanta (tested GW 97) is designed for site work, but would be ideal for a small workshop. It works as a table saw or radial pull/mitre saw. The turntable enables you to rotate the saw head through 180°. The fence can be fitted to three sides, and the whole thing folds up. Expect to pay around £1100



Under £1200: Jet JTS-250S Supersaw

tested GW 142

Shown here is the sliding carriage saw, which includes a right hand extension table. The lack of an outrigger on the carriage keeps the footprint size down. Although it does not have the capacity of a dedicated panel saw, the Jet is a good compromise for general furniture-making or joinery

Andy King recommends:
A cast iron saw from Taiwan at a similar price to aluminium-table machines... The Jet is well built, powerful and includes a rear take-off table. You can buy the fixed bed saw for under £1000, but it's worth paying extra for the sliding carriage model. This can be locked off for ripping work.

Jet Tools & Machinery Ltd
☎ 0845 604 0064
www.jet.uk.com

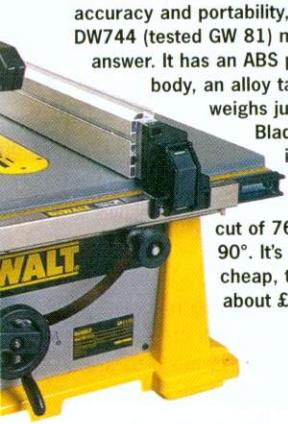
You can calibrate 45° and 90° angles on the mitre fence, and there's a hairline cursor

You can swing round the mitre fence for acute angles. There's no hold-down, though

When it's not required, the substantial rip fence can be stored on the side of the saw

Twin roller guide assemblies keep the carriage smooth and accurate

Under £150



For a compact saw that offers accuracy and portability, DeWalt's DW744 (tested GW 81) may be the answer. It has an ABS plastic body, an alloy table and weighs just 29kg. Blade diameter is 250mm, giving a depth of cut of 76mm at 90°. It's far from cheap, though, at about £700...

At the bottom end of the market are saws with pressed steel cabinets and legstands. The table is usually ribbed aluminium, with a basic alloy fence. A mitre fence is included and runs in a slot either side of the blade.

If you just need a saw for occasional ripping or cross-cutting, a model such as this Rexon FZ250 (tested GW 104) may be sufficient. Don't expect great accuracy though, and you'll have to put up with the noise of a brush motor. This one is rated at 1500W. Fitted with a 250mm blade, depth of cut at 90° is about 80mm. Blade quality is not brilliant, so you may want to replace this.

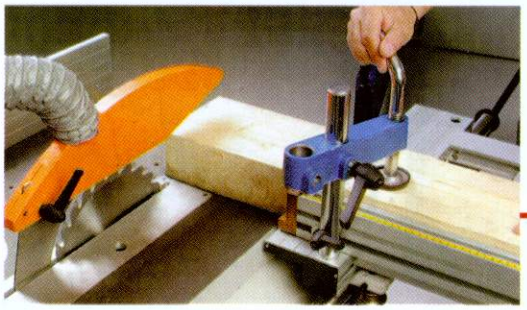
These are not heavy duty saws, so don't expect to slice through 50mm oak easily. There is likely to be some vibration, too. Prices range from about £85 to £120. You won't get a sliding carriage at this sort of price, however

What to look for when choosing a table saw

- **Table:** Cast iron is better than aluminium alloy or steel. More stable, it will remain flatter and withstand rough, heavy timber sliding across it. The downside is greater cost and susceptibility to rust.
- **Cutting depth:** This obviously depends on blade diameter. Do you expect to cut 75mm thick timber, or is 50mm likely to be the maximum? For 75mm depth you'll need a 250mm dia blade, for 50mm at least 200mm. Bigger blade size means a larger motor and increased cost.
- **Cutting width:** Cutting 2440x1220mm (8x4ft) sheets? If so, it's handy to be able to rip down the middle at 610mm.
- **Sliding carriage:** If you can afford this option, it makes panel cutting and cross-cutting timber easier and more accurate.
- **Fence:** This must be rigid as it's critical for accurate cutting. It should be easy to adjust and the scale easy to read. Usually box section aluminium.
- **Motor:** Even a budget saw may have a motor of 1500W (input) or more. It's the output rating that really matters, although most manufacturers are cagey about this figure. Every saw we've tested is single phase, although some will need a 16A or even 30A supply. Three phase (415V) industrial machines are cheaper, and can be run from a single phase convertor.
- **Mitre fence:** This slides in a slot on one or both sides of the blade. A protractor scale means you can lock it at any angle up to 45° left or right. It tends to be plastic on budget models, cast alloy on mid-range and steel or cast iron on pro saws.
- **Blade changing:** How easily can you get to the blade? A wrench should be supplied with the machine.
- **Blade tilt:** Most saws will enable the blade to be tilted to 45° for bevel cuts. Cutting capacity is reduced, though. A typical depth of cut of 65mm at 90° may reduce to 45mm with the blade at 45°.
- **On/off switch:** This should be easy to reach without having to glance down, especially the stop button in an emergency.
- **Extraction:** Every saw should have at least one outlet in the base for connecting an extractor. Most machines now have a port in the crown guard as well.
- **Noise:** Small budget saws may be fitted with brush motors, much noisier than induction motors. Always wear ear defenders when machining.
- **Size:** A table saw should be sited so you can walk all the way around it easily. A sliding carriage adds considerably to area.

Your guide to the table saw

Blade: For general purpose sawing a 24 tooth, TCT blade is a good choice. For fine cross-cutting, fit a 48 tooth blade. Access for changing should be good.
Saw featured: ELEKTRA BECKUM PK200
(tested GW 135)



Hold-down: This grips the workpiece firmly when cross-cutting to prevent it slipping. Essential for accuracy, it keeps your fingers away from the blade.
Saw featured: STARTRITE SC25
(tested GW 112)

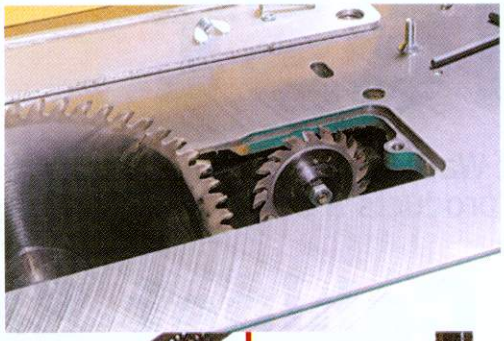
Sliding carriage: This enables you to crosscut panels and large boards easily. The fence can be swivelled and locked between 90° and 45° on most machines.
Saw featured: WMASTER OP-201
(tested GW 133)

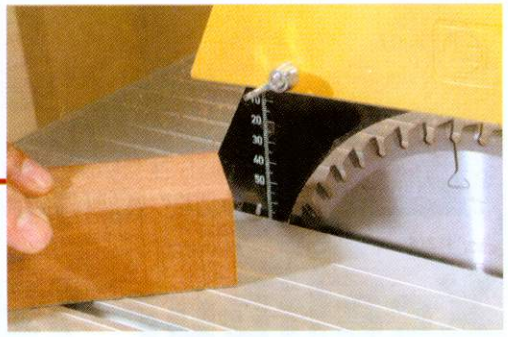
Over £2000: Rojek PK300 tested GW 139

Pete Martin recommends:
This saw from the Czech Republic features a scoring blade for cutting sheet materials. Remove this and you can replace the main 250mm blade with a 300mm version to increase depth of cut. The cast iron sliding carriage enables panels 10x5ft to be machined and includes a heavy flipstop on the crosscut fence. A steel auxiliary table is fitted to the right of the main cast iron bed. A superb professional machine.

Jordan Wood Machinery Ltd
☎ 0191 584 0784
www.woodmachinery.co.uk

● **Scoring blade:** Fitted behind the main sawblade, this is set to score the underside of veneered panels or delicate surfaces to prevent splintering or chipping.
● **Saw featured: ROJEK PK300**
(tested GW 139)

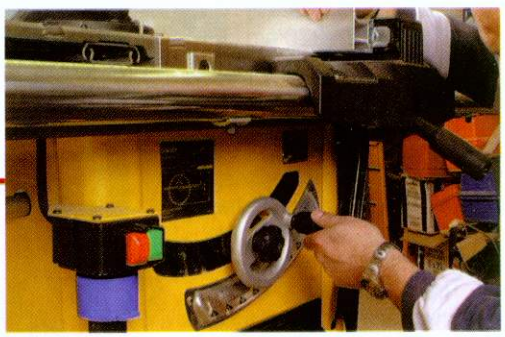




● **Depth of cut:** This depends on blade diameter and maximum height of the crown guard. Ideally you should have one tooth protruding above the timber surface.
● **Saw featured: ELEKTRA BECKUM PK200**
(tested GW 135)

● **Extraction:** A dust outlet in the base enables an extractor to be connected. Many saws have an outlet on the crown guard, a flexible hose linking the two.
● **Saw featured: JET JTS-250S**
(tested GW 142)

● **Fine adjust fence:** A hairline cursor on the rip fence helps set cutting width accurately. Micrometer fence adjustment is a bonus. A cam lever, handwheel or Bristol lever locks the fence in place.
● **Saw featured: JET JTS-250S**
(tested GW 142)



● **Blade adjusters:** You can tilt the blade to at least 45° via a handwheel. Rise and fall maybe combined with this adjuster or via a second wheel.
● **Saw featured: DEWALT DW746**
(tested GW 118)

● **Crown guard:** Usually plastic, it can be steel or alloy on pro saws. Normally fitted to a riving knife behind the blade which rises or falls as you set depth of cut. Guard should be set no more than 12mm above the timber.
● **Saw featured: STARTRITE SC25**
(tested GW 112)

On Test Special

After a new power tool? Want to replace your bandsaw?
ANDY KING gives new products a workout to help you decide

Xcalibur 12in Cabinet Saw

£2062.12 (includes sliding carriage) ☎ **0161 480 2800**

www.woodfordwm.co.uk

Motor: 3750W **Speed:** 4000rpm **Blade:** 305mm
Max cut: 100mm @90°, 70mm @45° **Max rip:** 1300mm

Not so long ago, products from Taiwan were aimed purely at the budget market and of suspect build quality. Now the tide has turned dramatically. Although some equipment still leaves a lot to be desired, many of the bigger woodworking machines are being built to high standards.

There are various Taiwanese machines in the Xcalibur range, starting at about £1000 for a saw with 250mm (10in) blade. Bigger capacities and and extras such as sliding carriages push up the cost. Their new 305mm (12in) cabinet saw certainly sits in the professional category. It has a 5hp motor linked to the spindle with three V belts, so has plenty of power for deep ripping. The optional sliding carriage provides huge cutting capacities and is ideal for sheet material work.

Main table is cast iron and precision ground and measures 720x765mm. Two 250mm wide side tables increase overall width to 1220mm. T slots either side of the blade are provided for the heavy mitre fence. This runs in the slots smoothly with no sloppiness. Although the protractor scale is a little crude, I'd be quite happy to use this for smaller cross-cutting work on a regular basis.

The 1010mm long aluminium fence sits on a large box section runner at the front of the saw, and an L shaped one at the rear. It locks just at the front, ther rear runner acting purely as a support. Two grub screws on the shoe enable the fence to be adjusted for square. Nylon glides help it to run smoothly, although it's still not as fluid or as well built as the Jet Supersaw (tested GW 142). A magnifier cursor alongside the shoe helps you set the fence, which gives an impressive maximum width capacity of 1300mm.

Despite the solid fence, there's no auxiliary split facing to prevent timber from binding when ripping. You can't flip the fence over for shallow ripping cuts, either.

Fitted with a 305mm blade, cutting capacities are excellent. Allowing for gullet clearance, maximum depth is about 90mm at 90° and 60mm at 45°.

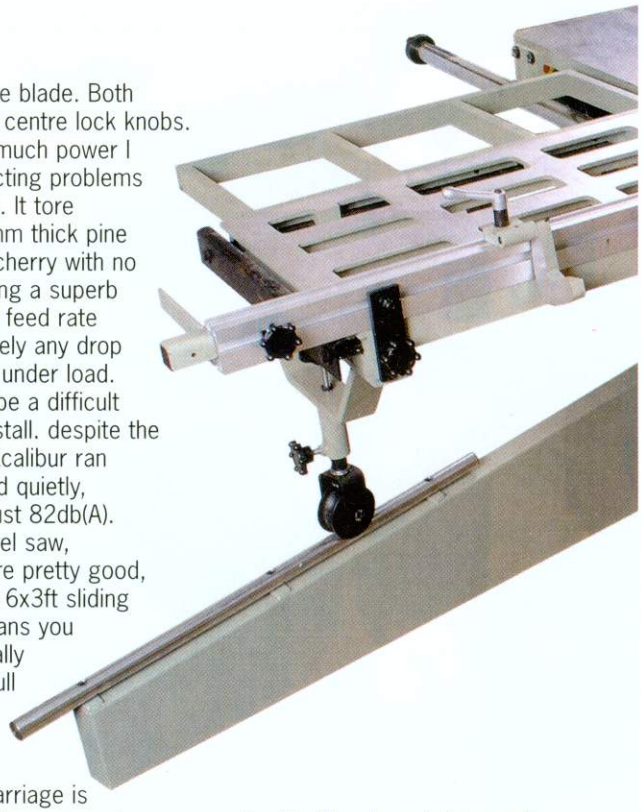
Power is activated by an NVR switch, with separate emergency stop button to the left. You won't be able to wire this machine to a 13A plug... You'll need a 30A fused circuit.

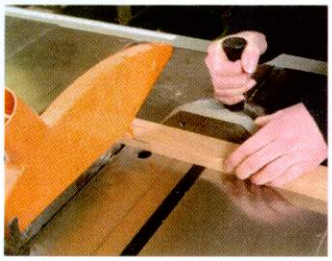
Blade adjustment is a cinch. Rack and pinion adjustments as smooth as silk via large, cast alloy handwheels. The front one controls rise and fall, the side one tilting the blade. Both wheels have centre lock knobs.

With so much power I wasn't expecting problems deep ripping. It tore through 80mm thick pine and thinner cherry with no bother, leaving a superb finish. A fast feed rate revealed barely any drop off in power under load. This should be a difficult machine to stall. despite the power, the Xcalibur ran smoothly and quietly, peaking at just 82db(A).

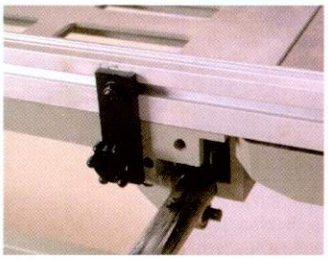
As a panel saw, capacities are pretty good, although the 6x3ft sliding carriage means you cannot actually crosscut a full sheet. The good news is that an 8x4ft size carriage is available at the same price of £428. More disappointing is the lack of angle adjustment for crosscut work.

For the trade workshop looking for a real workhorse, the Xcalibur is certainly worth checking out. You can buy the same saw with a smaller motor (2250W) and American-style splitter guard for around £1163, excluding the sliding carriage.



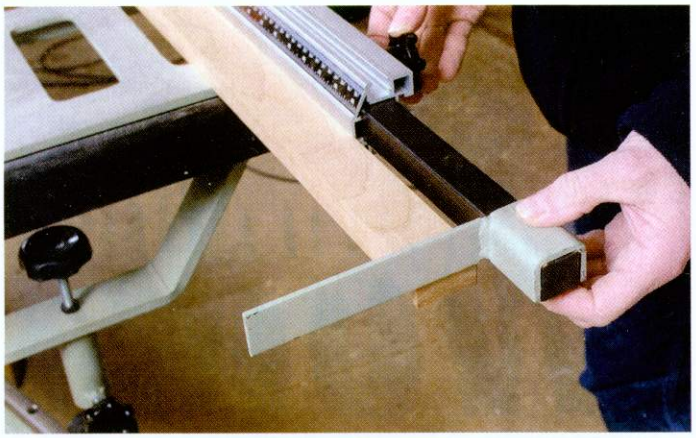


The plastic crown guard includes a dust outlet, but no flexible hose

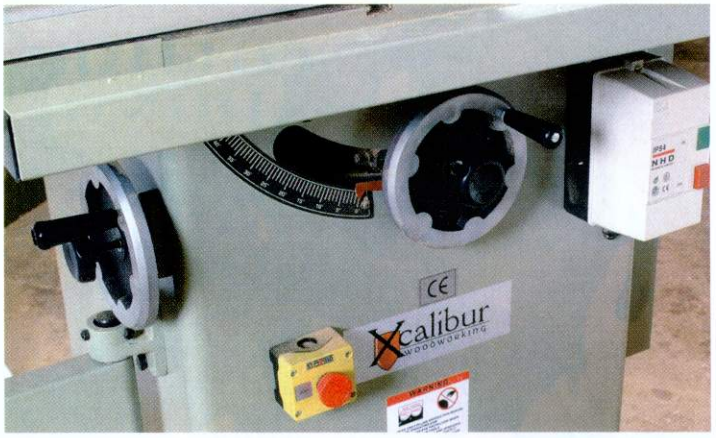


The crosscut fence locks with two knobs and can be removed easily

A jockey wheel below the sliding table runs on the outrigger



You can extend the cross-cutting fence on the sliding carriage, giving a maximum capacity of 2560mm. Make sure your workshop is big enough!



Cast handwheels make blade rise and fall and bevel adjustment easy. The stop button is fairly easy to reach on the lower steel cabinet

GW verdict

- ⊕ Solid & powerful. Good capacities
- ⊖ Crosscuts only at 90°

Capacities ●●●●○
Superb ripping

Ergonomics ●●●●○
Excellent blade adjustments. Quiet

Build quality ●●●●○
Basic design, but rock solid castings

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

Sliding carriage

If you decide to buy the optional sliding carriage you'll need plenty of room. From the end of the outrigger to the end of the fence running rail is 3370mm. But this means you get a panel saw that can tackle crosscuts up to 2560mm wide using the extending crosscut fence. The carriage is from cast and fabricated steel box sections, with a table size of 760x760mm.

The steel outrigger boom has a chromed steel rod above, acting as a guide for the adjustable jockey wheel which supports the carriage. An 1820mm long chromed steel running bar for the carriage is bolted below the main table. Maximum crosscut depth front to back is 1000mm. As the overall footprint already dictates a large area is needed for this saw. I'd prefer a longer running rail to get a full 1220mm travel for sheet materials. There is a bigger carriage availabe to accept a full 8x4ft sheet, and I'd be inclined to choose this.

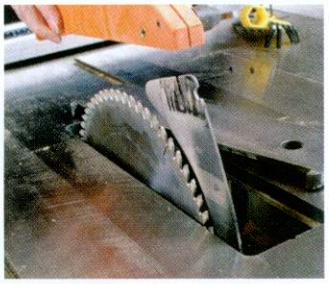
Two large upper wheels and lower bearings make carriage travel very smooth. These are adjustable for lining up squarely to the main table. If space is an issue, by lifting the jockey wheel off the boom arm the carriage will fold against the side of the saw. Whether this is intentional I don't know, but it's handy!

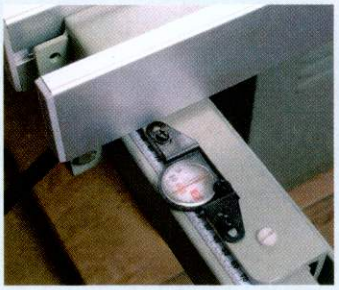
Key Features

Riving knife

Our machine was fitted with the standard European riving knife and crown guard. Xcalibur saws can also be supplied to American specs which include a splitter-type guard with anti-kickback pawls. There's even an optional arbor extension that will accept dado heads...

Grub screws secure the cast iron blade access plate. Trunnions are very solid castings and built to last





Hairline cursor

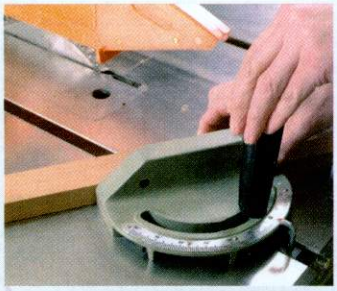
The full length fence could be a problem if you rip timber regularly, as it cannot be slid backwards. I would find a way to fit an auxiliary facing or sub-fence to ovecome this.

A hairline cursor makes setting ripping width straightforward

Crosscut fence

You are limited to 90° cuts using the crosscut fence on the sliding table. It cannot be swivelled for angled cuts, which does limit the saw's potential unless you devise jigs of some sort.

A heavy aluminium flipstop runs in a slot along the top of the crosscut fence



Mitre fence

This is solid and runs nicely in the table slots. Without the sliding carriage option you could use this for most cross-cutting operations

trend routing technology

Trend T5 Router

When David Savage reviewed the Trend T5 Router in GW121, he described it as "a quality machine with a high standard of engineering."

Featuring electronic variable control of spindle speed under load, soft-start and a spindle lock and hex collect nut for easy cutter change, the T5 retails at from around £140.

Starter Router Table

Retailing at £106, the Starter Router Table has an MDF table top suitable for most light duty routers, and comes complete with a no-volt release switch, a mitre fence, three insert rings and two finger pressures and flip-up guard.

CDJ600 Dovetail Jig

Trend's CDJ600 accepts up to 600mm wide boards and can cut ½in wide blind or rebated dovetails in one operation. With a zinc-plated steel template and adjustable offset stops, the CDJ600 retails at £82. An optional CDJ600/06 template cuts through dovetails

Seat rail dovetails

The seat rails and front/side legs are jointed with through dovetails. These can be cut on Trend's CDJ600 Dovetail Jig but require the CDJ600/06 template comb to convert this from its lapped standard. Jointing is done after the leg/rail assemblies have been trimmed to length.

❶ For the dovetails to appear at the front of the carcase, identify as follows: front joints as A1 and A2, back ones as A3 and A4. The left side front as B1, with B4 to the rear, and the right side front B2, and the rear B3.

❷ Set the edge guide stop positions as required (F2, F2).The template comb for through dovetails is double edged; one edge is used for the tails (straight slots) and the other for the pins (tapered slots). Clamp a workpiece under the top clamp and another under the front clamp both against their edge guides. Place the template on the jig with the tapered slots towards the front. Adjust the comb depth using a sight hole at either end of the jig. Unlike the lapped template, this has two sight lines and the one facing rear is lined up to the rear edge of the front workpiece, while the side sight line is lined to the end edge. Do this at both ends then lock the comb adjustment and end stops. Tails are cut first, so undo the template comb top screws and flip over the template so the straight slots face the front. Screw the template back to its brackets.

❸ Install the correct guide bush and dovetail cutter in the router. Adjust the height of the cutter to match the thickness of the timber being cut.

❹ Clamp a waste piece at least 5mm thicker than the workpiece thickness under the top clamp and butted up to the workpiece under the front clamp to help reduce breakout.

❺ Cut all tails using the identifications made to the front and back, to ensure the correct orientation of each bit.

❻ For the pins, flip over the template and reattach to the brackets, so that the tapered slots face to the front. Change the bit in the router to a straight cutter. Adjust the height of the cutter to match the thickness.

❼ Cut matching pins in the left and right ends in the correct orientation.

At a glance pull out fact sheet

Three piece suite

Seat cushions are supported on ply-panels sitting on battens attached to the main seat rails

Arm rests consist of a top rail screwed between front and back supports. The slats are biscuited between the top rail and the side seat rail

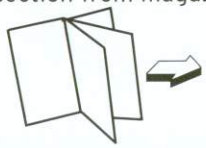
The front and side seat rails are made up from ash and oak sections and the legs planted on

Fold along this line

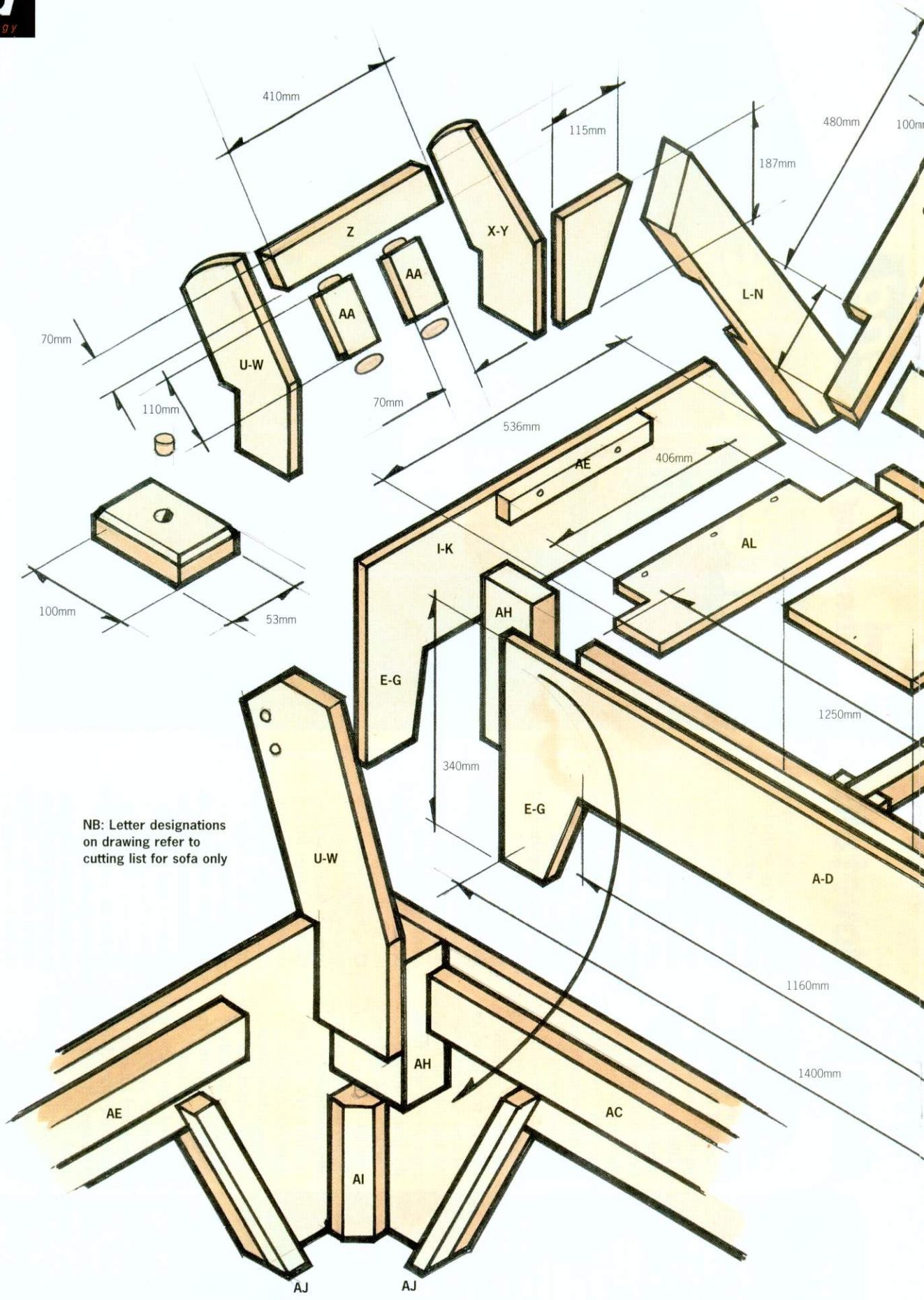
The assembled seat rail sections are trimmed to length then dovetailed with the aid of a Trend router jig. This gives both lapped and through dovetails

Folding instructions

Step 1. Pull centre section from magazine

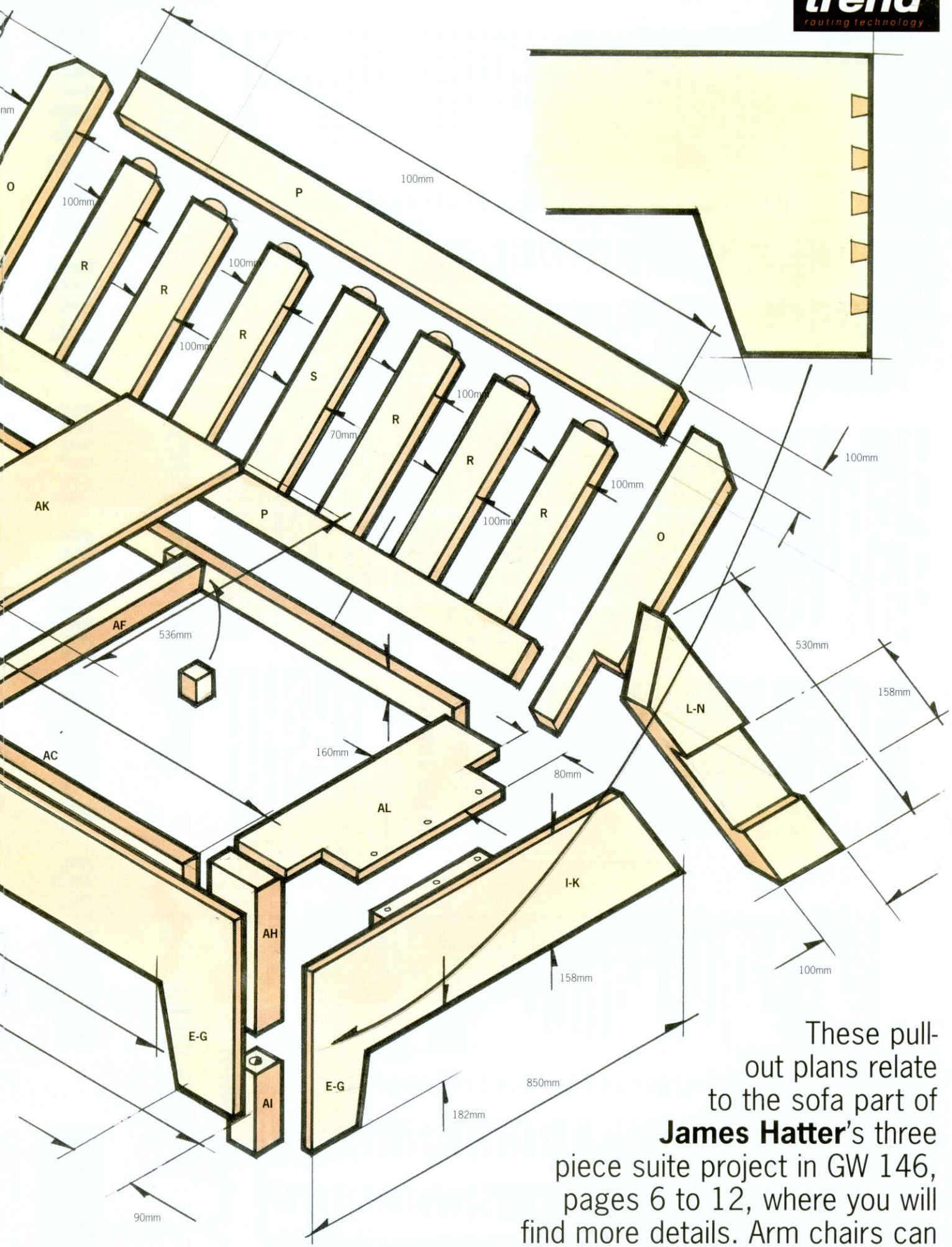


Step 2. Fold this side in half horizontally



In association with trend routing technology

Three piece suite



These pull-out plans relate to the sofa part of **James Hatter**'s three piece suite project in GW 146, pages 6 to 12, where you will find more details. Arm chairs can also be built from these plans

Cutting lists and upholstery details

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
Sofa components					
A Front rails	2	Ash	1400mm	44mm	20mm
B Front infills	2	Ash	120mm	70mm	20mm
C Front infills	1	Ash	40mm	70mm	20mm
D Front infills	2	Oak	560mm	70mm	20mm
E Front/side leg top	4	Ash	120mm	70mm	20mm
F Front/ side leg centre	4	Ash	120mm	42mm	20mm
G Leg bottoms	4	Oak	120mm	70mm	20mm
H End rails	4	Ash	795mm	44mm	20mm
I End infills	2	Ash	120mm	70mm	20mm
J End infills	2	Oak	530mm	70mm	20mm
K End infills	2	Ash	170mm	70mm	20mm
L Back legs	2	Ash	530mm	100mm	20mm
M Back leg top attach	2	Ash	175mm	100mm	20mm
N Back leg bot attach	2	Ash	220mm	100mm	20mm
O Backrest stiles	2	Ash	610mm	100mm	20mm
P Backrest rails	2	Ash	1204mm	100mm	20mm
Q Backrest slats	2	Ash	410mm	100mm	20mm
R Backrest slats	4	Ash	410mm	100mm	18mm
S Backrest slat	1	Ash	410mm	70mm	20mm
T Triangular Support	2	Ash	187mm	115mm	20mm
U Armrest front cmpnnts	2	Oak	330mm	70mm	20mm
V Armrest front cmpnnts	2	Ash	280mm	35mm	20mm
W Armrest front cmpnnts	2	Ash	110mm	35mm	20mm
X Armrest back cmpnnts	2	Ash	330mm	70mm	20mm
Y Armrest back cmpnnts	2	Ash	110mm	35mm	20mm
Z Armrest top rails	2	Ash	410mm	70mm	20mm
AA Armrest slats	4	Ash	110mm	70mm	20mm
AB Top caps	2	Ash	100mm	53mm	20mm
AC Sofa front seat support	1	Pine	1250mm	70mm	27mm
AD Sofa back seat support	1	Pine	1310mm	70mm	27mm
AE End supports	2	Pine	300mm	70mm	27mm
AF Centre seat support	1	Pine	480mm	70mm	33mm
AG Centre support blocks	4	Pine	50mm	20mm	20mm
AH Front corner blocks	2	Pine	180mm	70mm	33mm
AI Front low corner block	2	Pine	158mm	45mm	45mm
AJ Leg battens	4	Ash	250mm	20mm	20mm
AK Seat panels	2	Ply	536mm	365mm	9mm
AL Seat end panels	2	Ply	536mm	160mm	9mm
AM Centre seat panel	1	Ply	536mm	190mm	9mm
AN Arm cushion supports	2	Ash	80mm	44mm	30mm
AO Arm cushion supports	2	Ash	80mm	44mm	15mm
AP Backrest cushion stops	2	Ash	280mm	44mm	20mm
AY Infill	2	Ash	100mm	55mm	20mm
AZ Infill batten	2	Pine	88mm	20mm	20mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

Cushions and covers

A crucial feature for comfort and good appearance is good quality cushions and covers. Foam for Home Direct provided invaluable advice and help, including test cushions, so that the size and appearance could be fine tuned. I was also given some background information to the cushion and cover production.

The foams used are RX grade and are high quality, high density. They meet the latest fire retardancy regulations and are non-allergenic. The foam arrives at the factory as huge blocks, which are cut into sheets of the required thickness using the latest technology. The sheets are then hand fabricated into the final shapes by crafts people.

To remove the angular look of foam cushions, a polyester fibre wrap is attached to the foam then the whole cushion is surrounded by a stockinette undercover. The foam grade used here is 'Comfort Plus' and is intended to give a number of years of everyday use. A Premium grade is available at extra cost and has an extended life. Both are available in soft, medium and firm. I used firm for the seat cushions, soft for the backrest cushions, and firm for the arm rest cushions.

Cushion covers are from their Deluxe range of washable covers. The light cream coloured covers are Delph Barley, the red ones are Delph Claret. This range has a slight relief pattern which adds to its appearance. For those seeking conventional permanent upholstery a 'Connoisseur' range is available. This is approximately twice the price of the 'Deluxe' range.

Reader offer

Foam for Home Direct have the sizes and templates for the cushions and covers used in this project, and are able to provide the cushions and covers to order. Telephone their Customer Services on ☎ 0800 731 2727, quoting *'Good Woodworking three-piece'*. For a limited period, they will provide GW readers with the cushions and covers specified for this project at the following discounted prices:
Foam cushions for each armchair – £39;
'Deluxe' range covers for each armchair – £65;
Foam cushions for the Sofa covers – £69;
Covers £99.
They can advise on prices for other options and sizes.

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
Armchair components					
NB: Letter designations below do not relate to main drawing					
A Ffront rails	2	Ash	800mm	44mm	20mm
B Front infills	2	Ash	120mm	70mm	20mm
C Front infills	1	Oak	560mm	70mm	20mm
D Front & side Leg top	4	Ash	120mm	70mm	20mm
E Front & side Leg centre	4	Ash	120mm	42mm	20mm
F leg bottoms	4	Oak	120mm	70mm	20mm
G End rails	4	Ash	795mm	44mm	20mm
H End in-fills	2	Ash	120mm	70mm	20mm
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J End in-fills	2	Ash	170mm	70mm	20mm
K Back legs	2	Ash	530mm	100mm	20mm
L Back leg top attachment	2	Ash	175mm	100mm	20mm
M Back leg bot attachment	2	Ash	220mm	100mm	20mm
N Backrest stiles	2	Ash	610mm	100mm	20mm
O Backrest rails	2	Ash	604mm	100mm	20mm
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X Armrest top rails	2	Ash	410mm	70mm	20mm
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Z Top caps	2	Ash	100mm	53mm	20mm
AA Front seat support	1	Pine	610mm	70mm	27mm
AB Back seat support	1	Pine	710mm	70mm	27mm
AC End supports	2	Pine	300mm	70mm	27mm
AD Front corner blocks	2	Pine	180mm	70mm	33mm
AE Front low corner block	2	Pine	158mm	45mm	45mm
AF Leg battens	4	Ash	250mm	20mm	20mm
AG Seat panel	1	Ply	536mm	365mm	9mm
AH Seat end panels	2	Ply	536mm	160mm	9mm
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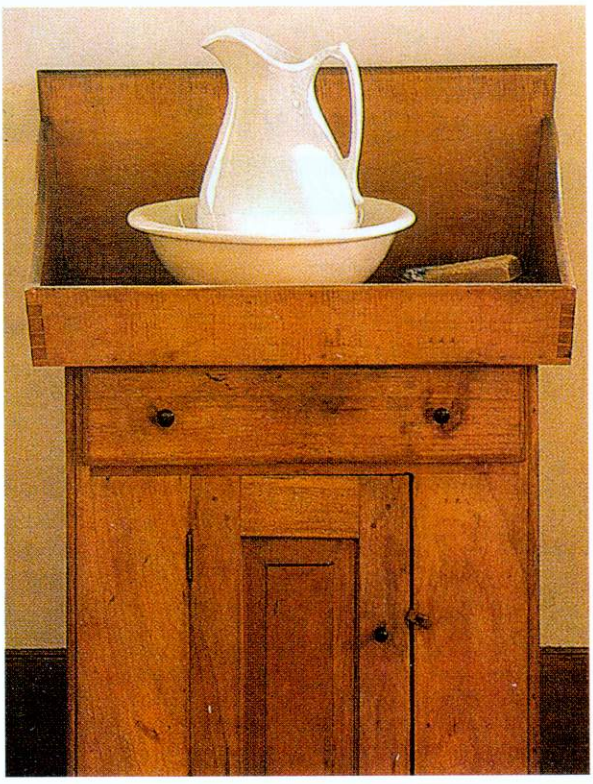
AL Infill	2	Ash	100mm	55mm	20mm
AM Infill batten	2	Pine	88mm	20mm	20mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

Design yourself a... Bedside cabinet

In the third of his series on practical design, **Jeff Gorman** considers the bedside cabinet, offering thoughts on both appearance and construction



When we design and make something for ourselves, we create something unique, something that better corresponds to our individual needs than a nondescript item designed according to a manufacturer's idea of what the mass market will tolerate.

So what kind of individual are you? Maybe a tidy soul who likes to be able to find his slippers in the dark? Maybe you like to be able to slip your reading book and specs in a drawer, safely out of reach of the contents of a knocked-over water glass? Maybe you would like to keep in one place all those books you are sometimes going to read?

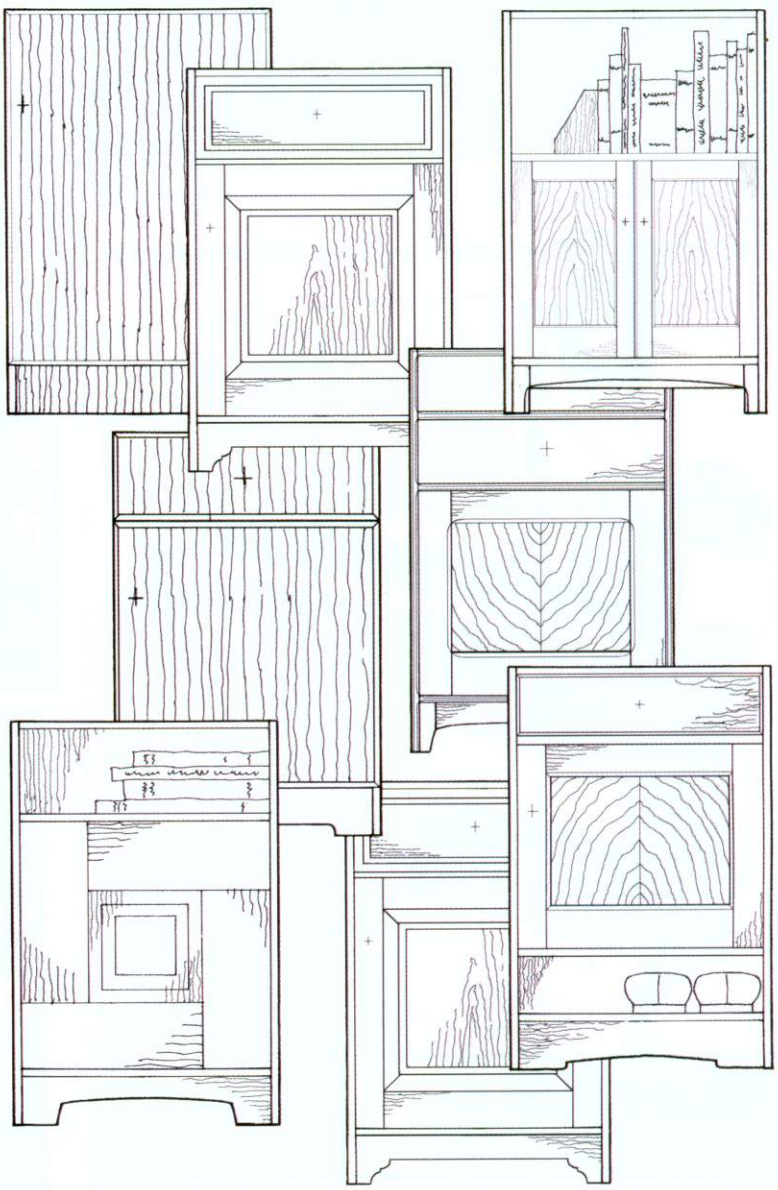
Having identified your needs, I suggest that ideas might begin to flow if you use a systematic design line that can run (not too rigidly) as follows:

Principal Dimensions

Settling the height is not a simple task. The ideal depends on your own mattress height and your own height, so cribbing from an existing design might not produce an ideal result. You will need to find one height that is both a good sitting up and reading height, and a lying down, clock radio snooze-button-punching bedside lamp switching on/off height. An actual bedtime rehearsal might help?

The width might be limited by the available space at the bedside; otherwise the extent to which you can stretch from a lying position might indicate the minimum.

Considering such factors as easy access to the bed and convenience in bed making. I guess that cabinet front should approximately align with the lower edge of the pillow.



A Tentative Drawing

Now you have main dimensions, it is time to use squared paper to draw to a one-tenth scale a rectangle representing the bare outline of a frontal elevation.

Next you will need to indicate the position of the lower shelf. A principal purpose of the apron is to raise this to avoid accidental kicks or damage by vacuum cleaners, and at the same time ensure that the door swings well clear of the user's feet of. Having fixed this height, you then know the free space available.

In allocating this space you will need to juggle the needs and options. Should the unit have to serve a sick person, perhaps an open shelf below the top would accommodate the extra bits and pieces needed by a nurse? Alternatively, a pull-out shelf immediately below the top could hold the get well cards and the inevitable grapes.

If you fancy including a space for books arranged on end, together with an open shelf or drawer, you could find yourself left with a space requiring a cupboard door of rather peculiar proportions. One solution could be to put the shelf inside a cupboard? This might be inconvenient, but it is often necessary to sacrifice convenience for the sake of appearance.

Audit Resources

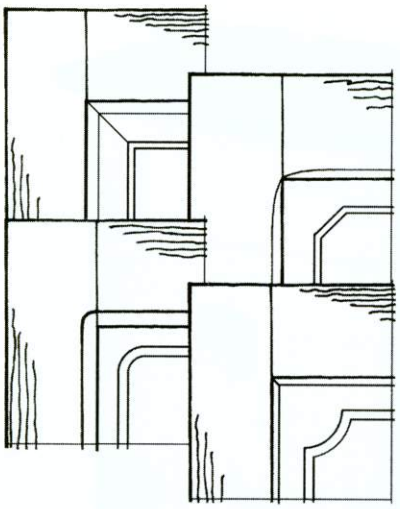
Before you go much further, consider what is actually feasible. The design outcome might be affected by real-life practicalities such as cost and availability of materials, available tools and equipment and your existing skills. For example when deciding the type of apron, time-available versus estimated time-required might be the deciding factor.

You might decide to include a feature because it offers an incentive to learn a new skill.

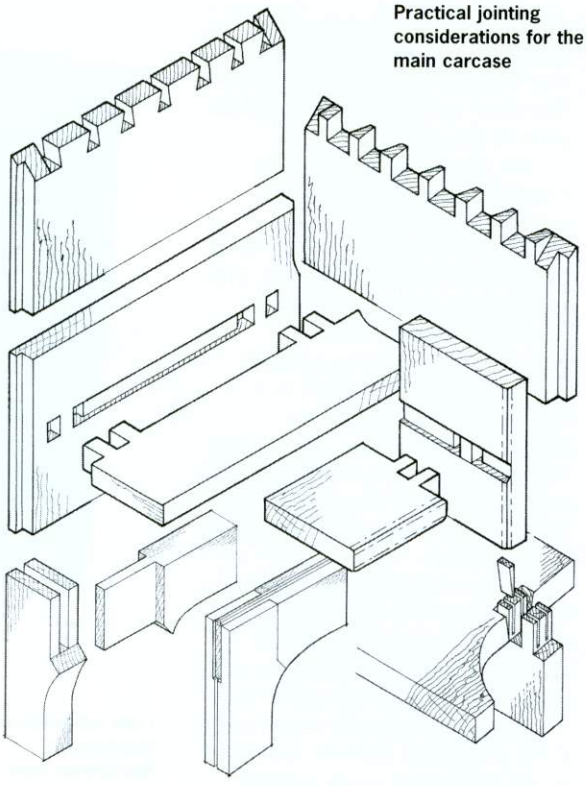
Could this be the stage when you rehearse your arguments for buying that new tool that you absolutely must have for the job?

Consider Aesthetics

Drawer and door handles inevitably punctuate the design. These features are so visually significant that they can make or mar any design. Decide whether to make your own or buy ready-made and timesaving metal or plastic versions. If you decide on the latter, now is the time to make your purchase and allow their appearance to influence the final outcome. You might conclude, for example, that extruded aluminium handles look best on a unit with a plain door and drawer.

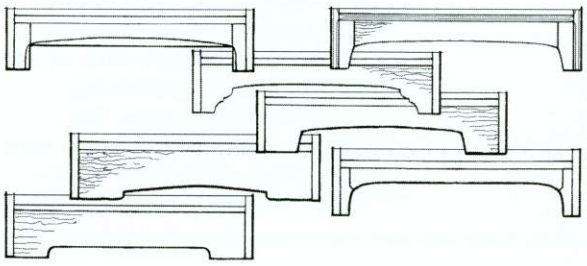


Various methods of turning a moulding around a corner joint on a door



Practical jointing considerations for the main carcase

"The details are not the details – they make the product. It is, in the end, these details that give the product its life"
Charles Eames 1907-78



Some apron possibilities – framed or panelled

No article about designing seems to be complete without a discussion of the Golden Section, yet one famous designer has told me that he had never been able to make such rectangles work for furniture. In real life we see things in perspective, not as they appear in plans and elevations. When you look down on the finished job, this perspective will make vertical distances appear shorter. When looking from the side, an article will appear narrower. In our eyes, a perspective rectangle becomes a trapezium; a 'perfect' rectangle is distorted and the rectangle no longer looks like the diagrams in the design books. However, our brains seem to have an inbuilt capacity for taking distortion into account to the extent that some 'rules' can offer something to at least get us started.

I confess to drawing the doors shown here by instinct, but was pleased to find that they would fit one rule that involves forming a rectangle around an equilateral triangle (its base lying horizontal).

A logical approach can help you to make a start at deciding ➤

Jargon Busting

Short grain
Areas whose fibres are so short that the workpiece is weakened.

Gable
While this term usually refers to the triangular section of an end wall of a building, it is a legitimate and useful term for an end 'wall' of cased furniture.

Chamfer:
A bevel, usually but not necessarily at 45°, used to soften an arris.

Listel
A narrow and flat band within a moulded surface.

Golden Section
The proportion resulting from the division of a straight line into two parts so that the ratio of the whole to the larger part is the same as that of the larger to the smaller part, equal to ½ (v5 + 1) or 1.61803.

stile and rail dimensions. This needs care as it is important to also consider what my mentors described as 'the proportion of the parts to the whole'.

For maximum strength the length of a tenon need not be greater than five times its thickness. For small doors, a 6mm thick tenon would be normal. This could mean that the minimum width of the stiles would be 30mm. When drawing possible elevations, use this width as a starting point. To allow for perspective distortion, draw a top rail wider than the proposed stile, and the bottom rail wider still. Now consider the visual impact of the first effort.

Use tracing paper to make several sketches, each trying slightly different stile and rail widths, then try several types of panel. Don't rest until satisfied

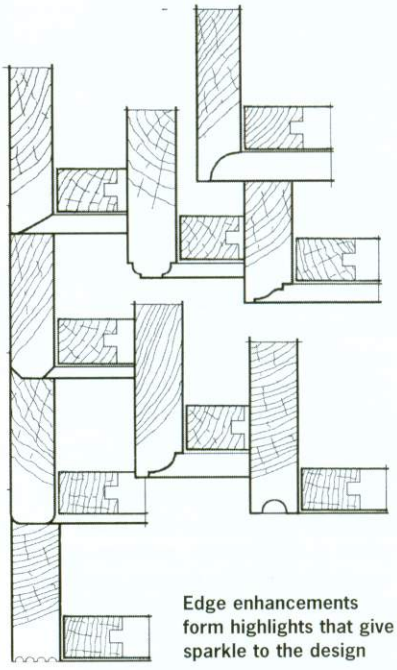
For people already expert with CAD programs, such an operation could performed much quicker than by hand drawing, though I do wonder whether their steep learning curve really makes the effort worthwhile.

At the risk of stating the obvious, it seems sensible that fielded panels for doors will be matched by fielded drawer fronts.

Once you have agonised about the appearance, consult your household's final arbiter and settle for one pattern. It could now be helpful to draw a complete elevation to a larger size.

I could also now suggest the time-consuming option of making a perspective drawing or using a hot-glue gun to rustle up a scale model. This would offer a good insight into the final appearance,

Look out for Steve Maskery's Mackintosh style bedside table in a future issue



Edge enhancements form highlights that give sparkle to the design

though you will probably still find that you want to make changes as the project develops on the bench.

Consider Practicalities

Draw up a cutting list, including extra material for practice pieces. Check it three times and allow extra for disasters.

Dovetail Joints

With hand planes in mind, I have suggested a few possible edge enhancements to give character to a plain design. These tools, unlike the router, require a stroke that runs the full length of each edge, thereby creating difficulties at the corners where undermining would cause ugly gaps. The cabinetmaker's solution is to mitre the corners, as illustrated. For a similar reason, the opposite edges are also mitred to 'return' the rebates that house the back panel.

Lower Shelf Joint

Uncompromisingly, I illustrate a housed joint secured with wedged twin mortice and tenon joints at the front and back (and possibly at intermediate intervals). However, you could save labour by relying on apron and back to strengthen the lower regions and so dispense with tenons. Note how the front of the housing should be mitred to return any moulding or chamfer you may decide to incorporate.

Aprons

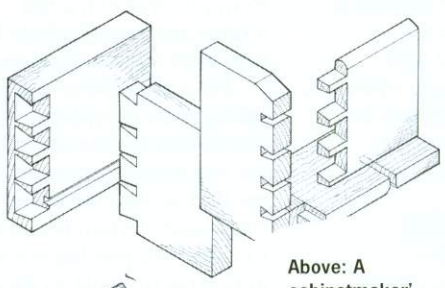
Since both the top and side edges are hidden, bridle joints will be suitable for a framed version. If you fancy a sweeping curve between the rail and stile, use a

Drawer details

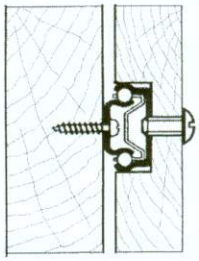
There are two principal drawer options. The traditional cabinetmaker's drawer incorporates lap dovetails at the front and through dovetails for the back. The solid wood base is tongued into drawer slips. These locally increase the thickness of the sides, so reducing long-term wear. Naturally, ply or MDF panels could also serve.

Making and fitting a traditional drawer is a time-consuming challenge so I've also illustrated basic details for a drawer with an easier-to-fit 'plant-on' front. The sides can either run on wooden battens or on ball-bearings in steel runners. Such a drawer is unlikely to bear a heavy load, so wooden runners should give adequate service for many years, though metal versions glide open at the merest touch – convenient perhaps for a semi-conscious user? 'Grooved' versions appear the neatest.

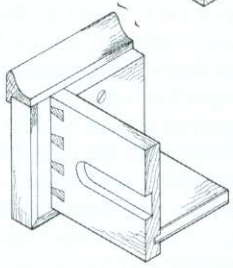
There's no doubt that the machine router owner will score when forming these recesses and when roughing-out the shaped drawer fingertip pull, yet I've fairly easily made many lengths using only a rebate (or shoulder) plane and a 'hollow' moulding plane.



Above: A cabinetmaker's drawer



Above: A Concealed Runner fits into the side of a drawer



Left: Laid-on drawer front. The groove will accept either a solid wooden runner or ball bearing 'groove runners'. A fingertip pull replaces also serves as a lipping for the top edge

Hints & Tips for Making

Fitting a Drawer
When setting out the top and shelf joint, arrange for a drawer opening to be very slightly (1.5mm) wider at the back. Assuming that your cabinet will live in a centrally heated environment, you can then adjust the drawer's fit so that it slightly tightens as it is pulled outwards.

Needless to say, if the drawer is to run smoothly, inside surfaces all need to be dead flat. To maintain the flatness of the gable surfaces, it would be wise to also tenon any intermediate horizontal units.

Lower Shelf
When driving the wedges into the twin tenons, take care to drive the wedges at equal rates, otherwise you could find that you have irrevocably closed the sawcut intended for the second wedge. (Don't ask me how I know!)

Gunstock Shoulder Joint
Roughly shape the rail and leg of the gunstock shouldered joint, but complete the curve after the joint is glued. Then there is less risk of the short grain breaking off.

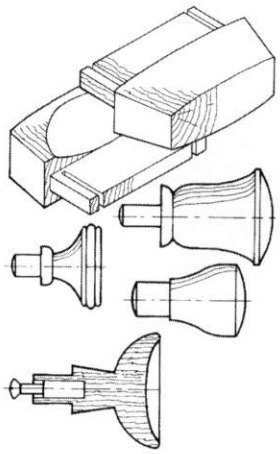
Squared Paper
Print your own by going to http://www.incompetech.com/beta/plainGraphPaper

Dovetailing Detailed
For some advice about technique, visit www.amgron.clara.net. You might also look at 'Morticing by Hand' and 'Drawings for Drawers'.

Fingertip pull
First plane the rebate on the edge of a board, saw the slip from the board and use a rebated 'sticking board' to hold the slip while planing the shape. Alternatively, you could form a rebate in some matching Scotia moulding.

Edge Enhancements
Work edges before you cut mitres.

Some turned knobs and a partly carved drawer pull



Further options

- Contrasting wood for door panels & drawer fronts.
- Divide a door panel with one or more muntins.
- Fit an upstand at the back, or round three sides of the top.
- Inlay stringings as edge enhancement.
- If a door's proportion should need to be much wider than a square, try two doors instead.

'gunstock shouldered' version. Otherwise you will find that short grain at the transition point breaks as you spokeshave the curve.

For either of the patterns sketched, a thin slip is suggested to aid location and thereby avoid panics at gluing up time.

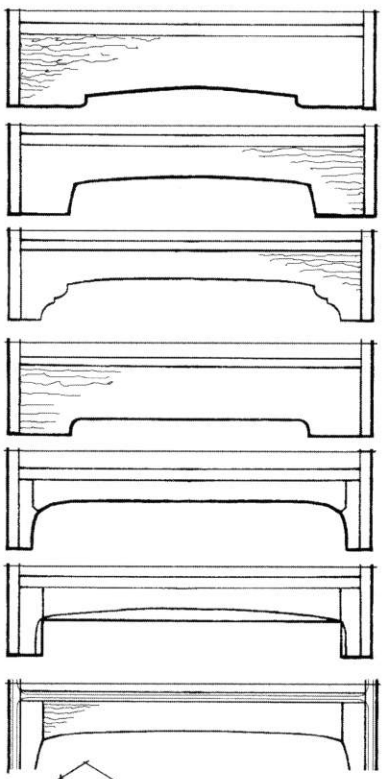
Plain or Panelled Doors?

One choice will be between a plain panel, perhaps from ready-veneered chipboard or MDF or even a panel veneered by yourself. You might consider a book-matched or quartered design.

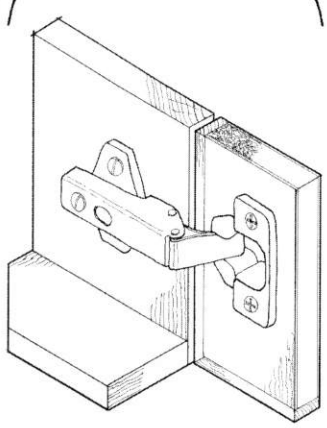
Matching the colour and texture of solid wood to a ready-veneered panel might be difficult, so you are likely to find yourself also opting for a veneered drawer front. Of course the raw edges will need to be covered with a plain or cocked lipping.

The opening edge could be provided with a pull-come-lipping. Make this visually stronger by removing wood to leave a shorter upstanding part at a convenient place above the mid-point of a door's edge. If you do this, treat the centre of a drawer in the same way.

For panelled doors, the exploded drawing illustrates the standard 'long and short shouldered' haunched mortise and tenon. The cocked bead is shown as worked on the stile, whereas for clarity the rail is shown as un-moulded. It shows the mitre that 'returns' a similar moulding but please do not be mislead, strike the moulding before cutting the mitre.



A few options for apron designs



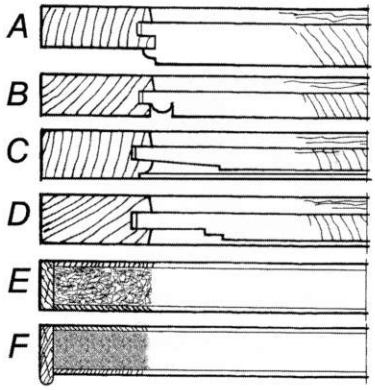
Concealed hinges for use with man-made boards can also be used for inset doors. You will need to buy a special cutter to cut the circular recess

Panel Design

You may have seen panels formed by simply bevelling their edges to form a tongue, yet the border so formed can appear rather fuzzy, especially if the bevel angle is rather flat (as it should be). A bevelled and fielded design offers nice highlights to crisp-up the appearance. However, since such panels shrink (as they will over the years), they can become loose in the grooves. Unless you like the appearance of mitred corners, you might prefer 'sinkings' that form parallel tongues. If this is done in two or more stages you could avoid excessively thick listels that form attractive highlights.

The widths of the sinkings will strongly influence the design. For example, very narrow stile-listing gaps will create strong shadows. In this case, since you need only consider shrinkage across their width, top and bottom listels could butt directly against the underside of the rails, depending on what you fancy.

A Overlapping panel (borders need not be absolutely rectangular in shape)
B The quirk and bead moulding runs only along the grain of the panel.
C The bevel forms a mitre at the corners.
D This panel is less likely to loosen as it shrinks in width.
E A plain lipping
F A cocked bead lipping. The opening edge can be fitted with a pull similar to that shown on the laid-on drawer edge



On Test Special

New power tools are always exciting to test. But when there are three of them **ANDY KING** finds it hard to sleep... This month he investigates cordless impact drivers

The cordless drill is without doubt one of the most useful pieces of kit ever invented. But as batteries get bigger, inevitably the tools themselves increase in size and weight and start to lose their portability. Relatively new to the construction industry, cordless impact drivers are reversing this trend. Designed originally for the engineering and metalwork trades (driving nuts and bolts) these compact tools are making an impact in more ways than one.

Expensive and pretty specialised, for shopfitting, boatbuilding and similar trades where screws need to be inserted in large quantities, impact drivers have a big advantage. They deliver noticeably more torque than normal drill/drivers, so you don't need to drill pilot holes first, even with large screws. They work on a similar principle to the airguns used in garages to remove wheel nuts. They knock the nut, or in this case screws, around by using a series of short taps, rather than the constant torque of a regular drill. Operating at higher speeds, the ratcheting effect means that screws are driven in without the problem of the heads getting chewed up as the fixings bite into the timber. The chance of shearing is also reduced as the screws tighten up.

With no torque control, depth of drive is set via the variable-speed trigger. Fast rotation speed can make this a bit tricky to control initially, but once you get used to it, the impact driver becomes very easy to control.

Initial screw action is similar to a normal drill. It's only as the screw bites deeper that ratchet action kicks in, which actually slows down drive speed.

Despite an impact driver's size, its power is amazing. A 100mm screw can be driven straight into softwood without a pilot hole in seconds, yet with no wrenching effect on your wrist. A regular battery drill will struggle to do the same work, and chances are it will also chew the head or shear the screw before it drives fully home.

So how useful is an impact driver for woodworking? Hex chucks mean you can fit any quick-release bit with this type shank. Take a look at Trend's Snappy system to get an idea o what is available. We tried som Hitachi flatbits, working just as well as using a conventional cordless drill. Adaptors are available to swap screwdriver points to socket wrenches so yo can also play with the Meccano

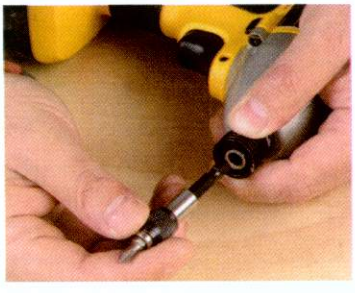
The downside is that impac drivers are twice the price of normal drill/drivers. This mak them tools that are only likely t appeal to pro woodworkers. Bu I'm sure it won't be too long before we see budget versions filtering through. Remember how expensive routers were when they were first on sale in Britain? Now you can buy then for less than £30...

DeWalt DW052

£358.38 ☎ **0700 4 339258**

www.dewalt.com

Build quality is immediately evident on DeWalt's 12V DW052. This is a compact tool, just 166mm from the back of the casing to the front of the chuck. Ideal for restricted spaces. Even so, the chuck design is the same as the other two tested, so it will need an adaptor to use standard 25mm long screwdriver bits. Although longer 50mm bits can fit directly, a bit holder is a better option for faster changeover if you use different size points or patterns regularly.



Each impact driver has a quick-release chuck that accepts hex bits. Short 25mm bits do not seat properly in any of these tools, so you need an adaptor

You fit a screwdriver bit by pulling the spring-loaded sleeve forward, then inserting. The sleeve retracts to lock this firmly.

The DeWalt is supplied with two 2.0Ah NiCd batteries plus one hour charger. Speed is from 0 to 2400rpm, with up to 3000 impacts per minute.

With a ratchet action powering in the fixing, an impact driver is prone to vibration transfer. The DeWalt has a soft grip handle to keep it as comfortable as possible. This rubberised area extends over the back of the tool so you can hold this to guide the driver if need be. It should not be used to apply extra pressure.

The grip itself is excellent. Slightly slimmer than the Makita and Hitachi, it's certainly ergonomically designed.

Although small in size, high quality components push the weight up to just under 2kg. With such a squat design this tool is well balanced, though.

Performance is hard to fault.

Setting 100mm screws directly into pine with the DeWalt was no problem. The initial driving action works in the same way as a standard driver. It isn't until torque increases that the impact action kicks in. This slows the drive speed down so accurate depth of drive is easy to achieve by using impact action and the variable-speed trigger.

A top-notch tool for anyone who needs a compact driver with exceptional driving power.

GW verdict

- ⊕ Slimmest, most comfortable grip
- ⊖ No fast-access external brush caps

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

Makita 6916DWDE

£423.00 ☎ 01908 211678

www.makita.com

Build quality of Makita's 6916DWDE 12V driver is superb. It follows the style of their familiar Marathon drill drivers, with the handgrip at an angle to the driver body. This tilts the chuck upwards by about 20°, keeping the wrist at a more natural angle when driving screws horizontally. The grip is rubberised for comfort and the front alloy casing is smoothly finished. Overall length is 165mm, about half that of a regular cordless drill. Important if you need to drive screws or bolts in confined spaces.

It has the classic battery drill layout of forward/reverse button through the handle and variable speed trigger for ease of use. This is responsive enough to allow slow starting of screws before driving at top speed of 3000rpm. *Top speed* on all three drivers is a bit misleading as they don't actually run all that fast once torque increases as the screw bites. It enables you to set the screw head quite precisely if necessary. This isn't the case with short, narrow gauge screws though. These tend to pull themselves in before the torque starts to take effect, so you need to take a little more care when using these. Like the other tools tested, there is no torque collar or two-speed gear box.

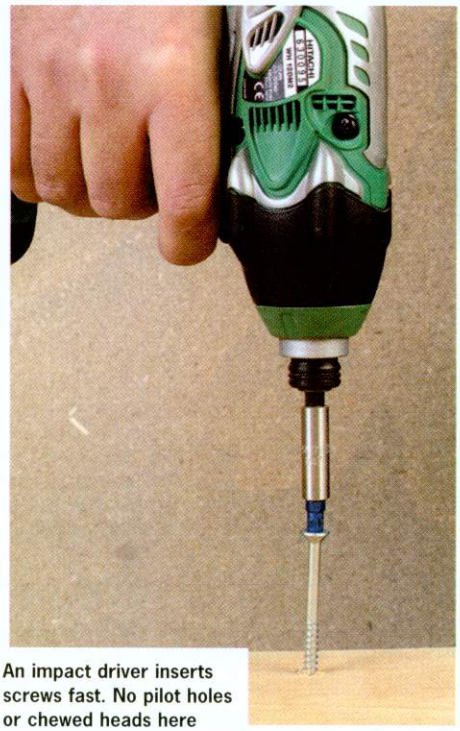
Like most Makita tools, screw-in external brush caps enable you to perform routine maintenance when necessary, minimising down time.

Two 2.6Ah NiMH batteries are provided and should last longer than standard NiCd versions. This could be important if you have a major fixing session coming up. A one hour charger is included.

Although overall torque is slightly lower than the other two tested, at 100Nm the Makita had no trouble at all driving home 100mm screws.

This is a very well designed tool, and certainly built to last.

A knurled sleeve on the chuck is pulled forward to release the grip on the bit



An impact driver inserts screws fast. No pilot holes or chewed heads here

GW verdict

⊕ External brush access. Angled design

⊖ Lower torque

Value for money ●●●◐○

Performance ●●●●○

What you need to know about cordless impact drivers

Make	RRP inc VAT	Typical price	Weight kg	Torque nm	Speed spm	Impacts per min	Battery type	Origin	Warranty
DeWalt DW052	£358.38	£250	1.76	115	0 to 2400	0 to 3000	2.0Ah NiCd	America	1 year
Hitachi WH12DM2	£398.33	£280	1.67	120	0 to 2600	0 to 3000	2.0Ah NiCd	Japan	1 year
Makita 6916DWDE	£423.00	£280	1.65	110	0 to 2300	0 to 3000	2.6Ah NiMH	Japan	1 year

Hitachi WH12DM2

£398.33 ☎ 01908 660663

www.hitachi-powertools.co.uk

Hitachi power tools historically have tended to be quite plain in appearance, designed for the tradesman who wants performance and rugged construction. So it was quite a surprise when their WH12DM2 came out of the box... The silver, green and black livery gives it a futuristic look and certainly makes it stand out from the crowd. Metallic parts are rubberised and act as cushioning, and softer than the rest of the tool's casing. Sculpting around the handle slims it down for a very comfortable fit in smaller hands.

The front end of the Hitachi has a urethane cover over the metal casing, rather than the exposed alloy of the Makita and DeWalt. These tools can generate heat around this area from the impact action, and so this limits heat build up.

Hitachi follow the standard cordless drill layout with a forward/reverse button above a variable-speed trigger. This makes it easy to swap from one direction to the other and is still to me the best configuration ergonomically.

At 155mm overall from chuck to rear, it's 10mm shorter than the Dewalt and Makita. Not a great deal, but it could be the difference between getting a fixing in easily or not.

The chuck accepts ¼in hex shank bits, but like the others, standard 25mm bits will not fit directly. So you need an adaptor or longer, 50mm bits.

A neat feature is the hook to clip the tool onto a belt or tool pouch. This has a built in lamp so you can direct a beam of light towards the work if you're working in a dark area such as a cupboard. It's adjustable so you alter the angle. It runs off its own battery and will switch automatically after 15 minutes.

Driving 100mm screws directly into pine without piloting was a cinch with the Hitachi. You don't need to grip the tool tightly and extra forward thrusting pressure is unnecessary.

A really ergonomic 12V tool with exceptional build quality. And there's even a keyed chuck available for normal drill bits.

The belt clip has a swivelling, built-in lamp. More than a gimmick, this really does help in a dark corner...

GW verdict

- ⊕ Shortest overall. Built-in lamp
- ⊖ Adaptor needed for short bits

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

FINAL VERDICT • Cordless impact drivers

The impact driver as a tool is pretty basic, with only a forward and reverse function to worry about. Construction quality is high on all three tools tested, each one superbly built. Although the ***Hitachi*** doesn't have the exposed alloy external front casing like the ***Makita*** and ***DeWalt***, this is an advantage. It will shield you from heat build up caused by impact action.

Makita's choice of a 2.6Ah NiMH battery means it has a longer run time than its rivals. Each tool has a similar speed and impact ratios. All are capable of driving 100mm screws directly into pine with no pilot hole and without camming out.

Size is important, so the shorter ***Hitachi*** could be very important in a tight spot. The directional light could come in handy as well.

For comfort the ***DeWalt*** is difficult to beat. Its slim handle is rubberised so sits well in your hand over an extended period.

So which is best?

Makita's batteries make it the better option if you need the longest possible run time, but it isn't quite as comfortable to use over an extended period as the ***Dewalt***. ***Hitachi's*** futuristic-looking model with its angled lamp and enclosed front casing make it just a tad more user-friendly than the others and is our Recommended buy.

All three tools drive in fixings with an ease that has to be experienced to be believed. You're unlikely to be disappointed with any one of them, to be honest. Start saving...

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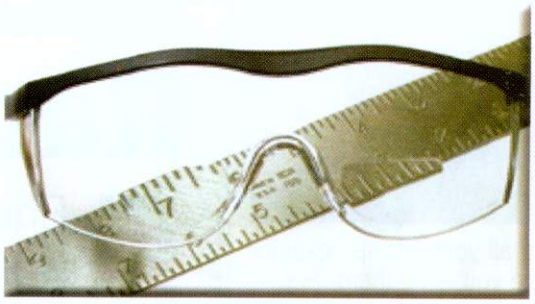

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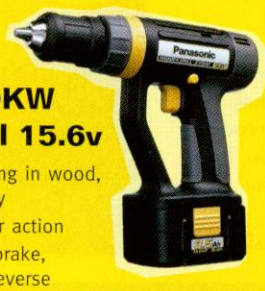

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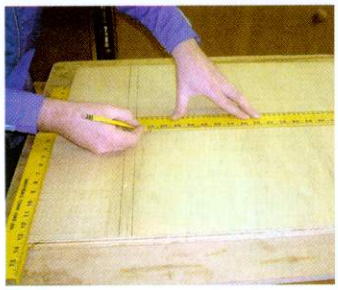
Rack 'em up

Bring all your workshop cramps under control and close to hand when and where you need them with **Ian Dalziel's** ultimate mobile cramp rack

Clamps are a necessity for woodworkers, they go together like a car and road, they come in all shapes and sizes and because of this it can make it difficult to store them. This is my second clamp rack; the first I built was from the *New Yankee Workshop* plans, which worked well but was unfortunately just too big for my workshop. It would be great to have Norm's space, but I don't, and a rethink and new design was in order

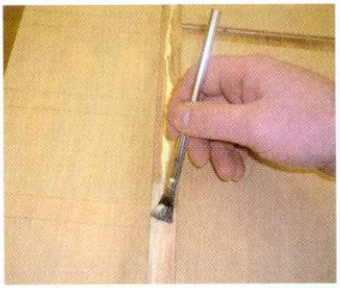
What I wanted was a smaller

Constructing the basic stand



01 Lay out the bottom ply shelf for the 18mm housings for the two sides and the centre board

02 A straightedge guide is useful for routing the housings. Set this back by the distance from cutter to base edge



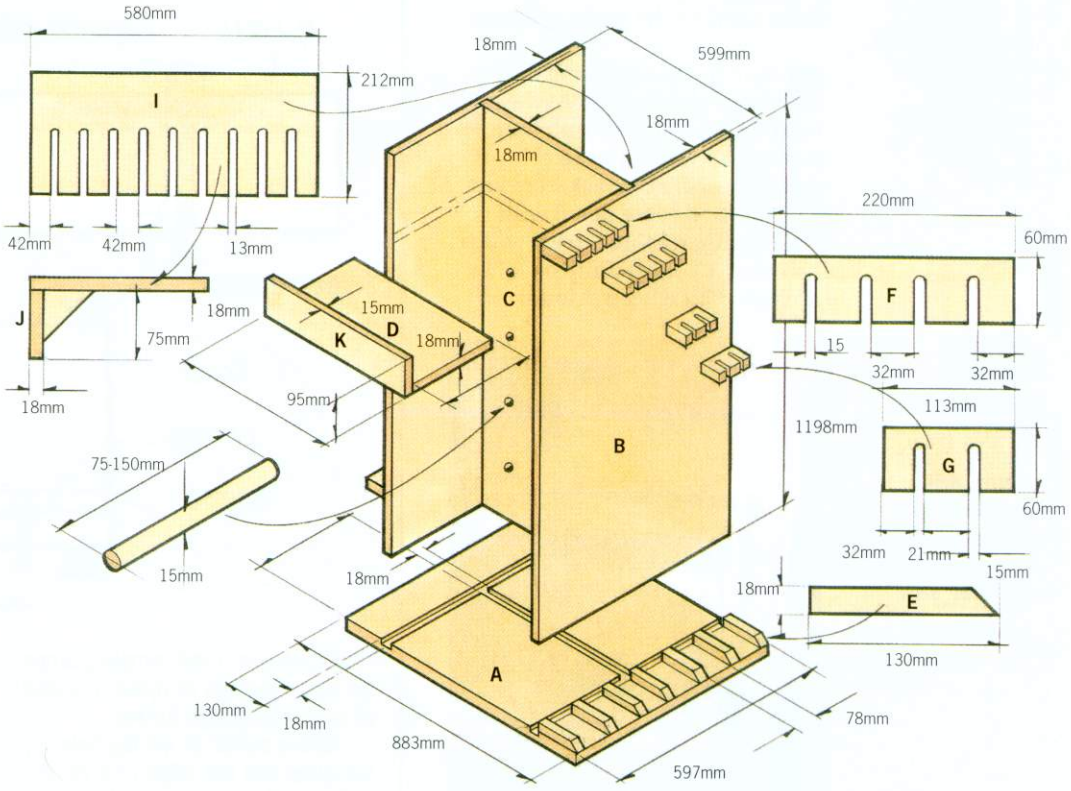
03 Make a dry assembly then glue up with PVA and assemble the rack - middle first then the two sides

04 Screws will hold the assembly while the glue sets. Pilot and countersink these before assembly

rack that could hold all the different types of clamps I have in a smaller space, with room for my glues and biscuits. Most important was that it should be mobile, so I could wheel it to where I needed it. To this end I sourced some large 75mm heavy duty castors for the base at a cost of £12 – worth every penny! they were too!

The design I came up with works great but filling it is proving a challenge. I thought I had a lot of clamps, but now it looks half empty. And as the saying goes, you can never have too many clamps.

CONSTRUCTION: Cramp rack



How to Make the Rack

1 The design uses mostly 18mm plywood, with some white pine for the edge trimmings. Starting with the base, cut a piece of 18mm ply to 883x597mm, then mark out for the housings or dados to accept the sides and central division. The sides are set in 130mm from either end. Use a square to mark these from side to side. Now mark a line 289.5mm in from each side to leave an 18mm dado up the centre. The result of this should look like an H design. I also marked the layouts for the clamp spacers at the same time on the front and rear face,. For this first mark 12mm in from the side then 80mm then 18mm and continue with both sizes across until you are left with a 12mm mark. The 80mm spacing is enough to take the heads of a pair of Bessey K cramps snugly.

2 Set an 18mm straight router cutter to a plunge depth of 6mm then, using a clamp guide, set it up to rout the dado from side to side. Repeat the process for the centre dado. Now cut two pieces of 597x1198x18mm ply for the end faces and rout a similar central dado in each from top to bottom. Cut a 1198x599x18mm piece for the centre brace

3 Before assembly mark a centre line on the back faces of all the dado grooves so you know where to drill for screws. Start with the base, running a bead of glue along both side to side dados. Turn the base on its side and insert the first upright, ensuring that its dado is facing and aligned with the centre dado. Drill and countersink from the bottom side of the base for about four screws. Repeat for the opposite upright, then insert the centre down through the dados and ensure it locates into the bottom dado. Drill, countersink and screw from the bottom face and also through the uprights to leave a solid frame that won't twist.

Calling all readers

Do you have any great jigs, workshop aids or techniques that help you in the workshop, and that you think other readers would be interested in hearing about? They could be useful accessories or jigs you've built for power tools or benches, a novel method of storing timber or a unique storage cabinet for hand tools. If so, we want to hear about them. Drop us a line to **Workshop Guide, *Good Woodworking*, 30 Monmouth St, Bath BA1 2BW** or send an email to **goodwood@futurenet.co.uk** with details, including photographs and plans as relevant.

4 Cut some 6x18mm white pine strips for lippings all round any exposed plywood edges. I glued and brad nailed mine into

05 Check the main stand is square before setting aside to dry. In the meantiome you can start on the racks

06 If you wish, lip all the exposed edges with some thin 18mm strips of pine. Glue and pin these in place

07 Give all exposed edges a quick lick over with a sander to flush up the lippings with the ply

08 Turn the stand over and add the castors. 75mm ones are about right for this, and one could have a lock

MATERIALS YOU'LL NEED

1@ 8x4ft sheet of 18mm ply plus a 2ft offcut from another.
4@ 75mm swivel castors
2m 15mm dowel

TOOLS YOU'LL NEED

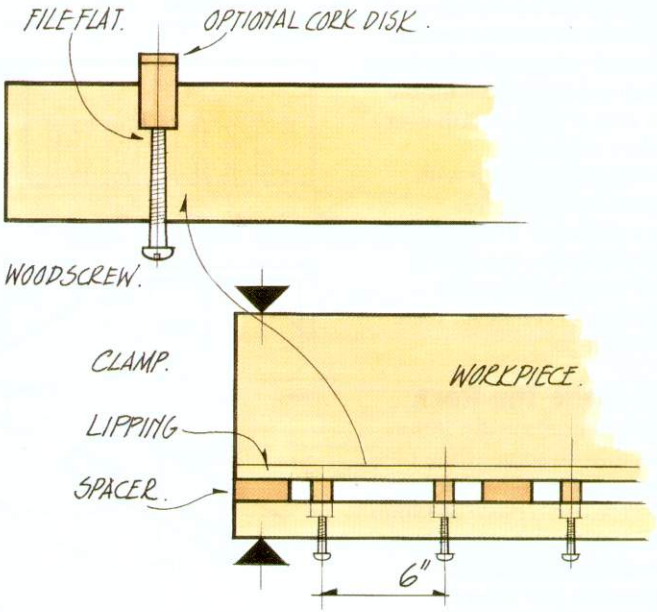
Router with 18mm straight cutter, **drill, bandsaw** or **jigsaw, tablesaw** or **circular saw**

place. Once all the edges are covered, give it all a light sanding, not so much for aesthetic reasons but because cut plywood can leave some pretty nasty splinters.

5 Turn the whole frame upside down and install the wheels. I used 75mm swivels on all four castors as I wanted to be able to pull and swing the rack from any angle. I fixed these down with self-tapping roofing screws which I have used successfully on other projects with wheels. Mount the wheels in such a way that when they are swivelling they don't protrude past the edges of the base. I also mounted them under the two uprights

You'll work better if your cramps are where you need them when you need them

Simple lipping clamps



Here's how to make simple clamps for edge lippings to make a couple of sash clamps go further.

Drill a series of ½in dia holes ½in deep into the edge of a 2x1in batten, followed by suitable holes on the same centres in the other edge to take woodscrews.

To use, insert ¾in lengths of ½in dowel into the holes, then clamp the batten against the lipping at either end of the workpiece with the sash clamps and some spacers. Use a woodscrew with the point removed in every screwhole to apply intermediate pressure via the dowels. For shorter workpieces clamp the spacers between the dowels. If you make up two of these, lippings can be clamped to opposite sides of a workpiece at the same time.

Peter Giolitto, Epsom

CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Base	1	Plywood	883mm	597mm	18mm
B End faces	2	Plywood	1198mm	597mm	18mm
C Centre piece	1	Plywood	1198mm	599mm	18mm
D Shelf	1	Plywood	587mm	297mm	18mm
E Clamp spacers	14	Pine	135mm	18mm	18mm
F Clamp supports	6	Pine	113mm	60mm	18mm
G Clamp supports	3	Pine	220mm	60mm	18mm
H Edge lippings	(total)	Pine	6m	18mm	6mm
I Quick clamp rack	1	Plywood	580mm	212mm	18mm
J Quick clamp rack	1	Plywood	580mm	75mm	18mm
K Shelf front	1	Pine	587mm	95mm	15mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

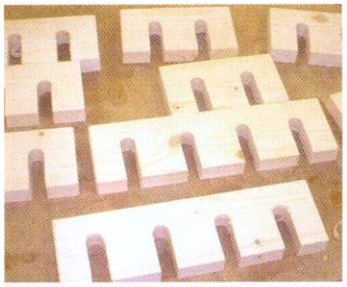
6 For the clamp spacers cut a 2m length of white pine to 18x18mm then cut 14 (or however many you need) lengths at135mm, trimmimg the front face at 45°. I then dressed mine on a belt disc sander. Attach these with glue and brads onto the marks previously made. My rack ends are made for Besseys and I have set them for spacing of two at a time

For the upper support blocks I made two different sizes, six for supporting a pair of clamps and three to take four. Cut some 113x60x18mm white pine blocks for the smaller ones and 220x60x18mm for the larger ones. Take one of the smaller ones and mark 33mm in from the back face then 40mm in from each side and drill a 15mm hole using a

Adding the various rack supports

09 Space out the dividers on the side base extensions to accept a pair of Bessy clamps in each case

10 Make the supports by drilling out the centre then bandsawing to create slots for the cramps



11 This is what you should end up with. Make sure the slot spacings will match the base

12 Plant a front onto the shelf to help retain all the clutter of screws and glues that will store here

What cramps do you need?

How many times have you heard the old adage: 'You can never have enough cramps'? The thing is, it's true. Cramps are one of the most useful non-cutting tools around a workshop. They're handy for fixing things to the worktop, holding piece of timber together while you mark them, keeping templates in place, and a dozen other uses in addition to their most popular purpose, namely holding joints together tightly after you've glued them.

With such a wide diversity of uses, it's hardly surprising that there are almost as many different types of cramp out there, all with a specific task. However, before a buying spree gets out of hand, let's just consider what you actually need in order to get by.

Sash Cramps

The most important cramp in my workshop is the sash cramp. These comes in a number of guises, and their main use is for cramping up wide frames and carcases, and thus they tend to be used in pairs. A basic set would consist of two 3ft cramps (for joinery doors) and two 2ft cramps, though four of each would be better. Whatever make you prefer, buy a good brand and stick to them, so that their shape and method of use is standard. This is especially the case when jointing up wide panels from several boards, when it's necessary to place several cramps under the boards.

Traditionally Record sash cramps have proved the most popular (the 135 series for light work and the 136 T bar design for heavy work), not least because you can join two shorter cramps together to make a longer one. Modern cramps such as the Bessey K clamp are starting to supercede these, due to their stable footprint on the assembly bench and the way the jaws stay parallel under pressure. This latter feature is essential in any cramp so avoid cheap ones.

If you need to overcramp joints when assembling, then your technique is not too hot. Cramps should only ever apply enough pressure to draw the components gently into place and hold them there.

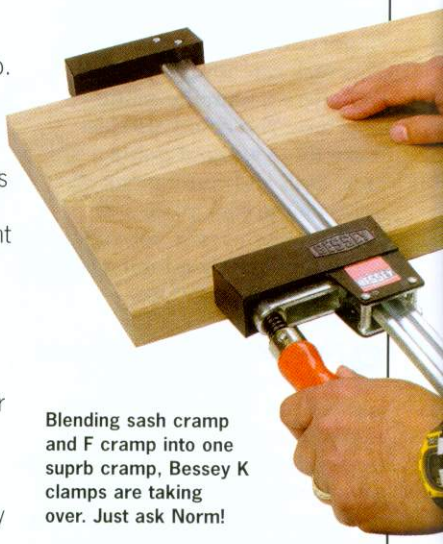
General Cramping

Once the mainstay of any workbench, G cramps have largely disappeared in modern shops in favour of F cramps (aka speed cramps) and Solo cramps (the ones that look like glue gun frames). Whichever you prefer, these versatile cramps are essential for all day to day cramping tasks – cramping butt joints or laps, holding workpieces to the bench while routing, etc. In most cases, excess pressure is not required so the speed of use of F cramps and one-handed application of Solos now outweigh the force that can be applied with a G cramp.

Here you'll find that you indeed do not ever have enough cramps. You'll need a set of various lengths, perhaps 6@ 6in and 6@ 12in or thereabouts, to handle different sizes of work, along with perhaps a couple of longer ones for those once a month jobs and a few very small 3in cramps (G cramps are still pretty much the norm here) for small scale work.

If your work involves a lot of lipping of solid woods onto sheet material edges, you may find Klemmsia cam clamps invaluable. They apply just enough pressure to hold a lipping in place and are quick to apply and remove. I keep about a dozen of these in 12in and 24in lengths.

Finally spring clamps; these are useful more for around the workshop for holding two bits of wood together face to face while you mark one to the other. Even so they are invaluable, again for small scale holding in particular, and its worth keeping about 6 of these to hand.



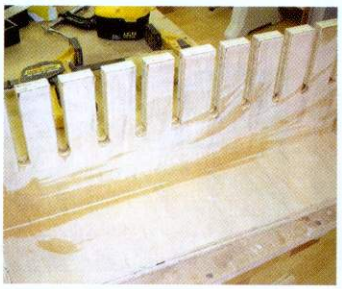
Blending sash cramp and F cramp into one suprb cramp, Bessey K clamps are taking over. Just ask Norm!

Forstner bit, then use a square to mark the 15mm wide slot to be cut out. I cut these on the bandsaw freehand. I cheated when I marked the larger one – just sit one of the smaller ones on top mark off then move it over and mark again. To mount these drill and countersink inside the slots then use 32mm drywall screws to attach to the clamp rack. Use the clamps as a guide to keep the level.

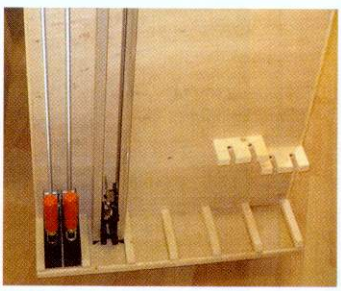
7 For the shelf for glues, screws and biscuits, etc, cut a 587x297x18mm piece of plywood to and some 12mm white pine for the shelf supports. I attached my shelf 200mm down from the top of the rack and faced it off with an old piece of skirting board. I only did one side of the clamp rack. You could also make a removable tray for nails and screws to fit in this if you require it. I didn't bother

A handy top shelf is perfect for glue and screws when assembling work

13 The main support shelf for smaller cramps is made in a similar manner to the Bessey rack but is in plywood



14 Glue the comp to a back support and add a pair of triangular braces into the joints



15 Bessey cramps are some of the most useful and well made cramps on the market today

16 Drill holes for dowels around the centre board to take your other cramps. Cut the dowels to suit

8 To house quick grips, use some more 18mm plywood. Cut one at 580x212mm for the top, one at 580x75mm for the back, and two 75mm triangular supports. First mark off an 18mm line from each side then mark 42mm. then 13mm. then 42mm, and so on until the you have marked right across the board. This should reveal spacing for 10 clamps. Mark in 100mm from the front face and drill 10 13mm holes at each clamp slot, then cut out the slots at the bandsaw. I went over mine with a chamfer bit in the router to get rid of any plywood splinters.

Now run a bead of glue onto the back and, using a few brads to hold it in place, drill and screw together. Do the same with the 75mm corner blocks/stiffeners. This rack can now be placed anywhere within the centre structure. You could also just make these without doing a full rack. Drill and countersink six holes on the back plate and position it wherever you require it and screw on. I fixed mine 300mm down from the top face.

9 Now set out where you want to fix any other clamps. I wanted my high usage clamps easily accessible, so these were more priority for me. Sit these into a convenient location and pencil mark an area that is going to be a good support around the clamp, I bought some 15mm dowel rod and cut it at various lengths – 75mm, 100mm, 150mm, etc – depending on the type of clamps you have. Just below your pencil mark, drill to a depth of 15mm using a 15mm Forstner bit at a 5° angle. Try and not to go right through the ply. Apply a dab of glue to the end of the dowel and tap gently into place. Do the same for all your other clamps until you either run out of space or clamps, it amazed me how many clamps this rack can hold.

Wall mounted rack

If wall storage for small cramps is all you need, here's a simple rack from **John Everett** to keep everything under control

This quickie project stores a large quantity of spring clamps, G-clamps, bench hold-downs and the like.

The basic construction is like a smallish, wall mounted bookcase but with an open box at the top and angled strips of wood in place of shelves to clip spring clamps onto. It's easily put together from MDF

Making the Rack

1 Begin by cutting the two side pieces to length and width. Mark the front and top of each piece to make it easy to mark accurately for the mortices which will house the clamp location bars. The two sides will of course be a mirror image of each other.

Now mark up the locations for the rebates which will house the top and bottom shelves, plus the rebate along the back of each upright to house the ply or MDF backing sheet, as well as the locations and sizes of the mortices for the clamp location bars. The clamp location bars are angled so that the clamps will have their handles facing slightly forwards when in place for easy access for removal and replacement.

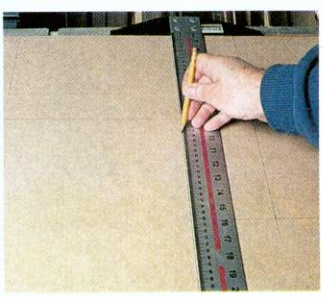
2 The mortices are next on the agenda and these can be cut 6mm in depth by drilling away most of the material (there isn't much after all) and then cleaning up with a sharp chisel. When these have been cut out on both uprights, set up a router with a straight cutting bit and mill out the rebates for the backing sheet and the top and bottom shelves.

Next, cut the locator bars to size, as well as the pieces of ply or MDF for the top and bottom shelves (the top 'shelf' of course is just the

How to make the rack

01 The problem; too many spring and G cramps and nowhere to store them

02 Lay out all the different cramps to determine the spaces you'll need on the various shelves



03 Set out the two sides and mark off the spacings for the various cramp bars

Spring cramps are very useful around the workshop, especially for small scale work

bottom of the box compartment at the top of the storage unit). Also, cut out at this stage the piece of the same 6mm material for the front of the box. This will slide down into the rebate provided on each of the side uprights and can be glued and pinned in place to form the front of the top box. The back is provided by the backing sheet.

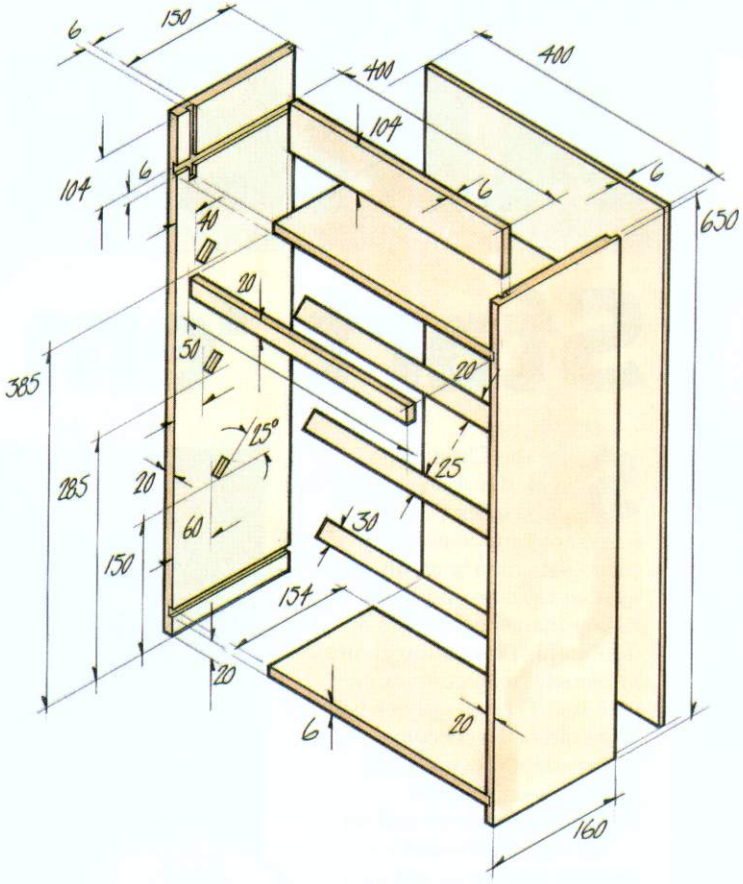
3 With all the pieces cut to size, it is time to do a dry run before gluing up, to ensure that all is well and everything will fit properly when the glue is applied. Once you are happy, run wood glue into all the rebates other than the back panel rebate as well as the mortices for the clamp locator bars. Line everything up and check for square as you assemble the pieces. Yes, I know it's a bit of a fiddle but it's worth the effort.

Once all is assembled, add sash cramps to hold everything in place. Add a bead of glue along the back of the uprights in the rebate and then glue and pin the backing sheet in place, checking carefully for square before pinning. The backing sheet will hold everything in its correct place while the glue dries.

4 Once the glue has set fully, add any trim and /or finish you may wish to use to tidy up the completed item. Then turn the store face down to add the fixings to facilitate mounting the unit to a convenient wall.

On the example shown, the location of choice was the inside of the workshop door, which is 25mm ply, and to this end it was only necessary to drill three holes in the backing sheet to take some chunky roundhead screws with plain washers under the heads for added security. The completed store will house a considerable number of assorted clamps and the dimensions can of course be adapted to your own particular requirements.

DETAILS: **Simple clamp rack**



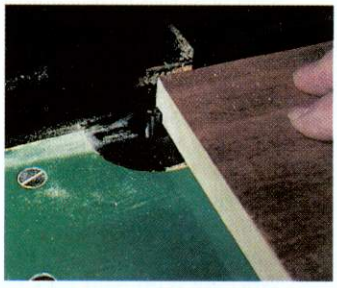
CUTTING LIST

Part	Qty	Mats	Length	Width	Thkns
A Sides	2	MDF	650mm	160mm	18mm
B Top and bottom shelves	2	MDF	400mm	160mm	6mm
C Back	1	MDF	650mm	400mm	6mm
C Front panel	2	MDF	400mm	104mm	6mm
D Top clamp bars	2	MDF	400mm	20mm	10mm
E Mid clamp bar	1	MDF	400mm	25mm	10mm
F Bottom clamp bar	1	MDF	400mm	30mm	10mm

Cutting lists give the full length of a piece including the joint but not wastage. Add 5mm in the width and thickness for sawn material.

NEXT MONTH

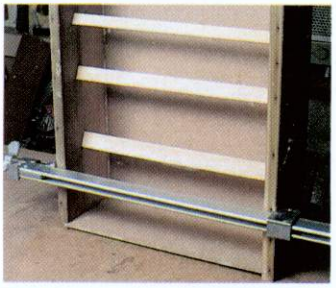
Make your workshop machinery more mobile by building our base wheel sets for each of them



04 Rout the 6mm housings for the shelves and the 6mm rebate for the back panel

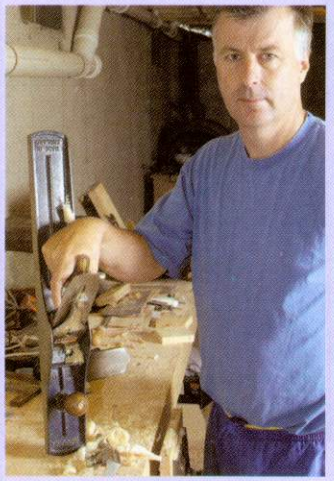
05 Drill out the mortices for the bars on a pillar drill to the correct depth then square up with a sharp chisel

06 Glue up the rack and assemble the shelves, inserting the bars in their mortices as you go



07 Cramp up, check for square, then set aside to dry before attaching to an appropriate wall

Letter from AMERICA



Mark Corke and his son Sam try a little male bonding over a Jet lathe. The result is a splendid three legged stool, a proud father impressed with his son's quick learning capabilities, and a happy son just itching to do some more woodwork. Could you ask for any more in life?

Start 'em young

Since the Christmas break I've managed to spend more time in the workshop, and was rather surprised when Sam, my son, wanted to come and help. Rather than spend hours in front of his Playstation games he actually wanted to work with me! Though only eleven years old he has become rather adept at woodwork and has been steadily building up his own tool kit.

By mutual consent we decided that we would do a spot of woodturning and, although a novice, he turned out some good work. On the first day he made a candlestick from a section of holly, and a round mallet.

I had thought this would be enough, but he was up bright and early the next day, complete with apron, and itching to get started. Wanting something a little more advanced, we settled on a three-legged stool for his room. This we made from a section of maple for the top and tulip for the legs, not the best of materials but what we found in the workshop. In the end they worked out a treat.

I roughed out the top on the bandsaw but apart from that he did most of the work himself. He may be my son, and I may be biased, but I think he made a splendid job.

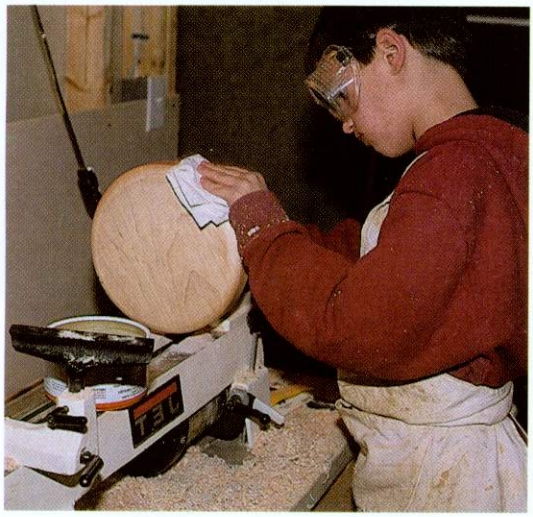
One of the good things about turning is that you get almost instant results, making this ideal for kids. Of course they need close supervision when the lathe is whirring around at high speed; a dig-in can be bad enough for a grown up woodworker but truly frightening for a child . Luckily we avoided any mishaps and from start to finish we spent about four hours on the stool.

The small size of my Jet lathe meant that the top was 10in in diameter, the largest that can be swung over the bed

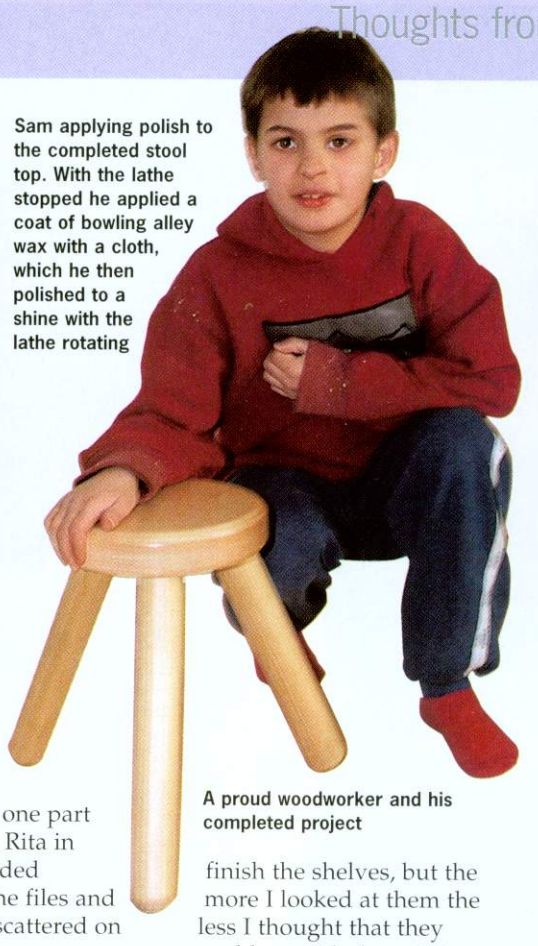
He is already thinking about the next project, which looks like it will be a desk to go with the stool. At least he'll have somewhere to put his Playstation.

Sam was also very safety conscious and would not go near the lathe without wearing his safety goggles; so keen was he on making sure that nothing would go in his eye that he wore them the whole time he was in the workshop, even when marking a line with a pencil!

Working with Sam was a real eye opener. We have done things together in the



Sam applying polish to the completed stool top. With the lathe stopped he applied a coat of bowling alley wax with a cloth, which he then polished to a shine with the lathe rotating



A proud woodworker and his completed project

The completed stool, which took about four hours of work

past but I was surprised at how much he had picked up and how quickly he was able to grasp new techniques. He had never done any turning before but fell into it straight away, and after showing him how to hold the roughing gouge he was able to use it on his own straight away. I have taught adults woodworking at various times, and they have often taken long hours of instruction to accomplish the most basic of tasks, which made Sam's quick learning that bit more remarkable.

A Salutary Tale

Regular readers may remember that a couple of months back I was starting work on some shelves for my wife. Presently we both work from home – I have an office in one part of the house and Rita in another. Rita needed somewhere for the files and books currently scattered on the floor.

Work originally was going well, although made from cheap pine. I had made out a cutting list from a sketch of the final design. This was a little fancy, I must confess, but I thought that it would look good once on the wall.

But as I worked I began to have my doubts; I liked the design less and less. I did finish the shelves, but the more I looked at them the less I thought that they would go with the existing décor of our colonial home.

With the shelves complete except for a final sand and a painted finish, I gave up, and instead spent an evening making something more traditional. Of course this meant that I had to start over again, but I just could not see the others ever looking right.

Like the shelves, never to be fitted, the new version is made from 12x¾in pine which is cheap here in the US. Rita wants to finish these with a coloured stain finish – which I think will look grand – the type where the grain and texture just grins through.

As for the old shelves, these are still languishing in the basement, never to see the light of day. I might use them for workshop storage, a reminder of how I must think a job through more.

"I was surprised at how much he had picked up and how quickly he grasped new techniques"

Sam's thoughts

I enjoyed working on my stool with dad because we had good fun and it was something I had wanted to do for a long time. I also learnt about safety, how to use a lathe and how to translate an idea into a design. There is something exiting about turning a few planks of wood into something beautiful.

Sam Corke

Buying new tools

When I moved to the USA from the UK I was forced to sell most of my power tools. Ever since I have been slowly building up my toolkit to somewhere near its former stature. This has taking both time and money and I have a long way to go yet. I have still to get a saw bench and planer but have had more success with the smaller power tools.

I have a Bosch fixed base router at present but I have been casting around for a plunge base model and decided upon a DeWalt 625, mostly because I had the old equivalent Elu model and it fits the various jigs and fixtures I have without modification.

But where to buy it. I did look in one or two store locally but either they did not have it or it would take four weeks to arrive. Because of the vastness of this country, many people buy goods by mail order, made that much easier by the Internet, where you can order almost instantaneously. Its added advantage is the ability to check comparative prices, read reviews, and generally find out all you need about the product, short of handling it before you buy.

Having possessed one of these routers, I did not need to handle it, so it was just a question of finding the best place to buy. After a little searching online I found the best deal at Tylers Tools, a virtual tool store that had the router for $229 (£140), which I considered a good deal against the recommended price of $556 (£385). The new router is eagerly awaited, so that I can fit it into the Woodrat that I have in the shop, though this then opens up the problem of where to fix this jig.

DRAPER
THE TOOL COMPANY

COMPETITION

WIN DRAPER TOOL KITS EACH WORTH £530.00

Two lucky winners this month will be receiving these splendid tools in our easy-to-enter competition

Enter this month's competition and you could top up your toolkit with three top notch tools from the Draper Expert professional range. If you are one of the two winners, you'll end up with a JS600VA jigsaw, a BS75 belt sander and a R850V router. Draper will also throw in a DRB12A set of 12 router bits as well!

The jigsaw is variable speed, so will cut plastics as easily as wood. It has a three position pendulum action for metals or to minimise splinters if you cut veneered stock, a quick release blade change and a 45° tilting base.

Fed up of stripping back flat surfaces? You need a belt sander! This one has a 75mm wide belt and weighs about 3kg, so it's easy to manouvere without tiring you out. It has fine tracking and, with its quick belt changeover, fast rough sanding or finer controlled abrasion is easy to achieve.

The router is similar to the classic MOF96 and has a soft start motor with variable speeds from 9000-27000 rpm, ideal for routing hard and softwood and other materials. A three stage turret on the alloy base allows stepped cuts, and there is also a spindle lock for quick changeover.

Great tools, so get entering right away. You know it make sense!

How to enter and win

To enter our Draper competition simply answer these three simple questions. Put your answers, plus address, on a postcard or on the back of an envelope, not in it, and send to: **Draper Comp, *Good Woodworking*, 30 Monmouth Street, Bath BA1 2BW** to reach us no later than **Friday 2nd April**. As usual, no multiple entries please.

1. Draper Expert tools are designed for professionals, but what is a professional draper an expert at?
   1. Cutting cloth
   2. Cutting corners
   3. Cutting out the middle man

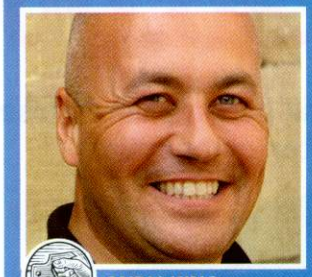
2. Draper;s Expert belt sander will quickly smooth all manner of surfaces, but on what surface did the Beagle 2 fail to land smoothly on Xmas day 2003?
   1. Runway 3, Pill International Airport
   2. Mars
   3. Loch Ness

3. Someone who excels in their field is an expert, but who is the midfield expert who wears the number 7 England shirt?
   1. David Beckham
   2. Charlie (aahlscoorfrom-here,me) Scott
   3. Bobby (the official receder is in) Charlton

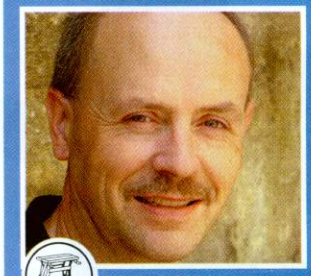
Answers

Our experts answer questions on extractors, damp workshops and sourcing file fittings and oak

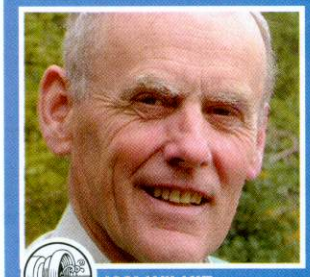
Ask the Good Woodworking expert team



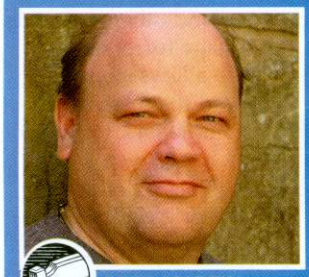
ANDY KING
Techniques



PHIL DAVY
Supplies



IAN WILKIE
Woodturning



PETE MARTIN
Furnituremaking

PLUS: Our other specialists in every woodworking field from timber to finishing are available to answer your queries as required

File it!

I would like to adapt a built-in cupboard with shelves that I built recently, so that one or more of the shelves could be used as a filing system. Do you know anywhere where I could buy some metal sliding fittings for suspending A4 files from?
Steve Brooker, Hook

You could try Isaac Lord (☎ 01494 459191) as they have access to the excellent Hafele catalogue of contract furniture fittings and I'm sure I've seen such systems in this. Alternatively you could easily make your own from thin mild steel strips screwed to the top of a thin batten so that the top of the metal protrudes sufficiently to take the hooks on the file hangers. It would then simply be a case of adjusting these battens to the correct spacings.

Pete Martin

Which saw/extractor

I have been working as a handyman and would like to concentrate on the woodworking, with a view to working my way up to furniture and fine cabinetmaking. After the conversion of my large double garage into a workshop, I have a budget of around 3000 euros and would appreciate some advice on panel saw and dust extractor selection.

I am considering the Elektra Beckum PKF 255 for a panel saw (unless you have alternative suggestions) but when it comes to extractors I am stumped. A large unit in one corner that would take care of all my extraction needs, present (table saw, chop saw and router table) and future (thicknesser joiner and bandsaw), would be great but what size and make? Can I do it within budget or should I spend more on a better saw and downsize the extractor?

Aidan Kinsella, County Kildare

The PK255 is good capacity saw with a scoring facility for veneered sheets. If this is going to be what you use it for predominantly, then it's a pretty good choice. I'm not a great fan of aluminium saw tables though, especially on bigger models such as this that are likely to get more 'abuse' from a heavy workshop environment.

The Kity 619 is worth a look if you want a panel saw with a good price. It sells for about the same as the Elektra. I prefer Kity tables as, although still aluminium, they are cast and milled with a Teflon type finish. This not only looks more classy but minimises the binding problems found with aluminium on aluminium which can make fences tricky to set easily. Cast iron tables are more robust and less prone to damage, and are more stable.

Record's DX5000 hard at work in the GW workshop

If you need the scoring facility and a decent sliding carriage, the Rojek PK300 (Jordan ☎ 0191 5840784) is a fantastic machine. It's cast iron and superb quality throughout. It puts a big dent in your budget by comparison to the Elektra though. When we tested it in GW 139, it cost £2117.35, so way over the price of the Elektra.

If you only need a crosscut facility for general use, then my favourite is the Jet Supersaw (Jet ☎ 0845 6040064). Again cast iron and a superb quality, this has an integral sliding carriage which will crosscut up to about 700mm. It doesn't have an underscoring blade, so a fine blade is needed on veneered boards to minimise breakout.

The Jet is similar in design to

Reader follow-up

I want to make furniture in English oak but all I can find locally is imported American white oak, which is not as good looking. Where can I buy the real thing?

Chip Clements, Kent

As luck would have it Chip, you're not too far from English Oak Direct, an excellent supplier of home grown oak based near Hever Castle in Kent. They keep a wide range of boards, both kiln dried for furniture and green for outdoor use, and all supplied as square edge to reduce the wastage commonly associated with buying home grown oak as waney edged boards. Timber is also sourced in accordance with the principles of the FSC (Forestry Stewardship Council).

Prices vary according to quality and character, but start at about £9.50 per metre run for a 300mm width of 28mm timber. This equates to about £38 per cubic foot (inc VAT), which is not bad these days for 1in oak, American or English. Quarter sawn boards, with their highly sought after figuring, are also available (at premium prices), as are various stock mouldings in oak such as Torus skirtings and ogee and ovolo architraves.

Ring English Oak Direct on ☎ 01342 850555 for a copy of their latest comprehensive price list or check out their website at www.englishoakdirect.co.uk. Delivery can be arranged if you wish, but ring if you want to visit on a Saturday.

Pete Martin

Dealing with a damp workshop

My double garage is kitted out as a workshop, but has a serious problem with damp. It is built from reconstituted stone, and the rain drives against one side, penetrating straight through. It's ruined hardwoods stacked against the wall, the mahogany tail vice on my workbench has swollen so badly that I can barely turn the screw, and my wooden marking gauges are too tight to adjust.

Whatever I do has to be done within the garage as the outside of the offending wall is on my neighbour's property. I have not heated the garage as I didn't know whether this would make the problem worse. I've thought of putting up a partition against this wall and maybe insulating or damp proofing it in some way, or purchasing a dehumidifier. I would appreciate any thoughts or advice you can give me.

Pat Dawson, West Yorks

As you have found to your cost, outbuildings such as garages seldom get a double skin or cavity construction, resulting in water eventually leeching through a single skin. Walls built of concrete blocks tend to be rendered, and this will have a waterproofer in it to keep moisture at bay. On finished brick or, in your case, reconstituted stone, you take your chance!

Resolving the problem from the inside won't be a cheap option as I think the wall will need a 'tanking' type render to act as a waterproof barrier. Even then, you'll have to treat this wall carefully; you won't be able to drill holes for fixings, so any storage must be free-standing.

Some sort of heating should be incorporated, ideally one that doesn't have exposed elements or naked flames. I use an oil-filled panel heater from Dimplex (☎ 0870 7270101) in my timber framed workshop. This has a timer switch and thermostat to regulate the heat over colder periods, which I find ideal.

Assuming the garage is a freestanding, single skin construction, you may still have problems keeping condensation to a minimum unless you add some sort of insulation. Battening the walls with insulation between them, then applying a vapour barrier such as tarred paper, before facing over with a board will keep the walls warmer, reducing condensation. If you do tank the wall battens will need to be stuck on with panel adhesive, or a free standing construction directly in front of it fixed at floor and ceiling.

Insulation such as Rockwool or expanded polystyrene cavity batts will be ideal, and is readily available in various thicknesses from DIY sheds. As for the facing, plasterboard is cheap, but prone to damage. 13mm ply or MDF is better, and you have the bonus of being able to fix directly to the facings without having to find batten centres.

Your other problem could be the main garage door. This will need insulating as well if it is sheet steel. The strengthening webs on the back of the door can be tapped into for fixings for any facings or batten you need. You may need a longer spindle bar on the door if you have to bring the lock mechanism forward.

Assuming you've minimised condensation, you must deal with moisture in the air, which is where your problem with sticking vices arises. A dehumidifier should sort this out, removing excess water in the atmosphere in a relatively short period. It may not cure the problem in the long term because of the nature of the world we live in. Changes in humidity can cause the problems to arise again, so you may need to keep the humidifier for these occasions.

If this were me, although I would still insulate, I would initially approach my neighbour to see if I could gain access to the problem wall and give it a couple of coats of a brick and mortar sealant such as Thompsons Water Seal to see if that stops it before moving onto more expensive options such as tanking.

Andy King

the DeWalt DW746, which is another excellent cast iron saw with similar capacities. The price is the main factor between a choice of either though, the Jet is £1117.50, the DeWalt averages about £1800, depending on side table configuration, etc.

Extraction is more tricky. Ideally, I would have a system as you describe, located in the corner with ports for machines, and with a fine filtration (to 0.5micron) option as standard, or an upgrade, to deal with fine MDF dust.

We have the Record DX5000 in our workshop which is fine for our purposes. We only use it for individual machines, and the longest run is only about 20ft. The system isn't used daily, nor to any commercial standards, so whether it would be ideal for your size of workshop, and capable of pulling longer distances with a couple of machines running is something better answered by the technical bods who deal with questions like this regularly. Give Record a call (☎ 0870 7701777) to see what they would consider. Alternatively Axminster Power Tools (Technical enquiries ☎ 01297 33656) are always very helpful, and have a big range of extractors, and i'm sure they would have one would suit your purposes.

Andy King

YOUR QUESTION

FOR THE GOOD WOODWORKING EXPERTS

FEEL FREE TO PHOTOCOPY THIS FORM

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? Ask the *Good Woodworking* experts – they're here to help readers with tips, hints and advice. Jot down your question or problem on this form and send it to us. We'll do our best to contact you with advice as soon as possible and print the answer, which will help thousands of other woodworkers too. If you cannot fit your question on the form, please send an extra sheet.

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Fill out your question then send this form, or a copy of it, to our team of experts at:
Woodworking Answers, Good Woodworking, Future Publishing, 30 Monmouth Street, Bath BA1 2BW

News from the wood

Pete Martin brings you all the latest news, products and gossip from the world of woodworking

Chairs 2004 latest

You'd better get your skates on if you're hoping to take part in *Chairs 2004*. The first International Chairmakers Symposium is almost full, with almost 150 furniture-makers participating from all over Britain, Europe and the USA. Taking place at Westonbirt Arboretum, Gloucestershire from May 1st to 3rd, there will also be an exhibition (open to the public) of some 100 chairs, followed by an auction on the Bank holiday Monday at 2pm. Thos already signed up include SF Furniture, John Makepeace, Mike Dunbar, David Savage, Philip Koomen, David Colwell, Morgan Design, Robert Ingham, Alan Peters, Gudrun Leitz, Waywood, Senior & Carmichael, Martin Grierson and Hal Taylor, to name but a few. Colleges and trade stands will also be present. Don't miss this important event!

For more information: *www.chairs2004.org.uk* or email: *info@chairs2004.org.uk*

A pair of *Love Chairs* by David Savage, one of the chairmakers exhibiting

DIY in Peru

DIY lovers everywhere – Mencap needs your skills! The UK's leading learning disability charity is challenging everyone with a devotion to drilling or a passion for painting to put their skills to good use on Project Peru, a 12-day renovation and trekking project in Peru this October (15-26th).

The challenge is to renovate the Rainbow centre, dedicated to improving the lives of children with learning disabilities. The Rainbow centre is the first school for children with learning disabilities in the Sacred Valley, just outside Cuzco. After renovating the centre, take a two day, 19km hike up to the historic site of Machu Pichu to complete the adventure.

There are tasks for all abilities from building to painting. The centre already provides basic facilities for over 40 children with learning disabilities but this year, Mencap aims, with your help, to build new facilities and improve existing ones.

Project Peru is a great opportunity to make a real difference to the lives of children from Peru while also raising money for children with learning disabilities in the UK. Mencap will provide you with flights, food and accommodation and all you need to do is pay a £299 registration fee and raise the minimum sponsorship fee.

If you'd like to take part, call ☎ 0845 9777 779 to receive your Project Peru information pack or e-mail: events@mencap.org.uk or check the website on *www.mencap.org.uk*

Want to understand more about learning disability and Mencap? Visit www.mencap.org.uk or call our Learning Disability Helplines free on ☎ 0808 808 1111.

Stoppa garage theft

The garage is one of the most popular places to have a home workshop. But add up the value of the contents then check the security and you could be shocked.

"Garages provide potential thieves with a treasure trove of tools, but many are fitted with only a basic level of security that can be breached in seconds - and some people don't even bother with that!" says Paul Lees of Autolok.

Many garages also have direct access to the house, providing cover for thieves to break into your home. With over 2,500 burglaries every day (according to the 2002/3 British Crime Survey) and only around half covered by insurance, extra security is a small price to pay.

Autolok Stoppa is an easy-to-fit garage security device suitable for both metal up-and-over garage doors and the roller shutter variety and costs just £29.99. Supplied with a free fitting kit for easy DIY installation, Stoppa's rigid security arm rotates at the turn of a key to secure firmly into its own base plate, effectively bracing the garage door against external attack. The drill-resistant lock comes with weatherproof cap and has the added benefit of Autolok's unique key registration service to provide peace of mind in the event of a lost key.

One Autolok Stoppa can be positioned centrally but, for maximum security, Autolok recommend a Stoppa be fitted to each lower corner of the door. For your nearest stockist contact Autolok on ☎ 0161 624 8171 or *www.autolok.co.uk*

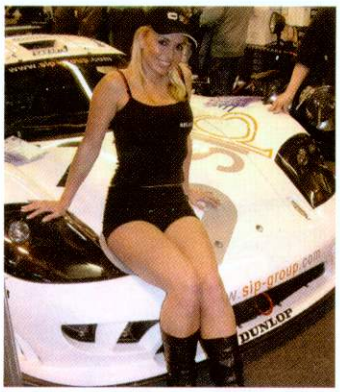
Special Reader Offer

Readers can buy an Autolok Stoppa for just £24.95 inc VAT, p&p – or buy two keyed alike for £39.95. Simply ring ☎ 0161 624 8171 for credit card orders, or send your name and address plus order and a cheque made payable to Autolok Security Products Ltd to: Stoppa Reader Offer, Autolok Security Products Ltd, Park Lane, Royton, Oldham OL2 6PU. Closing date is 30 May 2004. Don't forget to mention *Good Woodworking* and state clearly the number of Stoppas required.

Prime cuts

As the market for battery tools increases, the Irwin Industrial Tool Company have produced a new innovative range of TCT sawblades for cordless circular saws. These blades offer more cuts per charge due to the thin kerf design, reducing power drain. There are eight blades on offer, with reduction rings (bushes) providing the widest possible coverage. Hard body blades ensure maximum resistance to warping, while high-grade K20 carbide tips can be re-sharpened, prolonging their life. They feature a lacquered finish for rust resistance.

SIP autosport



Machinery specialists SIP are the latest company to get involved in motorsport, sponsoring an American Saleen S7 from Graham Nash Motorsport. The 620bhp car will be in action at Le Mans as well as in the European and British FIA GT Series this season.

At the recent Autosport International Show, SIP took an award for best stand. Maybe top model Kelly Burgess had something to do with this...

New deals at Charnwood

Now firmly ensconced in their new premises at Bardon Hill, Leicestershire (Jct 22 on the M1), Charnwood are making good use of the extra space to expand their tooling range.

Available in both Bosch and Black and Decker fittings a pack of five woodcutting jigsaw blades (6tpi) costs just £2.99 while packs of 10 blades (6@ 6tpi, 2@ 10tpi for wood plus 2@ 21tpi for metal) cost £5.99.

For woodworkers who make their own joinery and often need to cut a hole in a wall with a grinder, Charnwood have included Laser Welded Diamond Cutting Discs in their range. Initially, three discs are available, with 115mm and 230mm diameters at £19.99 and £39.99 respectively. These were recently used by the contractor putting an additional door into the new building. His comment: "Goes through engineering bricks like a hot knife through butter; can I keep these, please?" The third 230mm disc can be used wet or dry (£24.99).

There's full information in the new catalogue, available from: Charnwood, Cedar Court, Walker Road, Bardon Hill, Leics. LE67 1TU ☎ 01530 516 926 Email: sales@charnwood.net *www.charnwood.net*

Diary dates

NEWS, events, exhibitions, shows and courses for the woodworker

In association with trend routing technology

PETER CHILDS TURNING DEMONSTRATIONS
March 6
Derek Philips
March 20
Tony Witham
April 3
Derek Philips
April 17
Tony Witham
The Old Hyde, Little Yeldham, Halstead, Essex
☎ 01787 237291

JOHN BODDY'S DEMONSTRATIONS
Feb 28
Woodturning – Tony Wilson
March 13
Routing – Tony Wilson
March 27
Finishing – Tim Kitson
April 3
Woodturning - Tim Hope
April 17
Finishing - Alan Waterhouse
John Boddy's Fine Wood & Tool Store, Riverside Sawmills, Broughbridge, North Yorkshire. ☎ 01423 322370

YANDLES SPRING WOODWORKING SHOW
April 16 -17
New improved layout, with top demonstrators including Julie Herget, Martin Turner, Dave Something for everyone with nearly 50 manufacturers' stalls plus two craft galleries, craft demos and refeshment marquee. Free entry & parking.
For more information contact Yandles ☎ 01935 822207 or email: info@yandle.co.uk

DISCOVERY WORKSHOPS AT HOMEWOOD

A series of Discovery Workshops at **Homewood Woodworking Machinery's** Worthing showroom on the first Saturday of each month will give advice on workshop safety and setting up machinery for optimum performance, as well as practical demonstrations of skills and techniques.

For more about the Discovery Workshops contact Homewood on ☎ 01903 216113.
6 March
Saws & Combination Machines
3 April
Routing Techniques
1 May
Dovetails Jigs & Sharpening
5 June
Turning Techniques
3 July
Polishing & Finishing

CENTRE FOR ALTERNATIVE TECHNOLOGY COURSES
CAT specialises in a combination of classroom teaching and practical 'hands-on' demonstration. Course participants will visit local eco-friendly building projects and get valuable advice from CAT's in-house expert builders, biologists and engineers.
March 12 to 14
The whole house
May 7 to 9
Intro to timber frame self-build
June 7 - 11
Building with earth and straw
Contact Laura Snowball, Centre for Alternative Technology, Machynlleth, Powys, SY20 9AZ. ☎ 01645 705981, email: courses@cat.org.uk

FREE DEMONSTRATIONS AT ISAAC LORD
March 13
DeWalt power tools
March 26/27
Record machinery
April 24
Bosch Power tools
Events held at 185 Desborough Road, High Wycombe, Bucks HP11 2QN ☎ 01494 835200

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  Advice for beginners every issue
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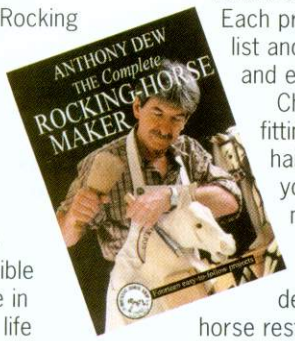
Bookmark

We review the latest woodwork books & videos

The Complete Rocking Horse Maker

By Anthony Dew
Published by: The Rocking Horse Shop Ltd
ISBN 0-9545388-0-3
Price: £14.99



Rocking horses seem to appeal across a wide age range, so it's possible that at some stage in your woodworking life you may get asked to make one. This could either fill you with dread or excitement...

Equipped with *The Complete Rocking Horse Maker* you can't go far wrong. With a choice of 16 different projects to build, from hobby horses to bow rockers, there should be something to stimulate most people. Each project has a skill level rating, plus age group suitability. Finished dimensions are also given, so you can compare sizes at a glance before starting to build. Each project has a cutting list and clear scale plans and elevations.

Chapters on finishing, fitting leather tack and hair, and enhancing your horse add to the mine of information in this book. The final few pages deal with rocking horse restoration, with plenty of before and after photos.

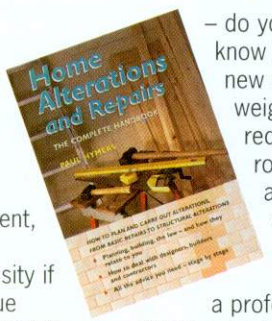
Anthony Dew has been building horses for more than 30 years, so he knows what he's talking about. A delightful book. And my favourite? Definitely the rocking zebra.

Phil Davy

Complete Rocking Horse Maker	
Words	●●●●○
Drawings	●●●●○
Photography	●●●○○
OVERALL VALUE	●●●●○

Home Alterations and Repair

By Paul Hymers
Published by: New Holland
ISBN 1-84330-695-6
Price: £7.99



Your house is your biggest single investment, and maintaining and improving it is a necessity if you are to retain its true value. Though his credentials are imposing – he is a Building Control Officer – the author can only touch on such a vast subject, but nevertheless has produced a reasonable overview of home maintenance.

Divided into Planning and Building sections, this book helps the layman to understand the processes involved, from determining whether you need planning permission for a project to creating space in the loft or dealing with subsidence, but should not be seen as any sort of practical guide. There's certainly no lack of information, but I found much of it irrelevant – do you really need to know how to support a new chimney or what weight of lead is required to replace a roof valley? These are jobs that few of us ever have to attempt, and ones best left to a professional anyway. There are a few useful tables, such as how much load a lintel will take, and the B&W drawings are clear if a little specialised (and old-fashioned), but overall this is not really the 'indispensable guide' it is claimed, more a guide to understanding what the builder or planner is going on about.

Pete Martin

Home Alterations and Repairs	
Words	●●●●○
Drawings	●●●○○
Photography	○○○○○
OVERALL VALUE	●●●○○

Shropshire Association of Woodturners
February 26
Reg Simms – Segmented bowls
March 25
Threaded puzzles - John Berkley
April 22
Texture & ebonising - Tracy Owen
Hare and Hounds, Cruckton, Shrewsbury ☎ 01743 240661

Carving it out - Jim Partridge

13 March – 3 May 2004
The Harley Gallery, Worksop
Jim Partridge has been a pioneer in the craft of wood carving for the past 25 years. He uses unseasoned green timber, chain saws and blow torches to create highly distinctive sculptural and tactile work. His particular trademark is scorching and waxing wood, to emphasis the grain. This exhibition brings together key example of his domestic and outdoor furniture, vessels and bowls, alongside images of environmental projects such as bridges and hillside shelters. Partridge's skill lies in his innovative, versatile and playful approach to his craft and his innate understanding of the materials potential. He is also interested in function, intending all of his pieces to be used.

In partnership with Liz Walmsley, with whom he has worked since 1986. Partridge is responsible for many architectural projects and environmental commissions including the Logpile Lookout at Kielder Forest and the shelter in Grizedale Forest, plus an altar and cross for Christ Church Cathedral in Oxford, using oak from Windsor Park.

Details: The Harley Gallery, Welbeck, Worksop, Nottinghamshire, S80 3LW. ☎ 01909 501700

Himalaya high

Good Woodworking's intrepid traveller **Barrie Scott** heads for the Indian foothills of the Himalayas to witness the essential role of timber in a spartan daily life

Around the snowline in the foothills of the Himalayas the mighty deodar tree has for countless generation been the backbone of mountain culture. Beyond the reach of roads in India's northern state of Himachel Pradesh there are villages still accessible only by foot, and where it is still possible to see woodwork from a now receding age. Trees are still felled by axe and, due to the remoteness of some areas, it remains economically viable to convert these giants to workable timber by will and muscle.

In the village of Kalga, for instance, there is a power saw one and a half miles away. That only arrived a couple of years ago, following the construction of the new road from down the valley. But the path to Kalga is steep, narrow, often muddy and hazardous, even when unladen. The traditional housebuilding style involves a lot of timber and carrying that quantity up those paths still doesn't pay.

So for Kalga's carpenters it's business as usual – with the wooden two-handed frame saw, the axe and the adze. It's like 19th century Europe, except the timber to be sawn is propped or raised on trestles rather that sawn in a pit.

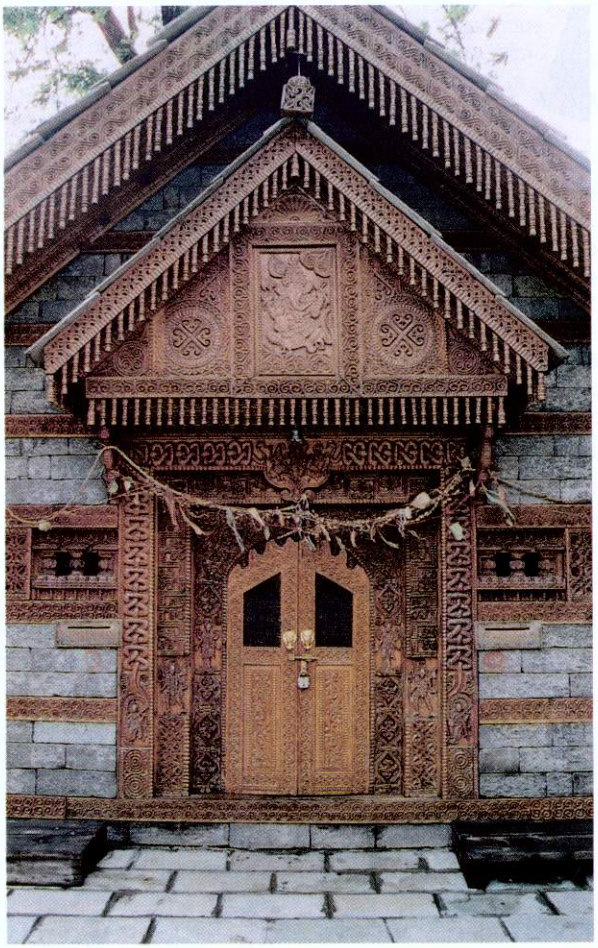
In more accessible areas teams of porters can be seen hauling baulks of timber on their backs. These measure around 10x5in and 10 feet long – like an extended railway sleeper. They rope them vertically to themselves, with a sling over the head taking some of the weight and aiding control of the load. They look like walking trees. If you catch an overhead branch with your timber, I was told, it's easy to lose balance. Being attached, stick and porter have been known to take the quick route to the valley below!

Mountain Carpenters

The villagers have little use for furniture. Houses are bare apart from thin mattresses and hand woven blankets. Areas that cater for trekkers and the like tip the hat to lazy-backed westerners to the tune of a few plastic stackables and rough nailed benches – a foreign concept! Survival demands keeping the cold at bay. This work falls to the carpenter, the mason and the weaver.

Woodwork up here is predominantly about house construction. It is the ultimate challenge for the builder; all sites slope and the only horizontal ground consists of hard-won terraces laboriously banked with stone. The work season is short and impossible between October and May. Even during the summer months the weather plays games. During one three-day thunderstorm in May it rained mud. Then of course there is site access!

Carpenter and mason work



A single log bridge over one of the many raging mountain torrents. These bridges are easy to replace if washed away, which somehow you assume will happen regularly

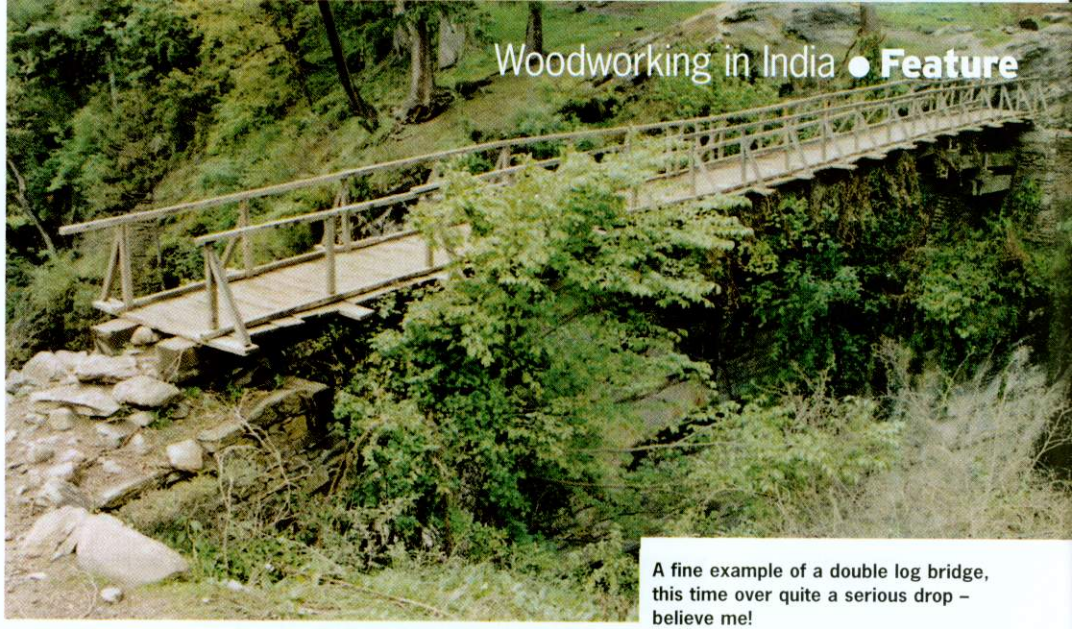
The mighty deodar

Powerful terrains create impressive materials. Related to the cedar, and known also as the cider pine and locally the 'Diyer', the deodar can grow to 50 or 60 metres. A remarkable feature of what can be seen in the houses is that few people bother with paint or preservative – if they do it's only for decoration. There's no need. When freshly cut, the resin all but pours from the grain. A hundred year old sample I was shown still smelled powerfully of this rich juice.

There's no rot and rarely any discoloration apparent on timbers that have been attacked by snow, the expanding, grain wrenching habits of ice, and long wet periods when it can't dry out followed by periods of intense sun (often wood's worst enemy and

Wooden verandas are very evident every where you go – some quite ornate

An example of cantilever construction to construct a veranda



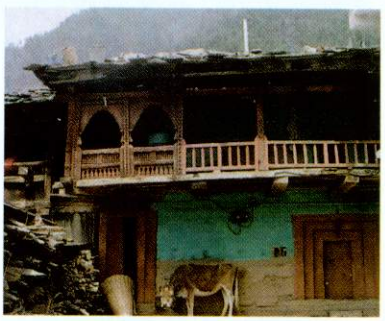
A fine example of a double log bridge, this time over quite a serious drop – believe me!

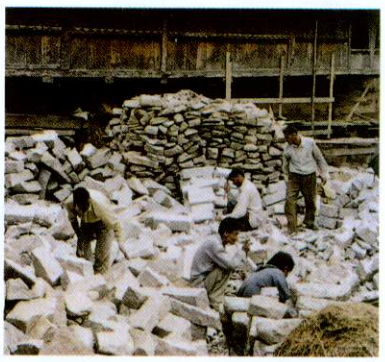
closely together. Granite is hacked from the mountain and superbly worked into precise blocks and quoins, the hills alive with the sound of hammers.

The traditional house is constructed with a system that varies little. The central inner chamber is a block that is literally 'half-timbered'. Axe hewn lengths of 6x4s are stacked corner to corner and pegged together, with spaces between infilled with dry-stone granite. Often it's smartened up with a render of dung.

When it reaches first floor level floor timbers are laid in position. This is the interesting bit. Joists are mostly a similar size to the wall timbers and laid on the flat.

Hand worked granite is a popular building material, with all woodwork usually made locally





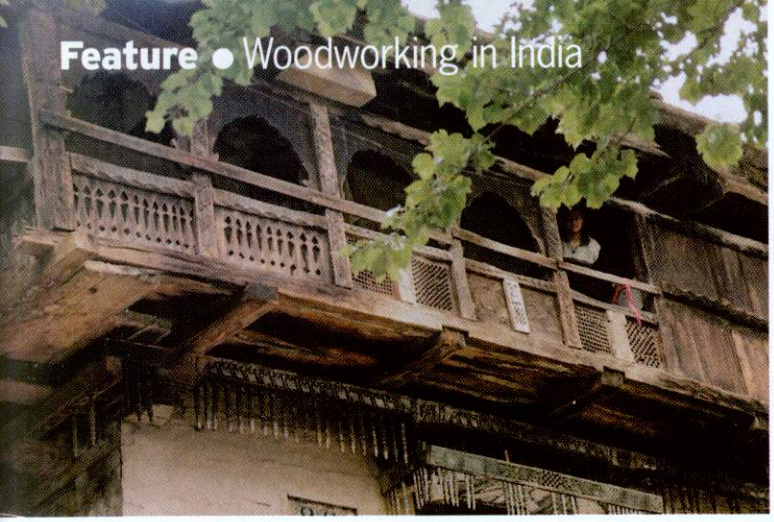
A few examples of the Himalayan house. Wood is very evidently crucial to construction but is gradually being replaced by concrete

about all you can attack a piece of this stuff with). Its distant cousin, western red cedar, shares some of these qualities.

But there's more. The massive trunks are straight, the branches high, producing acres of clean straight-grained material. Some of the house carpentry takes extraordinary structural liberties with the stuff so there's no doubting its load bearing capabilities. It is also used for fine carving, turned and, as machinery creeps onto the scene, is cut into fine boards for panelling and mouldings.

Sapwood appears on the log pile. Pieces are soft and people pull the fibres apart with their fingers to create small kindling, lighting their fires without the aid of paper. One guy told me that when he was kid choice chunks would be selected and used as candles. A magic tree! Is it any wonder that with specimens like this around trees are sacred in some regions of India.

The raw material of the region, the mighty deodar tree, also known as the diyer



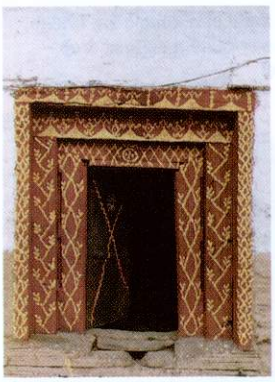
They cantilever out to form the balcony-cum-veranda, the corner of which is supported by a 45°, slightly wider member, lap-jointed into adjacent joists only three or four feet inside the walls. In a few cases this perilous shelf is supported by a lower level of cantilevered members with a support beam running along the house's length. British carpenters use 400mm centres between structural members – these are nearer 1200mm. How has this structural tradition evolved without developing the strut or brace? This cantilever method might be tried in steel but these houses break all the rules.

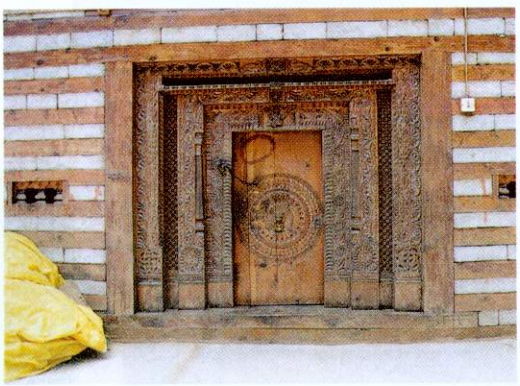
I visited a palace in Naggar, a much larger building, and walked nervously around a wider version of this veranda with a drop of about 80 feet. What do I know?

If I were a building inspector I would close down half of India, but Himachel particularly struck me as a region of chancers. On the local buses you frequently find yourself reversing around a hairpin bend over a serious drop to let another vehicle pass. Every knuckle gripping the seat in front is bone white, even those of regular bus users. Perhaps the philosophy is the same for those who build unbraced structures on 60° slopes; it's up to the Gods.

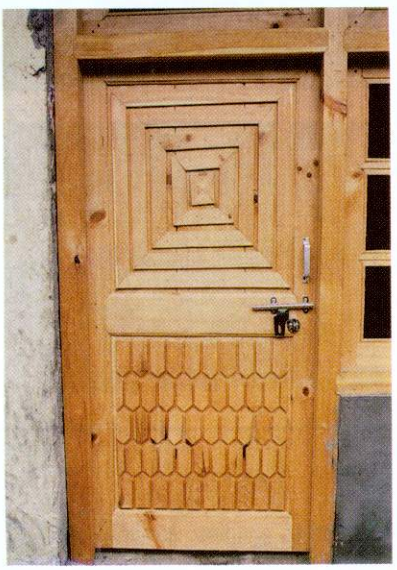
Verandas are often walled in with adze-finished paneling. An intriguing variety of designs clearly allow the carpenter to express himself. To loosely quote Walter Rose in *The Village Carpenter*: "It is the carpenter's duty to make sure the shaping and proportions of his work are in harmony with his surroundings".

The humble craftsman up here has the responsibility to retain an eye for the design of the structures they impose on such fine country. Along with the rude charm of

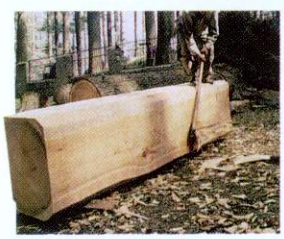




Despite the problems involved in working and transporting the raw materials, everywhere you look there is evidence of the usefulness of timber in these high regions

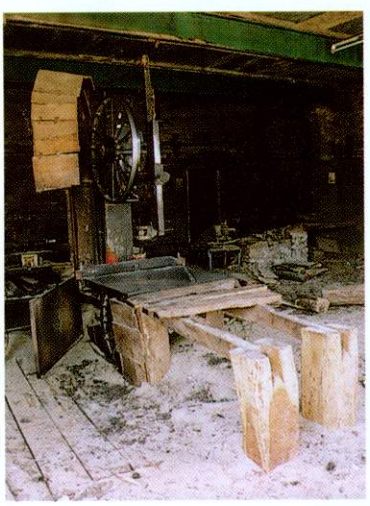


A modern new door displays some interesting design ideas for the use of machines to apply ornament.



Village sawyers at work. I don't fancy being the lower guy!

A belt driven bandsaw



Workshops are usually a very basic affair – just a bit of cover from the elements and that's it

these places this application of ornament really does add individuality to each house and a fine finish to the villages.

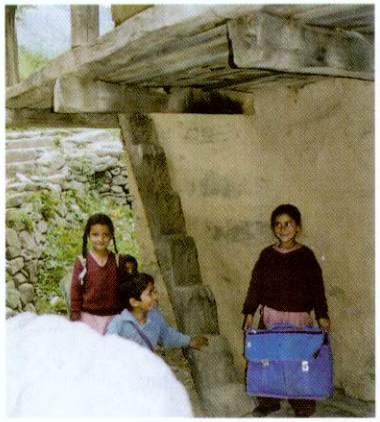
A Dying Art?

The big trees are gone in the lower valleys. Following input from environmental agencies, and now legislation, it has finally been recognised that not only should the survivors' splendour be preserved but that the mountains suffer with their removal.

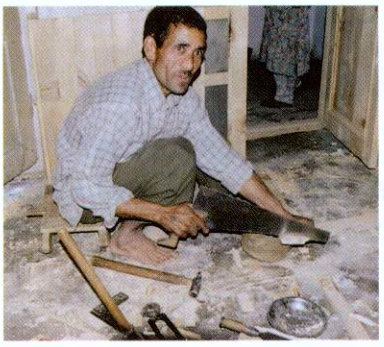
Forces of erosion expose root systems that rival our biggest trees in their girth, displaying the role trees play in a mountain's structure. Great knuckles of twisting timbers spread up the slopes like gigantic staircases, slowly carting big rocks in their grasp and supporting vast banks of soil that would otherwise slide in deforested areas. In places the roots are on thoroughfares, their surfaces burnished to a wonderful patina by foot and hoof. The effect is stunning; a few metres sliced into boards would be superb.

Limited felling supplies the woodwork trade in the higher regions but timber is now used sparingly. Half-timbering is finished, and concrete replicas of old houses are appearing. The wood machine is also making its way slowly uphill.

It is interesting to see the uses the old carpentry spirit is making of technology, with those little flourishes to make things look good: corner fillets on doors, planted-on or machine-figured motifs on panels. There is clearly more emphasis on production – tourism is stimulating the building trade – but some techniques are quite distinctive. We, in Britain would not employ planted or pinned-on techniques on exterior woodwork but the remaining precious diyer still has its uses.

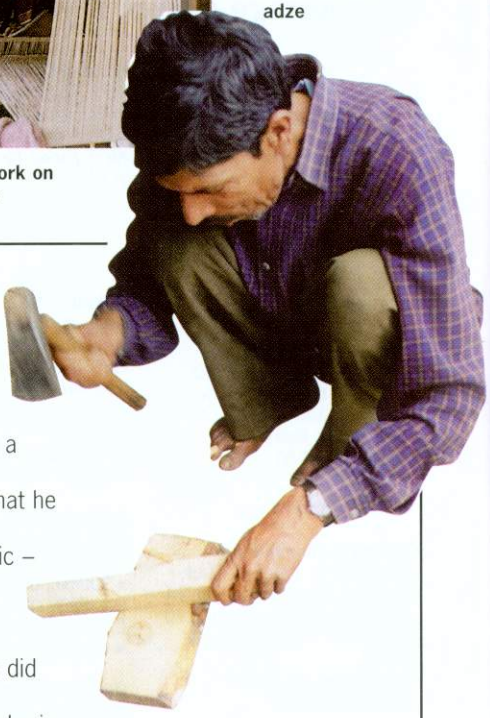


Local kids seem perfectly at ease with these, to my eyes, precariously balanced overhangs on the houses



A local chippie enjoying the fruits of his wood machine. Note the pull saw, and of course the serious lack of safety footwear!

Local weavers at work on locally made looms



Master carver Panna Lal – at ease with his adze

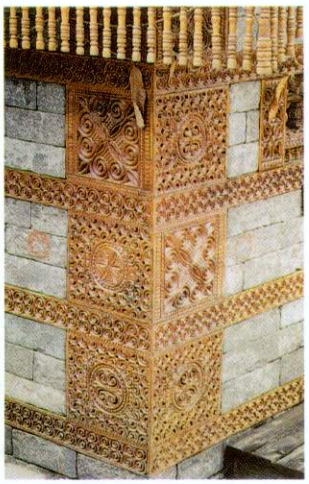
The temple builders

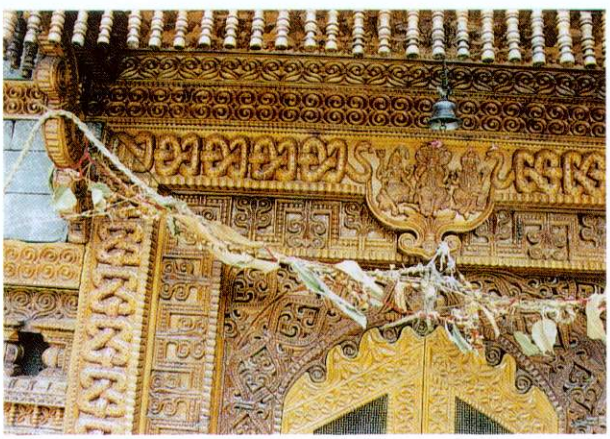
As with European culture in the not too distant past, there remains employment in ecclesiastical work in Himachel for the top craftsmen and carvers. In one of the world's most religious countries expense is not spared on the building of Hindu temples.

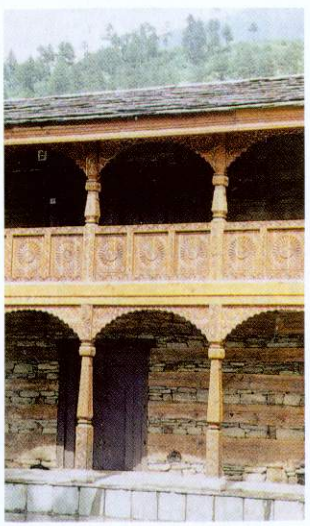
I was lucky enough to meet the widely respected temple builder Panna Lal, Carpenter and Wood Carver. Unfortunately, he was off work for a holy day and quietly making a toy house for his grandson. so I missed the chance to catch him hands-on.

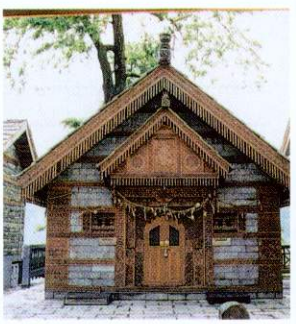
He was an unassuming man, interested in anything I could describe about woodwork on our side of the globe. I look forward to sending him a copy of *Good Woodworking* to see what he makes of some of our gadgetry. His kit is basic – all handtools. He was not a villager, but lived near town, and despite being locally acclaimed did not run a car.

During temple work he is assisted by local volunteers: devotees from all levels of the community. These helpers wear ceremonial garments made of hemp, a local crop. His work with the mighty diyer, I thought, speaks for itself.









Tools and machines for sale & wanted

FREE READER ADS

Selling your old router or looking for a bargain biscuit jointer? This is the place for readers to buy or sell anything to do with woodworking, up to a price of £500. All it will cost is the price of a postage stamp. If you are selling an item more than £500 there's a nominal fee of £10

Hand tools

Planes: Stanley 4½ & 5½ (circa 1950) £40 each, Record 010 carriage makers rebate (pre-war) £45, Tilgear 'Exotica' No Gunmetal levercap, laminated cutter-iron, No 17 of 50 edition £50. All hand lapped soles, buffer polished.
Mr Austin, E. Sussex
☎ 01892 653143

Two slicks, 2in and 3½in made by Ray Iles, new £100 pair. Set of three Japanese slicks, new £250 the set.
Daniel Kishel, Berks
☎ 01491 680130

Powertools

Cathedral door routing templates for seven sizes of door from 10in wide to 22in. 14 piece set in durable plastic, £70 or MDF £40. Patterns only, £12.50.
Ken Chappell, W. Yorks
☎ 01274 598616

Mitre saw workstand on wheels folding side supports on both sides, fits all saws, perfect condition, £145. Brand new TCT saw blades, 200mm 20 teeth, 30mm bore x 3. 210mm, 20 teeth, 30mm bore x 1, £6.
Mr S. Carpenter, Hants
☎ 02392 711127

Machinery
under £100

Axminster JBS 125 bandsaw with 6 new blades, ¼in, ⅜in, ½in. Good condition, £75.
D. Kirby, Middlesbrough
☎ 01642 322229

Wolfcraft router table complete with performance router (B&Q's own make), push pads, finger boards and instructions. £90 ONO, buyer to collect, cash, no cheques.
Mr P. Farley, Birmingham
☎ 0121 681 3651

MACHINERY
OVER £100

DeWalt DW720 radial arm saw with router bracket, 2 mitre fences, £497. Bosch GST100BCE jigsaw, 110mm cut £90. Arcoy dovetailer with 3 cutters, £20. all in good condition.
J. Smallwood, Kent
☎ 01227 711080

Delta Sidekick, model 36-240, 254mm sliding compound saw, 1500 watt, 240V. 100mm x 300mm, depth and width of cut, £200 ONO.
L. Elliot, Suffolk
☎ 01508 518 582

Hegner Unicut 2. Surplus due to upgrade, also need the room. Hardly used. Complete with video. VGC, £100.
Jim Wilson, Bristol
☎ 01454 313810

Kity 439, planer thicknesser, 8in x 8in capacity, £250.
Paul Rolfe, Basingstoke
☎ 01256 840731

Delta pro lathe duplicator model No 46-408, new boxed, bought for workshop that was never built. Duplicates turnings up to 36in long, 6in diameter. Fits Delta 12in and many other 12in to 16in lathes. As used on New Yankee Workshop, £375.
J. Ward, Surrey
☎ 07961 355248

Workshop machinery, 3 phase with phase convertor to include DeWalt cross cut saw, Sedgwick planer thicknesser 12in, Sedgwick Morticer and Bursgreen saw bench, £2,100. Also foot operated mitre chop £325.
Geoffrey Elton, Leics
☎ 0116 2600443

Axminster M330 woodlathe, variable speed electronic controll, as new, very little use, £275.
W. Slade, Cornwall
☎ 01726 61957

Hegner Multicut 1 variable speed as new complete with manual spare blades etc. cost new £367 for sale, £140.
A. Russell, Edinburgh
☎ 0131 443 2236

Multico L3 surface planer, 12in bandsaw, Moale large table saw, adjustable, Washin Ravell saw, Morteguil hand operated morticer, radial saw, 20 blades, all 3 phase, in good working order, offers invited.
Mr Paul Badger, Northants
☎ 01536 763246/07831 275758

Planer thicknesser Sedgwick PT255 £1050. Extractor Axminster ADE 2200, £150. Router table Charnwood, £50. Dovetail jig, Trend DJ300 £20. Vacuum bed minimach Trend, £30. All items in excellent condition.
Richard Donkersley, Somerset
☎ 07866 612796

Record RPR60T router stand complete with fences, springs etc. As new hardly used, £120. Makita router 3612BR, 1800W, VGC complete with 6 sharp cutters and 6 assorted guide bushes, £165.
J. Knott, Essex
☎ 01245 224691

Startrite T30 spindle moulder, sliding table, quality cast machine, 3 phase electrics, some tooling. Record RPM 100 mortice cast machine single phase.
P. Leader, Herts
☎ 01992 441685

Triton 2000 Workcentre, NVR switch. Includes pro Skil saw. All in very good condition £225. Triton router table and stand with NVR switch to include biscuit jointer attachment. VGC £195.
K. Omara, Wilts
☎ 01225 761441

Mafel AD160 planer thicknesser, spare blades and tilting fence. Excellent condition, little use, £250. Wolfcraft 8in sanding disk drill attachment, £15. Clark CTS10C 10in tablesaw complete with leg stand, £35.
J. Stevens, Teeside
☎ 01642 275086

Coronet Major: ideal for small workshop, saw bench, wobble saw, mould block and cutters, morticer sander, bowl lathe, planer thicknesser, all fixed to mobile cupboard.
T. Bell, Stowmarket
☎ 01449 614410/07775 733373

Poolewood 28 - 40 superlathe, 4ft 6in bed with stand, £800, excellent condition. DW125 radial armsaw £300. VGC.
Mr M. Whitty, 21 Crusader Rd, Bournemouth, Dorset, BH11 9TY

Scheppach TKU saw bench with sliding extension tables plus 2 TCT blades, £150. Eumenia Universal saw 600 and 300 with router and drill bracket plus chuck with key and rebate cutter, £300. DeWalt 250 mitre and chopsaw with 10in TCT blade, £50. All in good condition.
Les Littlewood, Liverpool
☎ 0151 489419

Eumania Exact L300 radial saw, also floor stand, little use, £290.
Mr M. Green, Warks
☎ 01788 567089

Clarke 900mm 10 speed lathe. Set Crown tools. Axminster APT CCC chuck with various jaws, £285. Ryobi 254mm radial arm saw with stand, £375. All above virtually unused.
Tom Kent, Warks
☎ 01926 499259

Miscellaneous

Craft Supplies Maxi-grip 2000 woodturning chuck complete, little use, £50 plus postage.
Mr Ramsden, Lincs
☎ 01205 290548

Approx 120 Good Woodworking issues. All in good condition, buyer to collect, £100 OVNO.
B. Whatling, York
☎ 01430 860902

Wanted

Outboard bowl turning attachment for Poolwood Axminster 28/40 Superlathe, please phone with details.
Steve Carpenter, Hants
☎ 02392 711127

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Fill out this form, including your name and address, and send it to:
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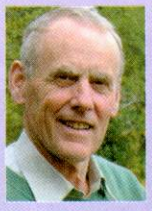

Ian Wilkie offers advice on a good beginner's lathe and the turning tools required to get started in woodturning

Dave Roberts tests a new hollowing tool from down under and turns a rustic birdbox

Get started for £400

This month I've looked at a low-cost package to get newcomers to woodturning started. In the past I have had no hesitation in recommending the Record DML woodturning lathe for the beginner but these lathes are not being manufactured at present. Toolite Ltd of Mitcheldean, Gloucestershire (☎ 01594 544521) still have a good stock of Record lathes, but in the meantime I have looked for another start-up lathe which would suit the beginner. There is no doubt that the Perform CCSL lathe, tested right, fills the bill.

At £129.96 this is indeed exceptional value but, of course, there is more to woodturning than the lathe, and other items of equipment will be needed before you are ready to commence work, and these are listed below. The final figure for the equipment and sundries which I have recommended came in at around £400, not including any wood.

Woodturning Tools

A huge number of turning tools are available for the turner and I would refer regular readers to GW 129 when I tested beginners'sets . Hamlet's starter set costs £89.90 (inc p&p) and now consists of six HSS quality tools which will cover all needs in both spindle and faceplate turning. This is a really good set of well ground tools to get you started.

Bench Grinder

To keep tools sharp it's essential to have a bench grinder. For value it would be hard to better the Perform bench grinder (see over) from Axminster. The grinder together with rest and devil stone works out at £62.84.

Accessories

The Perform lathe comes with a four prong drive, revolving centre and an 80mm diameter faceplate, all quite adequate for basic turning operations. However I would recommend

Dressing the white wheel on the Perform lathe with a devil stone

Perform CCSL Lathe

Perform's cast iron CCSL lathe is manufactured in China for Axminster, and comes ready to run with a four-prong drive, revolving centre and 80mm dia faceplate. A bolt-on extension bed extends the 820m length to 1390mm. The lathe weighs 35kg without the extension bed, and the footprint is 230x762mm (1032mm with the bed fitted). Both lathe and bed are fitted with adjustable, screw-in, rubber shock absorbing feet.

The Perform gives 420mm between centres with a drive and revolving centre fitted (970mm with the extension bed). A maximum diameter of 250mm can be turned over the bed. The non-swivelling headstock has a spindle threaded to 1in x 8 tpi and both head and tailstock are drilled through and take 2MT fittings.

The diameter of the headstock bore is 10.5mm and the tailstock quill 9mm. The self ejecting tailstock has cam-action locking and a Bristol lever is used to lock the quill. A chromed handwheel advances and retracts the quill to give a maximum travel of 40mm.

The toolrest assembly has cam-action locking with a ratchet, Bristol-type, lever on the side to lock the 15.8mm dia toolrest stem. A 150mm long cast iron toolrest is provided as standard.

A 0.5hp single phase induction motor is located under the bed and this provides speeds of 760, 1100, 1600, 2200 and 3200 rpm via a five-step aluminium pulley and a poly-v-belt. To change the speed the motor tension is released by moving a lever at the front, just below the headstock. The end cover, and the back cover on the headstock casting, can be removed to give access to the drive belt and pulleys by means of a knurled screw.

This Perform model is the cheapest in the small lathe range and offers exceptionally good value for a hobby turner who wants a lathe for occasional use. The instruction book is not as comprehensive as those generally provided by Axminster for their machines. This should not be a problem as the lathe comes fully assembled and ready to run.

The lathe is extremely rigid, and the accuracy and alignment very good indeed. It's also noticeably quiet and vibration free when running. The toolrest is disappointing; it was not truly horizontal and dipped down towards the left by 4mm, which is not acceptable. This may be a rogue example (Chinese quality control can often be haphazard); if you experience the same problem I suggest you ask Axminster to exchange the toolrest for a more accurate one. I used a M330 toolrest which was fine. The rest does manoeuvre right up to the centreline and well above and below it, and the cam-locking on the holder is good.

It's a considerable advantage to have an extension bed as standard, and this is easy to fit or remove. The paintwork is also good and the castings nicely finished, a bonus for a lathe of this price.

It would have been an advantage to have included a knock-out bar and a simple spanner to secure the headstock spindle when unscrewing accessories. The chromed handwheel on the outboard end of the headstock spindle is a useful facility but the two grub screws protrude slightly and could be a hazard if inadvertently touched when the wheel is rotating; a few minutes with a file corrected this. The handwheel itself was slightly out in accuracy but not enough to effect the overall balance of the headstock spindle.

The rear holes on the faceplate are not countersunk and it is worth doing this yourself so that the screws do not protrude. However, the four-prong drive and revolving centre are both satisfactory.

I found this lathe very versatile and I was able to turn small items, quite substantial ones and long spindles with ease. It's basically a hobby lathe, not designed or intended for heavy duty, continual use. It would suit a turner with limited space, who wants the versatility to turn long items occasionally. Outstanding value for money.

The headstock with the covers removed for speed changing

Remove the protruding grub screws on the flywheel and file the bottoms

The toolrest tilts to the left. It should be in line with the axis of the lathe

Fitting the extension bed is simple and gives a good long lathe

GW verdict

Value for money ●●●●●
Performance ●●●●○
Price inc VAT: £129.96.00
Axminster ☎ 0800 371822

three additions. Firstly a mini screwchuck from Peter Child priced at £24.45; this is, without doubt, the best I have used. With this you will be able to carry out a wide range of faceplate turning without the need for an expensive combination chuck.

Secondly, a 13mm capacity Jacobs-style drill chuck with a 2MT shank, again from Peter Child, at £19.70, can be used for holding twist drills and saw-toothed Forstner bits in the tailstock to drill holes whilst the work is rotating on the headstock. For an additional £3.75 a draw-bar allows the drill chuck to be used in the headstock for holding small diameter work without any risk of the MT shank working loose.

Thirdly an Ian Wilkie friction drive from Axminster costing £10 is particularly useful for the newcomer to woodturning because it relies on friction to drive the work. If a mistake is made with the tool the work stops rotating.

The Hamlet Starter Set of six Sheffield made, HSS (high speed steel) tools

Complete turning set for £400

Supplier	Telephone	Equipment	Price
Axminster Power Tools			
www.axminster.co.uk	0800 371822	Perform lathe	£129.96
		Perform grinder	£39.95
		Toolrest	£18.91
		Devil stone	£3.98
		Ian Wilkie friction drive	£10.00
		J-flex abrasive set	£11.77
Hamlet Craft Tools			
www.hamlet-crafttools.com	0114 232 1338	Starter set of 6 tools	£89.90
Peter Child			
www.peterchild.co.uk	01787 237291	Mini screwchuck	£24.45
		Drill chuck	£19.70
		Draw-bar	£3.75
		500ml friction polish	£6.95
		250ml Danish Oil	£3.29
		Wax stick	£2.86
		Full face visor	£14.20
		10 Moldex dust masks	£19.55
		Sharpening booklet	£3.95
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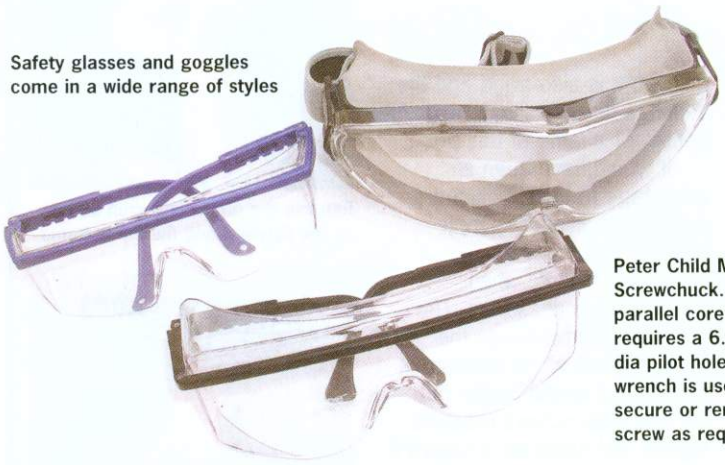
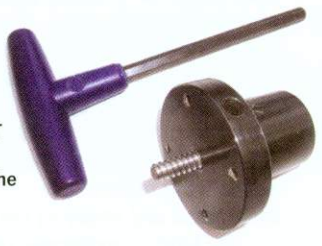
www.craft-supplies.co.uk	0800 146417	Wood	
		Woodturning supplies	
Total budget (without any wood)			**£403**

Safety glasses and goggles come in a wide range of styles



Peter Child Mini Screwchuck. The parallel core screw requires a 6.5mm dia pilot hole. The T wrench is used to secure or remove the screw as required

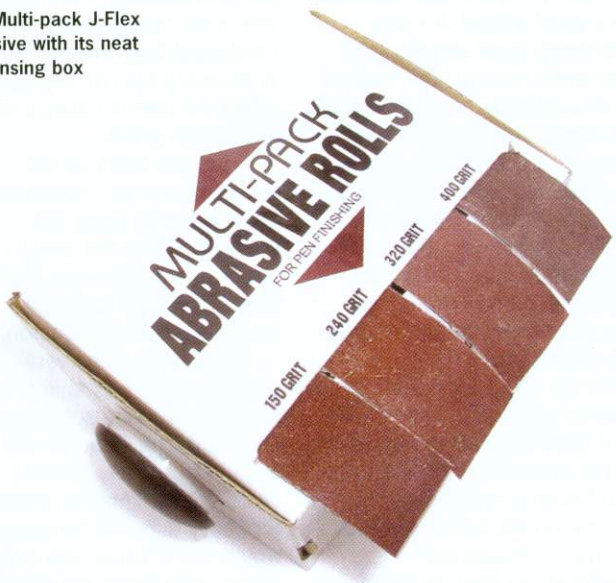


A valve on the Moldex mask directs the exhaled air downwards and away from the glasses

Abrasives

Various grades of abrasive are required for finishing off work and the boxed kit from Axminster of 25mm wide, J-Flex cloth-backed abrasive, 6 metres each of 120, 240, 320 and 400 grits is a good starter kit. Just cut off short lengths as required; this is a long lasting abrasive which can actually be washed and dried and reused many times.

The Multi-pack J-Flex abrasive with its neat dispensing box



Finishes

Wood always needs finishing and a bewildering choice of products face the woodturner. Expect to pay in the region of £13 to £15 to get started. A quick and easy method is to use friction polish which is applied to the rotating wood and a 500ml container of Chestnut friction polish, for example, costs £6.95. A woodturner's stick, based on carnauba wax, can be applied over the friction polish to give a high polish and a Liberon stick costs £2.86. For domestic items, where safety is a consideration and where a natural sheen to the wood and protection from dirt is required, a finishing oil such as Rustins Danish Oil can be used. A 250ml tin costs £3.29.

Safety Equipment

Unfortunately safety is usually considered a rather dull subject but money must be invested here; eye and dust protection are very important issues. Safety goggles and spectacles are inexpensive and cost in the region of £8. A full-face visor offers greater protection and one is available at £14.20 from Peter Child. The cheapest form of dust protection is a disposable dust mask. To be effective these masks must conform with the European Regulations EN149 FFP1 or 2. A good compliant mask is the Moldex Metric 2365, which is comfortable to wear and has a valve which ensures that exhaled air does not mist up glasses or visor. Masks are available singly or in a box of 10 (£19.55) which would last a long time as each mask is designed for eight hours use.

Timber Supplies

My advice is not to begrudge spending money on wood as the results will more than justify the costs. Specialist woodturning suppliers offer a large selection of home grown and exotic blanks, already prepared, for between-centre and faceplate turning. This wood may seem expensive but the firms have selected, seasoned, cut and sealed the blanks and they are ready to put on the lathe. If you do not have the skill or the equipment to handle large pieces of wood then this is a good option. Craft Supplies are well worth visiting so that you can see for yourself the wide range of timber blanks for sale and receive expert

Perform CCBGDL Bench Grinder

TOOL ON TEST • TOOL ON TEST •

This low-cost but well made Perform bench grinder, manufactured in China for Axminster, is powered by a 200W motor and rotates at 2800 rpm with virtually no vibration. It has a 40x150mm 80 grit, white aluminium oxide wheel and a 20x150mm coarse grey wheel. Both have a 12.7mm dia bore and are protected by sheet metal guards and an overhead thin plastic shield attached to a spark arrester.

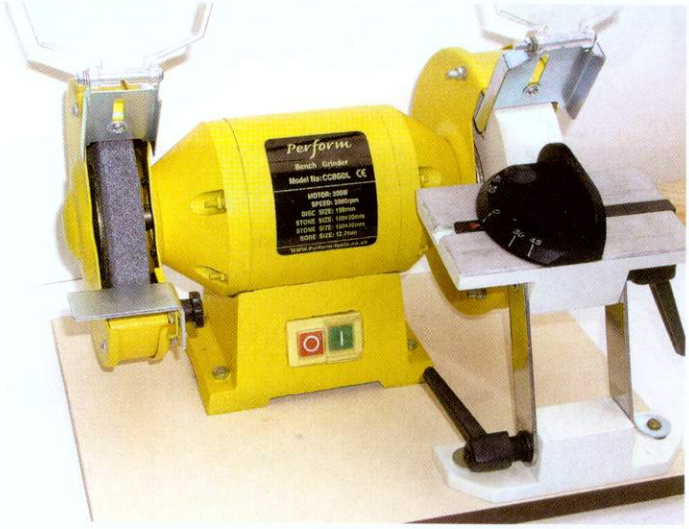
Like so many bench grinders, even expensive ones, the toolrests are extremely small, flimsy and cannot be adjusted to the angle required. The grinder weighs 8.5kg and has four rubber feet which can be removed so that the machine can be bolted down on to a base or bench.

The wheels are well balanced and need very little attention from the devil stone. I welcome the wide white wheel as standard for sharpening turning and general woodworking tools. Moreover, white wheels are ideal for HSS blades, and so often must be bought as an extra.

A devil stone is a hard carborundum block, used to clean the wheel and smooth out any irregularities which develop on the wheel surface, and costs £3.98 from Axminster.

The toolrests are virtually useless and many turners will make their own wooden rests, which is an inexpensive option. For the test I used an Axminster toolrest and mitre gauge guide (£18.91), which has a large cast aluminium table adjustable to any angle. This is a basic toolrest which transforms the grinder into a very practical and easy to use machine. When the grinder and toolrest are bolted to a base tools can be ground to the set angle consistently. I grind most of my tools to give a bevel of 45°; I do not have to keep adjusting the angle of the toolrest, which makes life easier.

Even with the extra expense of the toolrest and the devil stone, both essential additional items, this grinder represents extremely good value and should give many years service.



Sharpen up

I highly recommend *The Woodturners Sharpening Manual* by Roy Child, available from Peter Child Woodturning Supplies at £3.95, ☎ 01787 237291. This is an excellent small booklet, full of valuable hints and tips, which will answer all the questions you have on sharpening turning tools.

GW verdict

Value for money ●●●●◐
Performance ●●●●○

Price inc VAT: £39.95
Axminster ☎ 0800 371822

Grinder safety

It is essential to wear eye protection with side screens or a full face visor when using any grinder to sharpen tools. Ordinary prescription glasses are not enough. When dressing the wheel with a devil stone it is strongly recommended that a dust mask be worn. Never use the sides of the wheel to sharpen tools!

advice. They also offer excellent courses and lots of other tempting things!

Learn to Turn

You may consider a turning course and there are plenty to choose from, also many helpful books and videos on the subject.

Look to the Future

If you take to turning you will no doubt wish to add to your equipment. You may well consider some specialist tools and accessories, plus a combination chuck. I'll consider these in the future.

The Ian Wilkie friction drive with its four steps of 3, 6, 10 and 16mm diameter

Peter Child's 13mm Jacobs-style drill chuck with its 2MT shank, key and draw-bar which is used to hold the shank in the headstock spindle when turning small items

Nesting habits

Give our feathered friends somewhere to nest this year by turning this simple rustic birdbox from Dave Roberts

Nesting time will soon be upon us so this is a good opportunity to use up some of the logs you have collected over the winter months and create a few boxes for our feathered friends. I generally like to turn these boxes in ash or sycamore and it doesn't really matter if the wood is still wet because they are rustic, so no sanding required – just finish straight off the tool. When you have turned them, hang them up in the workshop and they will soon dry.

There is no limit to designs you can achieve and for the finish you can use Danish oil or colour them with Cuprinol garden shades. There are many different shades available from your DIY sheds. I am hollowing this box out with the new Rolly Munro hollowing tool – more on this later.

Turn the Bird Box

1 The bird box is in two pieces, the main body and the lid. The body should be turned first. Select your log and find the centres and mount it between the lathe centres. Put the lathe on a speed around 1000 rpm, which will be ok for turning the outside and for hollowing.

The chances are that as soon as you start the lathe it will vibrate because the log is out of balance. Turn the log by hand to make sure it clears the toolrest, then start the lathe and get to work with the roughing down gouge to get the log running true.

2 The log must be well anchored to the lathe for the hollowing out. I have used the Axminster four-jaw Precision Chuck with Mega Jaws, and this holds it superbly. First you must turn a dovetail to fit the jaws. A 6mm parting tool will do the job but keep checking with calipers. The diameter of the dovetail must be right to give maximum holding.

For best results when hollowing it is a good idea to have a hole in the centre of the log, so that when you put the hollowing tool in the hole you can sweep it to the left. This makes it quicker and easier. You don't have to drill the hole in one go – drill down 50mm then remove the unwanted wood, then drill down again and repeat. Use a Forstner bit fixed to the tailstock via a Jacobs chuck. Another quick way is to use a 9mm bowl gouge. Lay the tool on its back then push it in. Pull the gouge out and clear the debris.

3 Now you can get to work with the hollowing tool. When you adjust the amount of gap on the tool, you don't

Turning the column and adding the reeding

01 Chuck a branch blank between centres and turn ton a low speed o a cylinder to balance it up

02 Turn a dovetail to fit your combination chuck's jaws. Make sure this mounting is substantial enough

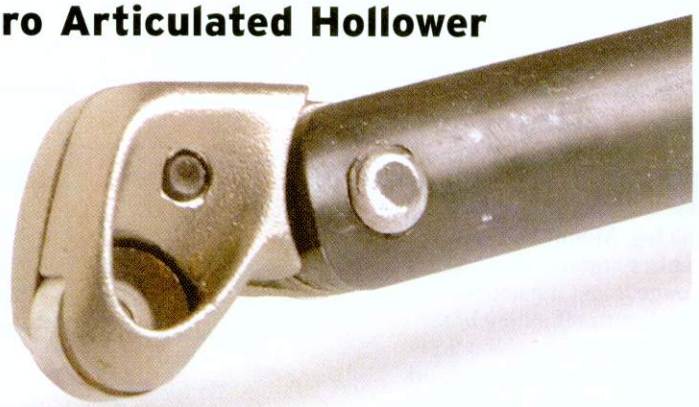
03 You can drill a starting hole for the hollowing out or create it by pushing in a bowl gouge in stages

04 Start the hollowing process by working outwards from the hole with your hollowing tool

have to open too wide. Have it just enough so the shaving flows through with ease. Carry on working down, keeping a close eye on the wall thickness, which is around 8mm. The bottom of the box tapers in. When you are satisfied with the shape inside, adjust the cutter so it will take off fine shavings for final finishing.

4 The easiest way to reverse the box is to put a scrap piece of wood on to a screwchuck or faceplate and turn it to a dome so it will rest inside the box. Then bring the tailstock up for support and carry on turning the outside of the box. Use the 9mm gouge to do the main shaping. Keep the bevel rubbing so as not to tear out the grain. At the bottom of the box is a fillet. Turn this with the parting tool, then carry on turning

Rolly Munro Articulated Hollower



Another hollowing tool has appeared on the market, this time designed by Rolly Munro, one of New Zealand's deep hollowing experts. This tool has a lot to offer for the money, starting with the handle, which is made of lightweight aluminium and covered in a soft, tough material giving excellent grip. It measures 500x40mm and is big and tough enough to give excellent support for the shaft. The handle has a large knob to adjust the length of the shaft. This moves up and down with ease and the knob locks it firmly into place.

The shaft is high tensile steel, 425mm long by 15mm diameter. One end has been milled flat to accommodate the hardware. This is the business end of the tool, where it all happens. The various configurations you can get from different linkages supplied makes this a two-in-one tool – a straight hollower and a swan neck. The depth gouge and link assemblies are made out of stainless steel so they won't rust and the cutters are high speed steel.

The first combination uses the cutter head, depth gouge and cutter. This will swivel from left to right, giving you plenty of movement. The next combination is to attach the short link which will give you a lot more movement. The one I like is with the cutter head fitted to the long link. This link is curved and it turns the tool into a swan neck, allowing hollowing around corners and under shoulders.

There are three cutters supplied with the tool, which are fixed to the head via a screw. If the edge becomes dull when in use, just loosen the screw and rotate the cutter. This can be done a few times before it needs sharpening. Sharpening is simple. The cutter is held in a jig and put to the grinder for a few seconds. The jig is supplied in the kit, which includes a manual.

In use, I found the cutters didn't clog and I could adjust the tool to get a very fine finish. I enjoyed using this tool and recommend it. It's not cheap but quality never is. As the saying goes: "Once the price is forgotten, the quality remains".

GW verdict

Value for money ●●●●◐

Performance ●●●●●

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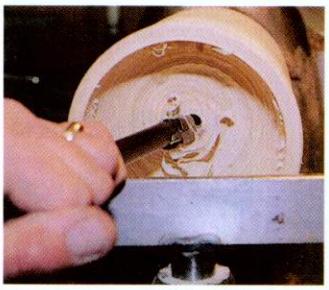
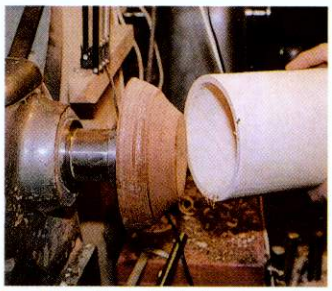
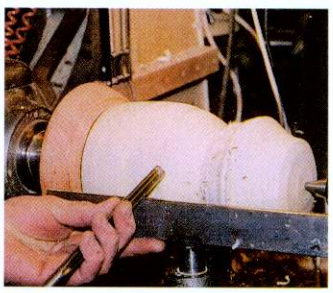


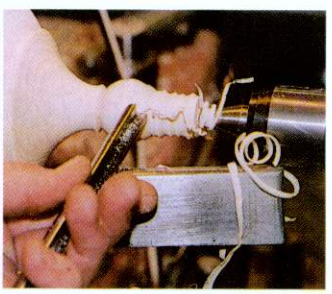
05 Aim for a wall thickness of about 8mm. Don't forget to leave enough support inside for the bottom finial



06 When the inside is done turn a jam chuck on some waste wood to hold the hollowed blank



07 Push on the blank, bring up the tailstock and start turning the outside to the desired shape with a gouge



08 Use a parting tool and a 6mm gouge to form the finial on the bottom of the box

with a 6mm gouge which, being smaller, will help you to turn the finer detail. Turn the end down to a small spigot then remove the box from the lathe and cut the spigot off by hand.

5 The lid is also turned in one piece straight from the log. Mount between centres and use the roughing gouge to get it balanced up. Don't turn off all the bark because the rim of the lid is left with a natural edge and it is this rim that helps the box to look more rustic.

Use the parting tool to turn the large spigot. This will eventually sit inside the box, but don't make it too tight or you will never be able to remove it because as the wood dries out it will move and trap the lid. Remove the lid from the lathe and try it in the box before you finish it. You can use the same tools to turn the lid, and in the same way as the box.

6 Bird boxes have different size holes for different birds, this one has a 32mm hole drilled with a Forstner bit in the pillar drill. Drill slowly. You can also add a 6mm hole to put a piece of dowelling in for the perch. Drill another 6mm hole in the finial of the lid for the hanging wire.

7 The lid can easily be fixed to the box via two screws but first drill two pilot holes, one either side. The screws need to be at least 2.5mm long. For a rustic box it is not necessary to sand and tool marks can be left. When it comes to colouring, Cuprinol have got many different shades and maybe one to suit the decor of your garden.

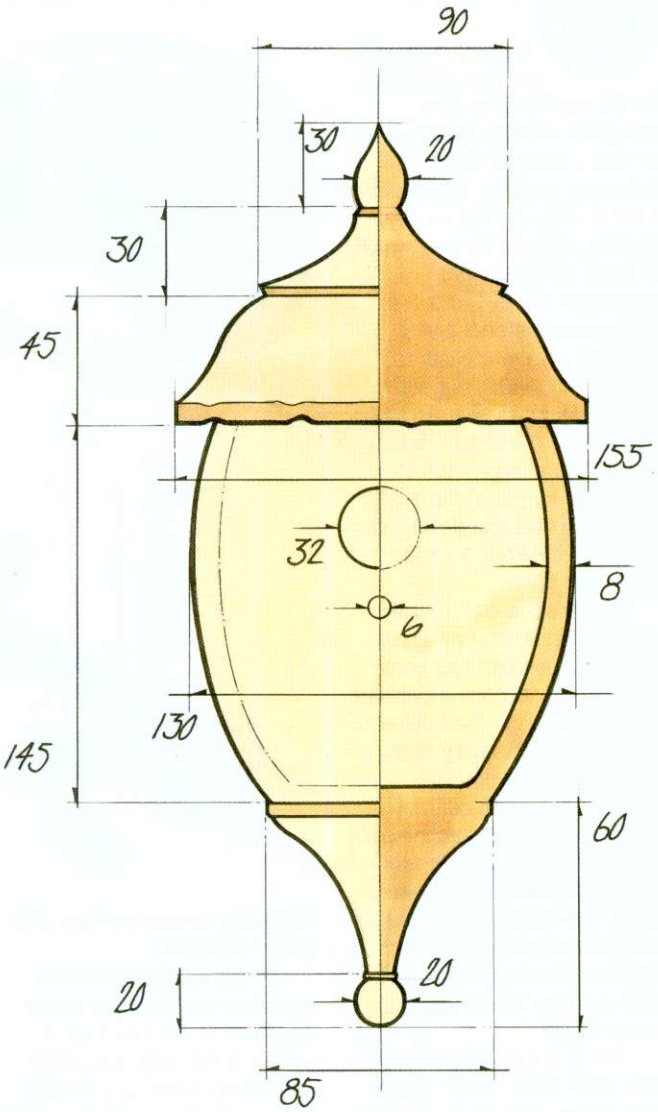
It will be OK to paint the box inside. This will help to protect it, but when painting the outside, don't paint the natural edge on the lid.

Finally, put some wire through the finial or weatherproof cord on the lid to hang it up.

NEXT MONTH

Dave shows you how to turn a chess set with a stunning circular board

DETAILS: Rustic birdbox



Tools needed

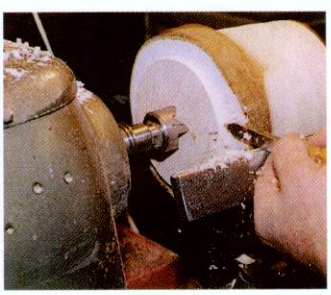
Roughing gouge
6mm parting tool
6mm, 9mm gouges
32mm Forstner bit
6mm drill bit
Hollowing tool
Combination chuck

14 Make sure you use a bird friendly finish on your box, Dave used a Cuprinol stain

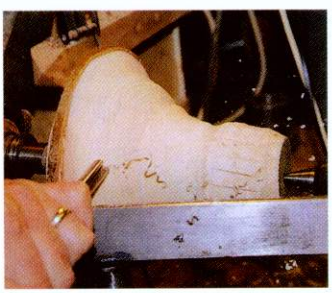
14 Drill and screw at a slight angle to attach the lid to the main box. Countersink for a tidy appearance

13 Drill another smaller hole in the top finial to take a wire or string to hang your birdbox

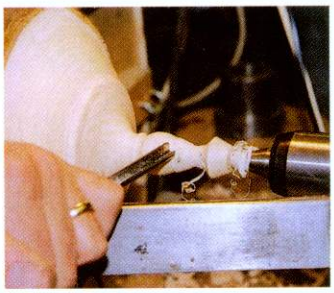
Turning the lid



09 Leave the bark on the lid to give a rustic look as you turn to size. Form a spigot to fit inside the box rim



10 Now turn away the shape of the lid with a gouge, leaving the bark intact still



11 Form a finial to match that on the bottom of the box then part off and remove from the lathe

12 Support the box carefully while you use a pillar drill and a suitable Forstner bit to drill the access hole

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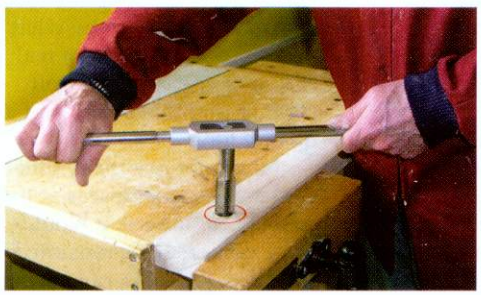

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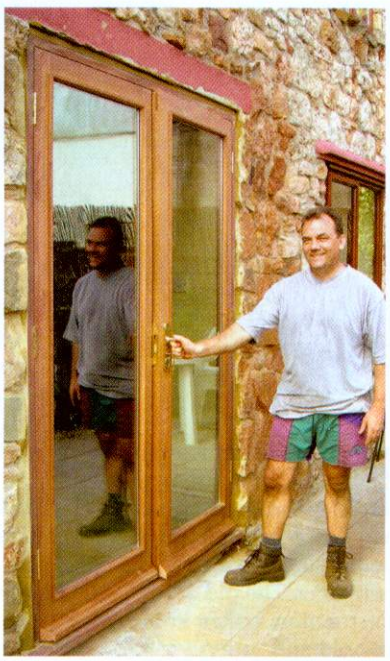

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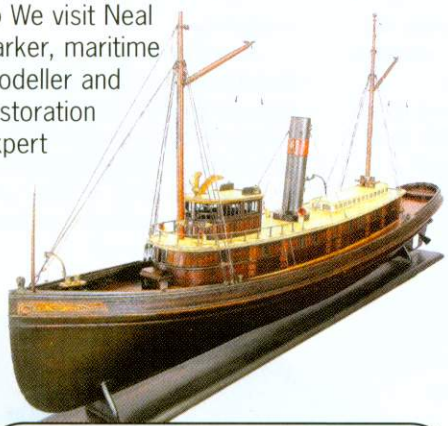

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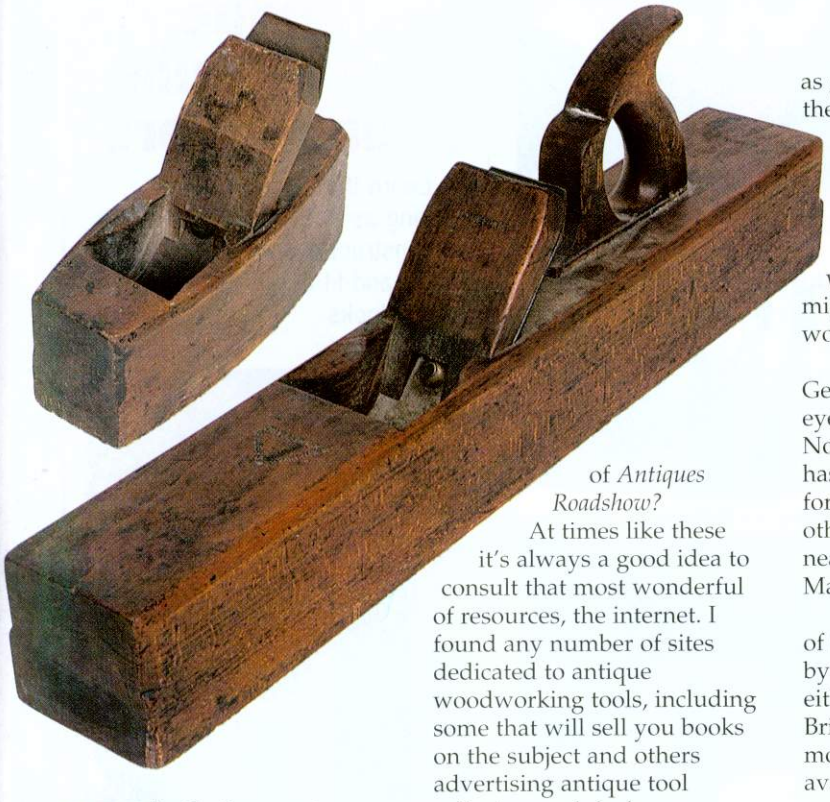
End Grain

A chance find prompts Ian Waller to discover the value of antique tools. Unluckily his find isn't worth much



What better way to spend a rare free Sunday afternoon than down in a cold garden shed rebuilding a rack of shelving… The old construction, crikey knows how old and rotten throughout, was groaning under the load of half-full paint pots and various garden hand tools. So it was summarily ripped out and a new, stronger alternative took its place.

While clearing out the old shelving I came across an old and extremely dilapidated hand saw, hidden beneath what was the very low bottom shelf. Covered in I don't know how years' worth of dust, dirt, cobwebs and rust, it made a sad sight and to be honest looked well beyond its best.

But what if, I got to thinking, this old saw had in fact turned out to be a rare and ultimately valued woodworking antique? How much could it be worth? Is there a market for such items? How would I go about restoring it to its original state? Have I simply been watching too many episodes of *Antiques Roadshow*?

At times like these it's always a good idea to consult that most wonderful of resources, the internet. I found any number of sites dedicated to antique woodworking tools, including some that will sell you books on the subject and others advertising antique tool collectors and dealers.

Expert Advice

One of the sites that particularly caught my eye was www.pennyfarthingtools.co.uk. The director of Penny Farthing Tools is Gerry Dawson and he's been dealing in antique woodworking tools for the best part of a quarter of a century.

So Gerry, how do I know if my old saw is worth a couple of pence or a couple of hundred quid?

"The simple answer is you don't unless you go to a specialist like us," he explained, matter-of-factly. "There's lots of difference with the value of old tools, and in truth it's a huge subject that would take forever to cover properly.

"Saws, for example, are rarely worth anything. Saying that, there is an interest in older, pre-war dovetails and we can tell by the maker's name what it might be worth.

"People think that if it's old, it's worth money. In fact, some of the most valuable tools are from the 1950s and 60s, such as good Stanley planes where there just weren't many made. A rare and complete Stanley plane could cost anything into four figures. Something like an 18th century wooden plane, however, might not necessarily be worth much at all."

On the subject of planes, Gerry suggested keeping your eyes open for names like Norris (his web site currently has a Norris A5 plane going for £280 although he's known other models selling for nearer £3000), Preston and Mathieson.

Gerry explained that a lot of these old tools are bought by collectors in America, either after good quality British tools or American models that were only available on the export market. He added that most antique tools are sold to be used rather than simply put on show, due to the simple fact that many of them are better than anything you can pick up today without spending a fortune.

First Thoughts

If you think that you've got an antique tool that's worth a few quid, there are a few points to consider before flogging it. Firstly, are you sure that you want to get rid of it? OK, it might be worth a good price, but that's generally because these tools are quality pieces of kit that you're going to be hard-pressed to replace without spending out a lot of money.

Secondly, before popping off to a dealer, read up on the subject first. There are plenty of books available or you could contact the Tool and Trades History Society (☎ 01747 871717 or www.taths.org.uk) and ask for their advice.

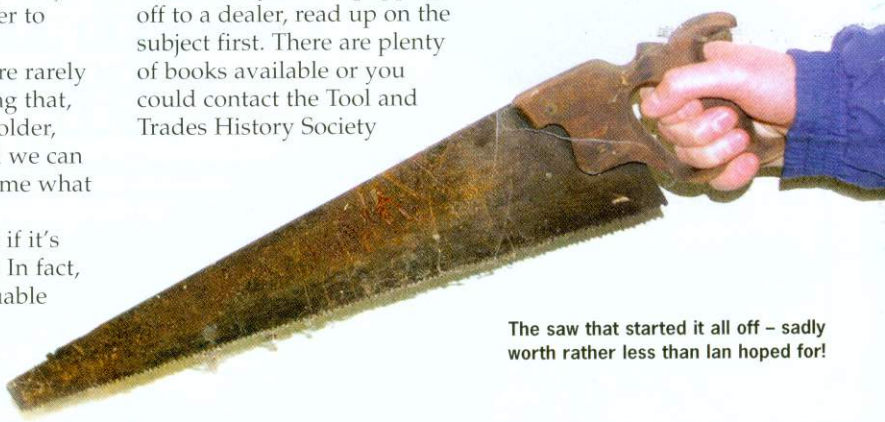
Thirdly, and perhaps most importantly, is to not attempt to restore or clean up the tool unless you really know what you are doing. There's a real risk of over-cleaning if you try this, and that could ruin a quality tool.

No doubt like many other dealers, Gerry grimaces at the number of times that would-be customers have repainted their antique tools, only to see their value immediately be cut by 50%.

What's it Worth?

Finally, to get some idea of the top prices that antique tools can reach these days, take a look at www.davidstanley.com. David Stanley Auctions hold a small number of international auctions each year selling a wide range of such items. Their website includes details of a recent sale where top price of £4400 went for a rare transitional iron patent fillister. Meanwhile, a rare Norris A1 28½in jointer fetched £3800 and an 18th century brass and ebony stocked bevel realised £1400. Not bad for something that just might be gathering dust at the back of the workshop.

And just in case you were wondering, unfortunatelyit appears that the old saw that I discovered in the shed was as worthless as a politician's promise. Oh well, if I get desperate I could always use it for cutting wood!



The saw that started it all off – sadly worth rather less than Ian hoped for!

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CWL12D 37"	940	305	5	£89.95	£105.69
CWL20RV 36"*	900	305	10	£189.95	£223.19

*With reversible head & steel stand †Inc. 3pce chisel set

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*110v available

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