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TOOLBOX



THINGS WE WANT

The new Bosch GKF600 palm router – a cross between a hand-held 1/4in router and a laminate trimmer – is a new type of machine that creates a category of its own in the woodworking power tool hierarchy. Unlike other routers, it's ideal for one-handed use, and we've commissioned some simple jigs you can make to use with it. Read more about it on pages 36 and 83.

WHAT WAS IT?

Last month's mystery item, sent to us by Graham Grant of Winchester, provoked an amazing response from Woodworker readers. Several identified it correctly as a Stanley Angle Divider No 30, which was patented in the USA in 1903. It was designed for bisecting angles when setting out work involving a range of different angles. The numbers on the centre shaft allowed complex shapes such as pentagons, hexagons, octagons and decagons (5, 6, 8 and 10-sided polygons) to be marked out accurately by positioning the arms at the required angle.

Robert Webb of Ashford sent us a photocopy of an early 20th century UK catalogue from The Stanley Rule & Level Company, in which the nickel-plated No 30 divider is priced at 6/11 (35p in today's money). Bill Murray of Irvine tracked it down to Stanley's No 34 US catalogue dated 1958, by when the price had gone up to \$5.60 (about £3.25). Mr F Preedy of Cheshunt found it described in an old copy of Joinery and Carpentry Volume 1 (see below), and Mrs J Biggs of Shenfield sent us a page from The Stanley Tool Guide (1960), which reproduced a wallchart from the company's Education Department. Thank you all!

The first correct answer out of the hat, and the winner of a year's subscription to The Woodworker, is Chay Reid of Rotorua, New Zealand, who has been using his divider since the 1930s. If only the same could be said of many of today's tools!

PS If you still have one, it's valued at up to £60 by collectors.

If you have an old tool you'd like us to identify, send a photograph or two and any background information you have about it to:

The Woodworker,

What is it?

Magicalia Publishing Ltd,
Berwick House, 8-10 Knoll Rise,
Orpington, Kent BR6 0EL



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the same as for the square. The blade *b*, Fig. 132, is slotted and can be adjusted to any angle and slid to any position; it is then fixed by the screw *a*. The stock *c* is in two parts, which are riveted together,

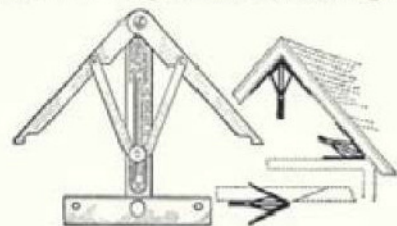


FIG. 132. ANGLE DIVIDERS

leaving a clearance between for the blade. When setting the blade, it is usual to tighten the screw a little when the blade is approximately correct, and then



FIG. 134. MARKING KNIFE

adjust by tapping the blade on the bench. The screw is then screwed up tightly.

Angle Divider. This is practically a double bevel, and is an ingenious tool for bisecting angles; see Fig. 132. The bisector is marked down the centre of the stem. It is graduated for setting-out squares, hexagons, and octagons. The "T" head, which is removable, enables the tool to be used as a T-square. The illustration also shows the application of the tool.

Marking Knives. The "marker," Fig. 134, is a piece of steel about 8 in. long, with a cutting edge at one end

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PRODUCT FEATURE

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- **Cast Iron Table** - ground and polished to a smooth flat finish for sound support and minimal friction
- **Solid Fence** - vital for accurate ripping, this fence has a heavy extension mounted on a cast iron base. Fed by a solid cast iron bar for maximum rigidity and support. It is an industrial turbine design and much more solid than most machines at this level
- **Good Capacities** - 120mm x 202mm with a maximum width blade of 17"
- **Cast Iron Ranshworks** - Dynamically balanced cast wheels fitted with precision ground rubber tyres - the industrial solution, providing a frictionless effort for smooth cutting
- **Slide Tension Indicator** - a single gauge on the rear of the machine to set blade tension
- **Solid Double Transion Fence Mount** - providing rigid table support and zero handed table tilt on a smooth rack and pinion
- **Industrial Style Blade Guides** - the same guides as the bigger machines - an industrial design with neat adjustments made easily without the need for tools
- **Microswitches** - microswitches are fitted to doors for user safety
- **Wheels** - the same is supplied with a basic wheels for occasional use. If frequent moves are required the provide optional BS300E wheels can be fitted for simple postal separated access.

BS300E SPECIFICATIONS

- Blade length: 2370mm (93'4")
- Blade width: 6mm - 15mm (1/4" - 3/8")
- Max depth of cut: 180mm
- Throat depth: 300mm
- Table size: 400 x 600mm
- Max width blade to rip fence: 220mm
- Table height (base floor): 1010mm
- Extraction port: 100mm (with attachment provided)
- Motor power: 3000W 1hp
- Weight: 84kg
- Footprint: 710 x 560mm
- Dimensions: 1400mm (height) x 1400mm (width) x 1700mm (depth)



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Solid double transion with cast iron



BS300E features cut from bandsaw



Optional BS300E and pedestal wheels



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The Bosch GSB combi is 20 per cent faster than its main competitor, a factor demonstrated in a series of drilling tests on site... apparently in an earthquake zone!

Bosch beefed up

Bosch's redesigned Professional cordless combi drills and drill drivers are claimed to be 35 per cent more durable than their competitors. The Bosch-built motor used throughout the blue Turbo Tough range is double-wound – a feature that provides an outstanding overload capacity through better heat dissipation. A newly developed all-metal five-planet gearbox, meanwhile, incorporates a fan-assisted air-cooling system, which is claimed to be a world first, as well as gear ratios. The tools also incorporate a progressive clutch that allows for very precise torque settings for every screw diameter, a feature that's particularly useful when driving smaller screws. The NiMH batteries that power the Turbo Tough tools – which are available in 18, 14.4 and 12V versions – also contain cooling sticks that extend overall life. There have been a host of other detail changes, such as tweaking the combi driver's gearbox ratios to optimise torque delivery for hammer drilling. The net result, says Bosch, is a range of tools that's built to last... at a price. The GSB combi drill costs £292.58, and the drill driver £198.58.

Bosch | 08447 360107 | www.bosch.com



A neater Makita

The new Makita KP0810 82mm heavy-duty planer is powered by an 850 watt motor and has a maximum drum speed of 16,000rpm, delivering 32,000 cuts per minute. It will remove a maximum of 4mm of wood per pass, a full millimetre greater than existing machines, and will cut a rebate up to 25mm in depth at the full 82mm width. A sister model is the KP0810C, with a 1050W motor and 12,000rpm constant speed control.

The new Makita has a refined depth adjustment, with 40 click stops between 0mm and 4mm, meaning that each click is just 0.1mm for maximum planing accuracy. When the machine is not in use, a simple drop-down blade saver raises the rear of the baseplate off the ground to protect the drum.

Weighing just 3.3kg, the new Makita 82mm planer is designed for hard work, reliability and performance. The price for the KP0810 model is £263.

Makita | 01908 211678 | www.makita.com

Business as usual at Tewkesbury Saw

Tewkesbury is back in business! That's the message Tewkesbury Saw Company MD Bruce Keen delivered to John Hutton, Secretary of State for Business, Enterprise and Regulatory Reform when he visited Tewkesbury in Gloucestershire on August 6. Tewkesbury was one of the worst hit areas of the recent floods, and became an island the previous weekend after the Avon and Severn rivers burst their banks, leaving many of its homes and businesses submerged.

Bruce Keen told the minister that, only days after the worst flood in modern history, Tewkesbury Saw was able to help its first customer. "He made it through the water in a 4 x 4 just five days after



the flood had wreaked havoc with our showroom and offices, and wanted some knives sharpening!" Bruce said. "Our workshop was closed for health and safety reasons, but we were able to use another workshop nearby that fortunately escaped damage."

Vice pays

Irwin Industrial Tools is offering up to 30 per cent off its iconic range of Record vices when users trade in an old vice. Until September 30th 2007, participating retailers are offering a 20 per cent discount for buyers, and a further 10 per cent if they bring in an old vice in part exchange. It doesn't have to be a Record vice, and it doesn't matter what its age and condition is. The offer applies to Record woodworking vices, Woodcraft vices, table vices, drill press vices and several engineers' and fitters' vices.

Everlasting filler

A new launch into the UK market for Osmo is a new VOC (Volatile Organic Compound) compliant water-based woodfiller. It's designed to remove scratches and dents in wooden floors and interior woodwork, and to deliver a smooth flawless finish. Four products in one, Osmo Woodfiller is extremely versatile and can be used as a wood putty, grain filler, crack filler and edge filler, and is suitable for both commercial and domestic applications. It provides the ideal solution to regaining an immaculate appearance to otherwise imperfect surfaces. And, because of its usage versatility and indefinite life storage – it's usable to the last drop – it offers great value for money.



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WIN!

Why not share your workshop know-how with other WW readers and win yourself a great Trend prize?

TIP OF THE MONTH

Our Tip of the Month will receive a versatile Trend

8 x 3in Workshop Stone for ultra-fine sharpening every time.



RUNNERS UP

Every other tip we publish wins a new Trend **Grabit Screw & Bolt Remover**, ideal for removing burred screws and bolts.



TIP OF THE YEAR

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trend
routing technology

TOP TIPS

The Woodworker
TOP TIP



Jack of all trades

I saw your test on the JessEm Rout R Lift (WW June 2007), but decided I couldn't afford it. Instead I spent the money on a good router and came up with an alternative way of adjusting its rise and fall in my Pro router bench.

Everyone knows how difficult it is to lift a router with one hand and lock it in position below the bench while trying to gain micro adjustment to the cutter above it. My answer to the problem came in the form of an old car scissors jack.

I placed it on the table directly below the router and released the plunge lock so the base of the router sat on the jack head, protected it with a softwood offcut. Just two turns of the jack handle brought the collet above the table, making it easily accessible when changing the cutter.

The jack is easily controlled with the left hand, leaving the right hand free to hold a depth gauge above the cutter and make the micro adjustment. Once the cutter is in position, the plunge can be locked off in the usual way.

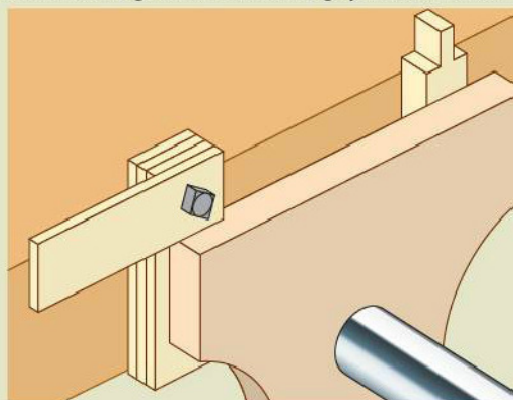
John Newton, Leeds

Vice packing

If you want to hold a small workpiece at one end of your vice jaws, you need to pack the other end to the same thickness to get the maximum grip and to avoid

distorting the vice. Like most other woodworkers, I usually resorted to looking for a bit of scrap wood to make the packing. Then I came up with the idea for the adjustable packing shown here. The thicknesses you use don't matter; I found that four pieces 9mm thick, held together with a nut and bolt, would cover most of my requirements.

*Sam Parker,
Padstow, Cornwall*



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Show time!

PETER DUNSMORE



Every home has a collection of treasures that deserve a proper home. Peter Dunsmore made this simple yet elegant oak display cabinet for one of his children

The shelves in one of my children's room are used to display all sorts of little collectables she's accumulated over the years. The drawback is the dust that collects and the inevitable damage that occurs when they are cleaned (which doesn't happen as often as it should!). To overcome this, I made this display cabinet to house the various pieces.

This cabinet is simple in both design and construction, the idea being that the eye won't be distracted by the cabinet but will be drawn to its contents.

Preparing the parts

I chose oak for this project so it matched the oak beds in the children's room, but it would look equally attractive in most woods. Make sure you use well-seasoned timber for the door frame – preferably quarter sawn. The door is quite large and is liable to warp if the timber used isn't stable.

To begin cut the timbers slightly oversize, **photo 1**, and allow them to condition for a while before planing them to the

dimensions on the cutting list, **photo 2**. Then cut the components to length, making use of an improvised stop to cut repeat lengths quickly and accurately, **photo 3**. Allow for tenons 20mm in length, and take care when measuring and cutting the door's central muntin.

Both side frames are made using mortise and tenon joints; use your favourite method to cut these. Normally I would use a bearing-guided rebate cutter and a fluted straight cutter, but this time I experimented with the M & T jig from Trend, **photo 4**. Although the tool takes a little getting used to, once set and in use the result is a well-fitting and accurate joint – neither too loose nor too tight.

When you've cut all the joints, wrap some abrasive paper around a cork block and sand everything to a smooth finish, **photo 5**.

Making the frames

Apply a little adhesive to the surfaces and clamp the components of each frame



1 Saw the timber boards slightly oversize and allow them to condition

together. Start with the two side frames, assembling one on top of the other to ensure a matching pair. Wipe away any excess adhesive with a damp cloth while it's still wet.

Assemble the door frame on top of the back one in the same way. Use sash cramps to pull the components together and allow them to set thoroughly. Check that each frame is square by comparing the diagonals with a tape measure, **photo 6**, and make sure the muntin is located centrally in the door frame.

Cutting the rebates

Cut a 15 mm wide rebate along both edges of the rear frame for the side panels to fit into, using a straight cutter in the router table, **photo 7**. If anything, make the rebate slightly deeper than required to allow for a slight overhang.

Next, use a bearing-guided rebate cutter fitted to your router to cut the rebates for the glass on both side frames and the door frame. Cut to a depth of 10mm in two



2 Plane the boards to the precise cross-sections you require using the planer



3 Use a home-made stop to make repeat cuts accurately to the same length



4 I used the Trend mortise-and-tenon jig to cut all the frame joints





5 Use abrasive paper and a sanding block to remove any surface fuzz



6 After assembly, compare the diagonals to check that everything is square

passes to allow sufficient room for 4mm thick glass and the beading to hold it in place. On the rear frame, cut the rebate to a depth of 7mm to allow a panel of 6mm plywood to be fitted. Square off all the rounded internal corners with a sharp chisel, **photo 8**.

Fitting the shelf pegs

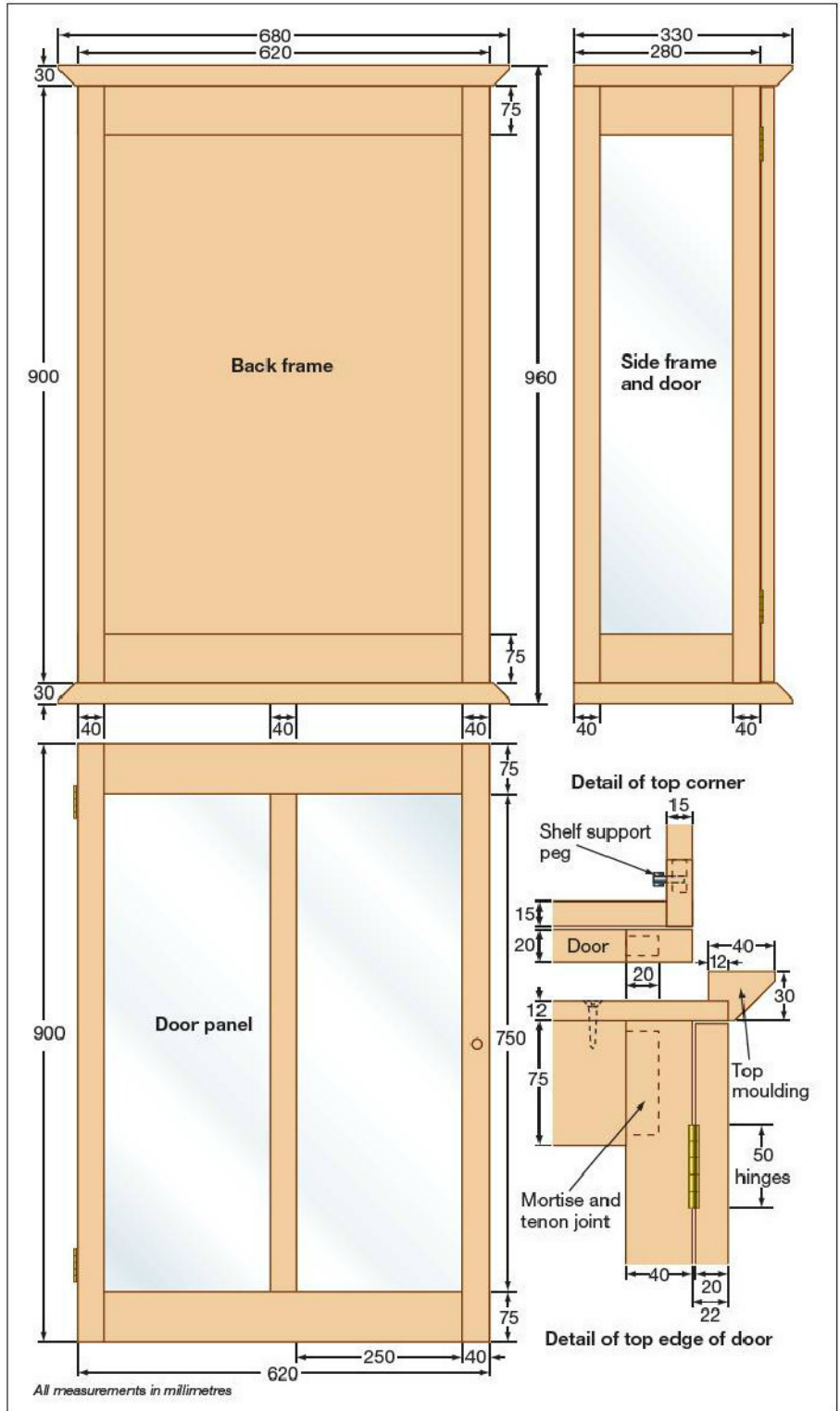
The glass shelves in the cabinet are supported on little steel pegs that are pushed into holes drilled on the inside faces of both side frames. Drill a series of holes so the shelf positions can be adjusted to suit the contents. To prevent the shelves from wobbling, all the holes must be accurately aligned and drilled. I used a Trend purpose-made jig which is quick and easy to use and ensures equally-spaced holes, **photo 9**.

Assembling the cabinet

Before gluing the sides to the rear frame, cut the plywood back panel to size. This will help to keep the frame square during the assembly. Glue and screw the sides to the rear frame, **photo 10**, add the two front rails and use clamps and softeners to hold everything together while the glue sets.

Fit the door frame in place temporarily to check that the assembly is clamped square. Cut the top and base from 12mm plywood and cover them on one face with oak veneer. Glue and screw them in place on the top and base of the unit. Remember to set the overhang at the front to allow for the thickness of the door frame.

You can trim any slight overhang along



7 Use the router to cut a rebate in the rear frame for the back panel



8 Square off the corners of all the routed rebates with a sharp chisel



9 I used a Trend shelf support jig to space the holes for the shelf pegs equally



10 Glue and screw the back frame to the two side frames



11 Trim any slight overhang using a router fitted with a trimmer cutter



12 Cut recesses for the hinges using your router, and square up the corners



13 Use offcuts to hold the glazing beads in place while the glue sets



14 Make and fit the moulding around the top and base of the cabinet

OAK CABINET CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Rear frame stiles	2	900	40	15
Rear frame rails	2	580	75	15
Side frame stiles	4	900	40	15
Side frame rails	4	240	75	15
Front rails	2	580	40	15
Door frame stiles	2	900	40	15
Door frame rails	2	580	75	15
Door muntin	1	790	40	15
Top / base	2	620	320	12
Plywood back panel	1	770	560	6
Moulding	2	1400	40	30

Hardware and supplies: 2 x 50mm brass hinges; 2 x hook-and-eye catches; door knob; shelf support pegs; glass panes and shelves cut to size.



15 Hang the door, fit the catches and add a door knob to complete the cabinet

the joints using a bearing-guided trimmer cutter fitted to the router, **photo 11**. Finish off the edges with abrasive paper.

Cutting the hinge recesses

The door is fitted with two 50mm brass hinges. These are let into recesses cut using a router (fitted with a straight fluted cutter) and a fence guide. Set the depth of cut at precisely half the thickness of the hinge knuckle, **photo 12**, cut the recesses and square up the corners with a sharp chisel.

Fitting hinges with the aid of a router is both quick and accurate, as a flat-bottomed recess of the correct depth is guaranteed every time. For more details, see overleaf.

Fitting the glass

It's best to measure up for the glass once you've assembled the cabinet. Each pane is

held in place in its rebate by oak beading, planed to a 5mm square section and glued in place. Use short strips of scrap wood to push the beading into the rebate until it dries, **photo 13**.

Cover the rear panel with some suitable material. I used a crushed velvet fabric and glued it in place with PVA adhesive. Spread this thinly and evenly over the panel and let it become touch-dry. Then lay the fabric in place and press it down with a short-pile paint roller to remove any blisters.

Finishing touches

To complete the cabinet, form a simple moulding on the router table using whatever cutters you have available, **photo 14**. Alternatively, cut a simple bevel profile using the table saw and finish it with a sharp hand plane.

Finally, fit the door to the cabinet, add two small hook-and-eye catches to hold the door closed and attach a suitable door knob.

Finish is a matter of personal choice; I used two coats of Danish oil applied with a rag and allowed to dry. Ideally this should be applied before the glass is fitted, as it's much easier to get the finish into all the internal corners.

When this is dry, pop in the shelf support pegs and fit the shelves. Order these with polished edges so they're safe to handle.

FURTHER INFO

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CUTTING HINGE RECESSES: the router's revenge

The pressed or folded brass butt hinges available from DIY superstores are fine for most jobs, but for a quality project it is better to pay a little more and to buy solid drawn brass hinges. These have leaves of cast brass rather than thinner brass folded in half.

I think that a well-fitted brass hinge attached with slotted steel screws with their slots all in alignment says a

lot about the craftsmen. However, you must use brass screws in wood with a high tannic acid content, such as oak and chestnut. Steel screws will react with the acid in the timber and cause black stains to develop.

In this example I'm fitting a pair of hinges to an oak blanket box, but the method is similar if the hinge is being fitted to a door. There the centre of

the pin would normally lie on the edge of the door frame to allow the door to swing open smoothly.

The hinges I'm fitting are 50mm long and 25mm across the opened hinge, and I've used a 12.5mm straight fluted cutter to cut the recesses. A Vernier gauge is useful for this job, as it's essential to set the depth of cut accurately.



1 Use the Vernier gauge to measure the diameter of the knuckle; in this case it's 5mm



2 Set the gauge to 2.5mm, half the diameter of the knuckle, and use the depth stop facility on the router to set this depth of cut



3 Measure the width of the folded hinge from the edge of the flap to the centre of the pin



4 A Vernier gauge has three different parts. Here the end of the tool is used to set the fence accurately to the edge of the cutter blade, as the projection is exactly the same as the opening of the jaws



5 Hold the hinge in place and use a marking knife or a very sharp pencil to mark the two edges. Hinges often vary slightly in size and each flap should be tailored to each recess. Use a pencil to number the back of each flap and its corresponding recess



6 Turn the router on, feed the router cutter sideways into the wood and slide it forwards. Support the router with timber outcuts to counteract the tendency for the router base to tip over



7 A routed recess will have rounded corners which have to be squared up with a sharp chisel. Trend makes this handy little gadget which you place in the recess and strike with a hammer to do the job in a couple of seconds



8 Cut the recess for the other flap. In this case it has to be cut a little way in from the edge of the timber, and therefore the fence has to be adjusted to suit this. Ideally the cutter should be the same width as the flap including the knuckle; otherwise the fence will have to be adjusted each time



9 Drill pilot holes and screw the hinges into their recesses. I've used steel screws here to make them clearly visible. However, the timber used is oak, so brass screws should replace the steel ones after these have cut the thread in the wood



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(J Jones, Huddersfield)

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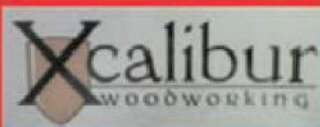
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Whistle and flute

PHIL EDWARDS



By incorporating tapered flutes into the design, Phil Edwards

has created a side table with an unusual and distinctive look. Here's how he made it

DRAWER CUTTING LIST

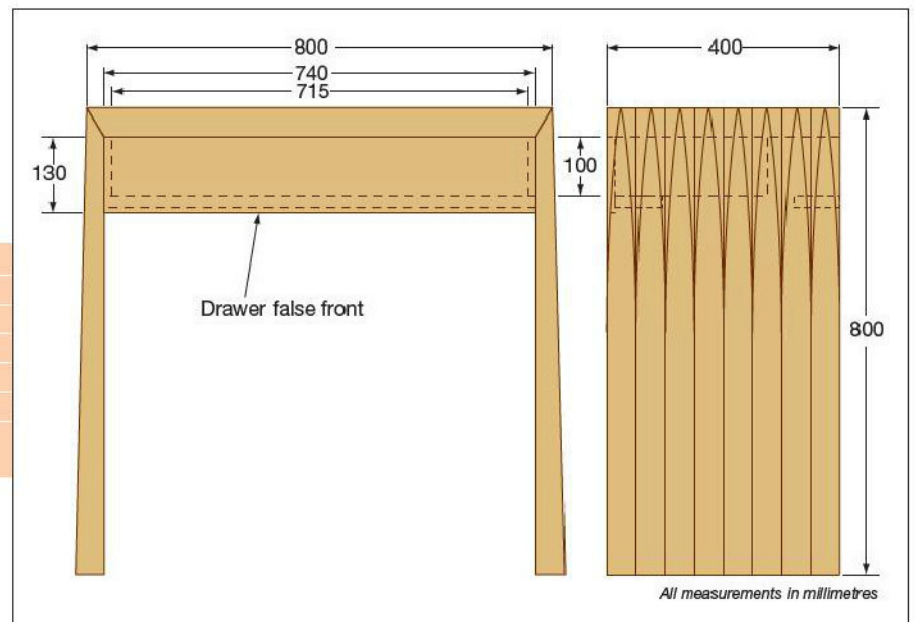
All dimensions are in millimetres

Part	Qty	L	W	T
False front	1	740	130	20
Front / back	2	715	100	10
Sides	2	260	100	10
Base	1	725	270	6

The drawer box is made from sycamore, with a veneered MDF base and walnut false front

I recently read a book by Alan Peters and was very impressed with his furniture, especially the pieces incorporating flutes in their surfaces. So I decided to try something similar in my next project, a side table. Alan used fluting on the tops of his tables, a feature which didn't strike me as too practical, so I put the flutes on the

sides of mine. After playing around with some designs, I settled on one where the flutes gradually became shallower, until they disappeared completely just below the top edge. I then modelled the design in a 3D CAD program called Sketchup, and tweaked the dimensions to what I hope is a pleasing shape.





1 My first job was to flatten and thickness my stock of rough-sawn walnut



2 With one face flat, I reduced the thickness to 50mm on the thickness planer



3 I cut a total of 24 40mm-wide pieces to form the sides and top of the table



7 I made another sled to taper the side pieces from 50mm down to 35mm



8 I cut biscuit slots in all the table pieces to aid alignment during gluing up



9 A dry trial assembly assured me that everything was coming together well



13 Before assembly one job remained – to bevel the front edge of the table to an angle of 10°



14 The top and leg assemblies were glued up and clamped into three solid panels



15 To fit the drawer rails, I machined a blind dovetail housing across the two sides

THE SAPWOOD PROBLEM

At a relatively early point in the construction I ran up against a problem – sapwood. Fifteen of the pieces had at least one sapwood face. In walnut, the sapwood is a light yellow, very different in colour to the deep chocolate heartwood. I first tried to arrange the pieces so that the sap wouldn't show. The pieces that make up the top could have sapwood on the underside, as the drawer would hide it, but the pieces for the sides have both faces exposed. I found I simply didn't have enough clear material!

I decided to glue 6mm strips of clear walnut over the surfaces with sapwood that would be visible in the finished piece. I reduced the pieces by 6mm on the thicknesser, cut strips of walnut on the bandsaw and glued them on. When the glue was dry, I ran them through the thicknesser again to bring them back to the same thickness (40mm) as the original pieces. This involved a lot of extra work, but it was well worth it in the end.



I gave a lot of thought to how I would create the flutes, and designed a router sled to cut them. This involved machining the flutes, one at a time, so the sides of the table are made up from 50 x 40mm pieces of wood which are machined individually and then glued back together to make one piece. The top is made in the same way, but minus the flutes.

Preparing the parts

The table is made from American black walnut. I had a stock of rough-sawn walnut in my wood store, so my first task was to flatten and thickness this, **photo 1**. The boards were wider than my jointer, so I used a wooden jack plane to remove the roughness and a jointer plane to flatten one face. I then passed the timber through the thickness planer, reducing it to 50mm thick, **photo 2**. Then I planed one edge flat and square on the jointer.

I needed a total of 24 pieces to form the sides and top of the table. I ripped the timber on the table saw to just over 40mm wide. I flattened one face first with the



4 Most of the cutting for the rebated tenoned mitre joint was done on the table saw



5 This simple sled allowed me to cut the end mitres accurately on all the components



6 The matching components of the mitre joint were cut in the same way



10 I designed a sled that would hold the leg pieces at a shallow angle for fluting



11 Passing the sled over the 40mm cove cutter gave a smooth graduated flute



12 Each side is made up of eight fluted pieces, here shown ready for assembly



16 The rails have matching dovetails on their ends, and help stiffen the structure



17 I used a rebate cutter to form a rebate on the back of the table for the rear panel



18 I designed this attractive dovetail joint for the front corners of the drawer box

jointer and then thickened the other side. I ran them all through at the same time to ensure that they were equal, **photo 3**.

Super-strength corners

The corner joints were the next problem I had to resolve. I wanted a mitre joint, and my original idea was to use biscuits to reinforce this. However, after preparing the stock I was surprised at how heavy the table was going to be, so I started looking for an alternative joint that would be stronger.

During my research I chanced upon a Japanese joint – the rebated, tenoned mitre – which had the outward appearance of a simple mitre joint but with a strong interlocking connection.

Preparing the joints

The majority of the joint was cut on the table saw, **photo 4**, using the mitre gauge and tenoning jig. I made a sled to cut the mitres on the ends, **photos 5 & 6**.

With the joints cut, I needed to taper the side pieces. The top of the sides was to be 35mm thick, and the bottom end 50mm.

I made another sled to taper the pieces on the table saw, **photo 7**.

Next, I cut biscuit slots in the pieces to align them during glue-up, **photo 8**. These weren't really necessary for strength, but prevented the timber sliding around while I tightened the clamps. I remembered not to cut slots in the outside edges of the front and back pieces – these are 'show' faces. A trial dry assembly, **photo 9**, proved that everything was coming together nicely!

Creating the flutes

The next task was to add the flutes. Whilst designing the table, I'd made some sample flutes using moulding planes – an enjoyable but lengthy process – so I thought about using a router to make them more quickly.

After much consideration, I came up with a sled that would hold the individual pieces of timber and cut a graduated flute on the router table, **photo 10**. As the sled is moved over the router bit (a 40mm diameter cove cutter from Titman), it cuts a steadily deepening flute, **photo 11**.

I had to extend the router table due to

the length of the sled, so I made up ears from MDF and clamped these to the table. I made numerous test cuts to gauge the optimum effect. Each piece making up the sides is clamped into the sled and run steadily though the cutter. I made one pass at full height and it left a smooth cut, free from tear-out. The completed legs looked very attractive side by side, **photo 12**.

Bevelling the tabletop

The final task before glue up was to bevel the front edge of the table. I cut a 10° bevel on the table saw on the three front sections, using a featherboard to keep things safe, **photo 13**. Due to the difference in height between the top and the sides (15mm) there was a slight difference where the pieces met. I used a block plane to fair the surfaces to a neat mitre.

Gluing-up time

Now, it was time to glue up the side and top strips into three solid components, **photo 14**. I used plenty of glue and clamps – and I was pleased the biscuits were there



19 Before gluing up the box, I cut grooves in the box sides for the drawer bottom



20 The Blum self-closing drawer mechanism will be invisible when the drawer is closed



21 I fixed the false front to the drawer box with glue and screws driven from the inside



22 The back panel is a piece of MDF covered with walnut veneer, and is glued in place



23 I made these brass feet to lift the table just off the ground and protect the flutes



24 I finished the table with linseed oil, Chestnut's finishing oil and paste wax

to stop things sliding around! When the glue had cured, I removed the clamps and used a cabinet scraper to remove any glue squeeze-out. I cleaned up the mitre joint using a shoulder plane and tested the fit with the table upside down on the bench. I had a little tweaking to do here and there.

I fitted a pair of lower rails beneath the drawer to add extra strength to the table. A sliding dovetail joint was perfect for this. I used a router and straight-edge guide to cut a blind dovetail housing into the sides of the table, stopped 50mm before the front edge, **photo 15**. Using the same router cutter setting, I machined a matching dovetail onto the ends of the two rails. I made further test cuts to achieve a good fit, remembering not to make it too tight.

Finally, it was time to assemble the table. Again, I used plenty of clamps to pull the joints in tight. I slid in the lower rails, checking for square, and set it aside to dry, **photo 16**.

Once the glue had cured, I removed the clamps and cleaned up any glue squeeze-out. Finally I used a rebate cutter in the router to cut a rebate around the back of the table for the back panel, **photo 17**.

Making the drawer

The drawer is made from sycamore, with a veneered MDF bottom and a solid walnut

false front. I decided to experiment with different spacings for the dovetails and came up with an unusual design, **photo 18**. I cut the dovetails by hand, using a router to remove most of the waste. With the joints complete, I cut grooves for the bottom on the router table using a 6mm straight cutting bit, **photo 19**. I applied some maple veneer to sheets of MDF to make the drawer bottom – this was glued on in the vacuum bag. I then cut the bottom to size and glued up the box.

Adding the runners

Because the drawer is considerably wider than it is deep, I was concerned about it racking when opening and closing it, so

I decided to use some metal drawer runners. These are from Blum and are mounted within the drawer recess, **photo 20**, so they're invisible in use. They also include a self-closing mechanism which slowly pulls the drawer in on its own over the last 30mm of play – a neat feature.

The runners are attached to the sides of the table using screws, and special brackets are screwed to the underside of the drawer box. You then slide the drawer into the table and it attaches itself to the runners. There are built-in adjustments to allow the drawer to be raised up or down and side to side to centre it perfectly – well worth the money!

With the drawer fitted on the runners,

I cut the false drawer front to its final dimensions. I routed a small slot on the underside of the front to act as a fingerpull – this is invisible from the front and adds to the clean, minimal lines of the table. I then fixed the false front to the drawer box with screws from the inside, **photo 21**.

I made the table's back panel from 6mm MDF, again covered with walnut veneer. It's glued and clamped into the rebate I routed earlier, **photo 22**.

As the bottom edges of the flutes are quite delicate, I made some adjustable brass feet on my metal-turning lathe, **photo 2**. These allow the table to be levelled if necessary on an uneven floor and also keep it just off the ground.

Finishing touches

To finish, I sanded the table with 120, 180 and then 240 grit sandpaper. I made up a 38mm dowel on the lathe and wrapped this in sandpaper. I was then able to sand the flutes on the table sides without softening their corners and facets.

I finished the drawer with blonde shellac, which gives a pleasant silky finish. I applied six coats with a rag, lightly sanding before the last coat.

The table was given an oil finish, **photo 25**. I applied two coats of boiled linseed oil, thinned 50/50 with turpentine. I left it a day between coats and removed the excess oil after 15 minutes each time. I then applied three coats of Chestnut's Finishing Oil, lightly sanding between coats using fine steel wool.

I left the piece to cure for a week before applying a coat of paste wax. I buffed it off again and the table was complete.



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The WOODSMAN'S TALE

RICHARD DUNMORE



Rescuing a sawmill from neglect and disuse and getting it working again is all in a day's work for Richard Dunmore. Here's how he did it

As part of my many and varied tasks, I was recently asked to revive a slightly neglected sawmill that hadn't been used for some time. Like so many tools that aren't used regularly, you often find a number of things that don't work, or that you can't even start the damn thing! This one had been put away straight after its last job, with no TLC, and it showed

Into the swing of it

This type of sawmill is usually called a swing saw, though some call them swingers or circle mills. They're an excellent bit of kit that operates in a different way to a bandsaw. In very simple terms, imagine turning your table saw upside down and pushing it along a log. That's the basic principle of the swing saw.

The extra clever bit is that on its return travel, the blade is swung through 90°, and this releases the required size of timber from the butt. Hence the name of swing saw. The saw blade and engine are mounted on a carriage that is pushed along two horizontal bed rails placed either side of the timber being cut. The depth of cut is adjusted by winching the two bed rails up or down; the horizontal cut position is adjusted by moving the engine and blade left or right between the rails.



It's vital to shim the main uprights to get the two guide rails parallel

It's a simple job to set up the frame on any reasonably level ground



The log to be sawn is located in cut-outs on sturdy transverse bearers



The reservoir that lubricates the circular saw blade needs topping up with water



Cutting a plank is nearly complete



The second cut releases the plank from the butt



The slabbing head is basically a large chainsaw with a 5ft bar mounted on a carriage



Each pass of the head removes a slab, just as the name suggests

Slabbing along

This mill also has a dedicated slabbing head, which is basically a large chainsaw with a 5ft bar mounted on a carriage similar to the one for the main saw blade. In order to use the slabber, the circle mill carriage is removed from the frame and the slabbing carriage put in its place.

This slabbing carriage has its own engine. However, it's possible to buy a less expensive version which is bolted onto the circular saw engine, after you've removed the circular saw blade. When using the slabber, each pass of the log removes a slab, just as the name suggests. The process is 'through and through' cutting the butt.

A bad start

When this sawmill came out of storage, neither of the engines was prepared to start. The circle mill engine had an electric start powered by a small motorcycle battery. Although indicating 12 volts after charging, it wouldn't crank when I turned the key. I got hold of a replacement battery and this cured the problem. One down, one to go.

The slabbing engine had a pull start and basically didn't want to fire. Out with the plug, which proved we had a healthy spark. There was fuel in the tank, but as it had sat for a while I was suspicious of the quality of it. I drained the tank and refilled with fresh fuel but it still didn't want to start.

Now I had to go in search of the float chamber. Sometimes the needle valve sticks when it's been left unused with fuel in it for a long time. The chamber was buried in an awkward place, but it didn't beat me. Once I'd washed it out with fresh fuel and reassembled the engine, it fired first time.

Down to the woods

We loaded the trailer ready to set off to the woods where we were to saw. There are quite a number of components and you need to be careful that they don't all try to destroy each other in transit! You also need to have a supply of water to lubricate the circular saw blade. The chainsaw chain on the slabbing attachment is drip lubricated from an oil reservoir.

Setting up the mill

Once at the woods we looked for a suitable place to set up. As we were to place logs into the saw frame using a timber crane, we had to find a fairly level area with sufficient space for a tractor and trailer to work alongside. Once we had found one we assembled the frame. Then the main uprights are shimmed using offcuts of planks to ensure the two main horizontal rails along each side of the mill are parallel and horizontal. A slight gradient in either direction can add a significant amount of work to the carriage movement when sawing. If they aren't parallel, you'll also be milling a twist into the timbers.

With the frame set up correctly, the sawing head is then wheeled into position over the bed rails. Raising the bed rails picks up the carriage on the way up. The wheels are then removed and the saw is ready for milling.

A question of size

If you're milling relatively small timbers and placing them into the saw, it's best to set up some bearers. The helps to hold the timber securely and also positions the timbers parallel to the saw cut line. The bearers are

often something like 8 x 6in timbers with a cut-out removed into which to sit the log – simple but effective.

If you're milling larger timber, you'd most probably assemble the mill frame around the timber. In this case you wouldn't bother with any bearers, as the butt would be steadied by its own weight.

Cutting time

Once the timber is set up, the depth of cut is adjusted on the frame winch handles and the width of cut is adjusted on the carriage head. Each has graduations to ensure they're easy to use.

The blade we used allows the maximum of an 8in cut, but you could turn the carriage around and achieve a total of 16in by coming from the other side.

The saw blade is sharpened in situ using a specially designed jig that bolts onto the blade. The kerf on the tipped blade is about $\frac{3}{8}$ in, and produces a considerable amount of sawdust. However, the advantage of using tipped blades does mean that if you hit the odd nail you can carry on sawing – for a while anyway!

By comparison, many mobile bandsaws have a kerf of less than $\frac{1}{2}$ in as they aren't tipped, but if you hit a nail you need to remove the blade immediately. You can't have it all!

FURTHER INFO

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- The description should include brief details of the materials, tools and techniques you used.
- The pictures should ideally be digital images, sent to us on a disc, but we can also accept prints or slides.
- Please send at least three pictures shot from different angles, but no more than 10 pictures per project. Enclose a strong stamped addressed envelope if you want prints or slides returned to you.

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- Entrants must agree to have their projects photographed for publicity purposes by Magicalia Publishing Ltd, Einhell and Faithfull.
- The competition is open to readers in Great Britain, Northern Ireland, the Channel Islands and Eire.
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The patient arrives and heads for intensive care!

Chest rescue

PETER BISHOP



Always a sucker for punishment, Peter Bishop couldn't resist coming to the rescue of a fine old chest that was long past its best. It took him a week to save it for posterity

I was asked recently if I would take on this chest of drawers as a restoration project. I guess I should have known better when I was taken to a leaky old barn to have a look at it. Propped up on some bricks, under an old blue sheet covered in bird droppings, was the piece in question. A couple of the drawers were out, so swollen they would not go back in, a leg was missing and, underneath all the dirt, I could see that the veneer trimmings were in a sorry state. Could I do it? How could I resist?

The state of the patient

I collected it a few weeks later. Back in the workshop, I vacuumed off some of the dirt and started to uncover the extent of the work involved. Taking the botched hardboard back panels off revealed drawer runners that were well worn and split. Most of the drawer sides were worn right down

to the bottoms, and earlier repairs had involved strips of softwood crudely nailed into place. Two drawer bottoms were split in half, and one had a huge gap at the back.

Worse still, the carcass was loose, an entire leg assembly had gone, **photo 1**, and the top was badly stained and extremely dirty. Veneered facings around the drawer

SAFETY

Many of the photographs in this feature show machines with their guards removed for clarity. Always ensure that the appropriate guards are in place whenever you are using woodworking machinery.



1 The carcass was in a sorry state, with one leg assembly and lots of veneer missing



2 With the back off, I removed the dust boards from between the runners



3 The old runners were fairly easy to prise away from the side panels for later re-use



4 I used some long screws and plenty of glue to secure the new leg to the carcass



5 A wide softwood strip and a square block will give the new leg extra strength



6 I replaced the existing drawer runners upside down to hide their worn top edges

recesses had chunks missing. It was only later on, when I started the real strip-down, that I realized I was not the first to get at this chest of drawers. Someone must have had a concession on panel pins: all the previous veneer repairs had been fixed in place with them!

Some of the drop handles on the drawers were missing. Obviously these were not the originals; wooden knobs had been fitted when the piece was first made. These had been crudely cut off and replaced later in its life. I had offered to fit new knobs, but these were turned down in favour of new period drops. Having checked the sizes, I ordered some replacements from my supplier in Birmingham. Refitting these would be the last part of the job, so there was no real rush.

The plan of action

I took the view at this stage that I would replace, as well as I could, as many of the

previous botches as possible. However, there was an issue with this as far as time and money were concerned. The pot was not bottomless. So if it was loose, looked awful or was too well worn to function, I would deal with it; if not, it had to stay.

With the back off, I removed the dust boards from between the drawer runners,



7 I fitted two new softwood back panels and a slightly off-centre middle rail



8 Masking tape secures the repair strips to the front edges of the chest

Saving the carcass

The rebuild started in earnest by trying to stabilize the chest carcass. It needed one new leg first. With no real mahogany to hand, I use a small piece of sapele, a member of the African mahogany family. An existing leg was the template and I cut the shape out on the bandsaw. A couple of well-hidden screws acted as the first anchor points, **photo 4**, and a block of softwood was used for the core.

To give the back further strength, I glued and screwed a wide strip of softwood right across at the bottom, **photo 5**. This was rebated to take the back panels. I had some good-looking pieces of old softwood salvaged from a previous job. There were two pieces thin enough for the back of this chest. With a centre rail fitted slightly off centre, they would fill the whole space. Before I tacked them on, I tidied up the drawer runners and replaced them upside down, so that I had a flat surface for the drawer sides to run on, **photo 6**. With the back fixed, **photo 7**, I could then start on the 'show' wood on the front and sides.

Repairing the veneers

All the front edges of the chest were originally covered with a thin veneer. Some strips were missing, some were badly worn and some had been badly replaced. Cutting carefully through, at 45° in most places, I set out to repair and replace them as best I could. I cut some thin strips on the table saw and planed them as thinly as I could. I then fitted, glued and held the individual strips in place with masking tape, **photo 8**.

All this was done in stages and I worked on the edges of the top next, adding new strips all round with mitred corners, held in place with plenty of clamps, **photo 9**. An odd bit of veneer running along the top, under the chest top itself, was loose. I carefully lifted that and worked some glue underneath, **photo 10**. With a small block of softwood carefully placed on top, a weight then helped to hold this down whilst the glue went off.

By now most of the patching had been done. I cleaned off the new edges and joints to fit flush with the old stuff, and that was the repair of the carcass completed.

Tackling the drawers

The drawers were in a really sorry state. The sides were worn at the bottom, split and loosely jointed. The bottoms were split and gappy. Chunks of beading were missing from the fronts, and a couple of the ivory escutcheons had disappeared.

Once more I stripped off all the excess rubbish and shrapnel. The drawer bottoms were removed, glued back together, repaired or extended as appropriate and left for later. The loose sides and backs had some glue worked into the joints and each drawer was clamped up square and left whilst this set.



9 The edges of the top needed replacing too; here clamps hold them in place



10 Some strips of veneer were sound but lifting, and just needed re-gluing



11 I made this simple jig for cutting the beading recesses on the drawer sides



12 I glued and clamped the new beads onto all the drawer edges



13 I used the router jig again to trim the bottoms of the drawer sides



14 I ripped strips of chestnut from a 16mm thick board to repair the sides...



15 ...and routed a rebate in each one on my router table



16 I cut them over-long and glued and clamped them in place

A simple router jig

I made a simple router jig for cutting both the beading recesses on the front and the drawer side bottoms. This consisted of a piece of 6mm ply with a straight piece of wood screwed and glued to it, **photo 11**. This jig was several inches longer than the depth of a drawer to allow for run-in

and run-out whilst cutting. I fitted my old Stanley router with a long 6mm straight cutter and ran that down the jig, trimming off the excess ply. This then gave me an exact position for the cutting edge once the jig was fixed in place.

To cut the replacement bead recesses on the front of each drawer, the jig was lined



17 Once the glue had set, I cut them to length and planed them flush



18 The repaired drawer bottoms are returned to their drawers



19 I cleaned up the drawer stops and refitted them to the carcass



20 After French polishing, the final touch was to fit the new drop handles

up with the back edge of the old bead and screwed on. A couple of extra holes in the sides would make little difference. Setting the straight cutter to the right depth, I cut out each recess. Fortunately I'd only missed one old pin, which didn't do too much damage! Having treated four of the drawers, I fitted the new beads, **photo 12**.

Preparing the sides

The job was coming on now, but I still had those worn drawer sides to deal with. They were originally made from chestnut, which was often used as an oak substitute at the time of this chest's construction. I decided to replace them with the same, but first I had to cut out the worn stuff.

There are two things to concentrate on when replacing the bottoms of drawer sides; getting a good surface onto which to fix the new bits, and cutting in line with the top of the drawer bottom groove. There is no need for anything other than glue to fix these; nails will destroy the runners as the wood wears down.

I marked the top of the drawer bottom groove on the outside of each drawer to be repaired. Then I lined up the same router jig I'd used earlier and screwed it in place. Taking care to cut down the drawer side only, I set the cutter to just break through the thickness, **photo 13**. With this strip removed, I cleaned up the front end of each one by hand.

Ready to run

I ripped a 16mm thick chestnut board into a few strips, **photo 14**, planed them all round and applied a rebate on my small router table, **photo 15**. I cut these slightly over-length and carefully glued and clamped them in place, **photo 16**. I used a powdered resin glue that would set rigid and would be stronger than the wood; this was going to be a good repair! If it had to be done again in, say, fifty or a hundred years, the restorer could then follow same process without detriment to the drawer sides. Once the glue had set hard, I cleaned up each drawer and trimmed the excess from the strips, **photo 17**.

Now I put the drawers back together. I used some of the old, recovered cut nails to fit the bottoms back in place, **photo 18**, then waxed the drawer sides and runners. With this job done, I cleaned up the drawer stops, re-fixed them to the carcass, **photo 19**, and replaced the drawers.

A helping hand

I'm afraid I opted out of the next stage of the project. I have a friend who is a qualified French polisher, and we swap work regularly. This was a job for him. He



would be able to blend the old wood in with the new and patch in the scratch marks on the sides and top. It was better to let someone like him do it in half the time, rather than me mess around with it!

A few weeks later he called to tell me the piece was ready for collection. What a transformation: surely this was not the piece I had originally picked up from that ratty old barn? Ugly duckling indeed...

Finishing touches

Back in the workshop, all I now needed to do to finish off the restoration was to fit the drop handles, **photo 20**. A couple of originals had gone missing and the replacements had an antiqued finish to match the older ones. I re-drilled the original holes and attached the handles. Having made sure they all moved easily, I put a drop of superglue on each nut to hold it in place. This seal could be broken easily enough if they had to be loosened sometime in the future. And that was that!

IVORY REPAIR

I needed to replace the escutcheons that were missing, and to stick one of the old ones back in. Fortunately I had already sourced some special grained ivory for another project, and I was able to use an old escutcheon as a pattern to cut, shape and drill two matching new ones. I tested their fit in their recesses, then glued them in along with the loose old one.



Cut, drill and shape the escutcheon



Glue it securely into its recess

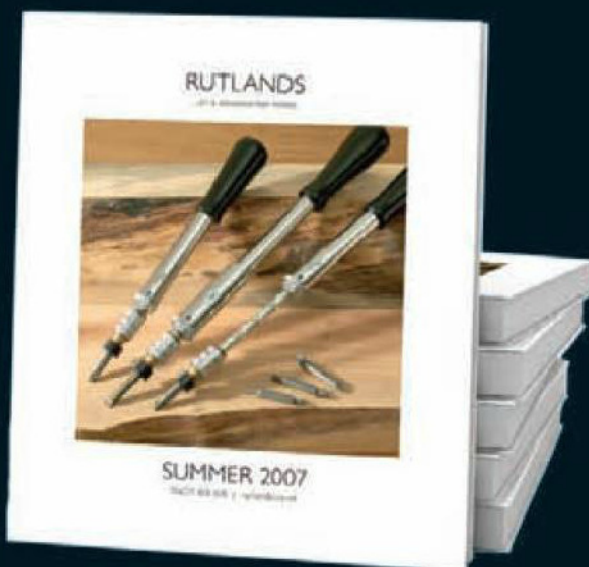


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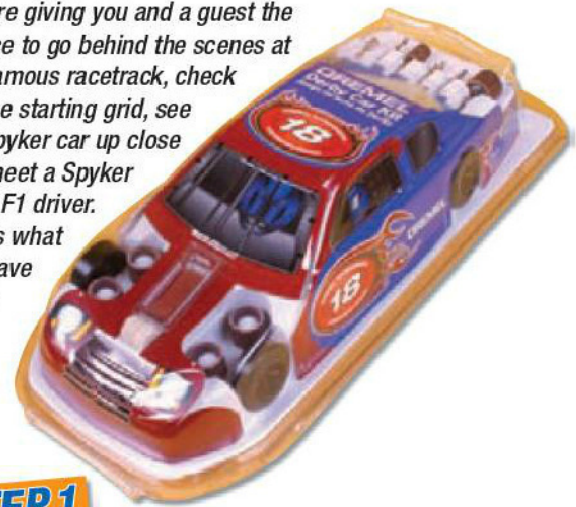
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STEP 3

The creator of the best-looking car, plus a guest, will join competition winners from other magazines and the regional press to spend the day at Silverstone on November 3rd 2007. The event is being held in the International Media Centre above the pit lanes – somewhere you wouldn't normally get into without being a member of the press! The winner will need to bring his/her car so it can be judged and can take part in the model car Grand Prix, so make sure it runs well!

STEP 4

The overall winners on the day go to Monaco with a guest for the 2008 Grand Prix!

Ben Plewes



Bosch recently sent Ben their new GKF600 palm router to test (see page 83). When he'd finished, he began to think of all sorts of new ways he could use it, and came up with some really handy jigs for you to make

Ian Taylor



Ian has always been fascinated with screws, their many shapes and sizes, where they came from and where they're going in the future. Here he presents a short history of the humble woodworking screw

Phil Edwards



Phil Edwards continues his popular planemaking series with a dado plane, which will cut grooves (dados) across boards quickly and cleanly, thanks to its skewed blade and nicker iron. It's far more fun than a router!

Keith Smith



Keith Smith, alias The Woodsmith, presents his regular monthly round-up of no-nonsense answers to your woodworking problems

WORKSHOP

Your guide to woodworking tools, techniques and equipment

CUTTING SLOTS IN PANELS

CMT have launched two new cutters designed for use when fastening large panels such as tabletops. The problem they're designed to cater for is fastening a solid timber panel in place while still allowing it to expand or contract with changes of temperature or humidity. The standard solution is to screw it to the supporting framework through slots that allow movement without splitting the wood or breaking the screw.

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The cutters drill a hole of 4.3mm diameter to a depth of about 12mm. The counterbore diameter is 12.7 and the countersink diameter 11.1mm. Both cutters are on 1/2in shanks.

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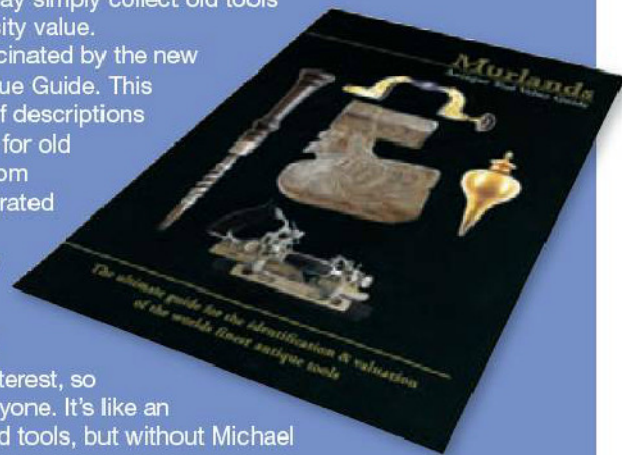
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VALUING ANTIQUE TOOLS

Like most woodworkers, you may well have inherited some family workshop heirlooms that you still use today. After all, many old tools were superbly made, often from finer quality materials than are used nowadays, and are still good for years of service. Or you may simply collect old tools for their beauty and curiosity value.

Either way, you'll be fascinated by the new Murlands Antique Tool Value Guide. This features over 220 pages of descriptions and current market prices for old tools of all sorts, mainly from the UK and the USA, illustrated with thousands of black-and-white drawings and photographs. There are sections on many different tool brands, plus articles of more general interest, so there's something for everyone. It's like an Antiques Roadshow for old tools, but without Michael Aspell!

The Antique Tool Value Guide costs £19.95, plus £2.50 for postage and packing, and it's available from: The Tool Shop, 78 High Street, Needham Market, Suffolk IP6 8AW. Tel: 01449 722992





Bench-top router jigs

BEN PLEWES



After a few hours spent playing with the new Bosch palm router, Ben Plewes began to think of all sorts of new ways this handy tool could be used. Here's what he came up with

Due to its size and weight, the Bosch GKF600 router is ideally suited to single-handed use, or at least to a combination of being held with one hand while being supported with an appropriate jig. This gave me the opportunity to explore what sorts of jigs would suit this machine, and whether more routing could be done on the bench top as opposed to underneath a router table.

In terms of their functionality, I'm a fan of router tables. What I'm not so keen on is having to adjust the router when it's upside down and in a confined space. I also prefer using routers on the bench top where possible, because there's a feeling of being in touch with the work and therefore a greater sense of control.

After spending some time at my bench

and sketching out some ideas on paper, it seemed plausible that this new palm router could be used with a bench-top jig set-up. This would allow certain types of work to be done that are normally reserved for the router table.

Housing and grooving

The design I've come up with uses a common baseboard with a front lip that sits on top of the workbench. The lip sits over the bench front and is fastened in place with a bench vice.

There are two jig designs outlined below that work with the baseboard: a housing jig and a grooving jig. The housing jig allows you to cut housings across wide boards for items like shelf units and other assemblies, where 90° joints are required. This is a



After playing with the router for a while, I started to sketch up some ideas for the jigs

job normally reserved for mitre saws with a depth set and pull facilities, or older radial-arm type saws. Routers are often used to cut housing joints too, but without a specialist jig such as this it can take some time to set up each housing cut. Using the jig described here, housing joints become quick and easy to cut.

The grooving jig works on the same principle as the housing jig, in that it relies on the bench-mounted baseboard

to function. It also has a similar if rather more complex construction. Grooving is a job normally undertaken on a router table, or precariously with a fence! I found it a refreshing change to have a jig that allowed me to groove accurately on the bench top.

BOSCH GKF600 TESTED

Ben Plewes tests the Bosch GKF600 palm router on page 83



The housing jig is ideal for cutting accurate housings across the grain of your workpiece



The grooving jig makes it simple to cut grooves along the grain of the work

MAKING THE BASEBOARD

I started by making the baseboard approximately the same length as my bench. The cutting list below shows the sizes I used, but remember that you can customize any of these to suit your own needs or bench size. It's also worth noting at this point is that I designed these jigs for right-handed use. While making the jigs, many of the components are assembled either on the right or left sides. If you want to make the jigs for left-handed use, simply make them up as a mirror image of what I've outlined below.

Once you've cut all the components for the baseboard, **photo 1**, assembling them is a quick and easy job. Simple rub joints are ideal, and I opted to use them wherever possible for speed.

Apply a thin line of good quality wood glue to one side of three of the four ribs,



2 Apply a thin line of wood glue to one side of three of the ribs

photo 2. Use the fourth rib (without glue applied) as a spacer to place the three ribs at equal distances from each other, starting at the rear bench side of the baseboard. Rub the ribs back and forth to create the necessary vacuum that makes for a good rub joint. If this is done correctly, no clamping is necessary.

When the three ribs are in position, double-check that all the edges are flush because without clamps, rub joints do have a tendency to move easily. Leave the glue to set for an hour, then continue with the next stage.

The fourth rib which was used as a spacer in the last step now forms the front lip that will align the baseboard with the front of your bench. Turn the baseboard over and rub-joint the remaining rib to the front edge of the board. Leave enough time



1 Cut the baseboard from a half-width sheet of MDF

BASEBOARD CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Baseboard	1	1460	460	6
Ribs	4	1460	20	6
End stop	1	360	20	6

for the glue to dry, then turn the baseboard back over.

The last job is to rub-joint the end stop into position. This provides a stopping piece to hold the workpiece in position securely when you're using the grooving jig. Now that the baseboard is made up, it's time to make the housing and grooving jigs to accompany it.

MAKING THE HOUSING JIG

Of the two jigs I've designed, the housing version is the simpler one, so we'll make that first. Cut out the components outlined in the cutting list opposite. Take the housing base and lay it flat on the baseboard assembly you've already glued up. Now take the edge fence component and apply a moderate layer of glue. Rub-joint the edge fence to the left side of the housing base and ensure that all the edges are flush, **photo 1**.



1 Create a good rubbed joint by moving the glued component back and forth

Accuracy is key at this stage; it's important that the edge fence is set exactly at right angles to the front edge. When the jig is in use the front edge will rest in line with any sections to be routed, and the edge fence will form the edge that the router will use as its cutting fence.

When the glue is set, turn the jig over and place the underside fence in position. Set this in from the edge of the housing base by



2 Rub-joint the underside fence in place and check it for squareness

the width of the router base. Rub-joint this in place and check it for squareness with a good long square, **photo 2**.

Now the jig is almost complete. All we need to do is cut a through slot in the jig; this will allow the router to run freely along the edge fence when routing housings. Fit your largest flute cutter to the router, **photo 3**, and proceed to cut a slot through the housing base while using the edge fence as



3 Use your largest flute cutter to cut the slot in the housing base

MAKING THE GROOVING JIG

The grooving jig is made from thicker material than the housing jig because more stresses will be involved when it's in use. A toggle clamp will also be needed for this jig. Toggle clamps are available from Axminster www.axminster.co.uk for just a few pounds.

Cut the components to size as accurately as possible with a table saw, **photo 1**. The first steps in making the grooving jig are very similar to those of the housing jig. Start by rub-jointing the edge fence to the grooving base, **photo 2**.

Now accurately mark out the position of the underside fence, **photo 3**. As before, inset the fence on the jig's underside so its furthest edge is the same measurement as the width of the router base. Rub-joint the underside fence into position and check for accuracy with a square, **photo 4**.

The parting of the ways

From here on the two jigs become quite different. What we need to do now is to create an extended base plate for the router.

This is listed on the cutting list as a router housing, and is made from 9mm birch plywood. I've opted for plywood because it's hard wearing and has good cross-grain strength. The router housing will be a key element to the functionality of the jig, and needs to be tough.

The next step is to line up the router housing with the front of the jig and side of the edge fence, then mark the position of the router baseplate onto the plywood for cutting out. If you can, do this with a bandsaw to get clean vertical cuts and keep the cut-out very tight, **photo 5**. You can always trim a little more material off later if needed.

When marking the router's baseplate, position the router cutter's centre point so that it's aligned with the furthest edge of the underside fence. The material left to one side of the cut-out should be 30mm wide.

GROOVING JIG CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Grooving base	1	290	290	12
Edge fence	1	290	145	12
Underside fence	1	290	20	6
Router housing *	1	290	145	9
Clamp ridge	1	290	30	6

* The router housing is made from birch plywood

Don't worry about excess material on the adjacent side; having an open side makes for easier cutting and insertion of the router later on. Fit the router's baseplate into the cut-out; it should be a tight fit. If it's too tight, sand the edges back by hand with some 120 grit paper until it's just right.

Cutting the slot

The next job is to cut a slot in the grooving jig. Because the centre of the cutter was lined up with the furthest edge of the underside fence when marking out the baseplate cut-out, you can start the slot cut where the router housing is flush with the



1 Use the table saw again to cut the grooving jig components to the sizes given in the cutting list



2 Rub-joint the edge fence to the grooving base and check its alignment



3 Accuracy is vital when marking the position of the underside fence on the underside of the jig



4 Rub-joint the underside fence in position and check that it's perfectly square

HOUSING JIG CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Housing base	1	460	60	6
Edge fence	1	460	200	6
Underside fence	1	360	20	6

a guide for the router, **photo 4**. Start the groove with the centre of the cutter aligned with the innermost edge of the underside



4 Cut the slot in the baseboard using the edge fence as a guide



5 Rest the workpiece against the rear fence and align the housing jig on top



6 Hold the jig in place with your left hand and guide the router with your right



5 Use a bandsaw to cut out the router base profile from a piece of 9mm plywood



6 Fit the router base into the cut-out and cut the slot in the jig between the start and end points



7 Glue and rub-joint the clamp ridge to the edge of the plywood router housing



8 Carefully mark out the central position on the edge fence for the toggle clamp



9 Drill pilot holes and screw the clamp in place with 19mm screws



10 Opening the toggle clamp lets you slide the router back and forth



11 Closing the clamp locks the router in place ready for grooving



12 Place the jig over the work piece and start grooving

front edge of the jig. Mark this distance with a pencil, measure and transfer it to the adjacent edge to mark the slot stop line.

As before, fit your largest flute cutter and cut the slot between the start and end points, **photo 6**. Again, be sure that the cutter has adequate clearance beneath the jig to avoid any unwanted grooves!

Now take the clamp ridge and rub-joint it to the edge of the router housing, **photo 7**. When glued together and placed on the jig, the clamp ridge should be 3mm higher than the edge fence. This is ideal and will form

our clamping surface to hold the router in position when grooving.

Fitting the toggle clamp

Mark out a central position on the edge fence for the toggle clamp, **photo 8**. The clamping head should be aligned with the centre line of the clamp ridge for secure clamping force when it's in use. Screw it in position with 19mm screws, **photo 9**.

Once the toggle clamp is fixed, you can clamp the router housing in any position along its length. This makes for very quick

fence (so it doesn't cut through it).

There's no need to take the slot any further because the underside fence marks the start point for any housing you cut. End the slot at

approximately the same distance from the edge of the adjacent side. While cutting the slot, make sure the cutter is just protruding

through the housing base and doesn't cut any unwanted grooves in the baseboard!

The jig is now ready for use. Rest a squared-up piece of timber against the rear fence of the baseboard, then place the jig on top, **photo 5**. The slot allows you to see any markings and line up the router.

When cutting the housing, support the jig with your left hand while guiding the router with your right hand, **photo 6**. You'll find creating housing joints is now easy, with very little set-up needed.

adjustment when using the router to groove or rebate a workpiece.

Now the jig is ready for use. Open the toggle clamp so you can position the router where you want the groove to be cut, **photo 10**, and lock it in place, **photo 11**. Then all that remains is to place the jig over your workpiece on the baseboard and get grooving, **photo 12**.

By creating the baseboard and using it as a fence for the router jigs, we've made a flexible bench-top routing system that can be set up and used quickly and easily.

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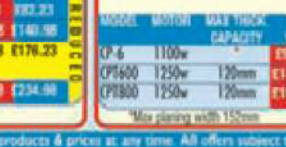


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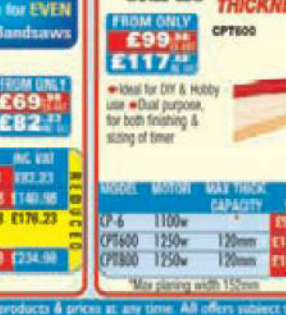
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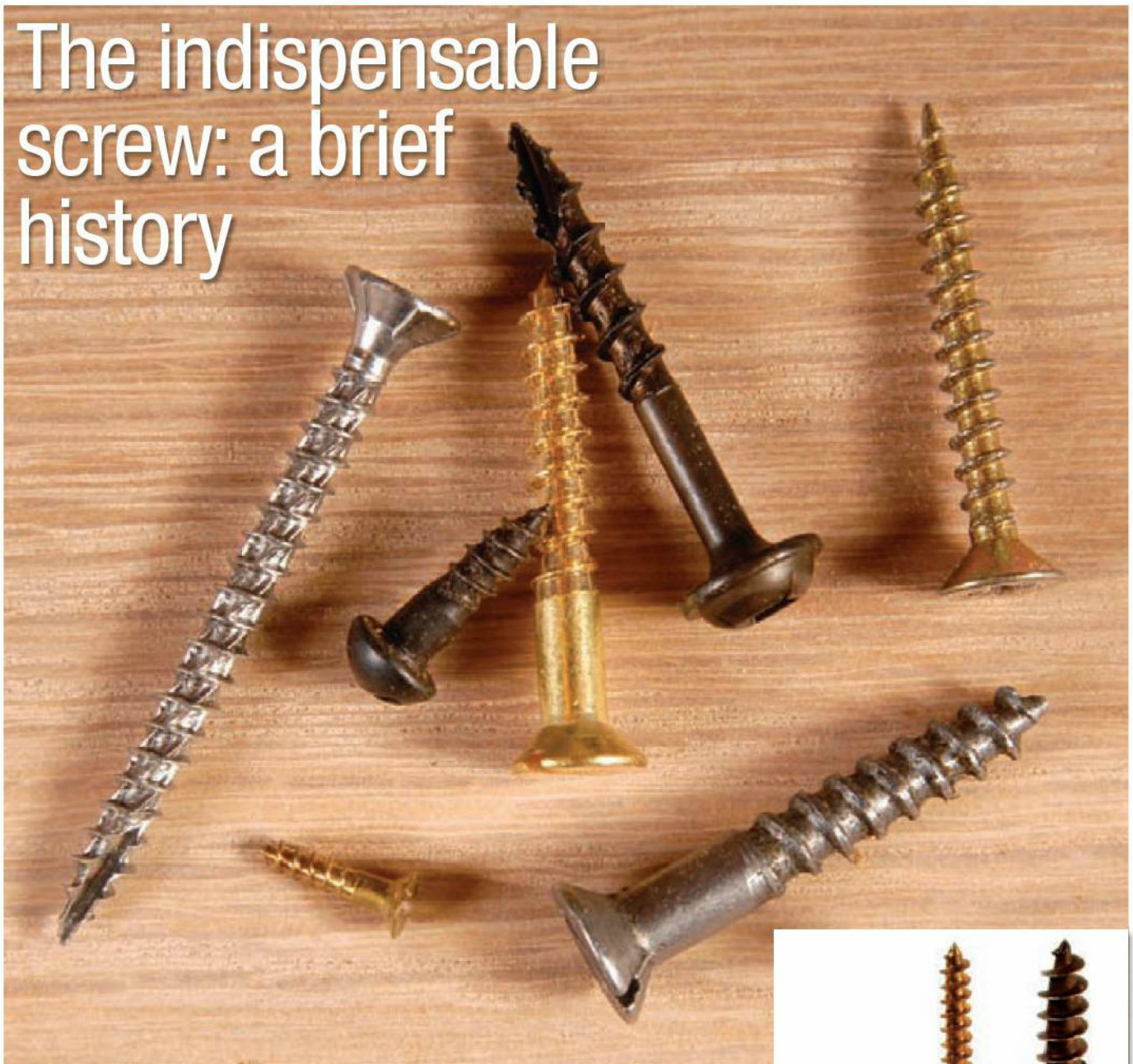
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The indispensable screw: a brief history



IAN TAYLOR



We take screws very much for granted nowadays, but it wasn't always so. Ian Taylor tells their story from hand-made beginnings to mass-produced millions

The first recorded use of screws dates back to the 1500s, but in those days the threads had to be filed by hand, so getting a consistent product was difficult and making them was very slow.

It wasn't till a couple of hundred years later that the first screw-cutting lathes appeared. Henry Maudsley, an English engineer, is credited with making the first powered lathe in 1797. In the 1840s George Nettlefold started industrial production of pointed cut screws in Birmingham, in the form that we still recognise as the traditional woodscrew.

Modern manufacturing techniques have produced a very wide range of screw forms, optimised for different tasks. There have also been innovations in head design and screw tip geometry, mainly designed for power screwdriving and to avoid the need for the pilot holes required for traditional screws. Modern technology creates rolled rather than cut threads, giving a much stronger screw.

The humble woodscrew

We use woodscrews for only one purpose – holding pieces of wood together or fixing



1 Little and large: brass screws in gauges from a tiny 2 to a massive 18

things to wooden structures. Outside the field of woodwork, they are also widely used around the house to fix things to walls and ceilings, often with the aid of plastic wall plugs and other clever fixing devices.

Unlike glue or nails, screws have the important advantage that they can be



2 Head styles: round, pan, pan with integral washer, traditional countersunk, modern countersunk and raised countersunk

fairly readily removed and replaced, so disassembly and re-assembly becomes a possibility. But within this simple objective, there is an endless variety of different forms, each optimised for a specific feature. A quick skim of current suppliers' catalogues revealed almost 70 different forms of woodscrews, and each is available in a wide range of gauges and lengths.

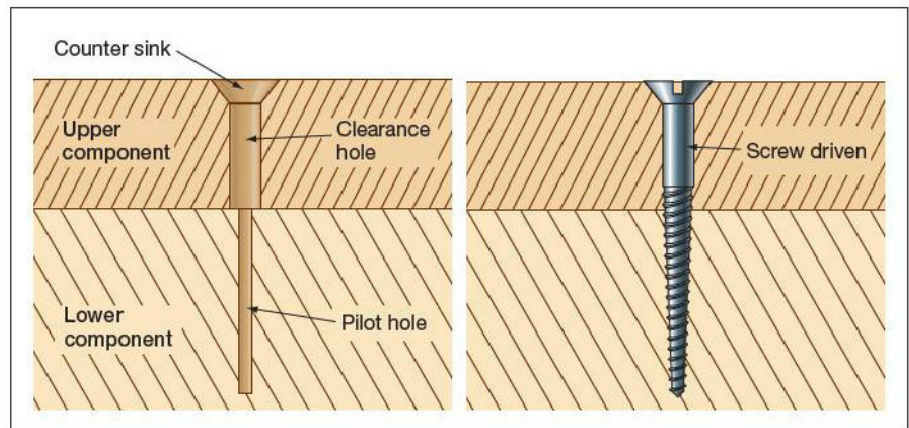
Screw materials

Traditional screws are widely available in steel or brass, and steel screws are also available in a range of plated finishes such as zinc or nickel for corrosion protection. Brass screws, **photo 1**, are widely used in fine cabinetwork because of their appearance, especially for attaching brass hinges and other hardware, and for their corrosion resistance. Their one drawback is that they can shear off easily, especially if you are driving them in hardwood. The solution is to cut the thread first with a steel screw of the same size and gauge, and then to replace it with the brass version. For outdoor use, you might want to consider stainless steel screws, for their superior corrosion resistance.

Head shapes

One of the main differentiating features between screws is the form of the screw head, **photo 2**. These fall into two main types – countersunk heads, where the screw head sits flush with the surface of the timber, and raised heads, where the head sits above the surface (round head, cheese head, pan head and so on). There is also an intermediate form, where the head is both raised in a shallow dome and countersunk.

The traditional countersunk woodscrew has a cone-shaped head, an unthreaded shaft and a rolled thread tapering to a point. You need to pre-drill pilot and clearance holes with this type of screw, as shown



PILOT AND CLEARANCE HOLES

Screw gauge	Dia	Clearance hole		Pilot hole	
	mm	mm	in	mm	in
2	2.08	2.4	3/32	1.2	3/64
4	2.74	2.8	7/64	1.6	1/16
6	3.57	3.6	9/64	2.0	5/64
8	4.17	4.6	11/64	2.4	3/32
10	4.88	5.0	3/16	2.8	7/64
12	5.59	5.5	1/2	3.2	1/8

in the drawing. The unthreaded shank is the widest part of the screw and needs a clearance hole drilled in the upper piece being joined. The pilot hole in the lower piece is narrower, to hold the screw thread.

Screw gauges

The diameter of a traditional screw is categorised by a gauge number. This originally referred to the diameter of the rod from which the screw was made. Gauge numbers range from 0 up to 24, and although odd number gauges do exist, the market has concentrated on the even numbers, with 4 to 12 being the ones

3 Screw head slots and sockets: slotted, Phillips and Pozidriv (below left); Torx, square and coach head (below right)



woodworkers will most commonly use.

The table shows the screw diameters and the recommended clearance and pilot hole sizes (in hardwood) for the woodscrew gauges you'll use most often. I doubt you will have drills of exactly these sizes in your toolkit, so take them simply as a guide and use the closest size available. Incidentally, the lengths of traditional screws are expressed in inches, in increments of 1/4in.

The modern screws described later don't use the screw gauge system to identify sizes. Diameters are simply expressed in millimetres, with 3, 3.5, 4, 4.5 and 5mm being the metric equivalents of gauges 4 to 10. In keeping with the metric theme, the length of Pozidriv and other modern screws is also quoted in mm.



4 Crosshead drivers: the plain cross-shaped Phillips (left) and the elaborately fluted Pozidriv



5 The decorative mirror screw has a tapped hole in the centre of the slot, into which the decorative domed cover is screwed once the screw itself has been driven in

Slots and sockets

Standard woodscrews are driven by fitting a driver into a slot machined across the top of the head. But these slotted heads are prone to damage, either from using too small a driver or applying too much force and rolling over the edges of the slot. A head damaged in this way makes it difficult to extract the screw. They also can't be driven reliably by machine.

So over the last century there has been a proliferation of screw head designs aimed at giving a more reliable way of inserting and extracting the screw, especially with the aid of power screwdrivers, while at the same time reducing the risk of damage to the screw head during the operation. See **photo 3** for some examples.

One of the earliest innovations was the Robertson screw head, designed in Canada. Instead of a slot, this design had a square socket with a slight taper. Intended for automated driving, it initially became a standard on the early Ford Model T production lines. Its positive driving abilities and resistance to head damage have led most manufacturers of pocket hole joinery jigs to prefer and recommend square recess screws very similar to the original Robertson design, but with parallel rather than tapered sides.

Crosshead drivers

For much of the last century, crosshead screws were the standard for automated use – first the Phillips design and later the Pozidriv variety. The Phillips design was a simple cross-shaped recess in the screw head. The corners of the cross were slightly

rounded so that a powered screwdriver would slip out of the cross under high torque to prevent over-tightening. The Pozidriv design – now in widespread use for woodscrews – is designed not to cam out. There are four additional contact points in the head recess and the screwdriver is distinct from the Phillips style in having sloping intermediate edges between the main points of the cross tip, **photo 4**. The screw heads are differentiated by showing a second cross at 45°, marked with thin lines. While a Phillips driver will normally work on a Pozidriv screw, Pozidriv drivers are likely to tear out the head of Phillips screws because they cannot engage fully in the recess.

More recently, a wider range of head styles has come onto the market, including the six-pointed Torx star-shaped recess and varieties of hexagonal recesses that need an Allen key driver. For really heavy-duty constructional work, you will probably want to use coach screws. These are like very large gauge traditional wood screws, but with a solid square head that is turned with a spanner or socket set.

6 The floorboard screw draws floorboards and joists tightly together, thanks to its threadless central section



Thread styles

Since the traditional woodscrew needs a pilot hole, it doesn't lend itself very well to the construction trades or production-line tasks. So over recent years there has been a steady development of thread designs optimised to avoid the need for pre-drilling. These have included rolled single and double threads that extend along the whole shaft of the screw, with very sharp points, usually with Pozidriv heads. Although these screws can be driven manually, they are designed for powered driving. The amazing range of cordless drill/drivers on the market – including ones designed to take magazines of screws – is closely linked to the development of these new style screws.

The downside of using these screws without pilot holes is that they can cause splitting, especially near the end of the timber. Manufacturers such as Spax, Reisser and Screwfix have used great ingenuity to fine-tune the thread geometry so that the screws cut their way through the timber, rather than simply forcing the fibres

apart. All these three styles have ribs and ridges on the underside of the head to trim the countersink in a single action.

Speciality screws

It's worth mentioning a couple of special screws and some accessories that you might find helpful in particular circumstances. For example, you might not want to have a screw head visible. In this case you could use a mirror screw, **photo 5**, which as its name implies is widely used for fixing drilled mirrors to walls or woodwork. This screw is based on a standard countersunk steel screw, but has a tapped hole drilled in the centre of the slotted screw head. After making the fixing in the standard way, a chrome plated dome is screwed into the threaded hole in the head, completely hiding the fixing.

The dowel screw has no head, and its twin threads are designed to be driven into the ends of mating components such as stair handrails and wooden curtain poles.

It is driven into a pilot hole drilled in the first component by gripping the unthreaded centre section of the screw with pliers; then the second component is threaded onto the projecting threaded section to complete the joint.

Another speciality screw is designed to overcome a common problem when joining two boards. If there is a gap between the pieces being joined, the screw maintains that gap, even when it is driven fully home. Flooring screws, **photo 6** avoid this by omitting the thread in the central part of the shaft, so that there is no screw action where the board and joist meet.

Screw accessories

Finally, there are screw cups and sockets, **photo 7**. Screw cups allow you to use standard woodscrews without needing to countersink the workpiece. Screw sockets are pressed permanently into a drilled recess in the timber to give an attractive socket for traditional brass screws in high level work, **photo 8**.



7 Screw cups and sockets make a decorative feature of the screw head, either above or flush with the wood surface

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Plane making

Part 7: The dado plane



PHIL EDWARDS



This month Phil makes an immensely useful tool – the dado plane. This will cut grooves (or dados) across boards quickly and cleanly, thanks to its skewed blade and nicker iron

I made my dado plane from the same hard-wearing exotic wood, *gonçalo alves*, that I used for last month's panel-raising plane. It's also known as tigerwood or zebrawood. If this proves hard to find, you can always use beech, maple or oak instead. You'll need a block measuring about 230 x 90 x 30mm.

Begin by planing the piece flat and squaring the edges accurately. Then cut the piece in two on the bandsaw. Remove the saw marks and flatten both pieces with a hand plane, ending up with two pieces 13mm thick.

Marking out the mortises

The first stage is to cut the mortises for the main iron, nicker iron and depth stop into the two pieces before gluing them together.



1 Set the mitre gauge to the required angles on the table saw and nibble away the waste

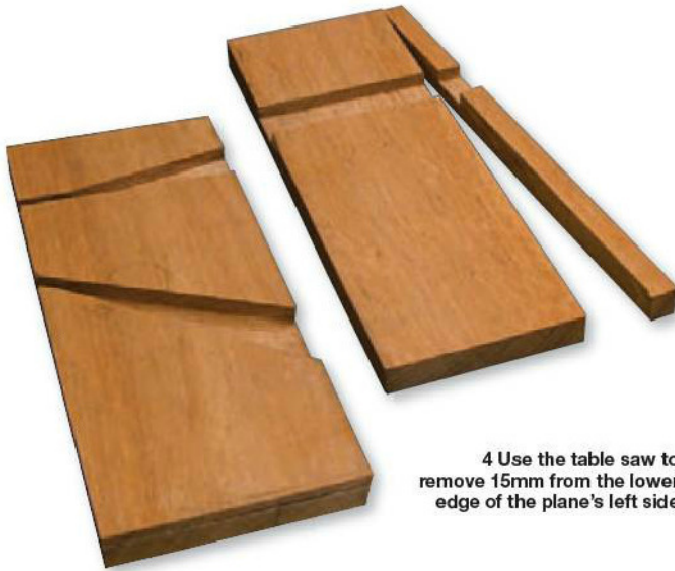
The left side of the plane (above, top) has the mortise for the depth stop. This is 20mm wide and 5mm deep and begins 60mm from the toe of the plane, **fig 1**. Mark this onto the timber with a square.



2 Use a small hand-held router to remove the rest of the waste from the mortises to the correct depth



3 The three completed mortises should be cleanly cut and well defined



4 Use the table saw to remove 15mm from the lower edge of the plane's left side



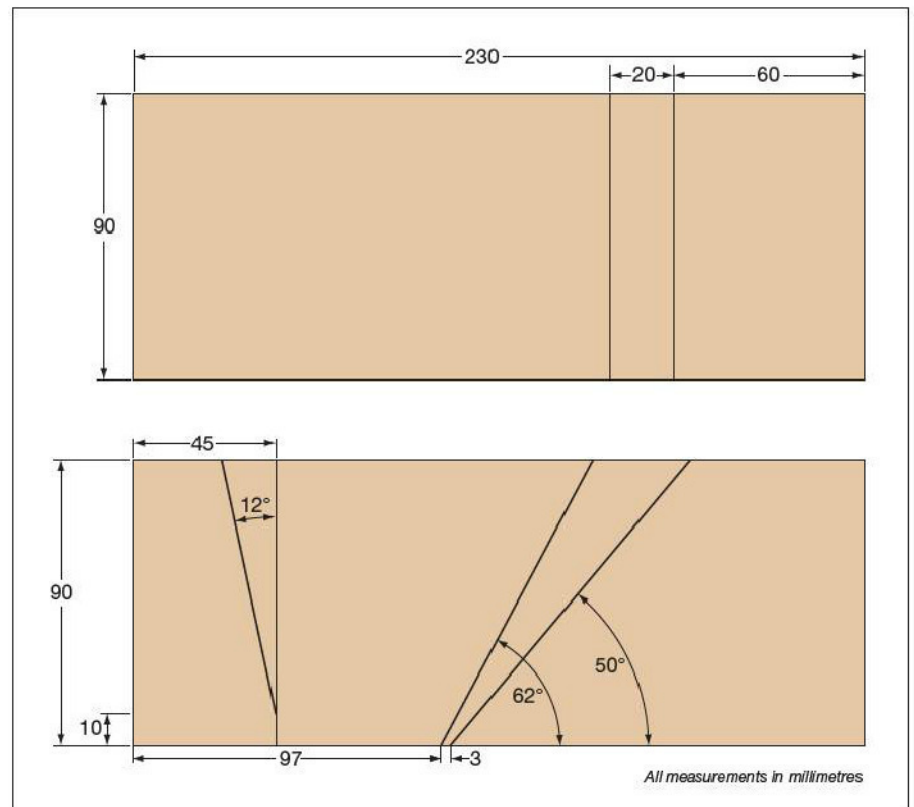
5 Glue the two mortised pieces together with their top edges flush, and clamp them up securely

The right side of the plane receives the mortises for the nicker iron and the main iron. The nicker mortise starts 45mm back from the toe. Mark a square line and then add a second, angled line at 12° , starting 10mm up from the sole and angling forward. The mortise for the main iron starts 100mm back from the toe of the plane and is pitched at 50° ; it's 9mm deep. The breast line is at 62° , and is spaced forward from the bed line by the thickness of the steel you will use for your iron (3mm in my case); see **fig 1** again.

Cutting the mortises

Remove the majority of the waste using the table saw, **photo 1**. Set the mitre gauge to the necessary angles and nibble away the waste. The depth stop mortise is square, so is easy to cut, but the nicker iron mortise is angled so only a small amount of material can be removed this way. The mortise for the main iron is skewed, so this requires the saw blade to be tilted 15° before this mortise is cut. Be careful when making the breast line cut – I accidentally removed a little of the bed.

With the mortise defined, use a small





6 Use the table saw to cut a 30 x 4mm rebate on the lower right-hand side of the plane body



7 Cut back the bed into the body of the plane to a height of 30mm with a tenon saw



10 Cut and shape the two irons from blanks of tool steel; note the ears on the nicker



11 Cut the wedges and the depth stop on the bandsaw, then plane them smooth



12 Devise a mechanism for locking the depth stop in place; I tapped a hole for an M6 bolt

hand-held router, **photo 2**, to remove the rest of the waste from each mortise to the correct depth – 5mm for the depth stop, 9mm for the iron and nicker. Use a chisel to clean up any areas that could not be cut with the table saw. The three completed mortises should appear crisp and well-defined, **photo 3**.

Gluing up the blocks

Remove 15mm from the lower edge of the left side of the plane on the table saw, **photo 4**. This shortened edge will form the fence of the plane. Then glue the two pieces together, ensuring the top edges are perfectly flush. Don't apply glue to the areas inside the mortises, as this will be difficult

to remove later. Clamp up using plenty of clamps and set aside to dry, **photo 5**.

Finishing the stock

Remove the plane from the clamps and clean up any glue squeeze-out. Then make two cuts on the table saw to rebate the lower right side of the plane. Set the blade at a height of 4mm and set the fence at 30mm and make a pass. Reset the blade to a height of 30mm and set the fence 4mm away from the blade. Make a second pass to complete the rebate, **photo 6**.

Using a tenon saw, cut back the bed into the plane to a height of 30mm, **photo 7**, following the angle of the bed on the lower section as a guide.

Using a 25mm drill bit, make a hole through the stock 100mm back from the toe and 40mm up from the bottom edge, **photo 8**. Use rasps and files to blend this hole into the bed, **photo 9**. I angled the hole slightly to the left side to encourage shavings to exit easily.

Making the wedges and depth stop

Because the main iron is skewed, the wedge has to be a trapezium shape, with both edges bevelled to 15°. Angle the table on the bandsaw to 15° and then cut it to a 12° wedge. Plane the wedge smooth and fit it to the mortise to check that it's a snug fit.

Cut a small wedge for the nicker iron. Once again this is cut at 12°, but this time



USING THE PLANE

You need to clamp a fence onto the workpiece for the plane to follow. Before you make the first pass, draw the plane backwards towards you across the work from the far edge. This slices the fibres of the timber, ensuring a clean cut free from tear-out.

The plane cuts with a different feel to most bench planes. It's designed to cut across the grain, not along it, and this makes a very different type of shaving. Set the depth stop to the desired level; when the plane has cut to the selected depth, the stop will prevent the plane from cutting any further.

Once the plane is set up, you'll be amazed at how simply and quickly you can cut clean, accurate dados. Bye-bye router!



8 Drill out the throat of the plane with a 25mm drill bit, ideally mounted in a drill press for accuracy



9 Use rasps and files to blend the drilled hole into the bed, angling the hole slightly



13 Round over the rear edge of the plane body, then mark up chamfers on all the edges



14 Use a spokeshave to form the chamfers; these are 4mm wide and 2mm deep

the edges are square. Make both wedges just under 9mm thick.

The depth stop is a rectangular block measuring 110 x 20 x 5mm. Plane this to a snug but free-sliding fit in its mortise.

Photo 11 shows the completed wedges and depth stop.

Securing the depth stop

The depth stop needs to be adjustable, but must also be locked firmly into place. I drilled and tapped the right side of the plane, **photo 12**, to allow an M6 bolt to hold the depth stop in position. I also turned a fancy brass bolt for my plane, although a simple bolt will work perfectly adequately.

Finishing the plane

Round over the rear edge of the plane to make it more comfortable to grip. Mark out chamfers along the upper edges of the plane. I made mine 4mm wide and 2mm deep, **photo 13**. Then shape them with a spokeshave, **photo 14**.

A couple of coats of boiled linseed oil will protect the plane and give it a handsome sheen. Finish it off with a coat of paste wax.

FURTHER INFO

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MAKING THE IRONS

The main iron is skewed so the sides of the iron are bevelled at 15°. Cut a blank 160mm long and 10mm wide and file the edges to 15°. Test fit the iron; it needs to be fractionally wider than the sole of the plane. When you're happy with the fit, file a 25° bevel at the cutting edge, **photo 10**.

The nicker iron is cut to shape from a 110 x 9mm blank of tool steel. File away the middle of the cutting edge to leave two 'ears' at the outer edges of the iron, **photo 10** again. These score the fibres of the timber before the main iron makes its cut, ensuring that a clean shaving free from tear-out is taken. Heat treat and temper both the irons (see *The Woodworker* April 2007 page 42 for more details).

NAME YOUR PLANE

Craftsmen traditionally labelled any wooden tool they made in one way or another – with a simple mark, an initial or other device. Metal letter punches are readily available (Screwfix have a set of letter and number punches for just £9.95). I used some of my own to mark my initials on the end of the plane body. A strip of masking tape helps to align the letters neatly.



Q&A

KEITH SMITH



The Woodsmith's here again to give you more no-nonsense answers to all your woodwork problems...

Q I've made some built-in bedroom furniture. The drawer fronts are melamine-faced chipboard and are designed to be screwed to the drawer boxes from inside. The problem I'm having is getting them to line up absolutely perfectly with one another. I want to have a very close fit between the drawers, so there is no room for error, but I'm having a real problem getting them aligned. Do you know the best method of doing this?
Chris Whitham, Portsmouth

A The drawers you describe are called false-front drawers. Traditionally, to align them two pins are partly driven into the front face of the drawer and cut off with wire cutters leaving about 3mm projecting. The drawer front can then be pushed onto the pins to mark the fitting position.

Unfortunately this won't work with melamine-faced chipboard, as the surface is too hard. I've seen double-sided tape recommended,

but there's no chance of fine adjustment once the tape has stuck. A better bet is to use a hot-melt glue gun. Put a couple of sizeable blobs on the back of the drawer front and position it straight away; you have a few seconds to adjust its position before the glue sets. Then add a couple of screws to reinforce the fixing.

If you're aiming for a very tight fit, load the drawers before fitting the fronts; they may settle slightly with some weight in them.



The Leigh RVA1 router vacuum attachment...



...is fitted into the fence mounting holes on the router base

Q I use an attached garage as my workshop, and I find that a lot of fine dust is getting into the house. Routing seems to be the biggest problem, as the extraction port on my router is poor when extracting over the base, and worse when routing edges. Do you know of a way to reduce the dust, or do you think an air filter would help?
Graham Berry, South Hams, Devon

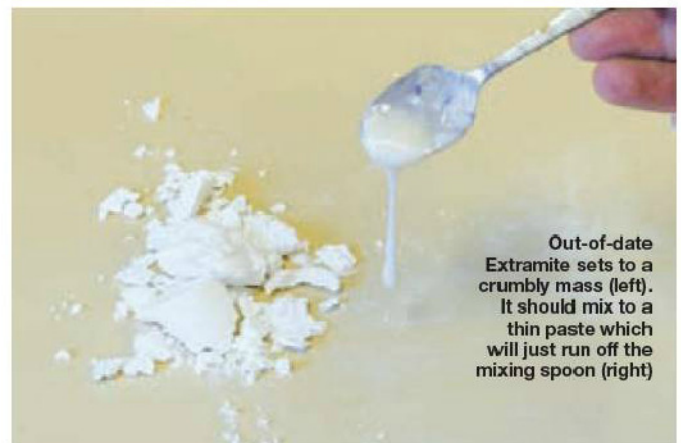
A An air filter would be a good idea, especially as the workshop is attached to the house, as it'll help to remove some of the fine dust in the air. However, if routing creates most of the dust, you'd be well advised to capture this at source. Whenever possible, I always try to use the router in a table, as the dust extraction can be very efficient if set up properly. Leigh make a router vacuum attachment (the RVA1) which is primarily designed to be used with the Leigh dovetailing jigs, but it will catch most of the dust when edge routing. It fits most routers and costs £35.73 from Axminster Power Tools (call 0800 371822 or visit www.axminster.co.uk)

Q Can you give me some tips on mixing Extramite wood glue? I'm following the instructions but it doesn't mix to a smooth paste. Is it going to affect the bond strength if I add more water?
M. Bridges, Hampshire

A You need to weigh or measure the proportions accurately to get a good mix, and it does take a fair bit of mixing, but if you follow the instructions you should ultimately get a thin creamy consistency, similar to PVA adhesive. If it won't mix to a paste, then the chances are that the adhesive has gone off; Extramite has a shelf life of about twelve months.

The problem is that you don't know how long it has sat on the shelf in the shop, so I'd always recommend buying it from somewhere with a good turnover of stock. Frustratingly, Extramite doesn't come with a 'use by' date on the container.

If in doubt, mix a small sample; it should set opaque and hard if left overnight. The first sign that it's going off is that it's difficult to mix; when it's really gone off, it sets to a white, crumbly mass (see photo), and at this point it has no gluing capability whatsoever.



Out-of-date Extramite sets to a crumbly mass (left). It should mix to a thin paste which will just run off the mixing spoon (right)

Q Back in the April 2005 edition of *The Woodworker*, you wrote: “A-2 steel has 5 per cent chrome added, which improves its toughness and wear resistance; the chromium in this proportion makes the steel slightly more resistant to corrosion than carbon steel, but it is certainly not stainless”. Now I’m confused, because I’m looking to buy some stainless fixings for a boat I’m working on, and I see they are made from A2 steel. Is A2 steel going to be corrosion-free on a boat?

C Ryder, Hampshire

A I’m sure sometimes these standards are designed to confuse. I was writing about A2 tool steel – the type used for plane blades for instance – which has about 5 per cent chromium added. What you are looking to buy is A2 stainless steel, AISI (American Iron and Steel Institute) grade 304. This is commonly known as 18/10 steel, as it contains 18 per cent chromium and 10 per cent nickel. It has an excellent resistance to corrosion under most circumstances, although the chlorides in seawater can still affect it.

There is a ‘marine’ grade stainless steel – A4 stainless, AISI grade 316, which has an additional 2.5 per cent molybdenum added. This makes the metal stronger and more resistant to corrosion by chlorides. However, it is a lot more expensive than A2 stainless – in fact, about twice the price, which probably accounts for its lack of general availability.

Q Can Bessey K-Body clamps be used as sash clamps? They appear to be relatively lightweight compared with a traditional sash clamp. I had some aluminium sash cramps, and the head would tilt back as it was tightened; do the K-Body clamps do that? And are they worth the money? Also, I see in the Axminster catalogue that they sell parallel jaw clamps. These look like the Bessey clamps but are cheaper; are they any good?

Dave, via email

A I bought a couple of 600mm K-Body clamps about five years ago. I thought they were expensive at the time, but many people who had them raved about them, so I thought I’d give them a try. I used them so much that within a few months I bought another pair. They are extremely easy and quick to use; there’s no fiddling with pins, and as the jaws don’t mark the workpiece there is no need to pad them. I’ve now replaced all my sash cramps with K-Body clamps; the longest I have are 2m, and even at that length the heads always stay parallel.

As for the Axminster Parallel Jaw Clamps; they are very similar to the Besseys – in fact, almost identical. The castings are not to quite the same standard, but the action is exactly the same. They are available in a relatively limited range of sizes, however.



Q Is it safe to use a chop saw blade in a SIP 10in table saw? I accidentally bought a Bosch 254 x 2.5 x 30mm 80-tooth blade with a 5° tooth angle. The riving knife on my saw is 2.2mm thick and the original saw blade was 2.6mm thick.

Paul Ferguson, via email

A The first thing to be concerned about is compatibility with the riving knife. As the blade thickness is 0.3mm greater than the riving knife, that should be fine (although you will need to adjust its position – a case of getting the manual out). The blade diameter is probably 4mm more than the blade you have currently fitted, so the riving knife will need to be moved away from the blade or it may bind. The precise positioning will be given in the manual, but as a guide you will need to set it so that it is slightly lower than the top of the blade and with a few millimetres of clearance between it and the blade.

The second concern is the rake angle. If the Bosch blade is designed for use with a sliding compound mitre saw, it will have a negative rake tooth angle. The trouble is that I’ve been able to find only two Bosch blades that fit your description.

Blade No 2608640437 is advertised as a wood blade, so I’m

assuming it has a positive rake blade and would be suitable for fine crosscutting of timber. The high number of teeth will give a good finish, but they don’t allow for good chip clearance. If you try to cut too thick a board you will get burning, so keep it down to a maximum of about 50mm.

The other blade I found, No 2608640450, is listed as an aluminium/multi-material blade, so this one must have negative rake. Kickback is always going to be potential problem, but with care it is possible to run this blade in a saw table, so long as it is used only for cutting sheet material. It will give a very good finish, and will even cut melamine-faced boards with very little surface chipping.

However, don’t leave this blade in the table; fit it only if you have sheet material to cut, then swap it immediately for a standard positive-rake blade.

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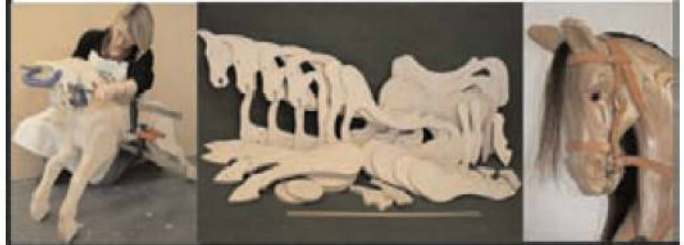
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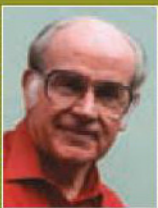
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Chris Child continues his series on home-made chucking devices with a set of off-centre chucks, designed for turning objects as diverse as coat pegs, chair backs, hoop earrings and a traditional egg timer

He also describes how to make a striking moneybox in spalted beech, with a design that comes straight from classical Greek and Italian architecture



Gordon Warr recommends making some thimbles if you fancy turning something that's practical, decorative, collectable and eminently saleable



TURNING

Lathe projects, tips and techniques

SHARPENING A ROUND-NOSED SCRAPER

Unlike all the other turning tools, you're not actually trying to form a sharp edge on a scraper. Instead you just need a very fine burr.

To sharpen a round-ended tool, start the grinding process at one end of the curve using your thumb as the pivot, photo 1. Maintaining the same degree of pressure, swing the tool right round on the toolrest through the square-on position, to finish on the other end of the curve, photo 2. This should produce a perfectly smooth, even bevel at the required angle, photo 3.

The burr formed on the tool in this way isn't immediately obvious to the eye, but you can usually feel it with your finger. Some turners suggest grinding the tools upside down so that the rotating wheel turns up a more efficient burr, but this is difficult to master. As the tool is used, the burr will quickly disappear, so it needs to be re-sharpened regularly. Trying to use the tool without this burr is what causes all the damage always attributed to scrapers.



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Off-centre chucks

CHRIS CHILD



Chris Child continues his series on home-made chucking devices with a set of off-centre chucks for tackling some unusual turning projects



The simplest form of off-centre turning is done on the tailstock end centre by re-mounting the work in another position for the second part of the operation, as in the case of the turned cabriole leg (below left). Cabrioles were usually carved by hand until about the middle of the eighteenth century when a turned version, sometimes known as a pad foot, began to appear. There was still some carving by hand needed to finish off the ankle area of the leg, but most of the shape was created much more quickly than before by off-centring the work on the lathe.

Turning a cabriole leg

To make one, first turn the work to a cylinder and then form a 20mm bead about 20mm from the end. Remount the leg on the lathe using a new centre at the tailstock end. Set the lathe speed to about 600 rpm and stand to one side before switching the machine on.

With the work rotating off-centre, form the inside curve of the foot with a small 1/4in bowl gouge. By removing all the waste material which is off-centred, you can turn the lower end of the leg section back to a cylinder, which will splay out to a toe in one direction.

This off-centre turning may be a little unnerving at first. Anchor the gouge firmly against the toolrest and lightly chip away the waste, watching the edge of the blur change shape as you begin to form the sweeping contour of the foot. Once you are happy with the foot, you can finish the rest of the taper of the leg with the broader-cutting roughing gouge.

Now let's have a look at some simple off-centre chucks, each designed with a particular job in mind. They illustrate just how versatile this process can be.

CHAIR BACK CHUCK

Many country chairs, especially those with solid seats, are made with the back upright supports jointed into the back of the seat; the legs are made separately and jointed underneath. Chairs with frame seats, on the other hand, usually have the back upright and leg made in one piece, with a splayed junction in the middle. The problem of forming turned details such as tapers, decorative mouldings or a dowel

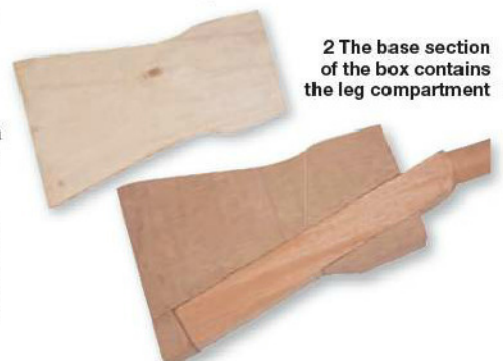
joint at the end of the upright is best overcome by making a box-like device which holds the splayed leg at an angle, **photo 1**, while the other half of the upright is centred on the lathe.

This off-centre chuck is made in two parts, **photo 2**. It has a base box section which has a compartment for the leg. The middle filler section is made to the same thickness as the leg and is screwed or glued permanently in place. Once the workpiece has been placed in its space, the plywood lid is then screwed down onto the base and holds the work securely so that it can be mounted between centres on the lathe, as shown in the drawing. The symmetrical shape, a bit like the body of an electric guitar, is made in this way so that it is balanced when the whole assembly rotates.

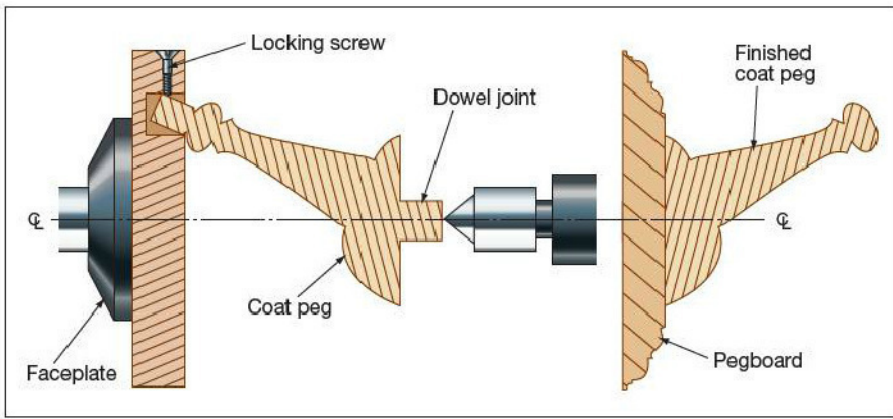
When the assembly is mounted on the lathe, **photo 3**, the box section needs to be guarded to prevent injuries caused by the sides of the rotating box coming into contact with the hands or other parts of the body. I made a simple guard from an offcut of hardboard which is G-cramped to the lathe bed, **photo 4**. It is a fairly lightweight arrangement but it not only protects my hands; it also shields me from the icy blast of air which is generated.



1 The box holds the splayed end of the chair back at an angle



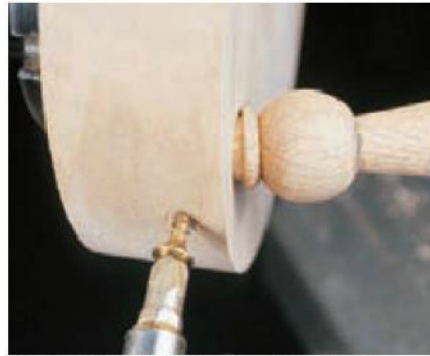
2 The base section of the box contains the leg compartment



1 The finished chuck, ready to mount on the lathe



2 Bore a hole in the disc at an angle to retain the end of the peg during turning



3 Drill a pilot hole in the rim of the chuck and drive in a screw to lock the peg in place



4 Mount the peg in the chuck, ready for its dowel to be turned

COAT PEG CHUCK

The purpose of this off-centre chuck is to hold a coat peg on the lathe at an angle while the base and dowel is being turned, and is ideal as an introductory exercise to the art of off-centre turning.

It's a very simple device, made from piece of board that's cut into a disc and then fitted onto a faceplate, **photo 1**. After trimming it round, drill a hole about 50mm from the centre of the disc to form a housing for the end of the peg, **photo 2**.

Then drill a pilot hole through the rim of the disc and drive in a screw, **photo 3**. This intersects with the hole retaining the end of the peg and stops it from twisting round when the dowel of the peg is being turned, as shown in the drawing.

I like to provide a recess in the back of my wooden chucks, so that I can re-centre them at a later date for other projects.

Photo 4 shows the coat-peg held in the off-centre chuck, ready for the dowel to be formed in the base section.

To prepare the coat peg for the chuck,

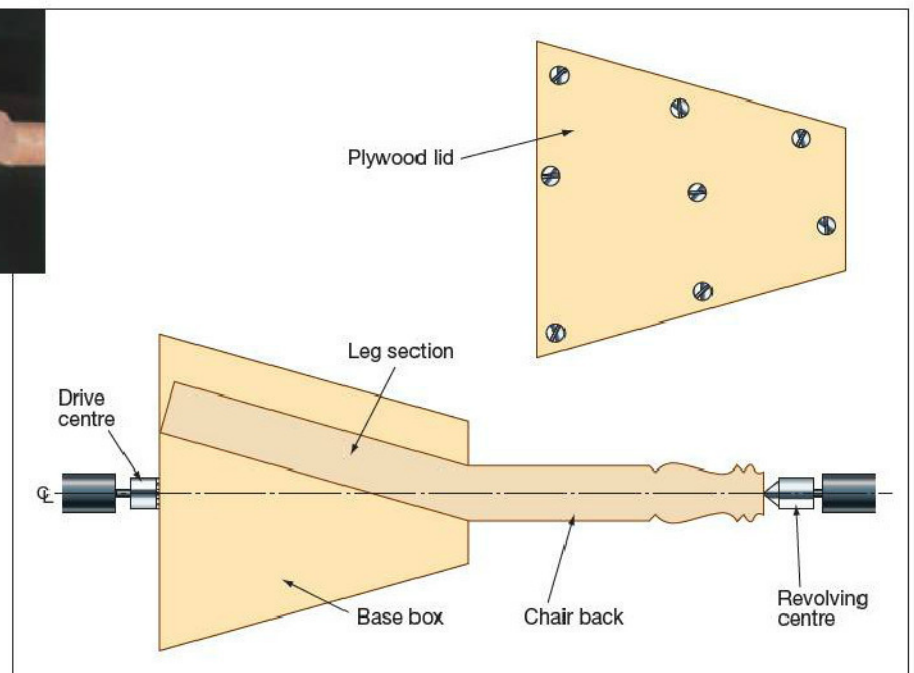
turn the main body of the peg to shape, but leave a short length of cylinder on the nose of the peg; this goes into the hole in the chuck and is gripped by the retaining screw. At the base end of the peg, form a large domed section out of which to make the dowel and bracket support. Cut the dowel by removing most of the waste with a small bowl gouge, followed by a beading and parting tool which cuts the square shoulder of the bracket. Fit the dowel of the finished peg into a matching hole drilled in your pegboard (see the drawing again).



3 The assembly is mounted on the lathe in the usual way, ready for turning the cylinder



4 A simple hardboard guard protects the hands from touching the rotating box while turning



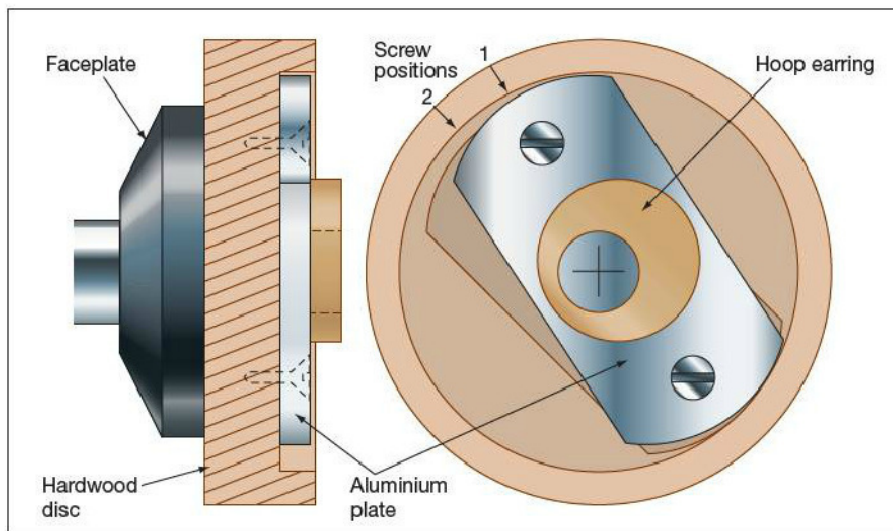
HOOP EARRINGS CHUCK

The body of this chuck is made from a round disc of hardwood which is held on a faceplate in a recess shaped at the back of the disc. It can just as conveniently be held on the expanded dovetail jaws of a chuck such as the masterchuck shown here. A shaped metal plate is screwed into a shallow recess in the face of the disc. This can be rotated by a few degrees and is then screwed to the disc in one of two marked positions, as shown in the drawing.

Use the hot glue method to mount the block of wood to be turned on the metal chuck plate. Heat the plate on the hot surface of an old iron, which should be held safely upside down in a home-made frame. When it is hot enough, apply the glue stick and place the block onto the centre of the plate. Remove the plate from the heat with a pair of pliers and set it aside to cool down on a metal surface.

When the plate has completely cooled and the glue has set, fix the plate to the chuck body in the first marked position by means of the two screws.

Drill the hole in the earring blank and round over the edge with a skew chisel, **photo 9**. Sand it smooth before undoing one of the screws and moving the work round to the second marked position, **photo 10**. Turn the block to a cylinder and round off the outer edge to form the rim of the earring, **photo 11**. **Photo 12** shows two completed earrings, alongside the chuck with an earring block glued to it and partly worked.



1 Round over the edge of the hole in the blank with a skew chisel



2 Undo one of the screws and rotate the plate to the second mark



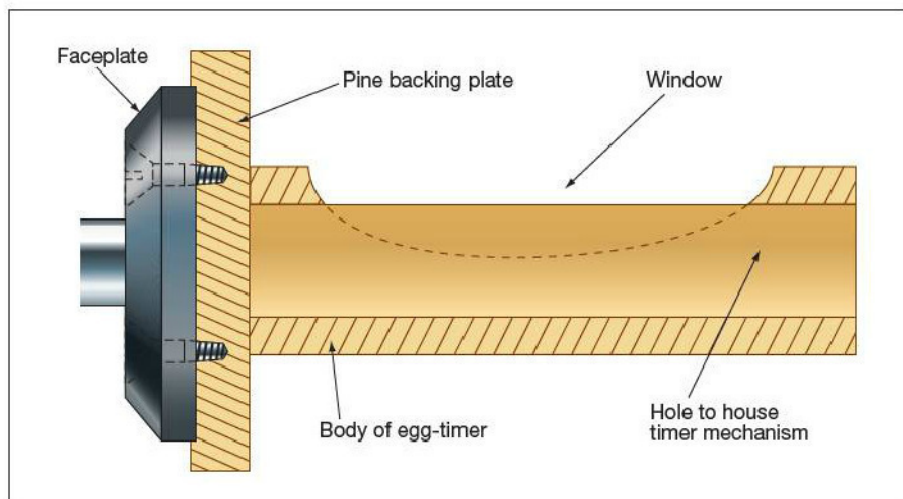
3 Turn the block to a cylinder and round off the outer edge



4 Two completed earrings, alongside a partly-worked example

EGG-TIMER CHUCK

With this chuck, the block is epoxy-glued directly to a backing disc of pine which is then screwed to a faceplate, as shown in the drawing. The box and lid of the egg timer is turned and hollowed out for the egg timer mechanism in the usual way. After sanding and polishing, the assembly is rotated on the faceplate and screwed down again in the off-centre position, **photo 1**. The middle section is turned away, **photo 2**, to create a side window in the body of the egg-timer through which the timer mechanism can be viewed, **photo 3**.



1 After turning and drilling the egg-timer body, secure it in the off-centre position



2 Turn the middle section away to create a side window in the body



3 Test-fit the mechanism, then part off the finished egg-timer

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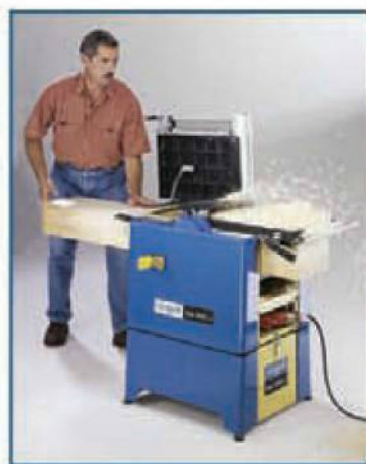
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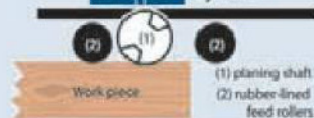
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Rotunda moneybox

CHRIS CHILD



The original inspiration for Chris Child's striking money box in spalted beech comes straight from classical Greek and Italian architecture



With its domed, projecting cornice, row of six relief columns and base pedestal, this moneybox is nothing less than a classical rotunda in miniature. The classical style was revived in the 18th century and became the basis on which most furniture of the time was designed.

A box like this would probably have been made out of the newly imported Cuban or Honduras mahogany, but today strong ecological considerations put these woods out of bounds. For a first-rate alternative,

you need look no further than a piece of slightly spalted seasoned beech which, with its varied colour and crisp grain texture, is an ideal choice of wood.

Shaping the body

The block needed for this box measured 130 x 100 x 100mm. Start by turning it to a cylinder with a roughing-down gouge, and then prepare one end for a compression chuck by cutting a dovetail, using a beading and parting tool held on its side, **photo 1**.

With the block mounted firmly in the jaws of your chuck, true the end off flat with a 1/4in bowl gouge.

At this stage you should decide on the height of your box and perform a shallow parting cut to define the bottom edge. Use the 3/8in beading and parting tool to form an 8mm deep step, 20mm up from the bottom edge of the box, so that a base plinth is formed. With the roughing down gouge, remove the waste area above the plinth and flatten off the sides with the beading and



1 Use a beading and parting tool to form the dovetail spigot at one end of the workpiece



2 Flatten off the sides with the beading and parting tool



3 Use a round-nosed scraper first to remove most of the waste



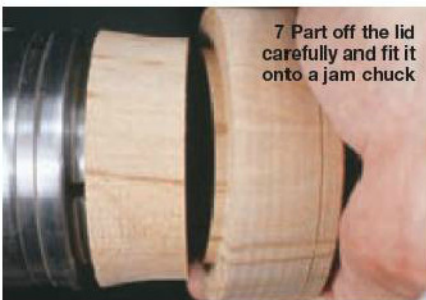
4 Clean up the inside corners with the square scraper. Feed it in using a reaming action



5 Use a small square scraper to cut the hole in the base for the rubber bung, and test its fit



6 Hollow out the inside dome of the lid using a ring tool or a round-nosed scraper



7 Part off the lid carefully and fit it onto a jam chuck

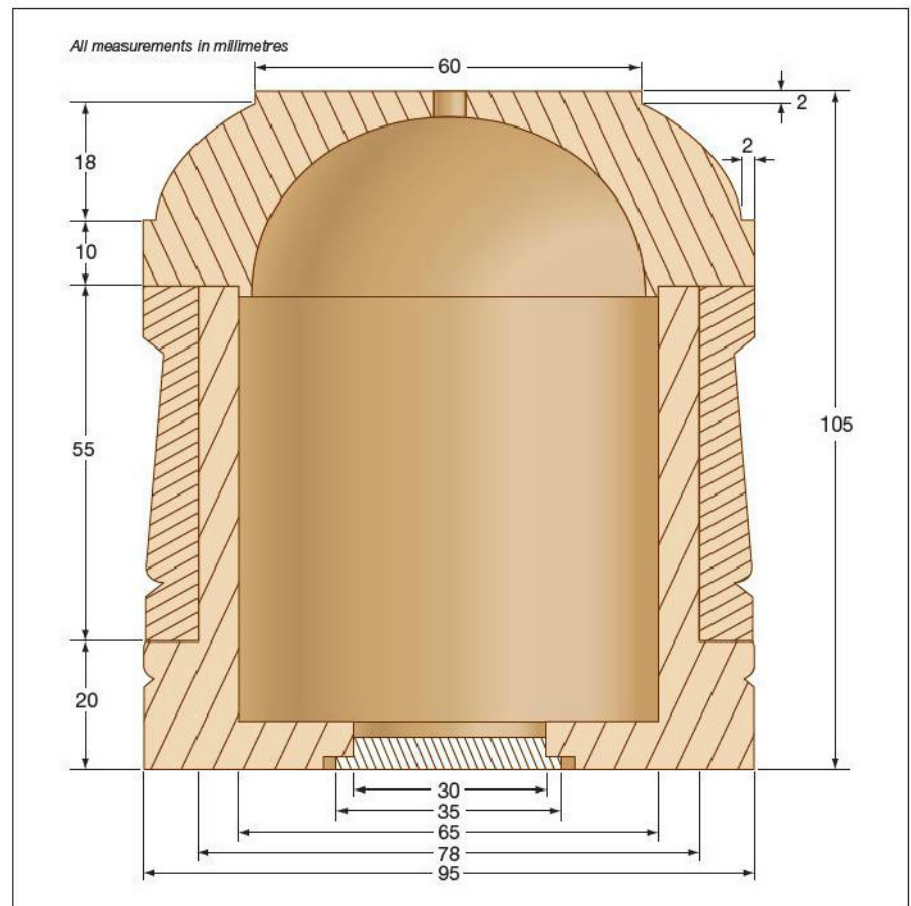
parting tool, using a lateral cut, **photo 2**. Form the square step or rebate at the top edge of the box which locates the lid. Finish the plinth by making a shallow bead moulding on the top edge.

Hollowing out

Hollow out the box, first using a round-nosed scraper to remove the majority of the waste, **photo 3**, followed by a square-ended scraper to clean out the corners and finish it off. Only the corner of the square scraper is used to cut the inside of the box; it's fed in using a reaming action to widen the cavity until the desired width is achieved, **photo 4**.

To finish off the bottom of the box, part off the work, turn it round, and jam-fit it onto a mandrel sized so that it provides a tight grip inside the mouth of the box. If you happen to make the interference fit too loose, you can pack it out with a layer of paper masking tape.

After slicing the bottom smooth with a small $\frac{1}{4}$ in bowl gouge, cut the hole and rebate for the rubber bung using a small square scraper. Test that the bung fits into the hole snugly, **photo 5**, before sanding the box all over ready for assembly. If you



have an indexing facility on your lathe, you can mark out the positions of the columns at this stage too.

Turning the lid

Remove the body of the box and slice the face of the remaining section for the lid

smooth. Use a round-nosed scraper or a ring tool to hollow out the inside dome of the lid. Using the ring tool will produce a finer finish, but it does need more skill to control.

Start the cut in the centre and slowly swing the tool round in an arc, using a point on the toolrest as the axis, **photo 6**. Use



8 Form the convex shape of the lid by taking fine slice cuts

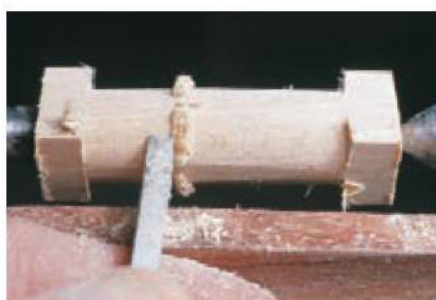
the corner of the square scraper to form a square rebate on the inside edge of the lid, to locate the lid onto the body of the box. When you have tested that the lid fits onto the base, mark out the depth of the inside dome on the outside of the lid, add about 5mm for the lid thickness and part off the section carefully.

Fit the lid onto a jam chuck, **photo 7**. With the lid secured, leave a projecting frieze which masks the tops of the columns, and round off the corner of the lid, **photo 8**. Smooth the top of the lid by taking fine slice cuts with the $\frac{1}{4}$ in bowl gouge. Sand the lid smooth and prepare it for its coin slot by drilling little holes so you can the piercing saw through. The final cutting of the slot is best done with the lid straddling the open jaws of the bench vice, **photo 9**.

Making the columns

The six columns are made out pieces of beech 15mm square and 57mm long. Carefully centre one blank on the lathe and trim each end of the work, using a very sharp parting tool, so that the column is the correct length. Then cut through the corners only, and form two square sections at each end of the column. Remove the waste in between, **photo 10**.

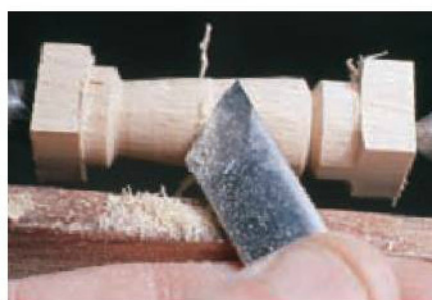
Mark two lines on this cylinder, one near the top of the shaft and another near the base. Use the point of a skew chisel to form V cuts on each of these lines, **photo 11**, then form the column taper with the tool lying flat on the work, **photo 12**. When it comes to copying the columns, I use a pair of odd leg callipers to transfer the dimensions, **photo 13**.



10 Remove the waste between the column's end blocks to leave a smooth cylinder



11 Use the point of a skew chisel to form the V cuts near each end



12 Shape the taper on the column with a skew chisel lying flat on the work



13 Use odd-leg callipers to transfer the column dimensions to the next one to be turned



14 Split each column in half on the bandsaw, guiding it with a simple jig



15 Use the base as a sanding drum to curve the inner face of each column



9 Cut the coin slot in the lid with a piercing saw

I used the bandsaw, fitted with a fence and baseboard, to cut the columns in half, **photo 14**. Make a small jig from a scrap of hardboard to guide the work and keep your fingers away from the saw blade.

After splitting the columns, you need to sand the inside face of each one so it will fit flush against the curved sides of the box. To do this, I attached some cloth-backed abrasive around the box with double-sided tape to form a sanding drum, and used this to create the correct concave curve on each column, **photo 15**.

Finishing the box

Glue the lid and the columns to the base of the box before applying any finish to the work. After they have set, select a piece of soft flannelette cloth which has plenty of pile to absorb polish, fold it into a pointed triangle and use it to wipe a coat of shellac polish all over the work. Apply a couple of coats, and don't worry if it gets a bit sticky at this stage. Leave it to thoroughly dry in a warm room overnight, and then either wipe on some more coats of shellac or rub on a coat or two of wax.

DOWEL TIME

Ian Taylor looks at dowelling and tries out the Miller Dowel system



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REGENCY-STYLE SOFA TABLE

Peter Dunsmore presents a stunning copy of a classic period piece in mahogany with rosewood inlay



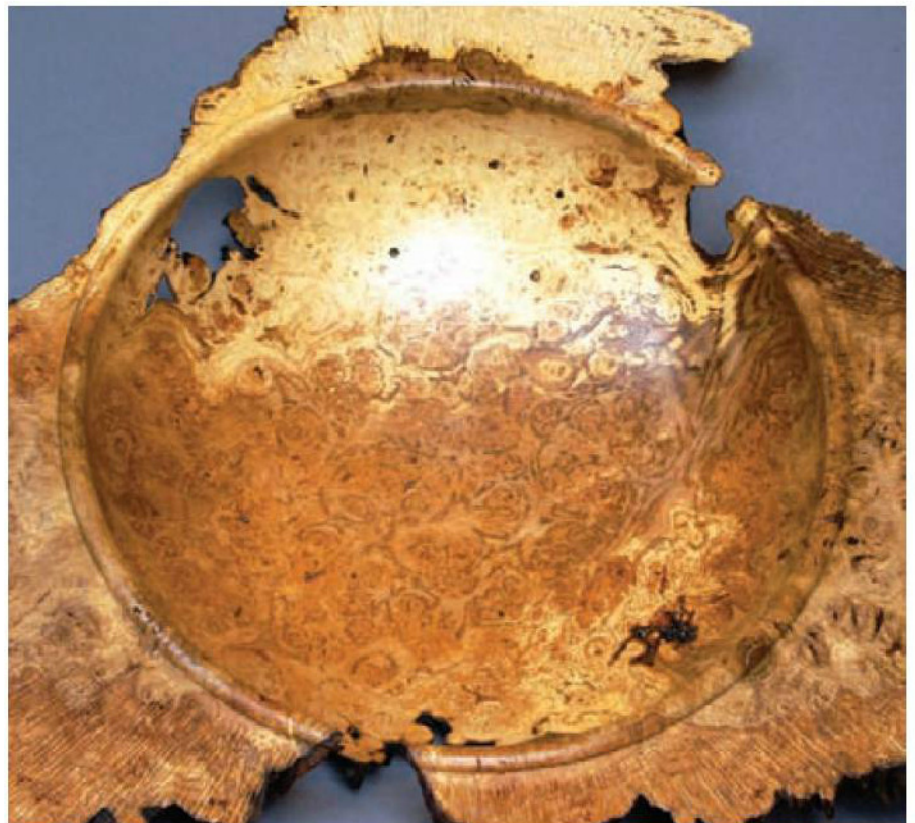
ON TEST

Andy Standing gives four small jointers the workshop once-over



INCISED LETTERING

Ben Russell explains how to carve the perfect inscription



BURR OAK BOWL

Bob Chapman turns a triangular lump of oak into a work of art

Details are correct at time of going to press but are subject to change without notice

FREE

FAITHFUL TOOLBELT WORTH £25!

As featured in "6 of the best toolbelts" in our July 2007 issue, this Faithfull belt has a wide padded inner with a leather and webbing outer belt. The pouches are attached to the inner belt with Velcro and looped onto the outer belt. There's good storage with a metal hammer loop and a cordless drill holster, and the main pouch has three separate compartments with various internal divisions and a metal tape holder.

The
Woodworker



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Thimble pleasures

GORDON WARR



Fancy turning something that's practical, decorative, collectable and eminently saleable? Gordon Warr recommends making some thimbles

I grew up in a home where the rattle of a sewing machine often filled the air, and where a needle, a thread and a thimble were often left lying around. My mother had trained as a seamstress, and what had once been her livelihood had become a lifelong passion. As far as I can recall, the only type of thimble she used was made of metal; I don't recall any wooden ones.

I made my first wooden thimble over 30 years ago, and I reckon it probably took me at least an hour. Repetition and refinement of the technique has brought this down to just a few minutes, especially when I'm turning a batch of them.

Since then I've made dozens more, and have found them to be particularly popular



1 Start by cutting the 25mm square blanks into regular 50mm lengths



2 Drill a pilot hole in one end of each blank for the chuck screw



3 Hollow out the inside of the blank with a modified flat wood bit

MODIFIED MYFORD

My improved output is partly due to modifications I've made to my old Myford ML8 lathe – one of a number which squeeze into my workshop, and the one I still use the most. I bought it in 1950, and it cost me a massive £28 plus the cost of the motor. It's been worth every penny!

For the first modification, I fitted a foot-operated clutch which raises the motor, slackens the belt and so removes the force from the drive. Secondly, I adapted the tailstock so the barrel is advanced by a lever rather than by the handwheel. This device can be swung clear in seconds, and the tailstock returned to normal.

Both these improvements were made during my early turning years, when I was producing a range of items in small batches, many of which needed holes boring in them. The lever-operated tailstock made this a very quick operation to carry out.



The foot-operated clutch



The lever-operated tailstock



4 Rough down the outer end to a cylinder about 22mm in diameter



5 Step off the length you want on the blank with wing compasses



6 Cut in at the mark with the parting tool to a diameter of 10-12mm



7 Start forming the taper on the cylinder, initially using a gouge



8 Continue to refine the shape with careful use of the skew chisel



9 Use the tip of the skew chisel to form a set of decorative rings

with collectors. From the turner's point of view, they use very little wood and are an excellent way of using up all those workshop oddments.

Thimble basics

Almost any hardwood will do for making thimbles, but the denser it is the better.

The blank needs to be cut to around 50 x 25 x 25mm, with the ends square, **photo 1**. I use a small screw chuck to mount the blank, so the next job is to drill a pilot hole for this in one end of the blank, **photo 2**. I've found that an adjustable spanner is a ideal for gripping the blank and screwing it tightly onto the chuck.



10 Sand the inside of the thimble with a twist of abrasive paper



11 Use the skew chisel to form the domed surface on the end of the thimble



12 Hold the thimble lightly with your other hand as you part it off



13 Fit the thimble onto a friction chuck and form shallow rings on the end



A home-made friction chuck holds the thimble securely for finishing



14 After soaking the thimble in oil, dry it and burnish it up on the lathe

After some experimenting with hollowing out the inside of the blank, I now use a modified flat wood bit for the entire operation, with the bit mounted in a chuck that locates in the tailstock. With my lever-operated tailstock, boring out the inside takes next to no time, **photo 3**.

Shaping the exterior

With the inside bored out, the next step is to rough down the right-hand end of the blank to a diameter of around 22mm, **photo 4**. It's best to leave the opposite end square, as this makes it easier to remove the waste later on.

Now you can step off the length, and while you can do this with a rule and pencil, I prefer to use wing compasses which allow for easy repetition, **photo 5**.

Use a parting tool to partly cut through

the blank at the point where the wing compasses scribed the line. This groove needs to leave 10-12mm of wood uncut so that it remains rigid, **photo 6**.

You can form the taper at this stage, doing a little work with the gouge, **photo 7**, followed by the skew chisel, **photo 8**. You can also use the tip of the skew to incise the decorative rings, **photo 9**.

Parting off

The thimble needs very little sanding, although you can round off the inside slightly to aid its fit on the finger, **photo 10**. This is one stage where my foot-operated clutch is useful, since progress can be readily checked by switching off the motor.

Use the skew chisel to form the domed surface on the end of the thimble, **photo 11**, before finally parting it off. Hold

the thimble lightly in your left hand to stop it becoming airborne as you do this, **photo 12**.

A simple chuck

The final turning stage involves cutting shallow rings on the tip of the thimble with the point of the skew chisel, **photo 13**.

The easiest way of mounting the thimble is to make a simple tapered softwood chuck with its profile turned to match the interior shape of the thimble. Make a simple cove cut at the base of the taper, then add two saw cuts at right angles from the tip of the taper down to the cove cut. This forms a springy chuck which will grip the inside of the thimble securely by friction once you've pushed it on, allowing you to carry out the final decoration and finishing, **photo 14**.

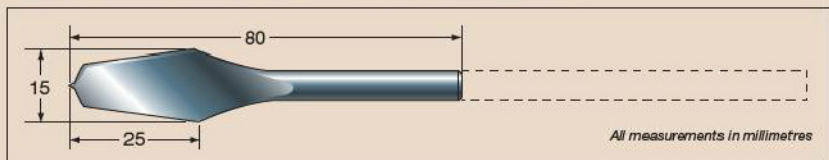
Thimble finishes

A wide range of finishes is available to the thimble turner, but for these I've used Danish oil. I soak the thimbles in the oil for about four hours, to ensure almost total penetration of the wood. Next, I move them to another empty plastic container with a hole in the bottom to allow excess oil to drain away. Then I spread them out on newspaper overnight to allow partial drying, before returning each one to the friction chuck for final burnishing, **photo 14**. It's a technique seldom referred to, but one that's ideally suited to small items like these.



MODIFYING FLAT BITS

Flat wood bits are made from relatively soft metal, so shaping them is quite straightforward. I used an 18mm bit, and ground and filed it to the shape shown in the drawing. Reduce the large point of the bit to give just a tiny tip. It's essential to remove an equal amount of metal from each edge so that the bit is balanced in use. It also helps to reduce chattering if you shorten the shank to about half its length. I have a similar bit which I use to make a tapered candle recess when I'm turning candlesticks.





This month's Giant Yest features nine whetstone grinders from seven different manufacturers, costing from £60 to £279



Taylor's Testbench looks at an automatic grinding aid, a Draper jigsaw, a Skil sander, a drill-driver from Ryobi, sets of flat wood bits, a blade polishing kit and some neat storage pots for widgets

ALSO TESTED

- Hammer N4400 bandsaw
- Blades for the Festool TS55 saw
- Axminster WV100 dust extractor
- SIP Professional dust extractor
- Woodstar BS50 router table
- Bosch GKF600 palm router
- Mule Accusquare
- SIP 01494 12in bandsaw

OUR RATINGS

- 5 Faultless performance, excellent value for money
- 4 Very good performance, good value for money
- 3 Average performance, reasonable value for money
- 2 Less than satisfactory performance, poor value for money
- 1 A stinker: avoid at all costs!

The Woodworker
BEST ON TEST

The tool in the group with the best overall performance

The Woodworker
RECOMMENDED

Other tools on test that performed well

The Woodworker
BEST VALUE

A great product for the price

ONTEST

Tools & accessories tested by our experts

PRICE £99.99

HITACHI'S JUNGLE SPECIAL

If ever a power tool was camouflaged for outdoor use, this would be it! The CJ110MV is a new variable-speed jigsaw from Hitachi, and comes complete with a striking futuristic colour scheme that leaves it looking like a green and black wasp or an exotic chameleon!

It's a solid piece of kit, weighing in at 2.2kg, with a 720W motor and maximum cutting depths of 110mm in wood and 10mm in mild steel. The baseplate is solid nickel-plated aluminium, and an LED light shines on the cut line when the trigger is pressed.

It comes with a four-position pendulum action – 0 for the finest cut and III for the fastest and the most aggressive.

Blade changing is tool-free – you simply pull the large black plastic lever at the front, take out the old blade and slip in a new one. Release the lever again and the blade is solidly clamped in place. The saw takes only the 'T' type of blades.

It has an effective removable extraction nozzle; when coupled up to a vacuum, most of the dust and chips are swiftly sucked away. I had to use parcel tape and an off-cut of plastic waste pipe to make a connection to my shop vacuum, but given time I'm sure I could have found a more elegant coupling. Never mind: it worked fine.

In use, the saw worked very well, cutting 50mm thick oak without complaint and leaving a smooth finish at the zero pendulum setting. This saw offers good value for money, with a solid and workmanlike performance. It would be an excellent choice for anyone needing a robust, no-nonsense jigsaw.

Contact www.hitachi-powertools.co.uk for product details and service information. The saw is available from all good tool dealers.



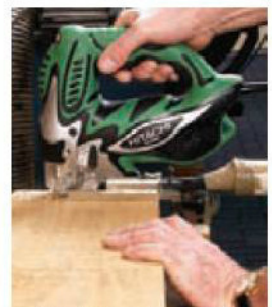
Tested by Ian Taylor



The pendulum action has four positional settings



Blade changing is tool-free, controlled by a single lever



Cutting 50mm thick oak presented no problem

GIANT TEST



Chisel blade with single bevel



Chisel with secondary bevel



Razor-sharp blade after polishing

GRINDING ANGLES

Edge tools such as chisels are usually supplied with a fairly coarsely ground edge that needs further sharpening before use. The normal grinding angle is 25°, and this is then sharpened with a secondary bevel of around 30°. The sharpening angle can be varied, depending on what the tool is to be used for. An angle of 30° is ideal for hardwood; it produces a strong and durable edge for heavy work, and is safe for use with a mallet. More acute angles such as 25° or even 20° can be used for softwood and will produce good results. However, the edge will be far more delicate and liable to damage, so the tool must be used with care.



Whetstone grinders

Prices quoted are target prices, but it's worth shopping around for the best deal as special offers are often available

ANDY STANDING



Need to keep your edge tools razor sharp? Andy Standing's look at nine whetstone grinders will help you pick the ideal machine for your workshop, whatever your budget

Safe, accurate woodworking depends on using tools that are sharp and well-maintained. A sharp chisel is easy and predictable in use, and needs only a minimal amount of pressure to achieve the desired result. However, a blunt chisel won't cut cleanly and is liable to stick, forcing you into putting too

Continued on page 72



The adjustable toolrest



The rubber honing wheel



The long cast-iron toolrest



The planer knife sharpening jig



RECORD SCAN 200S

Record produces a range of three whetstone grinders, and this is the largest. It arrives fully assembled; all you need to do is fill it with water and plug it in. A cardboard template is supplied to set the toolrest to the correct grinding angle; this works well, though it might become a little soggy after a while. The alloy toolrest is sturdy, easy to adjust and locks firmly in place. It can be used in a variety of positions, including one where the tool is effectively sandwiched between it and the grinding wheel. The motor is reversible so you can grind the bevel, then reverse the machine to remove the burr. The plastic and alloy casing makes it impervious to moisture, and easy to keep clean.

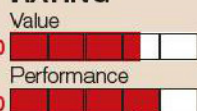
The small-diameter rubber honing wheel is driven off the main grinding wheel. Using this certainly improves the finish on the edge, though is not quite as good as the leather wheel used by Tormek and Scheppach.

Overall this is a well-designed and carefully-assembled machine that's

pleasant to use. The motor is extremely quiet, and the toolrest is easy to adjust and lock securely in place. The only minor irritation is the small fiddly switch, rather poorly positioned low down on the machine.

PRICE: £119.99

RATING



PROS

- Minimal set-up, reversible motor quiet operation

CONS

- Fiddly poorly-positioned switch

SPEC SHEET

Motor	85W
Wet grindstone	200 x 45mm
Honing wheel	Yes
Casing	Plastic

FURTHER INFO

Record Power
 ☎ 0114 244 9066
 🌐 www.recordpower.co.uk



REXON WG-180A

The Woodworker
BEST VALUE

The REXON is a horizontal grinder, so the side of the grindstone is used for sharpening, rather than the edge. This method produces a perfectly flat bevel, rather than the concave bevel produced on a vertical grinder. However, it's important to keep the tool moving across the stone to avoid creating any ridges. Also, because the abrasive surface is moving faster at the edge of the wheel than it is at the centre, uneven sharpening can occur if the tool is kept in one position.

The machine comes with a long cast-iron toolrest onto which a sliding straightedge guide fits. This is long enough to take planer knives, and adjusting bolts are fitted on the back to set the blade protrusion and ensure that the blades are ground equally. There is a cut-out in the centre of the guide where chisels and plane irons can be sharpened. It's possible to use the toolrest alone if desired. The stone is cooled by a reservoir that lets a stream of water run onto the stone. This drains into a separate tank below.

The REXON runs very quietly and produces good results surprisingly fast as it has a fairly coarse stone. There is no honing wheel.

Overall it is a pleasant machine to use, and is also very good value for money.

PRICE: £89.99

RATING



PROS

- Runs very quietly, sharpens tools quickly

CONS

- No honing wheel

SPEC SHEET

Motor	125W
Wet grindstone	180mm
Honing wheel	No
Casing	Plastic

FURTHER INFO

Rexon
 ☎ 01709 361158
 🌐 www.raxon.co.uk



The Scheppach Tiger 2000



Setting up for sharpening



The wet grinding wheel in action



The high-speed wheel and toolrest



SCHEPPACH TIGER 2000/2500

The two Tigers bear more than a passing resemblance to the Tormek machines (overleaf).

The Scheppachs use a blue grindstone, which feels very similar to the Tormek, though it appears to cut slightly faster. You can use a stone grader on it to alter the cutting characteristics of the stone.

A tube of honing paste is supplied for use with the leather honing wheel. Several sharpening jigs are available as accessories, and many of the Tormek jigs will also fit, apart from the planer knife jig. The machines are supplied with an angle setting gauge and a straight-edge guide.

The one thing missing is a carrying handle. This encourages you to pick up the machine by the support arm, which could slip out of its mounting holes and let the machine fall to the ground.

Overall these are competent machines. The jigs are not as well-made as the Tormeks, and the machines lack the fine adjustment on the support arm. However, they are robustly made and produce perfectly acceptable results.

PRICE:
2000 £117
2500 £279

RATINGS



PROS

- Good range of sharpening jigs

CONS

- No carry handles

SPEC SHEET 2000

Motor	120W
Wet grindstone	200 x 40mm
Honing wheel	200 x 30mm
Casing	Steel

SPEC SHEET 2500

Motor	200W
Wet grindstone	250 x 50mm
Honing wheel	200 x 30mm
Casing	Steel

FURTHER INFO

NMA Agencies

01484 400488
www.nmauk.com

SIP 7796

The SIP is the cheapest machine here and is a fairly basic tool. It's a modified double-ended grinder with the high-speed wheel on the right-hand end and the large vertical slow-speed wheel on the left.

The high-speed grinder is fitted with an adjustable tool rest, a spark arrester and a Perspex guard. The wheel is narrow, but it runs smoothly and the toolrest is secure.

The wet grinding wheel has no adjustable toolrest, though the edge of the water bath is raised to provide support, and there are a series of steps which can be helpful particularly when grinding knives.

The SIP must be bolted down to a bench or a baseboard before use. The large wet grinding wheel means that there is a lot of weight on one end and the machine is prone to tipping over unless properly fixed.

In use the SIP is quiet and smooth running. The high-speed stone is well balanced and cuts easily. The wet grindstone seems fairly hard and a little coarse, but cuts

evenly and leaves a clean finish on the tools.

Overall this is an attractive and straightforward machine, ideal for those who want simple sharpening and grinding facilities without the need for complicated jigs.

PRICE: £59.95

RATING



PROS

- Competent and as cheap as chips!

CONS

- Must be bolted to a bench or baseboard

SPEC SHEET

Motor	375W
Wet grindstone	200mm
Dry stone	150 x 20mm
Casing	Metal

FURTHER INFO

SIP

01509 500359
www.sip-group.com



The 1206 (above) and 2006 (below)



Sharpening planer knives

The Woodworker
BEST ON TEST



TORMEK SUPERGRIND

Tormek is perhaps one of the best known names in the grinder market. Not only does the company produce high-quality machines, but also a range of jigs and accessories to cover all your sharpening needs.

This grinder comes in two versions; the 1206 with a 200 x 40mm grindstone and a 120W motor for the small workshop, and the 2006 with a 250 x 50mm grindstone

and a 200W motor for the professional user.

The system is simple. The grinding wheel has the adjustable universal support arm mounted above it. The various sharpening jigs slide onto the arm, and the grinding angle is set by raising or lowering the whole assembly. This has recently been upgraded and now has a threaded leg with a knurled adjusting nut, making it simple

to make fine adjustments to the angle. A special setting gauge is included, offering a wide choice of grinding angles. Once the tool has been ground on the wheel, it is removed from the jig and the edge can be honed to a mirror finish, if desired, on the leather honing wheel which is mounted on the other end of the machine.

This is a versatile system complemented by the range of additional jigs. All manner of tools may be sharpened, from specialist gouges to axes. I tested the planer knife jig, which was easy to set up and produced good results, though it is a little pricey. One particularly useful jig is the Diamond Truing Tool, which is used to remove any damage or wear on the grinding wheel and to restore it to perfect condition for accurate sharpening.

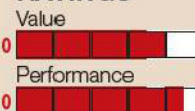
In use both machines are impressive. The motors run quietly and the whole machine feels very smooth. A straightedge guide is included which is used for chisels and plane irons, and provides perfect accuracy. The Stone Grader, which is supplied as an accessory, is worth a mention as it allows you to change the cutting characteristic of the stone from a fine grade to a coarse grade in a matter of seconds, effectively giving you two stones for the price of one.

Overall this is an excellent system for the discerning

woodworker. It is supplied with all the necessary equipment to get you started, plus an extensive handbook covering all aspects of sharpening. An information DVD is also available showing the grinders and all the jigs in use.

PRICE:
1206 £169.95
2006 £276.95

RATINGS



PROS

- Good fine adjustment, wide range of jigs, how-to DVD available

CONS

- The price, but they're worth it!

SPEC SHEET 1206

Motor	120W
Wet grindstone	200 x 40mm
Honing wheel	145 x 26mm
Casing	ABS Plastic

SPEC SHEET 2006

Motor	200W
Wet grindstone	250 x 50mm
Honing wheel	220 x 31mm
Casing	Steel

FURTHER INFO

Brimarc

0845 330 9100
www.brimarc.com

much pressure behind it. Consequently there is far more chance of the tool suddenly slipping, risking injury both to the user and the workpiece. We are always being warned to take care with sharp tools, but paradoxically it is the blunt ones that are the real danger.

There are many ways of keeping your tools sharp, some demanding more skill than others. But whatever method you choose to use, it's important to make sure that you are sharpening your tools correctly. Traditionally, the initial grinding is done on a high-speed grinder and the final sharpening is completed

using an oilstone.

This test is concentrating on whetstone grinders. They have slow-running grinding wheels that are cooled with water. This means that they don't suffer from the sparking and overheating problems often caused by high-speed grinders. They tend to cut fairly slowly, but they can produce a very fine edge. You can use one for both the initial grinding and the final sharpening. In fact, many people prefer to grind a single bevel at the final sharpening angle. This can then be polished and honed to razor sharpness.

WW VERDICT

How you sharpen your tools is very much a matter of personal taste. However, a good grinder can be a considerable help in achieving consistent results.

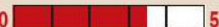
For the professional user, the **Tormek** system is still the best with powerful, well-designed machines and jigs justifying the high prices. The imitators are however closing fast, with the **Scheppach** producing an impressive pair of machines and **Jet** offering an attractive grinder with some innovative features at a very competitive price.

For those on a tighter budget the **Rexon** is a simple and efficient machine offering excellent value for money. The **Record** is a more compact machine ideal for those with limited space. The **Draper** has a good wide high-speed grinding wheel and a large wet stone which is easy to use freehand.

Finally if you just want a simple grinder coupled with a basic wet sharpener, consider the **SIP**. It is a rugged tool at an excellent price.

PRICE: £883.51

RATING

Value 0  5

Performance 0  5

PROS

- Easy to set up, quiet and smooth-running motor

CONS

- Mitre fence not supplied as standard

SPEC SHEET

Power	2.5hp
Max cutting height	300mm
Max cutting width	420mm
Table size	420 x 575mm

FURTHER INFO

Hammer UK

01908 635000

www.ukhammer.co.uk

ON TEST

HAMMER N4400 bandsaw

ANDY STANDING



Thinking of getting a bandsaw? Andy Standing gives the new Hammer model a thorough road test

plastic table insert is fitted around the blade, and there is a slot for a mitre fence on the right-hand side. The table can be tilted to 45° in one direction and, unusually, 10° in the other. The tilting is controlled by a rack-and-pinion system underneath.

The Hammer is supplied with a substantial rip fence. This is a two-position alloy design mounted on a solid steel rail. It's easy to adjust and locks firmly in position.

Blade guides

Bandsaw blade guides can often cause a fair amount of irritation if they're difficult to set or lacking in blade support. The Hammer guides cause no such problems. An identical set of guides is fitted above and below the table, consisting of a pair of side roller guides and a large rear thrust bearing. The top guides can be adjusted by hand without the need for any tools, but a spanner is needed to set the lower guides.

The top guides are mounted on the adjustable blade guard, which is wound up and down to suit the workpiece thickness using a rack-and-pinion system.

Accessories

Surprisingly the Hammer is not supplied with a mitre fence as standard, though one is available as an accessory. Clip-on table extensions are also available to offer additional support to larger workpieces, and a wheel kit can also be supplied.

In use

The Hammer is a simple machine to set up and use. Access to the blade is very good and the blade guides are straightforward and reliable. The motor is quiet and runs smoothly, and the whole machine has a reassuringly solid feel.



The upper blade guides can be adjusted by hand



The blade tensioning wheel is on the base of the upper cabinet

The Italian-made Hammer is a fairly conventional design. The machine is housed in a heavy steel frame with a linked pair of opening doors. The cast bandwheels are 440mm in diameter. The lower wheel is linked to the motor with a drivebelt and spins at 850rpm.

Blade fitting and tensioning is straightforward, with a large tensioning wheel on the base of the upper cabinet



and a useful tensioning scale provided. There is a window in the top door through which you can see the scale, so it's easy to keep an eye on the blade tension setting.

An NVR switch with a safety cover is mounted on the main spine of the machine and there's a safety micro-switch mounted on the top of the casing linked to the doors which stops the motor from running if the doors

are opened. A 120mm dust extraction port is fitted to the bottom of the base cabinet.

The table is made from cast iron and has a smooth well-finished surface. A large

WV VERDICT

The Hammer is certainly a very attractive machine. It is well-designed, robustly made and easy to live with. It is an ideal machine for the small professional workshop, while at the same time being well within the price range of the enthusiastic amateur.

TAYLOR'S TEST BENCH



IAN TAYLOR



A round-up of all the latest tools, gadgets and equipment for your workshop

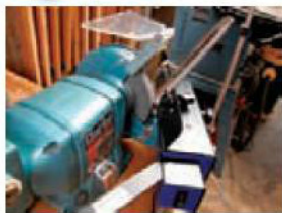
is uniform. If the grinding action falls only on the leading or trailing edge, it's very easy to spot. Simply stop the action with the blade clear of the wheel and adjust the angle till the cutting is uniform across the whole width of the blade.

Sharpening technique

I tried it out with a 50mm plane blade that had a nasty nick in it; I needed to grind off about 1mm to level it up. The process involves advancing the blade by turning the adjusting screw clockwise (note it's a left-hand thread). When the blade is almost skimming the wheel, increase the sliding speed to the operational level (6-7.5V on the transformer), then advance the blade so that the grinding starts. A maximum of 1/3 of a turn on the control knob is recommended for each advance, once the grinding has started. You'll get a shower of sparks on each slide, but these reduce when the grinding at that setting is complete. Simply repeat advancing the grinding position until you have levelled up your blade.



Improvised supports for the Clarke grinder



The blade is held at an angle in a secure clamp



The machine runs on autopilot once it's been set up

SLIDEGRINDER AUTOMATIC GRINDING AID

This new tool aims to make re-grinding plane and chisel blades a simple exercise. It incorporates a sliding action which moves the blade automatically back and forward across the edge of a standard grinding wheel.

Setting up

The unit fixes to the grinder's right-hand tool rest with a screw clamp. But to support the unit firmly, a bar also needs to be clamped to the left hand tool rest. A spring clamp is included just for this purpose. My grinder doesn't have a convenient second tool rest, because the second wheel runs in a water bath, so I had to knock up a special clamp block from scrap timber. This worked fine, and probably gave a more rigid fixing than the spring clamp supplied would have done. The unit also has a screw support that fixes under the on/off switch.

The Slidegrinder is set up at an angle of approximately 30° to the front face of

the wheel. The instructions recommend rounding over the right-hand edge of the wheel, but it would get rounded over pretty quickly in operation in any case. Unfortunately, the instruction leaflet is poor, with inadequate diagrams and illustrations of the unit, which needs some assembly work on delivery. So I needed a bit of guesswork before I got it set up correctly. For a tool of this price you expect something much more helpful.

Mounting the blade

The blade is clamped to the sliding tool support with two screw-operated clamps. You can adjust the grinding angle by the length of overhang of the blade – the bigger the overhang, the shallower the angle. An overhang of around 2mm is recommended for a 25° angle. This worked pretty well in my test.

There are no markings to help you ensure that the blade is vertical, but you can see very quickly whether the grinding

PRICE: £167

RATING

Value 0 5

Performance 0 5

PROS

- Accurate re-grinding, de-skills a tricky workshop operation

CONS

- Poor instruction leaflet; expensive unless you have lots of blades to re-grind regularly

FURTHER INFO

Slidegrinder

☎ 01628 894400

🌐 www.slidegrinder.co.uk

DRAPER EXPERT JS10VK

Draper's new JS710VK jigsaw is a solid variable-speed performer, with a pretty typical specification. There's a four-position pendulum action: select 0 for the smoothest but slowest, cutting action, and 3 for the most aggressive fast-cutting speed, but with the most splintering.

Blade changing requires no tools. Simply flip the transparent blade cover

out of the way, press down the blade release and pull the blade out. Inserting a new blade is just as easy. With the release depressed, simply push a new blade into place and that's it. There's a handy removable blade cartridge with three blades clipped to the left-hand side of the body. A switchable LED light illuminates the cutting line. With the removable vacuum outlet coupled up to a vacuum the extraction was good, with very little loose dust. All in all, it's a good performer and has a solid feel in use.



Blade changing needs no tools



The pendulum action switch

PRICE: £45.95

RATING

Value 0 5

Performance 0 5

PROS

- Easy blade change, good performance for the price

CONS

- Nothing significant

SPEC SHEET

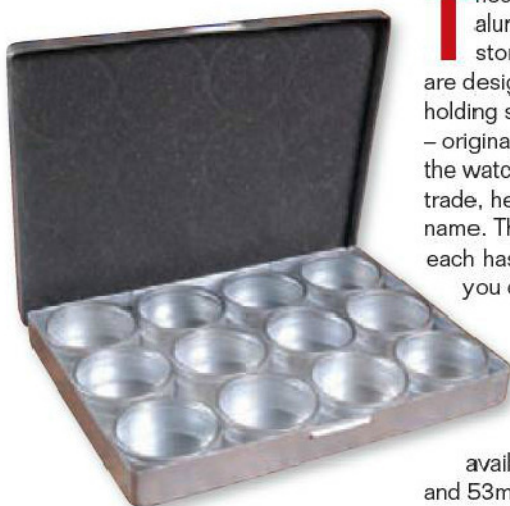
Input power	710W
Speed	800-3000 spm
Max drilling capacity	
wood	80mm
mild steel	8mm
Weight	2.7kg

FURTHER INFO

Draper Tools

02380 494333
www.draper.co.uk

AXMINSTER WATCH CASE STORAGE BOX



These pressed aluminium storage boxes are designed for holding small parts – originally for the watch-making trade, hence the name. They come in an aluminium outer box and each has a press-on lid with a glass top panel, so you can see the contents immediately.



The little pots are perfect for widgets

They're ideal for storing small parts (screws, washers, fittings etc), so most people would be able to put them to good use in the workshop. They come in sets of 12, and there are two sizes available – 40mm diameter by 20mm deep and 53mm diameter by 25mm deep.

PRICE:

40mm dia: £4.49

53mm dia: £5.50

RATING

Value 0 5

Performance 0 5

PROS

- You can see at a glance what you're looking for

CONS

- The light aluminium won't stand up to a lot of rough handling

FURTHER INFO

Axminster Power Tool Centre

0800 371822
www.axminster.co.uk

RYOBI ONE+ BATTERIES AND CHP-1802M DRILL/DRIVER

Ryobi's One+ range allows you to make up your own set of compatible cordless tools. Although kits are available in the range, the tools can all be bought without batteries. The battery kit and charger are sold separately. The Ryobi web page currently shows 23 tools in the range, including five drills, an impact driver, three saws, two sanders, a planer and a wet/dry vacuum. I'm looking at one of the drills

PRICE:

Battery kit: £59.98

Drill: £49.99

RATING

Value 0  5

Performance 0  5

PROS

- Part of a versatile multi-tool system

CONS

- No carrying case

FURTHER INFO

Ryobi

01628 894400

www.ryobipower.co.uk

in this issue, and I'll deal with the random orbit sander and jigsaw in the next.

The batteries are standard across the range. They're 18V 1.7Ah NiCad units, and come with a one-hour fast charger. With two batteries in the set, you should be able to work continuously, as long as you're near a power outlet. If you're not, there's also a charger that you can plug into a car's 12V DC outlet.

I looked at the CHP-1802M two-speed drill/driver in this test. It comes with a decent 13mm keyless chuck and a 24-position torque ring. You switch between drilling and driving by flipping a rotary switch beside the torque ring. I found it easiest to disengage the torque control when it was set to the lower end of its range. A slide switch on top of the unit changes the gearbox setting. At the low setting, the speed range is 0-400rpm. The higher speed range is 0-1600rpm. The unit delivers up to 37Nm of torque, which is more than adequate for most jobs, but a good bit less than that of the top professional drill/drivers (which of course can cost up to twice the cost of this driver and battery pack).

The magnetic tray that sits above



the battery pack is a nice touch – very handy for holding your screws if you're working up a ladder. The rubber inserts in the handle are comfortable and it feels solid in operation. It's a capable general-purpose workshop drill/driver. Ryobi tools are included in several of the well-known tool catalogues and websites, so they're easy to find.

IRWIN BLUE GROOVE 4X FLAT WOOD BITS

The 4X branding on these wood bits reflects Irwin's claim that they cut four times faster than standard flat bits. They have an increased clearance

angle of 17° and the point cuts rather than scrapes. The blue painted faces are hollow ground in a parabolic curve, designed to aid chip removal. There are 21 bits in the range, from 6 to 40mm. Each is 157 mm long.

I can't vouch for the claimed relative cutting speed, but they cut very well and quickly, and they run true – often not the case with some others on the market. They are available in a tough box of eight bits ranging in size from 12 to 30 mm. Irwin's website also lists a wallet pack of six bits. And, of course, the bits are also available separately.



PRICE: £28.95 (pack of 8 bits)

RATING

Value 0  5

Performance 0  5

PROS

- Accurate, fast cutting

CONS

- Nothing significant

FURTHER INFO

Irwin Tools

0114 2519101

www.irwin.co.uk



SKIL 7460 RANDOM ORBITAL SANDER

There's been a good bit of thought put into the design of this 430W sander. It fits together as a neat package, with variable speed and an integrated dust catcher. It takes standard 125mm 8-hole Velcro disks. The dust collector clips under the unit and vents through two internal folded paper filters. Simply unclip it and shake the dust into the waste bin when it fills up.

The excess pressure indicator is an unusual feature. Random orbit sanders work best if you leave the unit itself to do the work, rather than press down too heavily. If you do, you interfere with the eccentric motion and impair the cutting action. This unit has a sequence of lights to warn you of pressing too hard; when you do so, a red light comes on.

So how does it work in practice? It was functional and effective. The dust collection was very good, with less dust

escaping than with my usual sander. It's designed as a two-handed tool, so it isn't as easy to use as the more compact alternatives.

I didn't find the pressure indicator very helpful. The pressure needed before the red light came on was more than I would ever exert in practice, and you would tire very quickly if you sustained that force for any length of time. So I would expect it would only be a very heavy-handed user who regularly triggered the warning. The cheaper 7440 model comes without this feature and runs at a fixed speed, so may be the better buy.



The red light warns of too much pressure



The dust collector has two paper filters

PRICE: £50

RATING

Value 0  5

Performance 0  5

PROS

- Well-designed, good dust collector that's easy to empty

CONS

- Unnecessary pressure indicator

FURTHER INFO


Skil

01895 838782
www.skileurope.com

DAKOTA BLADE POLISHING KIT

PRICE: £29.95

RATING

Value 0  5

Performance 0  5

PROS

- Gives blades a razor sharp edge

CONS

- There are faster ways to get a sharp blade

FURTHER INFO

Rutlands

01629 815518
www.rutlands.co.uk

If you like razor-sharp edges on your bladed tools, you might want this in your tool kit. It involves a selection of diamond honing pastes, with a functional delivery system. The package includes a 6 x 2in 600-grit diamond plate, six syringes with different grades of diamond

cutting pastes, ranging from 30 down to 0.5 microns; a bottle of lubricating oil; a glass lapping plate; six MDF polishing boards and a non-slip mat. Each MDF board is identified with one of the paste grades, to avoid cross-contamination.

The diamond plate is used to give an initial hone in the conventional way, if the tool needs it. You then move on to the polishing. You can use either the glass plate or the MDF boards as the base for

lapping. If you use the glass, you need to clean it off between each grade, to avoid contamination between grades. Since each board is printed with the relevant grade, you can always ensure that there is only one grade in play at each stage.

Using this kit takes more time than other sharpening techniques, and I suspect that it might only be the most demanding woodworkers who would find it worthwhile.



ON TEST

BLADES for the Festool TS55 saw

KEITH SMITH



The TS55 is capable of cutting more than just sheets of MDF. Keith Smith takes a look at 10 blades you can use to increase its versatility

THE BLADES ON TEST

Blade	Teeth	Angle	Kerf (mm)	Price
Festool Standard	12	20°	2.5	£22.63
Festool Panther	14	35°	2.5	£52.10
Festool Universal	28	15°	2.5	£34.06
Festool Fine	48	5°	2.2	£43.99
Festool Laminate	48	4°	2.6	£88.15
Festool Aluminium	56	-5°	2.5	£86.36
Freud LP20M 07	12	15°	2.4	£13.70
Freud LP30M 07	24	15°	2.4	£18.00
Freud LP40M 07	40	15°	2.4	£24.00
Trend Craftpro	24	15°	2.4	£13.57

All have an alternate bevel tooth (ABT) design, except for the Festool Laminate and Aluminium blades, which have teeth that are triple chip (TC) ground.

Last month I looked at the Festool TS55 plunge saw and guide rail system (September page 77). Now, as promised, I'm looking at some of the various saw blades available for the TS55. For this review I have the six blades Festool make for this saw, plus three by Freud and one by Trend.

One of the Festool blades is primarily intended for cutting aluminium, but I've included it here as it can also be used for cutting melamine-faced chipboard.

This saw with its extremely accurate guide rail system has a multitude of uses, from cutting the waney edge off sawn boards, through sawing

up man-made sheet goods without chipping to cutting polycarbonate and even aluminium. However, like any saw it needs the right blade to work effectively.

General or specialist?

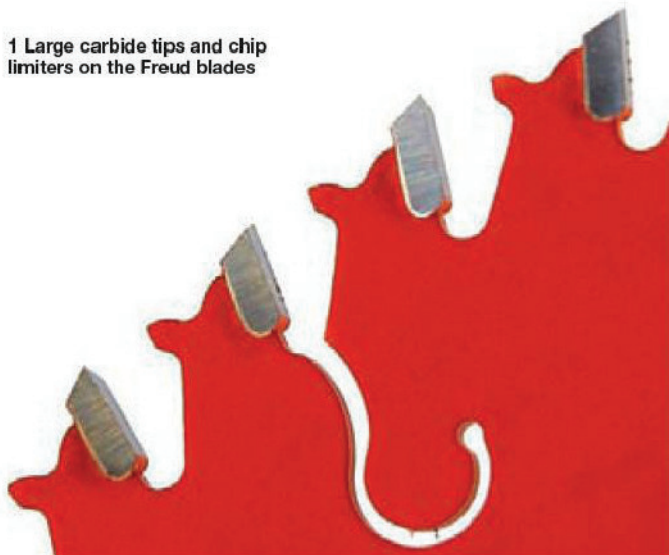
Of the ten blades I'm testing, some are primarily aimed at cutting timber; others are

more for general-purpose use and a couple are specialist blades. The quality of the Festool and Freud blades is very similar, the Freud blades being distinguished by their red low-friction coating.

Both the Festool and Freud blades have 2.5mm thick tungsten carbide teeth,

Continued overleaf

1 Large carbide tips and chip limiters on the Freud blades



2 The Trend blade has relatively small carbide teeth





FESTOOL STANDARD

This 12-tooth blade with its comparatively aggressive 20° tooth angle is quite coarse in action. It cross-cuts softwood and hardwood reasonably well, and does a passable job of ripping softwood. However, when I tried ripping some 40mm oak, it grabbed and kicked back – only slightly, but in a way that made the saw judder through the cut. The finish was generally poor with this blade in both timber and sheet material. However, it excelled at cutting flooring-grade chipboard.



FESTOOL PANTHER

This 14-tooth blade has a 35° tooth angle and so-called Panther teeth. I didn't like it, as it kicks back far too much. Festool have since told me that this blade is not intended for plunging, but that makes its use difficult, as with this type of saw the blade would need to be plunged before starting the cut. When ripping oak the blade also cut a very wide kerf, enough to mark the guide rail. It cuts quickly and easily, but leaves a poor finish. I don't think this is a practical blade to use with the guide rail system, although it may work better if the saw were used as a table saw in Festool's Modular System.



FESTOOL UNIVERSAL

This 28-tooth blade cut hardwood well. It also did a good job of cross-cutting softwood, leaving a fine finish, but it could grab when ripping softwood over 35mm thick, causing the saw to judder slightly. This resulted in a relatively poor finish and is probably caused by poor chip clearance. It left a good finish on plywood and MDF, but chipped the surface when I tried cutting some finely veneered MDF.



FESTOOL FINE

This is the 48-tooth blade that's supplied with the TS55. The low tooth angle, at only 5° compared to the 15° of the previous blades, gives this blade a very fine finish. It handles sheet materials brilliantly and there is very little chipping to melamine-faced chipboard or laminated worktop (bearing in mind I'm not using the splinter guards in these tests). It will cross-cut timber and it leaves a very fine – almost polished – finish, but it's relatively hard work for the saw and the blade can burn the surface unless you take a deal of care.



FESTOOL LAMINATE

Materials such as laminate flooring are very dense and hard, and quickly blunt alternate bevel blades. That's why this 48-tooth blade has a triple chip tooth design. It's designed to be particularly hardwearing, as it doesn't have the fine tips of an alternate bevel tooth blade. However, Festool's Fine blade actually gave a better finish on melamine-faced chipboard, and because this blade is so expensive it's only worth considering if you'll be cutting laminate regularly.



FESTOOL ALUMINIUM

This 56-tooth blade also has the triple chip tooth design, but a negative rake. Such blades aren't normally used in circular saws because the angle of the teeth tends to push the saw away from the material being cut, causing kick-back. However, Festool's guide to blade use states that this blade can be used for melamine-faced chipboard. In use the saw behaved impeccably, with no sign of kick-back, and the finish was more or less perfect, even without using a splinter guard. This is a specialist blade though, at a specialist price.

BLADE PREFERENCES

The TS55 handbook suggests blade preferences for cutting different materials. These are as follows:

Material	1st choice	2nd choice	3rd choice
Rip-sawing	Panther	Universal	Fine / Standard
Cross-cutting	Fine	Universal	Standard / Panther
MDF	Fine	Universal	Standard / Laminate
Plywood	Fine	Universal	Standard
Blockboard	Fine	Universal	Standard / Panther
Chipboard	Universal	Fine	Standard
melamine-faced	Laminate / Fine	-	Universal / Aluminium
veneered	Fine	-	Universal / Laminate
laminated	Laminate / Fine	-	Universal / Aluminium



TREND CRAFTPRO CSB/16024

This 24-tooth blade doesn't have the same feel of quality as the other blades. That said, it ripped and crosscut both hard and softwoods smoothly and easily, although for a 24 tooth blade the quality of the cut was relatively poor. The finish from the Freud 12-tooth blade was far superior.



FREUD LP20M 07

This 12-tooth blade has very pronounced anti-kickback teeth; even so, I still experienced some very slight kickback when ripping oak. However, it never felt a problem and the blade cut smoothly and quickly. I was able to plunge-cut with it and the saw always felt in control. Considering that this is a rip saw blade the finish was reasonable, even with plywood and blockboard.



FREUD LP30M 07

Another 24-tooth model, this is sold as a general-purpose blade and it made a good all-round job of everything I tackled. Progress of the cut was very smooth, although it was a little slower than the 12-tooth blade when ripping hardwood. It left a good finish overall.



FREUD LP40M 07

This 40-tooth blade gave the finest finish of all the blades when ripping hardwood, although progress was relatively slow. In softwood, it ripped and cross-cut smoothly even when cutting 50mm thick material. It left a good finish to MDF, plywood and blockboard, cutting a good edge with little chipping. On melamine-faced chipboard, it did chip the edge of the melamine a little, but then only on the top surface.

which allow plenty of material for re-sharpening. They've been laser-cut and, with the exception of the Festool Panther blade, have laser-cut expansion slots. The Freud blades all have anti-kickback chip limiters, **photo 1**, whereas none of the Festool blades has this feature.

The Trend blade is the cheapest blade on test, and this shows in the quality of its manufacture. It appears to be pressed rather than laser-cut, **photo 2**, and the carbide teeth are much smaller at only 2mm thick.

I've used each blade on test to cut material that's appropriate for that particular blade. I haven't used a splinter guard as it would have needed replacing for each blade, and would have masked some of the differences between them. Note that the Freud blades are mounted in the saw with the printed side of the saw facing inward, **photo 3**.

Problems with the splinter guard

Blade changing is quick and easy on the Festool, and using this range of saw blades allows it to become a versatile all-round sawing machine. However, swapping blades does wear the splinter guards very quickly.

In **photo 4** you can clearly see that a gap has developed between the teeth and the guard, making it useless. This plastic guard can be easily replaced (they cost about £7.04 for five), but the same gap will have opened up between the rubber strip on the guide rail and the blade. This strip can usually be moved over a couple of times as it wears, but then it too will need replacing (at a cost of about £4.76 for a 1400mm rail).

I have two 1400mm rails and to work round this problem I keep one rail in as pristine condition as possible for use with the fine blade.

The other guide rail is used for all my general trimming; the rubber strip is badly worn, but these operations don't require a splinter guard.

Conclusion

This saw comes with the Festool Fine blade. With splinter guards in place, it will cut melamine-faced chipboard and kitchen worktop cleanly, without any chipping. It will also cut man-made boards, leaving an almost planed surface. All the Festool blades are relatively expensive, but this one is definitely worth the money and I can thoroughly recommend replacing like for like once the original blade is beyond re-sharpening.

This exceptional performance with man-made materials comes at the price of it being slightly less effective for cutting timber, so ideally it should be paired with a good wood-cutting blade.

The Trend blade is the

cheapest. If you need to cut just the odd door to size it may be an option, but otherwise it's outclassed by the other blades on test.

I can't recommend the Festool Panther blade at all, and in my opinion the Standard and Universal blades don't have a performance advantages that would warrant their high prices.

This leaves the three Freud blades. These are all super blades, and at a bargain price. If I could only choose one, I would go for the LP30M 24-tooth blade.

FURTHER INFO

TTS Tooltechnic Systems

01284 760791

www.festool.co.uk

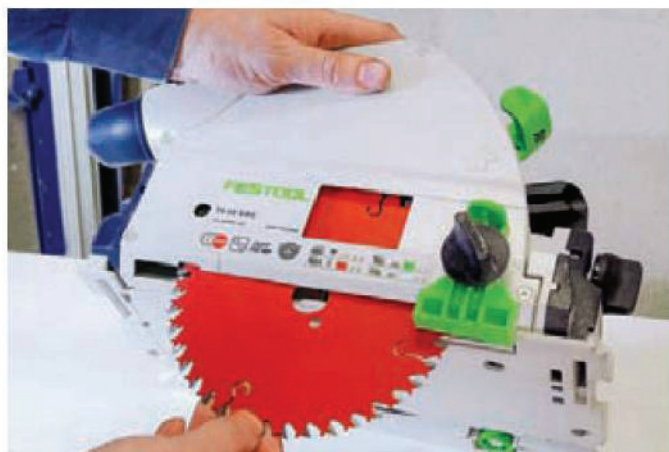
Freud

www.freudtools.com

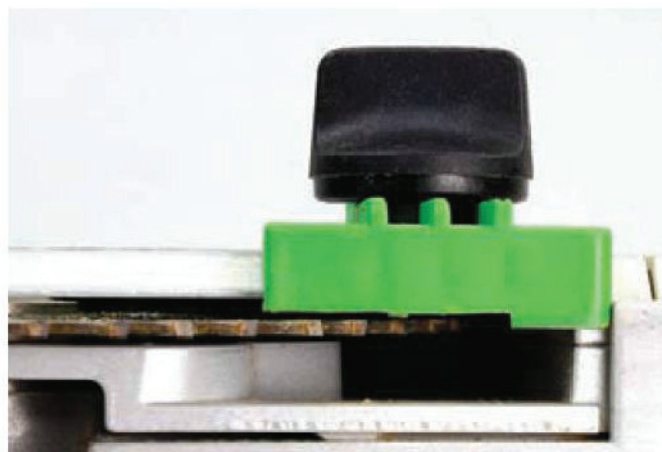
Trend Machinery

01923 224657

www.trendmachinery.co.uk



3 Unusually, the Freud blades fit in the saw printed face down



4 The plastic anti-splinter guard has been worn away

AXMINSTER WV100 dust extractor

IAN WILKIE tries out a new compact workshop vac

Recently I needed to replace my workshop dust extractor, which had given many years of reliable service. I wanted a small but efficient machine I could link to my power tools and bench machines, and could also use to clean up the workshop.

The WV100, which is manufactured in the UK, has a sophisticated filtration system that will remove dust particles down to half a micron. It's 380mm in diameter and 510mm high, so will fit easily fit under a bench. It weighs 10kg, and a castor frame can be added as an extra for £22.49.

I wanted an extractor which would be easy to empty and wouldn't involve too much



ON TEST

expenditure on bags and filters. This model collects 45 litres of dust in its strong metal container and uses only disposable paper filter bags.

The WV100 has a powerful 1000W motor, but the acoustic hood goes some

way towards keeping the noise down. The machine is supplied with a 60mm diameter crush-proof hose with special end fittings that will fit directly into the dust extraction outlets of many different bench machines. A multi-purpose heat shrink adaptor also comes with the machine which, with the aid of a heat gun, can be made to fit almost any bench-mounted dust-producing machine on the market.

Axminster offer an excellent service; the extractor was delivered within 48 hours and there was no carriage to pay.

PRICE: £139.23

RATING

Value 0 5
Performance 0 5

FURTHER INFO

Axminster Power Tool Centre

0800 371822

www.axminster.co.uk

At just under £140 I'm very pleased with my purchase. I was very disciplined and ordered enough filter bags to last me a year whilst I was about it!

WV VERDICT

This is a compact but surprisingly powerful machine that's relatively quiet in operation. It's easy to connect up to a wide range of bench machines, thanks to the range of end fittings supplied with the crush-proof hose. It's excellent value for money.

SIP Professional dust extractor

...while PETER DUNSMORE gets a grip on the SIP

ON TEST

Weighing in at 50kg, this is no lightweight extractor, either in size or performance.

Assembling it took less than an hour and presented no difficulty. However, a second pair of hands is useful to lift the motor onto its bracket.

The assembled extractor stands 2.4m high and sits on a base measuring 980 x 520mm. This has four castors so the machine can be moved easily around the workshop.

It's fitted with a double inlet adaptor, allowing the extractor to serve two machines. However, for maximum efficiency you need to purchase a couple of blast gates to isolate each port. The machine comes with a 2.5m length of 100mm flexible hose as standard, and a cover to isolate the port not in use.

The choice of filter bag depends on what type of machine the extractor is serving. The finest felt filter bag will cater for particles

down to 5 microns in size. Either a clear plastic bag or a cotton bag collects the waste.

An NVR switch is fitted on top of the motor. I feel that this could have been positioned in a slightly easier-to-reach location such as on the casing between the bags. The 1400W induction motor starts smoothly and quietly, and quickly builds up to full suction. I've connected the hose to various machines in the workshop including probably the messiest of them all, the planer thicknesser, and it has performed very well.

Although a little more expensive than its smaller counterpart, its main benefits are the more powerful suction and the larger capacity collection bag. The fine filter top bag is super efficient, and

PRICE: £199

RATING

Value 0 5
Performance 0 5

SPEC SHEET

Power	1500W
Airflow rate	45cu m/min
Bag capacity	153 litres

FURTHER INFO

SIP Group

01509 500300

www.sip-group.com

with the extractor running there is no sign of fine dust escaping. This is an efficient dust extractor with a two-year warranty, and will be a major benefit to the health of the workshop user.

WV VERDICT

This is an efficient, quiet-running yet powerful machine, capable of tackling everything that a busy workshop can throw at it. It can also be wheeled around the workshop with ease, so there is no excuse for a dirty floor.

PRICE: £120

RATING

Value 0  5
Performance 0  5

PROS

- Well-designed controls and good safety features

CONS

- A larger table aperture would greatly increase its versatility

SPEC SHEET

Power	1050W
Speeds	15-27,000rpm variable
Table size	600 x 460mm
Collets supplied	1/4in and 1/2in
Weight	18.5 kg

FURTHER INFO

NMA Agencies

01484 400488
www.nmauk.co.uk



WOODSTAR BS50 router table

ANDY STANDING



Andy Standing reckons that the Woodstar BS50 might make an ideal first all-in-one router table, despite having a couple of niggling design faults

If you're considering buying your first router table, and possibly a dedicated router to fit in it, then the Woodstar might fit the bill. It's a routing table with an integrated motor and fully adjustable fence. It is supplied complete with guards and hold-downs, features a variable speed motor and safety power switch, and arrives almost completely assembled. The router motor is permanently mounted under the table.

Fence and guards

The fence is remarkably well equipped. It has a pair of adjustable sides and a pair of plastic featherboards to

hold the workpiece securely on the table. A large hinged cutterguard swings over the central aperture and there is a dust extraction outlet on the rear. The table top has a groove for the supplied mitre guide and there is also an additional featherboard that can be fixed to the table to hold the workpiece against the cutter.

Setting up

The Woodstar is slightly fiddly to set up. Firstly the motor must be raised to its highest position to gain access to the collet. This is done by inserting a large metal handle into a pair of

slots on the ring surrounding the aperture and turning it. The movement is quite stiff and rather slow, though no doubt it will loosen up in use. Once the collet is at the top, you insert the cutter and use the supplied spanner to tighten the collet. It is also necessary to reach under the table and engage the spindle lock for this. With the cutter fitted, the metal handle is again used to set it to the required height.

In use

The controls are ideally positioned, so it's easy to start the machine and set the speed. The fence and featherboards are very

effective, though the fence needs to be able to move a little further forward, especially when using larger diameter cutters. It is difficult to set the cutter height precisely, as the adjusting handle surrounds it, making measurement tricky.

A set of three table rings is included to surround the cutters. The smallest is 14mm in diameter and the largest is only 36mm. Unfortunately this severely limits the work that can be done on the Woodstar. For instance, you can't use profile scribe cutters for doormaking or panel raising cutters, although you can use vertical panel raising cutters, if you have them.

WV VERDICT

The Woodstar is a machine with potential, though it's let down by a couple of design faults. For example, a larger table aperture would greatly increase its versatility. However, if you don't need to use large cutters, but generally tend to stick to smaller moulding and rebating jobs, then this is a good little router table and it may well suit you. It has well-designed controls and good safety features, all for a realistic price.

PRICE: £117.50

RATING



PROS

- Superb for small moulding and grooving jobs
- Comfortable to use single-handed
- Good control of cutter depth

CONS

- Lack of dust extraction as standard (option available)
- Awkward-to-reach on/off switch

SPEC SHEET

Power	600W
Collet supplied	1/4in
Speed (fixed)	33,000rpm
Weight	1.5kg
Accessories	Fence, spanner, carry case

FURTHER INFO

Bosch
01895 838745
www.bosch-pt.com



The router is supplied with a detachable base and a 1/4in collet

ON TEST



A simple quick-release lever clamps the motor housing into the base



BOSCH GKF600 palm router

BEN PLEWES



Ben Plewes bench-tests the new Bosch baby router, and makes some simple jigs to use with it on page 36

Every so often a tool comes along that creates a new category of its own. The Bosch GKF 600 is exactly that – a new breed of router that fills a gap in the market most people didn't even realize was there. The clever boffins at Bosch have crossed a hand-held 1/4in router with a laminate trimmer to produce a new type of machine which they've called a palm router.

Fixed base design

It doesn't have a plunge mechanism, but instead uses

a fixed base design. This assembly makes one-handed use possible and gives the overall design a solid yet lightweight feel.

The motor housing is clamped into the cast aluminium base with a simple quick-release clamp. After spending a few minutes with the router, the disassembly process of removing the motor housing from the base becomes second nature. A series of single and double arrows on the components show you exactly what to line up to reassemble the unit.

Changing cutters

I found the easiest way to change the cutter was to disassemble the unit; this gives good access to the spindle lock and collet nut. When reassembling the machine, quick height adjustment is achieved by sliding the motor housing up or down, then rotating it slightly to hold it in position. The quick-release clamp is then tightened to lock everything in place. An adjustment wheel is used to fine-tune the depth; the quick-release lock does need to be loose in order for it to work.

Using the router

Dust extraction isn't catered for with the accessories included, although an optional extra is available in the form of a larger base-plate with an integral extraction outlet.

The GKF 600 is keenly priced, which may explain why the extraction accessory isn't included with the basic package.

In use the machine performs very well. The addition of a series of thumb rests on the base allows pressure to be applied with your spare hand if required for comfortable and accurate routing.


WV VERDICT

This new generation of machine is small enough to be used single-handed, yet it's powerful enough to run 1/4in moulding cutters with ease. It's a power tool that's sure to find a multitude of uses around the workshop. I'm sure other manufacturers will soon be hot on the heels of this one!

PRICE: £120 inc delivery

RATING

Value 0  5

Performance 0  5

PROS

- Very well-made accessory
- Does exactly what it says on the box
- Lifetime warranty

CONS

- Just the price!

FURTHER INFO

Mule Cabinetmaker

01473 827518

www.mulecab.co.uk

ON TEST



Mule Accusquare rip fence

ANDY STANDING



Many perfectly capable tools are let down by poor-quality fences. Andy Standing tries out a new fence kit that will definitely improve the situation

A table saw is not a tool that can be safely used freehand, so to make accurate cuts you need a good, reliable fence. Many perfectly capable tools are let down by fences that are both difficult to adjust and frustrating to use. The Accusquare rip fence is designed to replace the supplied fence, and can be fitted to a wide range of machines as it's available in four versions.

Fitting the fence

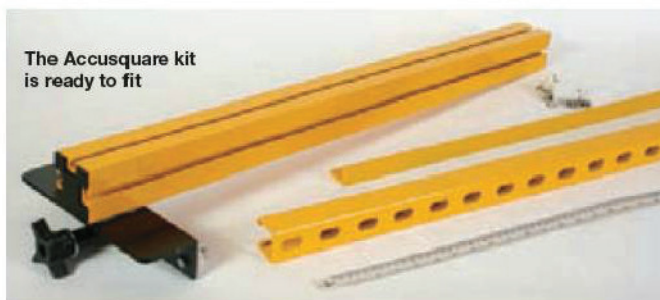
The Accusquare is supplied as a kit that includes the fence, a fence bracket, a front and rear rail and an adhesive scale. The front rail is supposed to bolt onto the front of your saw table, and you may need to use a certain amount of ingenuity to achieve this, depending on the design of your saw. On some saws, the existing mounting holes can be used;

others may need holes drilling and some may need the fence rail to be mounted on a timber batten. The rear fence rail, unsurprisingly, bolts to the rear of the saw table and gives additional support to the far end of the fence.

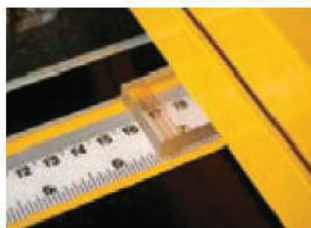
Setting up

Once the fence is fitted, you need to adjust it to ensure that it's accurate. The fence fits to the bracket with four large bolts. These can be adjusted to line the fence up so that it is precisely square with the saw blade.

The adhesive scale is attached to the top of the front rail so that the fence runs above it. A Perspex cursor fits underneath the fence and this is marked with a pair of red hairlines. These only line up if you look down directly from above the fence and onto the scale, so you can be sure of setting the fence extremely accurately.



The Accusquare kit is ready to fit



The double hairline cursor



The fence locked in position

Using the fence

The Accusquare is a joy to use. Because of its wide mounting bracket and the sprung end pegs, the fence always stays at right angles to the rail when the locking screw is tightened, unlike many less precise designs. The fence moves smoothly in the mounting rail and is very

easy to adjust and set.

Once set, it is absolutely rock solid and will not be deflected even by the heaviest timber in the hands of the clumsiest operator. The fence itself has three T-slots on its exposed sides that allow timber false fences, hold-downs or featherboards to be fitted as required.

WV VERDICT

This is an excellent fence upgrade that will transform the accuracy of your saw. It is simply and robustly made from heavyweight materials, without any flimsy or unnecessary adornments. It performs exactly as a good fence should with security and reliability. If you need a better rip fence, then this is the one for you.

PRICE: £117.50

RATING

Value 0 5
Performance 0 5

PROS

- Now with variable speed and roller bearings
- Compact and lightweight

CONS

- Flimsy fence
- No inspection window for checking blade tracking

SPEC SHEET

Motor	550W
No-load blade speed	0-800 m/min
Table	345 x 345mm
Max cutting depth	85mm
Max throat width	305mm
Weight	15.5kg

FURTHER INFO

SIP Group
01509 500300
www.sip-group.com



ON TEST

The cast metal table tilts at up to 45°

Roller bearings, not guide blocks, control blade movement

SIP 01494 12in bandsaw

PETER DUNSMORE



Need a modestly-sized bandsaw for your modestly-sized workshop? Peter Dunsmore reckons that this SIP model could fit the bill

The SIP 01494 is very similar in design and layout to the original three-wheel Burgess bandsaw – a tool that’s been used for years by hobbyists. Its main problem, obviously, is that the small throat and depth of cut limits the size of timber that can be worked. However, it does have the advantage of taking up comparatively little bench space.

Getting better

The SIP 01494 has a couple of significant improvements over the original Burgess

design. The first of these, and probably the most useful, is the addition of electronic variable speed, controlled by a small wheel located underneath the large NVR safety switch on the front panel. One of the benefits of this is the ability to suit the speed of the blade to the material being cut.

The second obvious improvement is the use of roller bearings instead of the original guide blocks to control the sideways movement of the blade. This reduces much of the friction

in this area and makes the guiding of the blade much more accurate and efficient.

Bandsaw features

The table tilts through to 45° and a sliding adjustable mitre fence fits into one of two grooves in the top. This is a solid metal casting with holes in it for attaching a home-made fence extension if one is required.

The machine is supplied with a fence, although I found this to be a flimsy and flexible affair that I replaced with a more rigid home-made guide. At the back of the machine is a small port to which your workshop vacuum extractor can be connected easily for

efficient dust removal.

You adjust the blade tension using an Allen key to turn a bolt in the top of the machine. Once set, further adjustment should rarely be necessary.

A knob on the back of the machine adjusts the tracking of the blade on the wheels. To check this, you have to remove the front panel by undoing the four red knobs and turning the wheels by hand. This is a nuisance and could easily be overcome by the addition of a small inspection hole cut into the top of the machine directly above the top wheel. If you fancy the challenge, careful use of a drill and a file would quickly solve this problem.

WV VERDICT

This is a compact machine which will tackle most of the less demanding jobs a keen DIY person could throw at it. It’s the ideal bandsaw for the keen hobbyist. It won’t tackle the big stuff, but despite this and the flimsy fence, it represents good value for money.

MACHINERY CHECKLIST

1: Table saws and bandsaws

Looking for new kit for your workshop? This all-new reference section brings together details of all the woodworking machinery we've tested in recent years that's still available today. This month's checklist looks at table saws and bandsaws, with a total of 28 saws featured. It includes

- a specification summary
- the current price
- manufacturer contact details, including website addresses
- our verdict on the machine
- the issue of The Woodworker (or in a few cases, our sister publication Good Woodworking) in which we originally reviewed it, so you can re-read the full test report if you wish

Next month we'll be tackling planers, thicknessers and planer/thicknessers.

MAKE & MODEL		FEATURES								
TABLE SAWS										
		Power (hp)	Power (watts)	Blade dia (mm)	Max depth (mm)	Max depth 90° (mm)	Max depth 45° (mm)	Table size (mm)	Weight (kgs)	Price
OVER £1000										
Xcalibur	10in Cabinet Saw	3	2250	250	76			900 x 820	225	£1172.65
UNDER £1000										
SIP	10in Table Saw	3	2250	254		75	53	1170 x 800	177	£524
SIP	12in Table Saw	4	3000	315		100	80	800 x 1040	212	£524
Bosch	GTS10		1800	255		70		640 x 737	32	£537
Axminster	AW10BSB2		2200	254		75	60	800 x 1170	260	£599.25
Metabo	PK200		1800	210		65	45	600 x 730	23.5 (saw only)	£650
Scheppach	TS 2010		1800	200		60	50	600 x 730	34 (saw only)	£669.95
Metabo	Secanta		1800	220		70	49	730 x 750	28	£810.99
Festool	Precisio CS50EB		1200	190	50			400 x 600	21	£874
Scheppach	TS2500ci		2600	270	56			900 x 680	120	£995 (saw only)



FURTHER INFO	VERDICT		
Contact	In our opinion	Performance (out of 5)	Tested
Woodford Woodworking Machinery 0161 480 2800 www.woodfordwm.co.uk	American-designed table saw aimed at professional user. Very heavy cast iron construction, so extremely robust. Also available with sliding table. Needs a lot of workshop space	4	June 2005
SIP 01509 500359 www.sip-group.com	A bargain priced saw, closely related to the Axminster. Rugged and easy to use. Sliding table also available. Robust if a bit crude, good value	3½	August 2006
SIP 01509 500359 www.sip-group.com	Solid, good-value machine with large cutting capacity. Powerful smooth-running motor with electronic braking. Good range of accessories available. Poor dust extraction	4	Nov 2006
Bosch 01895 838743 www.bosch.co.uk	A solid table saw with optional floorstand for workshop or site use. Extending rip fence gives good capacity of 620mm when needed. Noisy motor	3½	Sept 2004
Axminster 0800 371822 www.axminster.co.uk	A bargain-priced saw with excellent capacities and cast iron tables. Side extension and sliding table included. Robustly built if a bit crude, and easy to use. A lot of saw for the money	3½	August 2006
Metabo 02380 732000 www.metabo.co.uk	A modular saw built around a small central unit. Available with or without table. Well made with an excellent smooth motor. Compact and versatile, but limited cutting capacity	4	August 2006
NMA Agencies 01484 400488 www.nmauk.com	A compact and precise machine available with a range of accessories. Easily dismantled and convenient to transport. Precision fences and high build quality, but a bit on the small side	4½	August 2006
Metabo 02380 732000 www.metabo.co.uk	Unique and brilliant saw incorporating the features of a table, mitre and pullsaw in one machine. Immensely versatile and easily transportable. An exceptional machine, spoiled only by a limited depth of cut	4½	Sept 2004
Festool 01284 760791 www.festool.co.uk	Compact and very lightweight quality precision sawbench. Excellent design with variable speed and pullsaw capability. Highly accurate, but at a relatively high price	4	Sept 2004
NMA Agencies 01484 400488 www.nmauk.com	Popular cabinetmaker's saw recently upgraded with cast iron table. Smooth and accurate with good range of additional accessories including dado blade. Extras add greatly to cost. Tested in Good Woodworking issue 162 July 2005	4	July 2005*

MACHINERY CHECKLIST 1: Table saws and Bandsaws

MAKE & MODEL

FEATURES

BANDSAWS

MAKE & MODEL	Power (hp)	Power (watts)	Max depth (mm)	Max width (mm)	Table size (mm)	Weight (kg)	Price
OVER £1000							
Jet JWBS 16	1.5		250	405	430 x 430	130	£1028.97
Jet JWBS 18	2		300	410	485 x 485	165	£1070.18
Scheppach Basato 5-2	2		300	440	640 x 640	190	£1350
Startrite 401/E	2		270	390	400 x 500	148	£1352
Startrite 401/S	2		270	390	400 x 500	148	£1880
UNDER £1000							
Charnwood W711		250	80	200	300 x 270	25	£99.99
Scheppach Basato 1		300	105	195	300 x 300	28	£177.48
SIP 01486	1		180	300	485 x 402	65	£249
Ryobi RBS 5518	1		180	305	425 x 548	75	£293
Record BS300	1		190	305	550 x 500	86	£375
Axminster SBW3501B	0.75	550	200	345	380 x 385	65	£477
Charnwood W750	3		280	465	630 x 480	162	£749
SIP 16in Bandsaw	3		254	410	435 x 535	126	£749
Axminster SBW4300WL	2		300	410	600 x 445	145	£782
Record BS500	2		280	465	630 x 480	162	£800
Axminster SBW5300		1500	310	515	500 x 500	215	£877
Hammer N4400 Bandsaw	2.5		300	420	420 x 575	N/A	£883.51
Metabo BAS 505	2		280	440	640 x 536	146	£969.95

VERDICT

Contact	In our opinion	Performance (out of 5)	Tested
Axminster 0800 371822 www.axminster.co.uk	A well made machine in a compact body with efficient blade guides and a sturdy fence system. Very easy to set up and almost vibration-free in use, but has smaller cutting capacity than the competition.	3½	Dec 2005
Axminster 0800 371822 www.axminster.co.uk	Versatile and well made bandsaw with solid fence and ability to take blades from 3mm to 32mm in width. Good performer, supplied with mitre, rip and point fenc. Tested in Good Woodworking issue 186 April 2007	4	April 2007*
N.M.A Agencies 01484 400488 www.nmauk.com	Large and impressive bandsaw for the perfectionist. Excellent fence system and considerable power. Faultless performance with an excellent table tilting system, but very large and heavy.	4½	Dec 2005
Startrite Ltd 0870 770 1777 www.startrite.co.uk	A slightly cheaper version of the 401 with roller guides instead of ceramic ones. Still very accurate and a beautifully made machine, with huge ripping capacity. Tested in Good Woodworking issue 186 April 2007	4	April 2007*
Startrite Ltd 0870 770 1777 www.startrite.co.uk	A high quality professional machine with cast iron table, solid fence and ceramic guides for extreme accuracy. Excellent design and faultless performance justify high price.	4½	Feb 2004
Chamwood 01530 516926 www.chamwood.net	Tiny bandsaw with cast iron table. Limited capacity, but ideal for miniature work, toys, etc. Reasonably well made, though a bit rough round the edges. Tested in Good Woodworking issue 150 August 2004	4	August 2004*
N.M.A Agencies 01484 400488 www.nmauk.com	Small bandsaw ideal for home workshop and popular with woodturners. Cast iron table and solid fence. Compact and convenient but with limited capacity.	4	August 2005
SIP 01509 500359 www.sip-group.com	Budget-priced machine with reasonable capacity and cast iron table. Two speeds. Lower blade guides are rather fiddly to adjust. Slightly crude fittings but good value. Tested in Good Woodworking issue 150 August 2004	4	August 2004*
Ryobi 01491 848700 www.ryobipower.co.uk	Rugged little bandsaw with particularly generous table. Good blade guides and also supplied with a mitre fence (rather crude) and a circle cutting guide. Large table, good for making turning blanks.	4	March 2006
Record 0870 7701777 www.recordpower.co.uk	An attractive machine from a respected company. This Record has it all. Compact design, cast iron table, powerful motor and integrated wheel kit. Easy to set up, but wheel kit has rather small castors.	4½	August 2004
Axminster 0800 371822 www.axminster.co.uk	A tough bandsaw that is intended for trade use. Easy to set up with blade tension indicator and quick release tension lever. Good blade guides and smooth cast iron table, but poor dust extraction.	4	April 2004
Chamwood 01530 516926 www.chamwood.net	Two speed bandsaw with cast iron table and wheel kit. Powerful with easy-to-set guides, but with cheap plastic knobs on some adjusters. Well specified at a bargain price. Tested in Good Woodworking issue 186 April 2007	3½	April 2007*
SIP 01509 500359 www.sip-group.com	Robust cast iron bandsaw that can take blades up to 37mm wide. Good fence. Very quiet in operation, but blade tension handle reduces capacity.	4	Dec 2006
Axminster 0800 371822 www.axminster.co.uk	Powerful professional machine, now fitted with laser line. Braked motor and quick-release blade tension lever. Smooth-running and quiet, but can't take very narrow blades (under 9mm).	4	Dec 2004
Record 0870 7701777 www.recordpower.co.uk	Highly competent and well-made machine with excellent table and fences. Also supplied with useful wheel kit. Great value for money, but lacks a marked rip scale.	4½	Dec 2005
Axminster 0800 371822 www.axminster.co.uk	Solid professional saw with excellent throat capacity. Easy to set up with good guides and two speeds. Good value, but speed changing can be tricky. Tested in Good Woodworking issue 186 April 2007	4½	April 2007*
Hammer UK 01908 635 000 www.ukhammer.co.uk	A high-quality machine that's powerful, well-finished and with excellent cutting capacities. It's keenly priced, but comes without a mitre guide as standard.	4½	Oct 2007
Metabo 02380 732000 www.metabo.co.uk	A straightforward machine with clean lines and simple controls. Well finished cast iron table. Efficient blade guides and simple blade tensioning, but it can be difficult to set the table tilt accurately.	3½	Dec 2005

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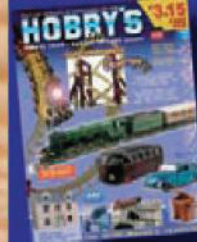
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The Lie-Nielsen range of tools is truly fascinating, particularly for the craftsman requiring the quality associated with tools manufactured in the late 19th century. Many of the tools are recreations of long discontinued Stanley models – often collectors items today – and combine the benefits of modern technology with good old fashioned hand finishing.

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NOVEMBER 2006

PROJECTS: Mission seat, Table and trestle seat, Bedside petrol pump cabinet, Stable door, Belt sander jig, Village notice board in oak
FEATURES: Routing panelled doors, Making mortise and tenon joint, This 'ol workshop
TESTS: Six of the best F-clamps, Giant test dovetailers, Hong Kong style planes, Festool Rotex, SIP 12in table saw
TURNING: Using a vac chuck, Berkeley box, Ball turning jig plans



DECEMBER 2006

PROJECTS: Dressing mirror, Bracket clock, Dancing cow toy pt1
FEATURES: Saw sharpening, The woodsman, Iron Mighty: mortisers, Staffs show review
TESTS: Giant test: cordless nail guns, SIP 16in bandsaw, Six of the best: workshop tapes, Dakota dowel plate, UCC sash clamps, Dremel Stylus, Bessey spring clamps, Dremel glue gun
TURNING: Lidded bowls, Wooden chucks, Lighthouse money box



JANUARY 2007

PROJECTS: Hepplewhite card table, Dresser stool, Kitchen bar stools, Dancing cow toy pt2
FEATURES: Carving rosettes, Secret drawers pt1, Iron Mighty: lathes
TESTS: Giant test: impact drivers, Six of the best: workbenches, Draper 18v combi, Nova lathe, Jet air filter, Super Nova chuck jaws
TURNING: Laminating techniques, Segmented bowl, Little acorns



FEBRUARY 2007

PROJECTS: Tool chest, Fire surround, Kitchen units, Saw handle, Kitchen table
FEATURES: Love spoons, Secret drawers pt2, Iron Mighty: Drill press, This 'ol' workshop, 2006 index
TESTS: Giant test: Bobbin sanders, Six of the best: eye protection, Makita router table, Bosch I-driver, Draper pocket knife, Irazola screwdrivers, Trend pocket hole jig, Henry Taylor Kyro tools
TURNING: Going global, Treadle lathe tech, Coin holders



MARCH 2007

PROJECTS: Oval dresser box, Kitchen larder units
FEATURES: Handling sheet materials, Tyrolean carving festival, Investing in forestry, Secret drawers pt3, This 'ol' workshop, Iron mighty: combi sanders, Wicker coffins, Houndstooth dovetails
TESTS: Giant test: pro palm sanders, Six of the best: utility knives, Ryobi one+ kit, Freud FT3000 router, Draper diamond whetstone set, Makita impact driver, Tacwise 400EL nailer
TURNING: Candlesticks, Traction engine, Towel rail



APRIL 2007

PROJECTS: Low dresser, Cherry bed, Black Forest stool
FEATURES: Saw blade test, Handcut dovetails, Planemaking pt1: metalwork, Ally Pally review, Secret drawers pt4, Iron mighty: dust extractors
TESTS: Giant test: biscuit jointers pt1, Dewalt dovetail jig, Bosch PSR 14.4 drill driver, Sorby Proedge sharpening system, Behlen sealers, Axminster rolling rule, LED light
TURNING: Erring stand, Shaker ring-handled knob, Elm platter



MAY 2007

PROJECTS: Planemaking pt2: rebate plane, Snooker cue case, Carving flowers, Wildlife nesters pt1, Jewellery box
FEATURES: Boxmaking, Why buy a mini jointer?, Door fitting tech, Feather mitres, Allergies, Mitre blade tune-up
TESTS: Giant test: biscuit jointers pt2, Dremel scroll saw, Bosch GFG00 router, Metabo multihammer, Dakota hold downs, Faithfull wheel dresser, Zona razor saw
TURNING: Quachaie, Split hollow form techniques, Piercing & colouring, Finials



JUNE 2007

PROJECTS: Kitchen dresser, Wildlife nesters, Bell-top clock, Oak laminated door
FEATURES: Mitres & bevells, Plane making part 3, French polishing, Woodworker of the Year 2006 results
TESTS: Giant test: Small routers, Draper Expert circular saw, Wolfcraft depth stops, Screwfix digital calliper, Axminster work lights, Dakota rounders, Draper vice, Japanese saws, Metabo SCM saw, JessEm Rout R Lift FX, Mitre saw blade group test, Six of the best: Paintbrushes
TURNING: Making wooden chucks, Vacuum chuck revisit, Drinks coasters



JULY 2007

PROJECTS: Fall-front bureau, Mobile jointer stand, Oak dining table, Wildlife nesters
FEATURES: Routing with a multi-profile cutter, Plane making part 4: The jack plane
TESTS: Giant test: Planer thicknessers, Axminster planer, Japanese chisels, Screwfix letter/number stamp set, Faithfull sawtooth bit set and carpenter's brace, Draper Expert sander, Axminster bench dogs, Metabo bench thicknesser, Bosch sliding mitre saw, SIP 12in mitre saw, Machine-Dro saw gauges, Six of the best: Toolbelts
TURNING: Mini screw chucks, Musical box, Period spindles



AUGUST 2007

PROJECTS: Welsh dresser, Box clamping jig, Country-style table, Picture frame, Arts & Crafts headboards
FEATURES: Planemaking part 5, Upgrading your grinder
TESTS: Giant test: Cordless jigsaws, Felder combination woodworking machine, Draper Expert belt sander, Forge Steel saw, Axminster workshop magnet, Dakota mini-vice, Erbauer percussion drill, Axminster corner chisel, Faithfull screwsink set, Dakota angle gauge, Festool Kapex sliding mitre saw, CMT router, Six of the best: Work gloves
TURNING: Measuring and marking, Hand mirror



SEPTEMBER 2007

PROJECTS: Writing slope, TV cabinet, MDF bed base
FEATURES: Planemaking part 6, Getting the best from your scrollsaw, Air filter silencer
TURNING: Pearwood scoop, Table lamp, Unusual chucks
TESTS: Giant test: Combination sanders, Rage 3 mitre saw, Jet bench thicknesser, Festool circular saw, Woodstar router table, Draper combi drill driver, Dakota mitre square, Bullt chisel set, Axminster punch set, Forge Steel laser, Pick-up tool set, Pull saw, Zinsser shellac spray, Ashley Iles carvers, Tormek Truing tool, Router Ease guide, Six of the best: Extension reels

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6 OF THE BEST MALLETS

Though woodworking is generally a fairly gentle pastime, there are moments when one has to get tough and hitting is involved. This can mean using force to drive a tool or applying force directly to the workpiece in order to persuade reluctant components to fit together. When using any kind of force in connection with tools or timber, it's important to use the correct method. If you don't, tools can be damaged and wood can be bruised or split. Here's a selection of mallets that have a variety of uses around the workshop.



1 Draper 16oz rubber mallet

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2 Faithfull 20oz white rubber mallet

Price: £3.20

Toolbank | 0800 068 6238 | www.toolbank.com

Here's a heavier rubber mallet. The white head won't mark even the lightest coloured timber. It has a longer shaft than the Draper at 400mm, and a head weight of 566g. The rubber in this mallet is much springier than the Draper, and consequently there's a lot more rebound with this tool. This makes it surprisingly controllable and able to impart both gentle and firm blows with ease.

The Woodworker
RECOMMENDED



3 Emir 210 beech carver's mallet

Price: £14.48

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This is a traditional woodcarver's mallet. The round shape means that it wears evenly and also makes it considerably more sensitive to use than a square-edged mallet. The Emir has a well-shaped ash shaft approximately 30mm in diameter and a smooth beech head which is 90mm across at its widest. A very comfortable tool to use, this mallet can be gripped for long periods without any discomfort.



4 Draper 305 beechwood mallet

Price: £8.20

Draper | 02380 266355 | www.draper.co.uk

This is a traditional carpenter's mallet, to be used for striking chisels and driving dowels. The solid beech head is nicely shaped and the slim rounded handle is comfortable to grip. Its overall length is 340mm. This is a sturdy well-finished mallet, and with an overall weight of 524g it is capable of striking a heavy blow. It's the ideal companion for your mortise chisels.

The Woodworker
RECOMMENDED



5 88mm beechwood carpenter's mallet

Price: £4.94

Axminster | 0800 371822 | www.axminster.co.uk

Here's a mallet for situations where more delicate force is needed. This little tool measures just 250mm in length and weighs a dainty 306g. It's ideal for jobs such as cutting small joints and occasional carving work. The short handle is slightly sharp-edged, so a quick bit of sanding will make it more comfortable to grip.



6 125mm beechwood carpenter's mallet

Price: £6.25

Axminster | 0800 371822 | www.axminster.co.uk

This is another traditional wooden mallet, similar to the Draper, but slightly lighter in weight. This one tips the scales at 418g and has an overall length of 300mm. It's nicely made from solid beech, but again the handle needs a little sanding for a more comfortable grip.

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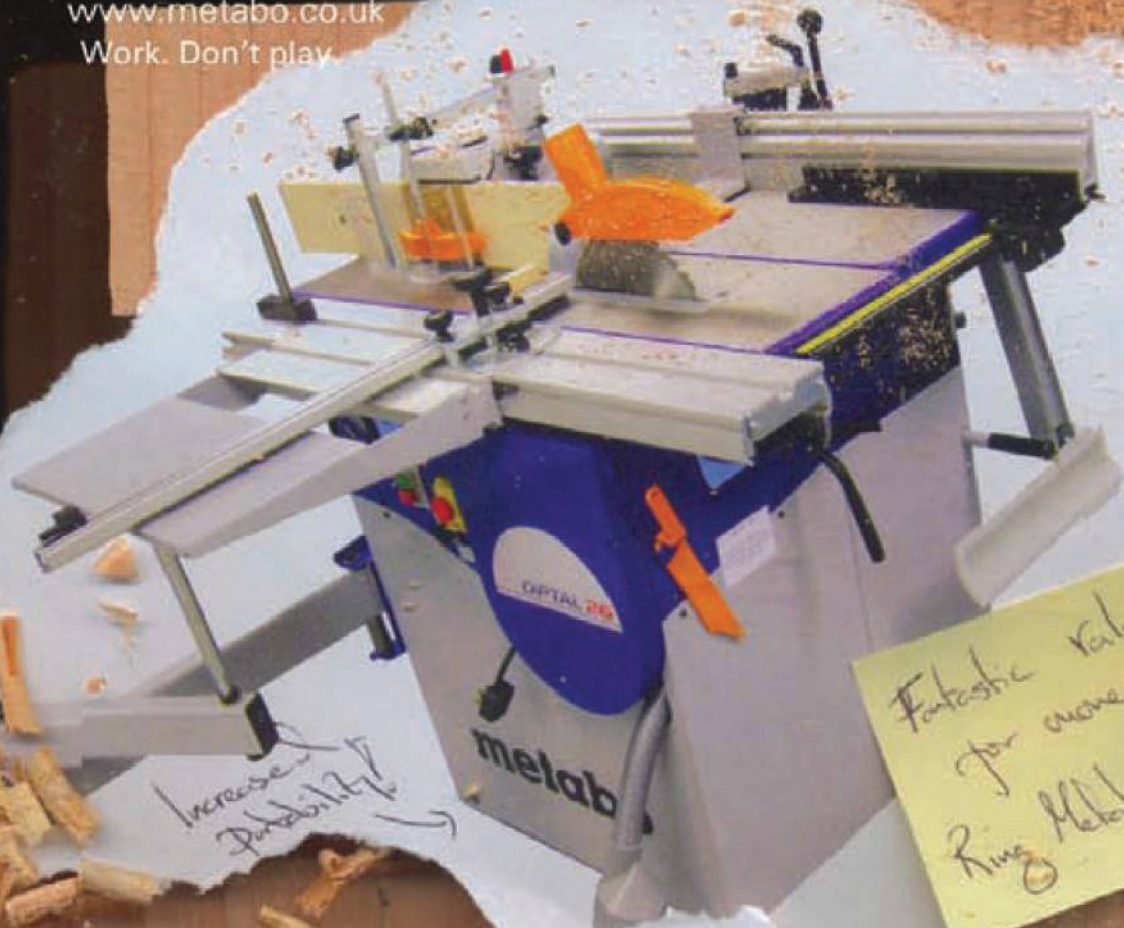
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METABO OPTAL 26

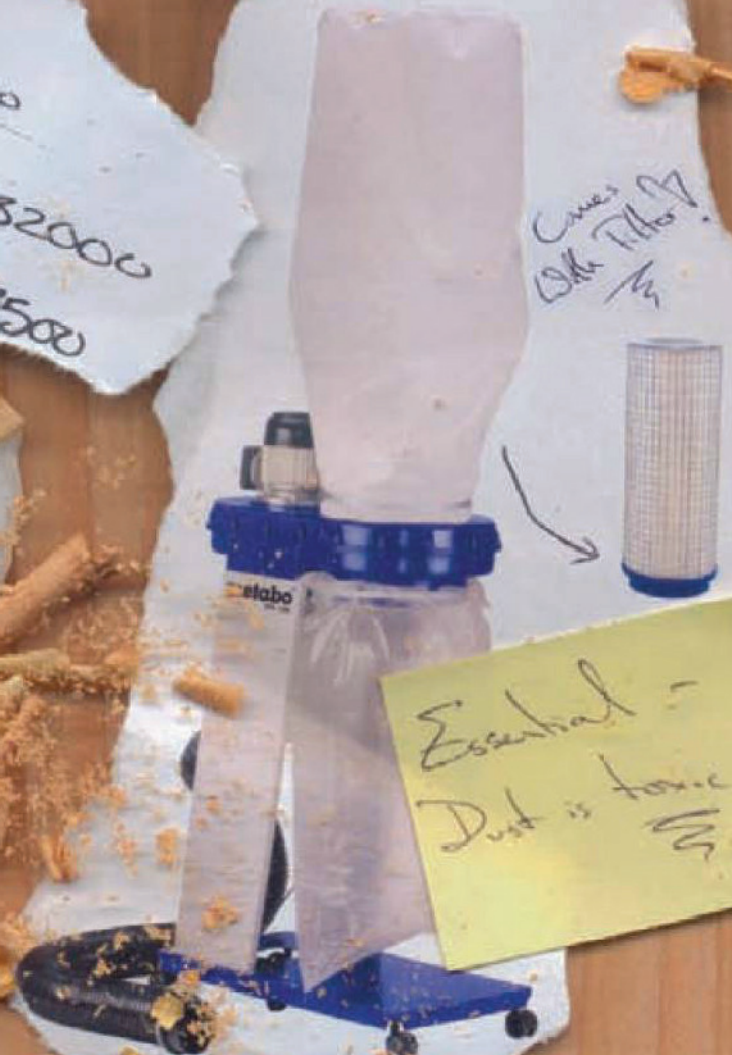
METABO SPA CLEAN 1100



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Comes
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Essential -
Dust is toxic

6 Function Combi Machine NEW OPTAL 26

Combined with 3 motors, the change of function is done quite simply with a selector - no need for belt changing. With this machine the project possibilities are endless; due to its high specification and professional build quality, excellent results can be achieved without the need for separate machines.

SSP **£2,250.00** exc. VAT

370W Dust Extractor SPA 1101

Ideal companion for all stationary woodworking machines
Flow rate 600m³/h
Flow volume 842m³/h
30 Litre volume of collection bag
Filtration level 0.5 micron
Suction hose: 100mm x 2500mm
With 0.2 micron fine filter

SSP **£299.00** exc. VAT