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The Woodworker & Woodturner

June 2014

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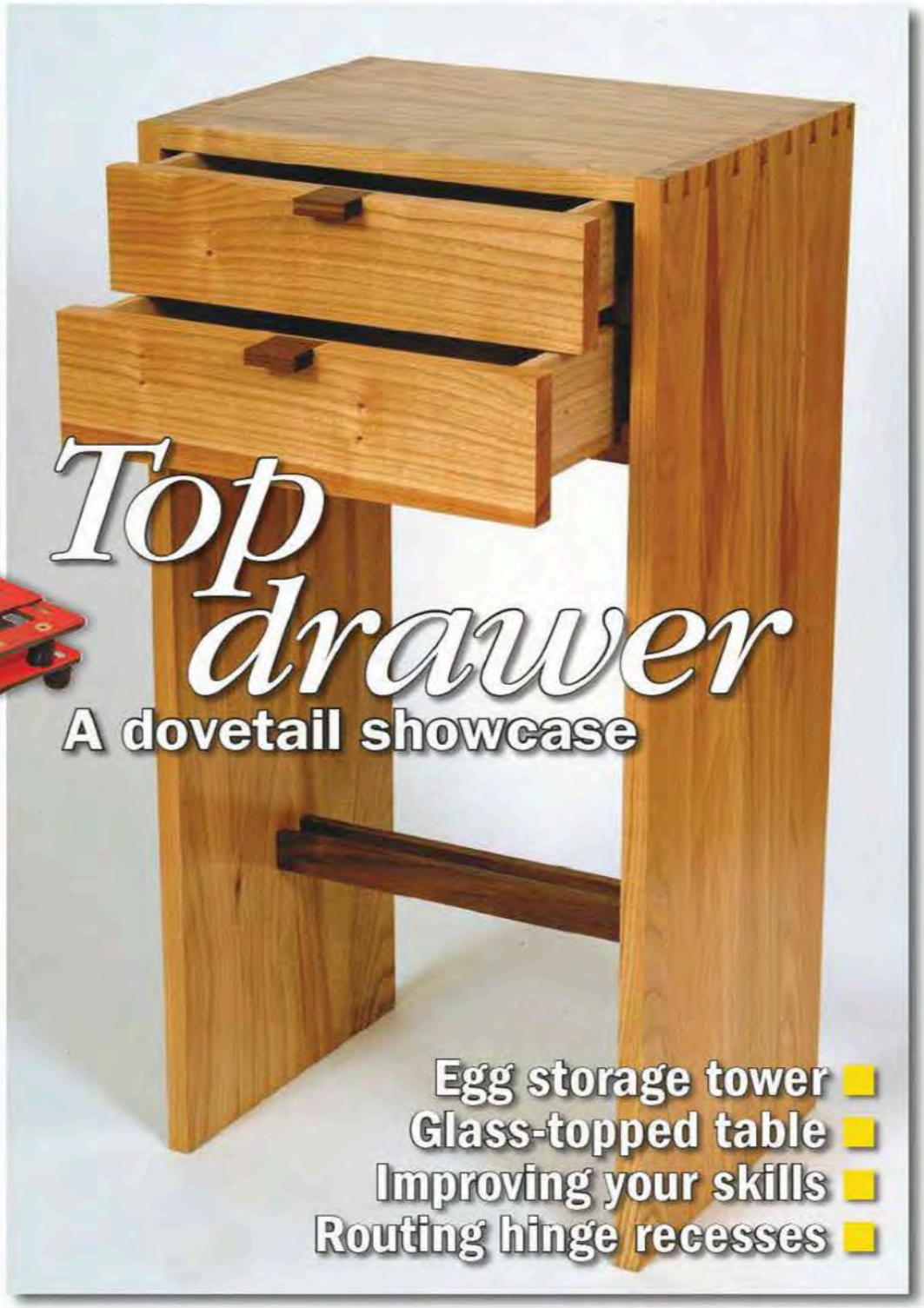

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welcome

I expect we've all heard of The Terror that followed the French Revolution of 1790, but I wonder how many readers have experienced the very real terror of 'the job that's about to go disastrously wrong at any moment'? That was my lot recently as I endeavoured to fit assorted locks and catches to the half dozen interior doors I'd just hung.

Mass production

Having been spoilt on a diet of solid and traditionally constructed doors of late, the mass-produced, vacuum-formed budget items with which I was working posed a different challenge entirely.

While reasonably good-looking and very light to manhandle around, this type of door – essentially hollow – is very delicate and can only have a lock fitted in one side. Having made sure I had the lock block – a block of timber sandwiched between the thin outer skins of the door – on the correct side, I set about chopping in a mortise lock on the first door.

My usual way is cordless, spade bit, chisel, but it wasn't until I was halfway through that I realised the lock block was now just a thick piece of chipboard instead of solid softwood, and my Thor-like mallet blows on the chisel were threatening the disintegration of the entire door.

The Mortise of Doom; note the minimal amount of solid timber

Close to the edge

A terrible vision of the door irreparably cleaving asunder rose before my eyes, and I had palpitations as the timeline fast-forwarded across my subconscious mind: driving back into town, buying a new door (now out of stock or discontinued), re-hanging it, fitting the lock again, painting it, and all at my own expense! That was when I stood back, and bought a suitable auger bit which eased the strain on every level. Phew! It all came out good in the end.

Saved from disaster

I know we all have close calls with some jobs, and maybe it's this very excitement of the risk and terror involved which makes some projects irresistible. If you've managed to turn around a near-disaster recently, why not drop us a line and tell us all about it? Nothing involving first aid cabinets though, please…

Mark

You can contact Mark on mark.cass@mytimemedia.com

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THE SUMMER ISSUE IS OUT ON MAY 30TH

REGULARS

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TURNING

ON TEST

The Woodworker & Woodturner

June 2014

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In brief...

Spring offers

BriMarc's latest newsletter and Jet offers leaflet are packed with some of the most exciting offers and products around. The Jet leaflet features the JPT-310 planer thicknesser, the JWBS-14Q bandsaw, the JML-1014 mini woodturning lathe and the DC1100A extractor. Many are on offer until 30th June.

'News from BriMarc' focuses on brands including Arbortech Tormek, UJK Technology and Ice Bear. There are also products on offer from Flexcut, Veritas and Proxxon. Again, offers are valid until 30th June. To request a copy of either of these leaflets, call BriMarc on 03332 406967.
www.brimarc.com

Festool news

May 7th sees the start of the second Festool road show. A fully equipped truck will visit 21 venues in three weeks across the south of England, giving visitors the chance to see and test the latest Festool products, and to pick up hints and tips on using the tools. The programme is rounded off with a prize draw. For tour dates and venues, visit **www.festool.co.uk/roadshow**

Dowel jigs go metric

Dowelmax UK is expanding its product range to include the Dowelmax Junior and a full range of accessories. Dowelmax products (including the Classic jig) were previously available only in imperial sizes, for which it's almost impossible to obtain dowels in Europe.

The main difference between the Junior and the Classic jigs is that the Junior uses a separate clamp, whereas the Classic clamping system is integral to the jig. The accuracy and strength of the joints produced is identical.

The Dowelmax Junior can be upgraded to the Classic

specification by adding accessories available on the Dowelmax UK website. It's also relatively simple to make some accessories in the workshop rather than buying them from the manufacturer.

Prices start at £119 for the Junior jig and range up to £239 for the Classic.
www.dowelmax.co.uk

Red-top bench

Sjöbergs' workbenches are made from home-grown Scandinavian timber, and are built to last. The new Hobby Plus 1340 bench is perfect for those with limited space in the garage or workshop, as it's just 1.47m long and 500mm deep. The trestles and under-frame are solid timber, and require only a minimal amount of self-assembly to become a rock-solid support. The tops are available in a tough red laminate or in solid birch, providing a traditional resilient work surface. The vices and top feature dog holes, allowing larger items to be securely clamped.

The red laminate version is made to order and will take approximately three weeks. A practical storage unit is also available for this bench for those who want to upgrade. Prices start from £299.94 for the red-top bench.
www.brimarc.com

Ride a big horse

Burnby Hall Gardens and Museum has just announced that 'Bigger Bertie', the world's largest hand-carved working wooden rocking horse, will be a new and exciting feature in their award-winning venue at Pocklington in Yorkshire (satnav YO42 2QF).

Designed and built at the Rocking Horse shop in Fangfoss, Bertie is 8.6m long, 4.4m high and 1.8m wide. Having attracted widespread media attention at national and international levels, he will now

have a new home in beautiful surroundings at the Gardens.

A local couple, Sean and Angela Smith of Seaton Ross, purchased Bigger Bertie with the express wish that he would be used to benefit the local community. "Our family has enjoyed visiting the gardens at Burnby Hall, and our children just love rocking horses," says Angela, "so we thought they would make a special combination for all to enjoy."
www.burnbyhallgardens.com

Felder challenge

A team from the Felder Group UK has entered the Three Peaks Challenge to raise money for the charity Action Medical Research for Children. Felder's team will attempt to conquer Ben Nevis, Scafell Pike and Snowden in less than 24 hours.

To help raise as much money

as possible, Felder has donated a Hammer N4400 Bandsaw as the first prize in a raffle draw, plus second and third prizes of tooling vouchers for £100 and £50. Raffle tickets are available at £5 each. For information on how to enter, please contact Felder on 01908 635000 or visit **www.felder-group.co.uk**

Jig promotion

Trend's Skeleton hinge jig is a two-part adjustable template set designed for recessing hinges in wooden doors and frames with the help of a router. It's designed to be easy to use, with minimal setting-up time because the hinge is used as the pattern, and it has four fully adjustable apertures for fire door requirements and renovation work. It's also ideal for fitting a new door into an old frame. Suitable for timber-based doors and square butt hinges, it's used with a light-duty plunge router fitted with a ¼in collet and a long-reach cutter 12mm in diameter and 70mm long. The jig is priced at £269.93, and comes with a free corner chisel worth £15 while stocks last.

The jig and Trend's complete range of router cutters, power tools, routing jigs, woodworking accessories and Trend Snappy tooling are all featured in the latest catalogue, available now. **www.trend-uk.com**

West's Wood Fair

West's of East Dean are a carpentry, joinery, cabinetmaking and woodturning company operating from a barn complex nestled in a valley in the South Downs in the small village of East Dean, just north of Goodwood. The family has been working with timber for over 200 years. and held a Wood Fair in 2009 to celebrate its bicentenary. This attracted over 2,000 visitors during the weekend and was very well received, so the company has decided to do it again in 2014.

The Fair will be held on June 21st and 22nd at New Barn, Newhouse Lane, East Dean, West Sussex PO18 0NJ and in the surrounding field. Its aim is to show the diversification of timber and its uses in as many ways as possible. For more details visit **www.westswoodfair.co.uk**


West's of East Dean

Third in the world

An award-winning joinery apprentice was the sole UK representative at the renowned WorldSkills Americas competition in Colombia recently. Chris Lake, a 19-year-old apprentice at GS Haydon & Son and 2012 winner of the British Woodworking Federation (BWF) Apprentice of the Year award, was chosen to be a guest contender by Didac, a leading training provider for the furniture and wood industry.

The competition took place in April, and Chris had to create a piece of furniture using the materials provided. He was judged on his interpretation of drawings, safe working practices, preparation of surfaces, jointing and assembly, among other essential joinery skills.

Chris came third in the competition; he said he enjoyed the challenge of doing something different from his usual work on doors and windows, and loved the experience of woodworking in another country.

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Bandsaw demonstrations will run throughout the day with opportunities to put questions to the experts in the field.

And they will be in the shop offering advice and knowledge on all the Record Power tools and machinery.

Also in attendance will be finishing expert and demonstrator Mark Raby, showing how to get the best from Record Power's excellent range of finishing products.

This is a free demonstration day, so come along between 9 am and 4 pm and get the information you want from the people who know.

Thursday 15th & Friday 16th May 2014, 9 am – 4 pm

For further details please contact Brodies Timber or call Record Power on 01246 571 020.

What's new from D&M TOOLS

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TSC 55 160MM CORDLESS PLUNGE SAW

MANUFACTURER: Festool
D&M PRICE: Check website for latest prices

Based on the TS 55R, the new TSC 55 cordless plunge-cut saw from Festool offers the same high level of performance, power and precision operation as the best-selling corded version.

With a no-load speed of 5,200rpm, combined with variable speed control, the TSC 55 is ideal for working with a variety of materials such as solid timber, man-made boards and solid surfaces. Combined with the motor management system and new EC-TEC motor, the perfect combination of power and cordless working are achieved.

The dual-battery concept enables the tool to be used with a variety of battery configurations – 18V/18V, 18V/15V and 15V/15V. When required, only one battery can be used if the preference is minimum weight over maximum power.

The new TSC 55: perfection that leaves nothing to be desired, even including a plug socket

The dual-battery concept offers a range of battery options for greater flexibility. An LED display clearly indicates the battery charge levels

VECTURO OS 400 OSCILLATING TOOL

MANUFACTURER: Festool
D&M PRICE: Check website for latest prices and kit options

The new Vecturo OS 400 oscillating tool features a powerful 400W motor with electronic speed adjustment for consistently fast working progress. The ergonomic slim-line housing with its rubber-coated handle rests perfectly in the hand, and the switches are located in the best position. Greater accuracy is achieved with the depth stop, simply adjusted without using tools. The optional positioning aid is ideal for making cut-outs in delicate materials.

The Vecturo with its Plug-it cable is ready to use straight away. Blades and accessories are replaced without using tools. Saw blades, scrapers and accessory parts can be stored tidily in the Systainer case, right at your fingertips.

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In your own write...

Here are just a few of the latest letters we've received since the last issue. Drop us a line on paper or via screen and keyboard to add your voice to the woodworking turmult; you might be one of the lucky few who will manage to get their hands on a coveted Woodworker badge.

SNAIL MAIL OR EMAIL?

You can write to us at The Woodworker, MyTime Media Ltd, Hadlow House, 9 High Street, Green Street Green, Orpington, Kent, BR6 6BG **or send an email to** mark.cass@mytimemedia.com

A MYSTERY SOLVED

There was a lot of response to our 'bit of a mystery' enigma last issue, so here's a big thank you to everyone who took the time to write in and explain to me just what it was I didn't know.

For the few readers who, like me, weren't entirely sure of the specific purpose of those two auger bits sent in by Mr Cobb of Ramsgate, I can now reveal that the curved wing design (above centre) is a Gedge pattern bit intended for boring into end grain as well as for skewed work. The other auger on the right is known as a solid or bullnose auger and, because of its lack of tips or wings, is the most suitable bit for tough jobs or enlarging an existing hole. Obvious, really.

Hi Mark

I'm an avid reader of *The Woodworker*. After working as a carpenter/joiner since I left school, I recently took redundancy/early retirement at the tender age of 58.

I hope I'll still be active in the trade as a hobby, and also earning a little for myself as well for many years to come. I'm in good health, thank God, and looking forward to many years left enjoying my trade in retirement.

One thing always seems to concern me is what will happen to all my tools and equipment when I do pop off to the big workshop in the sky! I have a huge number of tools, power and hand, but sadly I have no near relatives who have much great interest in the trade or in DIY.

I'd like to donate them to an organization or other good home which maybe could distribute them to some lads starting out in the trade, and who may not be as fortunate as I was. I had great help from my parents to get me started, and I have always purchased good-quality gear which has lasted me for over 40 years and has lots of life in it yet. It would grieve me to think that all my beloved kit would end up rusting away in old boxes at a car boot sale. Can you or your readers help with this request?

Keep up the good work with the magazine.

Mick Cahill, Birmingham

I know what you mean, Mick. I believe that good tools will always find someone to appreciate them, and you could do worse than to get in touch with your local technical college (or its equivalent today).

When I was teaching we received quite a few tools in this way, and were able to spread the benefits to many of the students. Also there were often some things which not everyone recognised, so it was a good chance for some extra learning too.

I'll print your letter and see what other helpful suggestions our readers can come up with.

Hello Mark

Can I take up your offer in the editorial of the May edition of a *Woodworker* badge, please? I already wear my old TGWU Shop Steward's badge on my dustcoat because in this household I represent the worker in negotiations with management. A *Woodworker* badge would sit well beside it as a mark of the skills the workforce possesses!

Colin Heydon, Prenton

Good one, Colin! I shall add your name to the list and get one out to you in the next distribution. I've not been in a union myself for quite a while now, but I did my stint on the picket line (complete with flaming brazier) when I was on the buses many, many years ago.

All the best, and keep on fighting for your rights... as it were; I'm not wanting to encourage domestic strife here, you understand!

Top drawer

David Smith shows how to build this clean-lined drawer unit that could grace a hallway, serve as a bedside cabinet or give a table lamp a home in the living room

One interesting aspect in the design of this cabinet is that it involves a rather unusual approach to fitting the drawers.

The normal way is to fit the drawer to the cabinet. The drawer is made fractionally oversize and is then planed down until it fits the cavity. This is a straightforward but exacting process.

In this project, however, the drawers are made to a fixed size and, in effect, the cavity is planed down to fit the drawers. This sounds complicated, but it's a very simple idea. Read on, and I'll explain how it works.

Drawer parts

The cabinet has two drawers. They slide on bottom-mounted timber runners, and between timber guides. The drawer fronts project at each end, and also along the bottom of the drawer to hide the runners, while the sides are set in, and the guides are cut to fit the gap.

The runners are screwed to the sides of the cabinet, using the drawers themselves to determine the position. These are positioned deliberately tight, and then removed and planed down a little to fit the drawer. This is the first stage of planing the cavity to fit the drawer.

Plane up the panels. I use simple stops pinned to my bench top

Glue up the back panel. Note the clamps set over and under to keep the panel from bowing

Trimming the dovetail shoulders is important for a clean fit

Mark out the pins from the tails, using a knife to get right into the corners

The finished dovetail joints. Notice the variation in spacing and proportion

Cut the back rail mortise using the router

The second stage is to screw guides to the cabinet sides, just above the runners, to create a rebate for the drawer to slide in. The drawer fronts are cut to length to fit within the cabinet sides.

Making the cabinet

The cabinet is a simple design, consisting of two solid timber sides dovetailed into a solid timber top panel. There are two stretcher rails, made in a contrasting timber, and a back rail. The top panel, side panels, and back rail are grooved to take a solid back panel.

Prepare all the timber for the panels and glue them up. Plane them carefully to width and cut the ends to length, ready to mark out and cut the dovetails. Exposed dovetails rely on crispness of fit and precision of marking out.

My preference is to cut the tails first. I then cramp the two panels together, and mark out the pins with a knife, using the tails as guides.

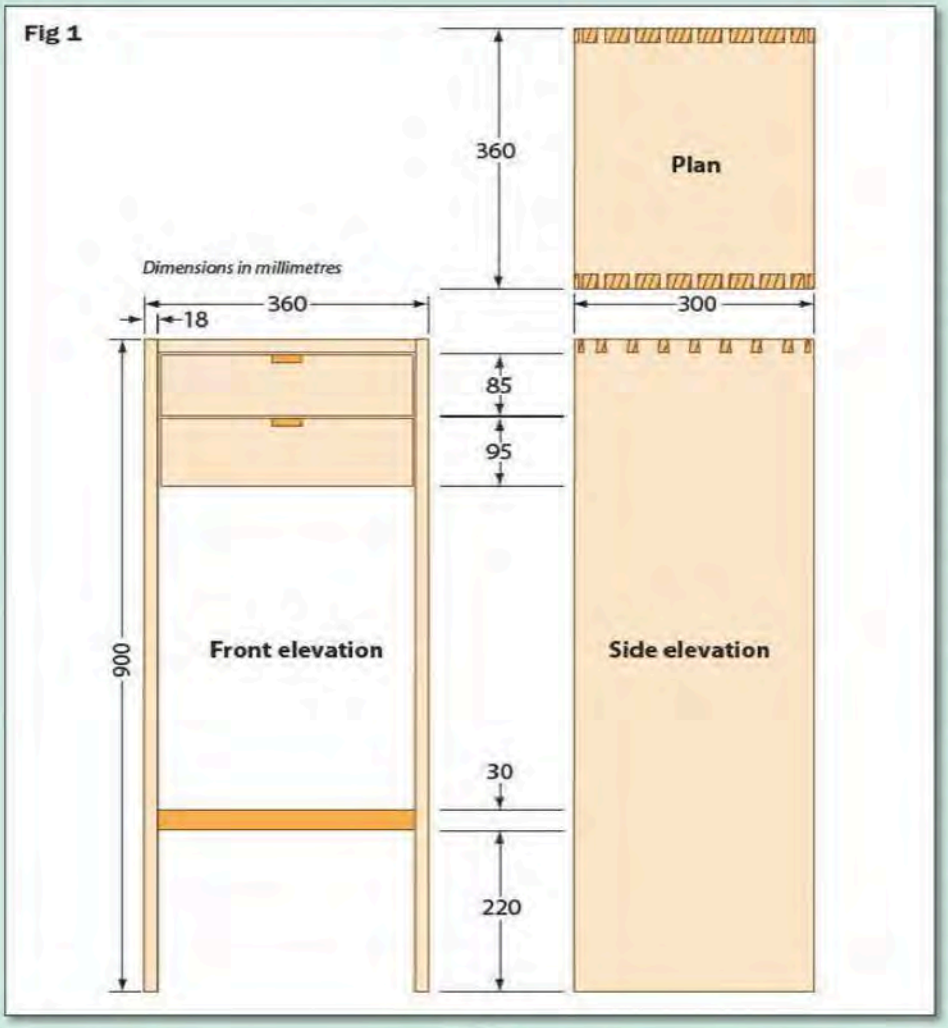
A dry assembly checks that everything fits

Stop the groove for the back panel short of the ends to avoid spoiling the dovetails

The back panel is rebated to fit the grooves and to create a fielding effect

Assembly is the moment of truth

Fig 1



Cut the groove in the front to take the drawer bottom

Assemble the drawer. Notice how the drawer back is set up to make room for the slips

Prepare the drawer slips ready for gluing in

The slips fit flush with the bottom edges of the sides, and align with the groove in the front

Making the pins to fit the tails is critical, so great care has to be taken with marking out, and with cutting the pins. Check the fit of the joints by carefully knocking the joint together with a heavy hammer and a large, flat block to spread the load. Keep the joint square, and knock it part way in.

Take the joint apart just as carefully, using the hammer and block, and again, keeping the joint dead square all the way out to avoid damage to the pins and tails. If it's too tight, carefully ease it where necessary. Avoid testing the fit too often, as the joints will very quickly wear.

Mortises and grooves

Cut the mortises for the stretcher rails and the back rail, then cut the rail tenons and check that the sides and rails all assemble correctly.

Cut the grooves for the back panel in the sides and top, making sure the grooves don't run through. Cut the back panel to size, and fit it to the grooves.

There are a number of ways this can be done. I prefer to cut a rebate around the panel to form a raised field, and I also like to keep the rebate quite narrow so that the fielding is quite close to the panels when the cabinet is assembled.

Clean up all the inside faces and the rails. Assemble the cabinet, and leave it to dry.

Making the drawers

The drawers are made from solid timber. The sides are dovetailed into the back, and are mortise and tenoned to the front. The front overhangs at each end, and by the thickness of the runners along the bottom edge.

The back panel is narrower than the sides to allow the top edge to be set down by about 6mm, and the bottom edge to be set up to allow the drawer bottom to pass.

The drawer bottom is also solid and is inserted after the drawer is assembled. It projects under the back panel and is slot-screwed to the back to allow it to expand and shrink.

In fine drawer work, drawer sides and backs should be kept quite thin. Grooves for the bottom panel are too risky in thin material, so drawer slips are used to hold the bottom in place. The drawer front is grooved to take the front edge of the drawer bottom.

It's well worth doing a quick full-size drawing on a scrap of timber or mdf to

show the cross-section through the drawer so you know exactly how much to allow for grooves, slips, the bottom panel and the overhangs.

The top edges of the sides and front are flush. Bear in mind that, once the drawer is assembled, cleaning up is restricted because of the overhanging ends and bottom edge of the front.

Preparing material

Plane all the parts to width and thickness. The front should be about 22mm thick, over length, and about 3mm over width. The front isn't cut to finished length and width until the drawers are fitted into the cabinet.

Cut the sides and back to length with good, clean, square ends where the dovetails are to be cut. Mark out and cut the dovetails, remembering that the back is set down from the top and up from the bottom.

Cut the mortises in the back face of the front, and cut the tenons on the front ends of the sides. Cut the groove in the front panel to take the drawer bottom. Clean up all the parts as much as possible and assemble the drawers.

Drawer slips

Now make up the drawer slips. I decided to notch the slips to fit within the drawer, leaving the groove flush with the bottom edge of the drawer back, and to bevel the underside of the bottom to fit it into the grooves.

Fit the slips, leaving them a little overlength at the back, and glue them into position, making sure the grooves align with the groove in the drawer front. The drawer now can be cleaned up, with dovetails, slips and top edges all flushed off.

The drawer is now ready to have the bottom fitted. It has to slide reasonably freely into the grooves in the slips, and it's glued into the groove in the front. Cut a slot in the back edge to allow the bottom to be screwed up into the drawer back. The bottom now can expand and shrink along the slot.

Fitting the drawers

Make up the drawer runners. They double up as the kickers and are screwed to the inside of the cabinet. They also act as drawer stops, sitting behind the projecting lower edge of the drawer front.

Lay the cabinet on its side with the top

DRAWER UNIT CUTTING LIST

All dimensions in millimetres
Items marked with an * are cut from walnut. All other components are in cherry

Part	Qty	L	W	T
CARCASS				
Top	1	360	300	18
Side	2	900	360	18
Back rail	1	344	30	18
Back panel	1	180	336	10
Stretcher *	2	344	30	12
Runner	4	175	35	18
Guide	4	175	18	18
UPPER DRAWER				
Front	1	324	85	22
Side	2	238	67	8
Back	1	288	45	8
Slip	2	220	15	13
Pull *	1	35	38	10
Bottom	1	256	243	7
LOWER DRAWER				
Front	1	324	95	22
Side	2	238	77	8
Back	1	288	55	8
Slip	2	220	15	13
Pull *	1	35	38	10
Bottom	1	256	243	7

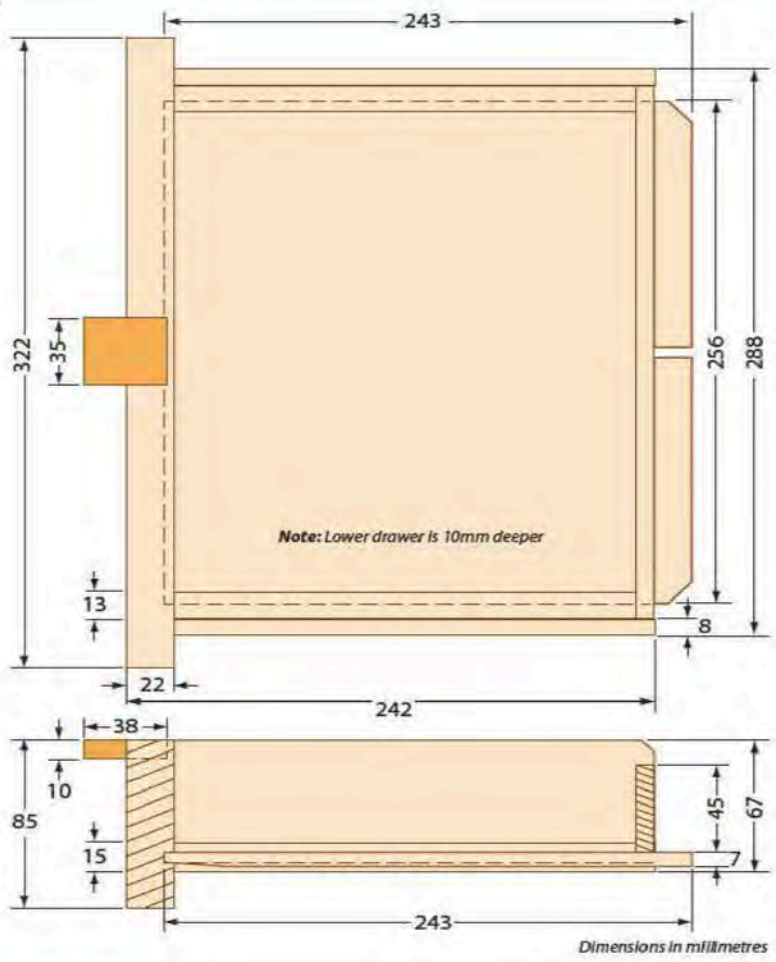
Fit the bottom. It should slide in freely

Screw the bottom into place using an expansion slot with a round-head screw. The bottom is glued into the drawer front only

The finished drawer is ready for fitting. Note that the front is still well oversize

Fit the runners to the cabinet. Use the actual drawer to get the position right

Fig 2



drawer in position. Press the runner firmly against the bottom edge of the drawer and screw it into position, making sure there's room for the thickness of the drawer front. This runner is now the kicker for the next drawer down.

Put the next drawer into position, and screw on the next runner. Turn over the cabinet and attach the runners on the other side.

Offer the drawers into the cabinet to see whether they fit. There are no guides at the moment, but the drawers will still slide in on the runners.

If the cavities are too tight, unscrew the runners, take off a shaving or two and try the drawers again. Once you're happy with the fit, it's time to make the drawer guides.

Guides

Make the guides up, leaving them deliberately too wide. Place them on the runners, and check to see how much needs to planed off each guide for the drawers to fit between them. It might well come down to taking one shaving with each pass, checking the drawer each time.

When you're happy with the guides, screw them into position. The drawer should now slide easily into its cavity. It'll only go part of the way in, because the fronts are still too long. Push the drawer in as far as it'll go, and mark where the fronts are to be cut off. Cut the fronts to length and clean them up. The drawers should now go fully home.

I decided to set contrasting pulls into the drawer fronts to make a feature as the drawer opened. I cut a small recess and glued in my pulls. They were then cleaned up and the fit of the drawers finally checked.

After final cleaning up, the cabinet was ready for polishing.

Now fit the guides. They should be prepared oversize and planed to fit the drawer

Fit the drawer. The ends of the front should not be cut until the drawer fits

Make the recess for the drawer pulls

Glue in the drawer pulls and clean up

A view inside the finished unit shows the drawer guides and runners

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BY GORDON WARR

A seat in the sun

Not only does a garden bench serve an obvious useful purpose. It enhances the garden, and also serves as a welcoming sight to any visitors. Mine is made in oak, renowned for its strength, its beauty and its long life

I recently unearthed some slabs of oak in my stockpile, but it wasn't the best quality – certainly not up to cabinetmaking standard. I decided it was best suited to an outdoor project such as a garden bench, where a few knots and other minor defects would be of no significance. The slabs were 50 to 75mm thick, and just about long enough for a two-seater model. The slabs were too heavy for me to handle on my saw bench, so I had to start by sawing them down by hand into smaller, more manageable pieces.

Drawing a layout

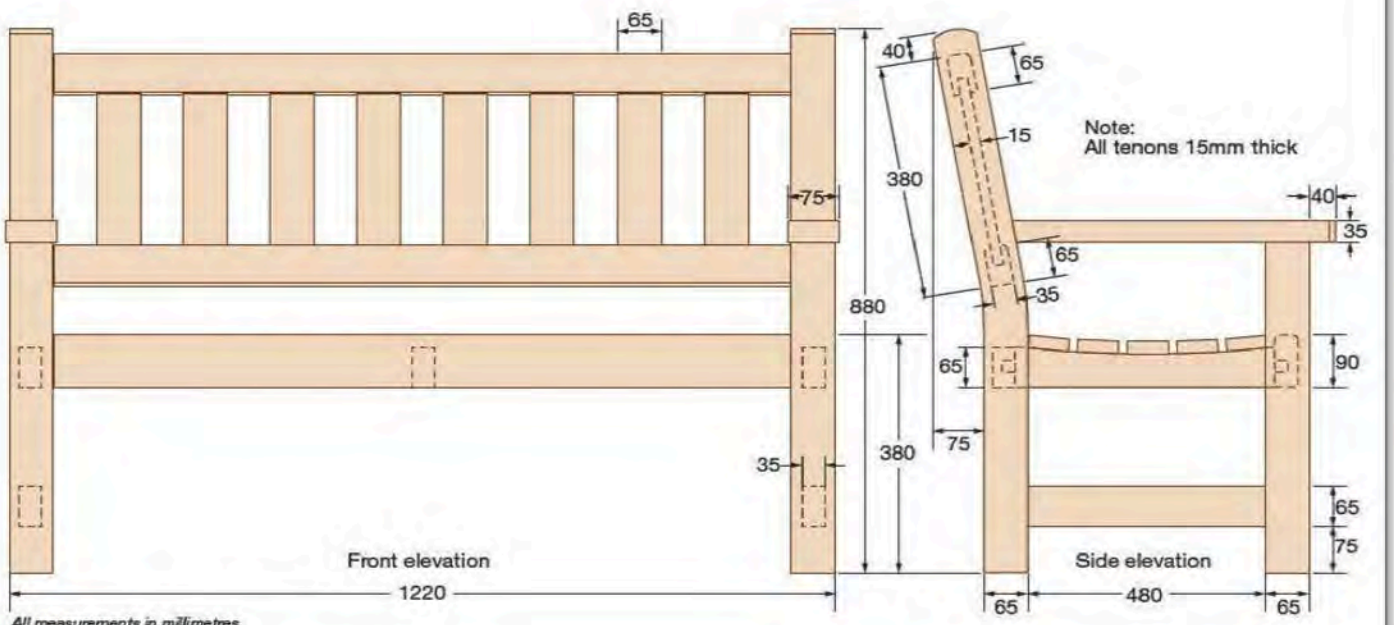
Before I could proceed further, I needed to prepare a layout – a full-size end view of the seat – from which to make a template for the back leg. Where angles other than right angles are involved in a project, a layout like this is really essential. It also meant I could mark the positions of the joints on the layout directly from the drawing. I intended using stopped mortise-and-tenon joints throughout, and these were all to be 16mm thick. In reality, as all my mortise chisels are imperial, I'd be using the ⅝in size.

Preparing the back legs

On shaped work such as these back legs, it's usually possible to cut two components out side by side and thus save material, **photo 1**. These were the first two parts to be cut, and once sawn from the plank, were faced and thicknessed to 65mm. Next, the front edges were planed to give the two surfaces needed, and checked with the template and one against the other. I then introduced a slight curve to blend the angled faces together where they met.

I had allowed extra in the width required for these legs, so now they could be refined to give me the final square section needed.

Fig 1



GARDEN BENCH CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Front leg	2	590	65	65
Rear leg	2	910	100*	65
Cross-rail	5	500	65	35
Long front rail	1	1240	90	35
Other long rails	3	1240	65	35
Armrest	2	550	75	35

Cross-sections are net; an allowance has been added to the lengths.
* This measurement is the net width, allowing for the angled section.
The two legs can be cut side by side from one piece of stock for economy.

Mark out the two rear legs side by side using the prepared template to minimise waste

Cut this double piece on the bandsaw to give two separate back legs

Hold the legs together in the vice while you mark out the joint positions

This was carried out on my bandsaw, **photo 2**, setting the fence to marginally over 65mm to allow the sawn surface to be smoothed. I found it was easier than I expected to carry out the sawing, easing the wood gently against the fence through the transition from the lower part of the leg to the upper part.

Cutting the mortises

At this stage, the legs were still a little oversize in their length. I placed them side by side in the vice and transferred lines marked on the template to the legs, **photo 3**. These marks included the overall length and the positions of the various mortises, which I indicated by gauging. Next, the waste at the ends was sawn off, and the mortises were all cut on my bench mortiser, **photo 4**. Because of the shape of the legs, I needed some packing to ensure that they were gripped properly in my machine. At this stage, I also formed the curves to the upper ends of the legs, first sawing away some of the waste and then completing the shaping on a disc sander, **photo 5**.

Tackling the rails

I could now proceed with reducing my rough-sawn rails of various sections down to size, and planing them to the widths and thicknesses required. The slats for the back were also prepared at this stage, their thickness corresponding to the width of the mortises as they would fit in place without any shoulders.

Next, I placed the end cross-rails in the vice, marked them to length and also marked the shoulders for the tenons. The rails were too large in section for me to cut them using my router tenoning jig, so after gauging them, I first cut the waste from the ends. The shoulders were then cut on my table saw, fitted with a fine blade to give a smooth cut. Then it was off to the bandsaw to remove the cheeks, **photo 6**. The cross-rails which would hold the seat slats needed to have their upper edges made concave, to add a little extra comfort to the project.

Preparing the front legs

These needed little preparation. They were marked out to length, and the positions for the mortises indicated by pencil lines and gauging. Note that the mortises on the inner surfaces are longer than the corresponding ones on the rear legs, because of the difference in the widths. The tenons at their upper ends were also marked, and cut as before once the waste at the ends had been sawn off.

Creating curves

The concave curves on the rails were first marked using my tourniquet bow, **photo 7**. The waste was then sawn off on the bandsaw, and the sawn surfaces smoothed using a compass plane. The armrests were put to one side while the end frames were being prepared; these would not be added to the assemblies until later. The upper of the two end rails needed to have the ends of the tenons cut at 45° to give the best internal arrangement once the long rails were added.

Assembling the end frames

The assembly of the two end frames was soon completed using exterior-grade PVA adhesive, and each one was checked for square, **photo 8**.

Even for an outdoor project like this, a little cleaning up was required, but I restricted this to the use of a fairly coarse belt in my sander.

Before gluing up the frames, the locking pegs had to be prepared. I wanted these to be of oak, so I prepared some lengths 10mm square, then rounded off all the corners on my router table. The result were lengths of almost perfectly circular dowelling. They were cut to length, and one end of each was lightly chamfered to aid penetration. I used the first of them at this stage to secure the end frame joints, **photo 9**.

Shaping the arm rest

I next proceeded with the preparation of the armrests. I took the lengths I wanted for these directly from the assembled end

Cut the legs to length and form all the mortises on the bench mortiser

Round off the upper ends of the two rear legs using the disc sander

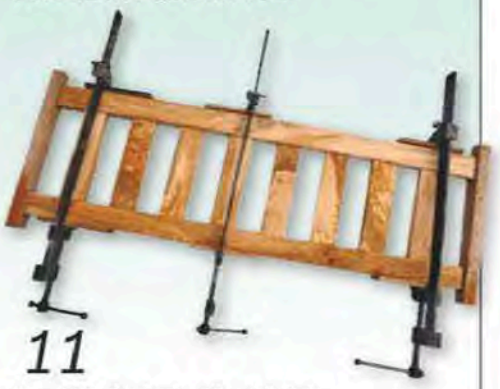
Cut the tenon shoulders on the saw bench and bandsaw the cheeks

Use a tourniquet bow to mark out the curves on the upper cross rails

Check each end frame for squareness before tightening the cramps

Drill clearance holes for the oak joint pegs and drive them into place

The tenon shoulders on the rear end of each armrest are rounded



Assemble the back rails and slats. Note the temporary end pieces

Glue and cramp up the lower long rails and the centre cross-rail together

Add one end frame at a time to the ends of the long rails

Then fit the otherend frame, cramp up the assembly and leave it to dry

A piece of scrap cramped across the legs helps to align the ends of the seat slats

Glue and cramp the two armrests to the legs. Note the protective packing pieces

Brush a couple of coats of clear preservative onto all the bench surfaces

frames, forming a mortise at the front and a central tenon at the rear. Once I had formed these joints, a little easing was needed because they would enter the rear legs at a slight angle. The rests were completed by cutting off the waste at the front ends and then rounding the outer edges of the shoulders of the rear tenons, **photo 10**.

I didn't fit the armrests at this stage, for two reasons. Leaving them off meant I had better access when it came to screwing the ends of the seat slats into place. Secondly, the absence of the armrests meant I could lay one leg assembly on the floor while positioning the long rails, as this frame would not be rocking on the armrest which is wider than the legs.

Preparing the long rails

Now I could concentrate on the four long rails. They were held together in a vice while their overall length was marked, along with the positions of the shoulders for the tenons on their ends. Then the positions of the slats were marked on the two back rails.

As before, the tenons were formed on these rails by first cutting the shoulders on the saw bench, then removing the cheeks of the tenons by bandsawing. The two rails at seat height needed the ends of the tenons cutting at 45° to correspond with the rails in the leg assemblies. The two rear rails, and the wider one at the front, had to have their upper edges rounded over, a simple job to complete on the router table.

The mid cross rail between the two long rails was quickly prepared. Note that the shoulder length for the tenons is a little longer than those on the end rails. The upper edge of this rail was formed to a concave shape to match those on the end rails.

At this stage of the project, the rear slats were cut to length, but required no further preparation.

Assembling the seat back

Further assembly had to be completed in stages. First, though, I prepared a couple of temporary pieces from scrap, with mortises in them, with the spacing of these exactly the same as those on the rear legs. I now glued up the upper rear rails and the slats, adding the temporary pieces at the ends to ensure that the spacing of the rails was exactly as required, **photo 11**. Once assembled and checked, the scrap pieces at the ends were simply tapped off. The two lower long rails, along with the centre cross rail, were also glued and cramped up at this stage, **photo 12**.

Final assembly

Now these four sub assemblies could all be brought together, adding one end frame at a time, **photo 13**. Cramps were then applied, **photo 14**, and checks for squareness made.

Next, the seat slats could be prepared, their arrises removed and clearance holes bored ready for them to be screwed into position. Fixing the slats didn't take long; piece of scrap cramped across the legs at one end kept them all aligned as the screws were inserted, **photo 15**.

Only now were the arm rests glued and cramped in place, **photo 16**. Finally, holes for all the remaining oak pegs were bored and the pegs driven in to complete the constructional work.

Extra preservation

Even though I had used oak, a timber known for its long life out of doors, I decided to add further to its longevity by applying a preservative. Knowing that the ends of the legs would be vulnerable to moisture, I stood all the legs in tins of preservative for three days, and applyed a couple of coats by brush to all other parts, **photo 17**.

Suddenly my project was complete. All that was required now was some sunny weather so that it could be enjoyed to the full.

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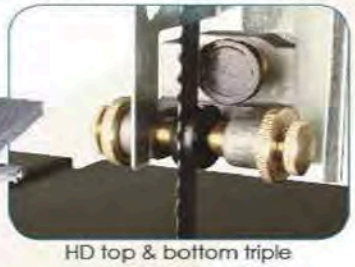

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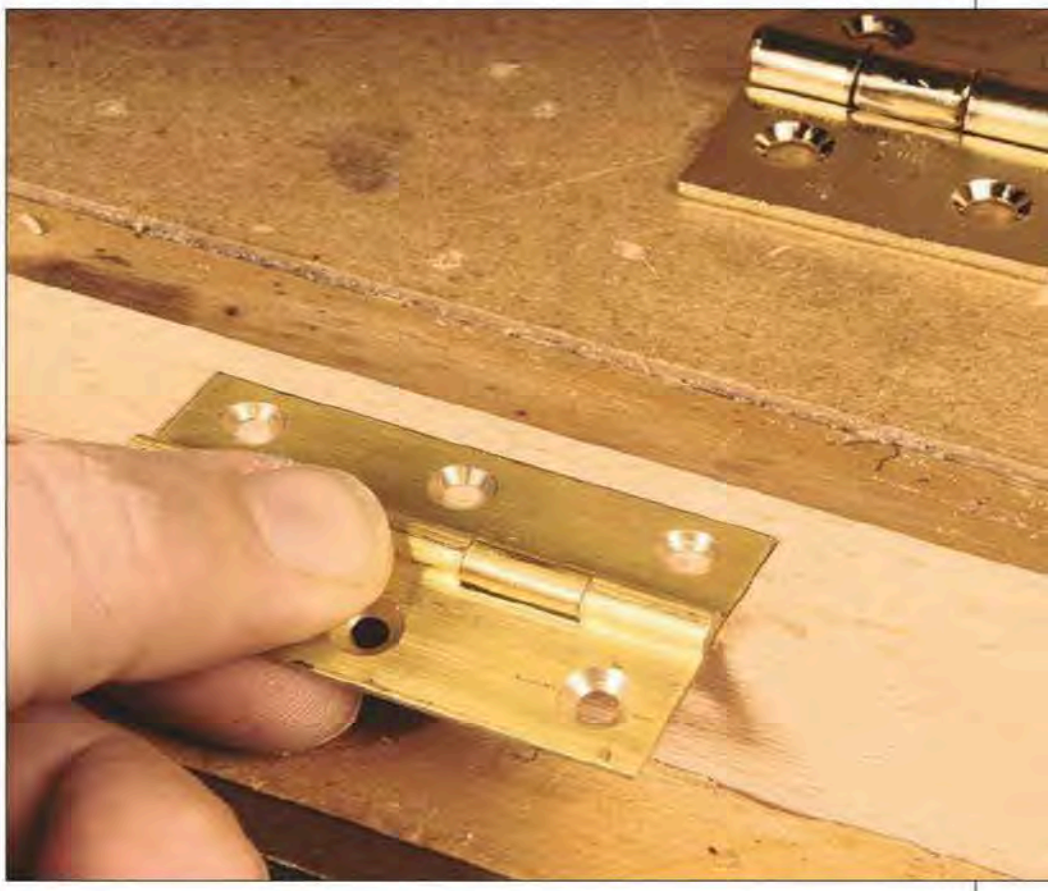


BY ALAN HOLTHAM

Routing hinge recesses

Here's another of those are very simple jigs that extends the versatility of the router even further and produces a perfect result every time on an otherwise tricky little job: cutting hinge recesses

Router jigs don't have to be highly complicated, and this one – designed to help you cut recesses for hinges – is about as simple as you can get. You can actually make an even simpler single-purpose jig dedicated to each size of hinge that you use, but I've refined the principle slightly by making the templates interchangeable on the mounting batten. I've also incorporated some fore-and-aft movement to allow precise positioning of the hinge.

Working by hand

Cutting hinge recesses by hand is always something of a lottery, particularly if you want a perfect fit. Whenever I try to form the cutout using chisels, it's inevitably in an area of difficult curly grain and the cut ends up very ragged and of variable depth. The timber always seems to have a mind of its own, especially if you are trying to leave a delicate section at the back of the hinge, which somehow manages to break off every time.

Using the router

Compare this to the perfect results achieved using a router and the home-made hinge jig. As well as being precisely the right size, the recess is also of an even depth so the hinge sits flat and doesn't get distorted. There's no need for any more of that surreptitious packing with bits of cigarette packet to try and bring it all to the right depth!

The jig templates are made from pieces of 10mm mdf. As the jig is designed to take different templates, it's a good idea to prepare several blanks at this stage, **photo 1**. It will then be much quicker to make up another for a different hinge as the need arises later.

How it works

The principle of the jig relies on the router being guided by the bush mounted in the router base, so you need to choose the cutter/guidebush combination to suit the particular hinge you intend to use. There's nothing critical here; my own preference is

The jig is designed to take several different templates, so cut plenty of mdf blanks

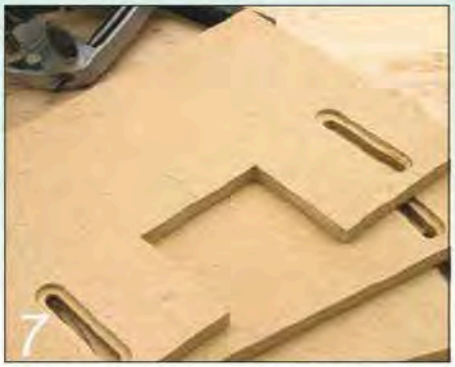
Choose a cutter and guidebush combination that will suit the hinge you're using

Centre the aperture on one edge of the template, including the guidebush margin

Cut the opening on the bandsaw, using the rip fence to get parallel cuts

Clean up any roughness along the cut edges of the opening using a fine flat file

Machine the slots for the adjusting bolts next, using a narrow two-flute cutter



Switch to a larger diameter cutter to form the recesses for the bolt heads

The jig support bar is a piece of hardwood machined true and square

for a 16mm diameter cutter and a 20mm diameter guidebush, **photo 2**.

When you come to make the jig, you obviously have to make allowances for the guidebush margin – the difference between the cutter and guidebush diameters. In this case, 20 – 16 equals 4, so the template aperture needs to be 4mm wider than the hinge. The front-to-back distance doesn't really matter on my version of the jig, as the template is fully adjustable.

Cutting the aperture

Centre the aperture along one edge of the template, **photo 3**, making it the width of the hinge plus the guidebush margin. However to allow for some fine tuning later, I actually make the aperture slightly smaller; you can always enlarge it later to suit. Cut out the opening on the bandsaw, using the rip fence to get the cuts parallel, **photo 4**. Any roughness along the cut edges can be cleaned up using a fine flat file, **photo 5**, taking care not to distort the squareness or enlarge the aperture. Mdf is relatively soft, so do be careful here.

Cutting the adjustment slots

The adjusting slots are machined next, using a narrow two-flute cutter of the same diameter as the bolts you're going to use. The router side fence should provide enough support for this operation, but close up the sliding cheeks on the fence to prevent it tipping in as you work across the rather narrow workpiece, **photo 6**. With the router kept at the same fence setting, substitute a larger diameter cutter to form the recesses for the bolt heads, **photo 7**. Repeat the slotting procedure on the other template blanks. Then they'll be ready for when you need to fit a different size of hinge.

Machining the support bar

The support bar for the jig is a piece of hardwood machined true and square, and long enough to allow the jig to be clamped to the door edge. You also need some form of wing nut or locking handle to fit the bolts for use in tightening up the front-to-back movement, **photo 8**.

The bolt is threaded through the template from the top, **photo 9**, with the head recessed below the surface so that it doesn't interfere with the movement of the router. Note that I've filed flats on either side of the bolt heads to prevent them turning in their slots as you tighten up the nuts. The completed jig is shown in **photo 10**. What could be simpler than that?

Fine-tuning the jig

It is now necessary to do some fine tuning as I mentioned earlier, so clamp the jig to a piece of scrap wood the same thickness as the door you're going to be working on. Measure carefully to set the front-to-back distance of the jig, **photo 11**, allowing for the guidebush margin. With a good-quality hinge incorporating finials like this, I usually arrange that the whole of the hinge knuckle stands proud of the door edge. Also make sure that the back edge of the template aperture is parallel to the edge of the door.

Fix the guidebush and cutter in the router, **photo 12**, and then set the depth stop to suit the thickness of the hinge. The most accurate way of doing this is to zero the cutter onto the edge of the door, and then to cramp a leaf of the hinge between the depth stop and the top of one of the turrets, **photo 13**. If you lock the depth stop at this position and then remove the hinge, you should have the required cutting depth.

Making the cut

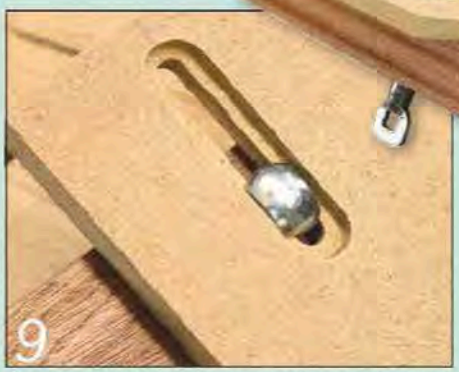
With the router running, make a pass clockwise around the edge of the template aperture and then remove the rest of the waste, **photo 14**. Obviously the first cut will also cut into the support bar for the jig. Now try the hinge in place and you can see immediately whether the width is correct or not, **photo 15**.

If the hinge is too tight, file a fraction off the template aperture to make it slightly wider. Don't overdo this, and keep checking the effect by making another trial cut. If the recess is just a fraction too big you can stick some gaffer tape around the inside of the template to reduce the aperture slightly. This will only work for minor adjustments, however, and if the recess is far too big you'll have to make another template!

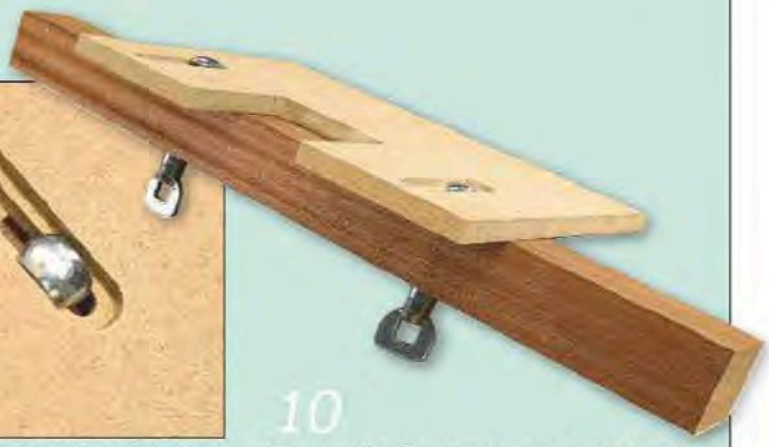
Trimming out

The router obviously leaves the corners of the hinge recesses radiused so these need to be cleaned out, either using an ordinary chisel or, more effectively, using a proper corner chisel, **photo 16**. This handy little tool locates in the recess and a couple of smart taps with a hammer is enough to square out each of the two corners perfectly, **photo 17**.

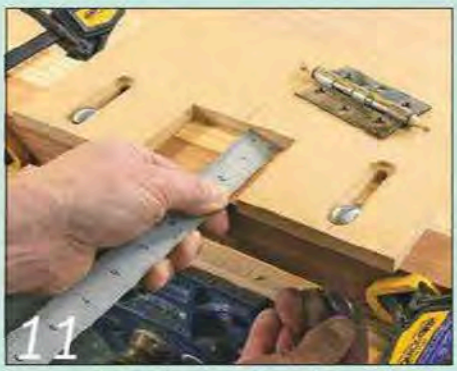
After a little initial tweaking of the template you should then be able to get a perfect fit for the hinge every time... and in just a few seconds. Mark the centre line of the hinge on the template for quick alignment next time you use it, **photo 18**.



File flats on each side of the bolt heads to stop them turning as you tighten the nuts



The completed jig shows how the bolts and wing nuts secure the template to the support bar



Do some fine tuning on a piece of scrap the same thickness as the door you're fitting

Fix the cutter and guidebush in the router and set the depth stop to suit the hinge

Zero the cutter onto the door edge and cramp the hinge leaf on top of one of the turrets

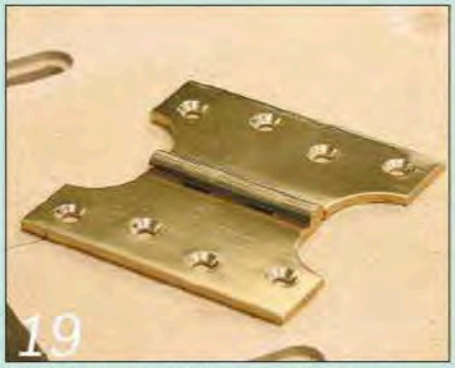
Make a pass clockwise round the edge of the template aperture and remove the waste

Offer up the hinge so you can see whether the recess width is correct

Cut the radiused corners square with a plain chisel, or use a special corner chisel

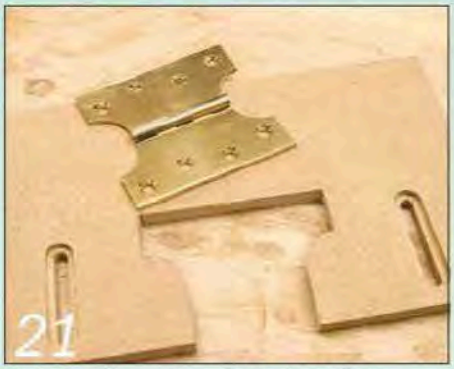
Tap the corner chisel sharply in each corner, then clean out the waste

The hinge should fit perfectly into its recess every time you use the jig



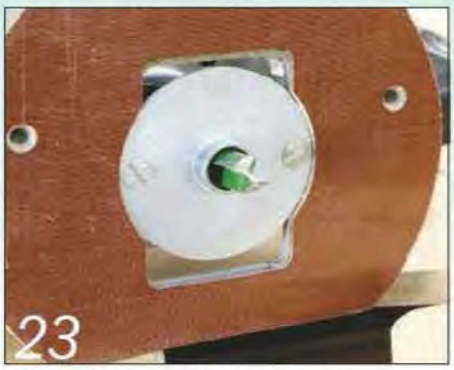
The jig isn't restricted to rectangular hinges. I needed to fit some parliament hinges...

...so I marked the template aperture with the hinge well back into the template blank



I then cut the aperture slightly larger than the hinge outline to allow some leeway

The radiused area of the curved sections didn't quite match after my first trial cut



I changed to a smaller diameter cutter and guidebush combination...

...and achieved a much better fit that was accurately reproducible every time

Unusual shapes

Obviously this is a very straightforward operation for hinges with rectangular leaves, but you can adapt the principle to suit different hinge profiles. The prospect of a rather daunting forthcoming job hanging some very ornate and equally expensive oak doors using curved parliament hinges, **photo 19**, had me experimenting to come up with a suitable template for this job as well.

Trial and error

In these situations it is very much a trial-and-error job, but I initially used the hinge itself to mark out the necessary template aperture, **photo 20**, keeping the hinge well back into the template blank to allow for plenty of front-to-back movement when it came to fit the jig to the door. Once again, you must allow for the guidebush margin. I cut the aperture slightly bigger than the hinge outline, **photo 21**, but still allowed some leeway for jiggling later.

In fact the recess wasn't too far off, but the radiused area of the curved sections of the hinge was significantly different, **photo 22**. In an attempt to improve this I replaced the cutter and guidebush with a smaller diameter combination, **photo 23**, which seemed to reproduce the required shape more accurately.

Finishing off

After some judicious filing of the template I did actually manage to get a good fit that was reproducible every time. However, with an enclosed hinge like this all four corners need to be cut square before it will fit, **photo 24**.

For future reference and speedy jig selection, it's essential to mark each particular template clearly, not only with the hinge size, but also with particular guidebush cutter combination designed to be used with it, **photo 25**.

Label each template with the hinge size and the details of the cutter/guidebush combination

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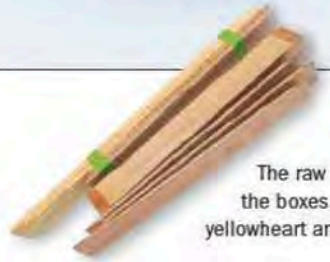


1

The raw materials for the boxes – red beech, yellowheart and mahogany

My daughter and daughter-in-law asked if I could make them each a box to house their growing collection of knitting needles, so I set to work and made two boxes for Easter. Both knitters seemed very pleased with the result!

The dimensions were determined by the length of their most-used needles, and resulted in a box with the overall dimensions of 410 x 110mm. **Fig 1** gives all the other dimensions and construction details.

A central divider separates the shorter, double-ended needles and crochet hooks from the other needles. I made one box in red beech and yellowheart, **photo 1**, with a birch plywood top and bottom and mahogany linings and divider. The second box was constructed in ash and birch plywood with a veneered lid.

Routing overhead

In this article I'm using a router in an overhead mode to rout the rebates for the box joints. I like to use this method because it gives a strong, neat joint with maximum contact area for the glue. I find overhead routing preferable for a job like this because I can see exactly what I'm doing.

Regular readers will know that I normally use a Trend T4 router in a Proxxon BFB 2000 mill/drill stand, with a KT150 compound table clamped to the base, to rout rebates and grooves. This system works extremely well for small projects, but it's an expensive option – the Proxxon stand alone retails at £186 without the compound table. However, I should point out that this stand is designed for the model engineer, not the woodworker, so it's expected to be a precision product and is priced accordingly.

Stand and deliver

This time I've used the same Trend T4 router, but I've mounted it in an Axminster DS2 drill stand and made my own simple routing table, **photo 2**. This set-up is ideal for making small boxes, picture frames and similar tasks. The drill stand costs £49 and the router £78, so this is a reasonable outlay. What's more, each piece of equipment can be used for tasks other than just overhead routing.

I chose the Trend T4 router because it has a 43mm collar – the only router with this size as far as I'm aware. It's rated as suitable for hobby/light trade use. I've seen a few

2

I used a Trend T4 router in an Axminster drill stand, and made my own routing table

3

The diagonal slots in the drill stand allow the table to be moved forwards or backwards

4

Set the table up and fit the cutter. The wood to be routed is passed from left to right

5

Rout rebates on the top and bottom edges of all the sides, and on the ends of the long sides

6

Apply glue to the joints, assemble them and cramp them up squarely

7

Sand both sides of the birch plywood panel to a very fine finish

adverse comments about this router, but in my own experience it's quite adequate for the task if it's used within its design criteria.

The router table

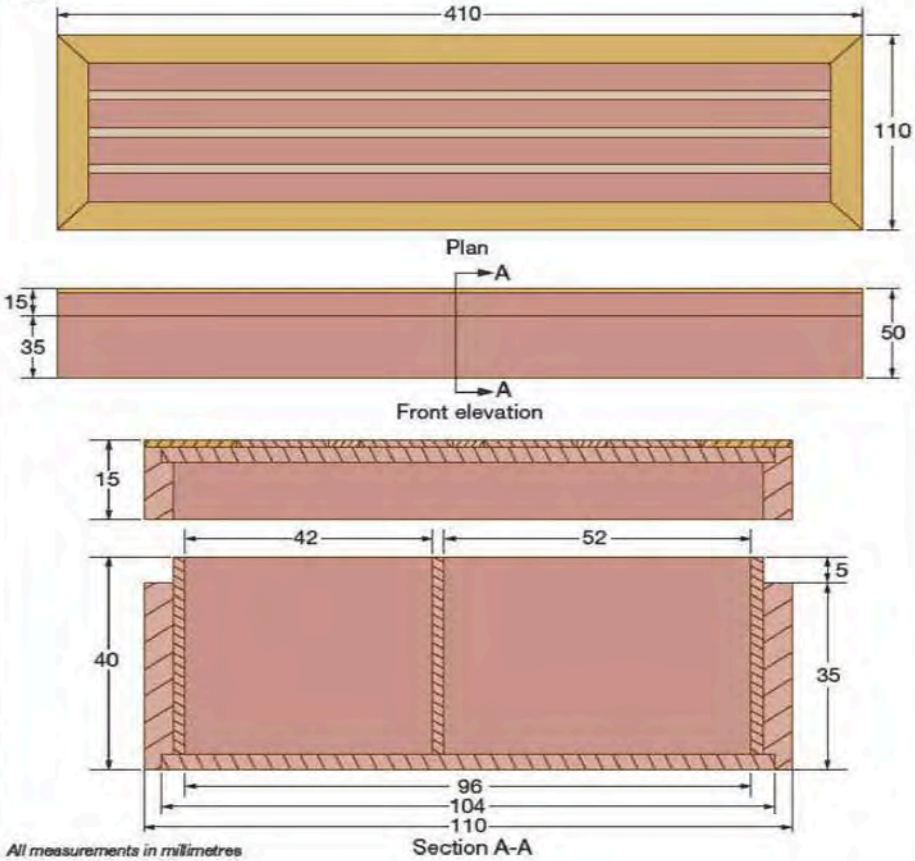
Fig 2 shows the dimensions for the router table, which is made from an offcut of melamine-faced mdf and a 1.5mm thick length of 25 x 10mm aluminium angle. It's attached to the base of the drill stand by two M10 bolts, nuts and washers.

The slots on the drill stand base are diagonal. By loosening the bolts the table can be slid towards and away from the column if a wider cut is required, **photo 3**. This is achieved with a number of passes and slight adjustments until the desired width is achieved. When routing with the T4, it's better always to take several shallow cuts rather than one deep one. The wood to be routed is passed from left to right across the table.

Selecting cutters

The router is shown in **photo 4** fitted with a 6mm twin parallel flute TCT cutter on a ¼in shank. I always suggest that newcomers to routing buy one cutter at a time as the need

Fig 1



arises, rather than being tempted to purchase a whole set. The boxed sets look most attractive, but they often contain cutters that never get used. A parallel flute cutter and a round-nose cutter can produce a variety of mouldings. It's always wise to try out a sample cut first to make sure that the width and depth are right and that the router is set at the correct speed.

Preparing the parts

Prepare the planed and thicknessed hardwood carefully and cut the four pieces for the sides of the box. Set up the overhead routing combination and rout a rebate 3mm deep and 4mm wide along the top and bottom edges of all four pieces. Then cut a rebate 3mm deep and 6mm wide on the ends of the two long sides, **photo 5**.

Starting the assembly

You can now glue and cramp up the four box sides. Although I do have four Woodpecker box cramps, I had to assemble the two ends to one side first and leave the glue to cure before adding the other side, **photo 6**, because the box was too narrow to fit all four cramps at once.

Next, sand both faces of the birch plywood to give a very fine finish, **photo 7**. Then cut the pieces of plywood for the top and bottom of the box and true them up to give an exact fit, **photo 8**. It's most important that any whiskers are sanded off the edges now, because once the work is glued up it's almost impossible to remove them. Glue the panels into their rebates to form a closed box.

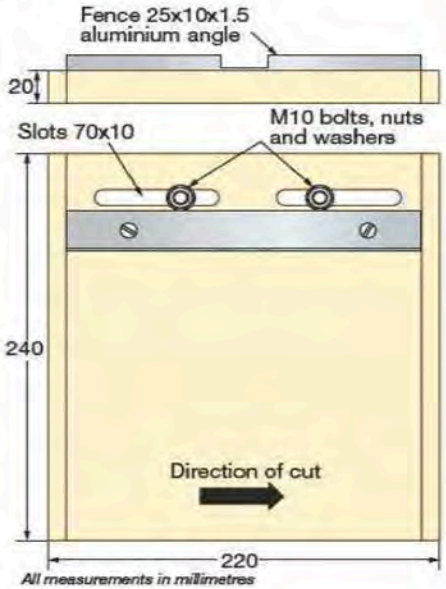
Creating the box

Mark the cutting line all round the box, 15mm down from the top. Then cut the box in two to produce the lid, **photo 9**. I used my Proxxon table saw for this task, cutting the long sides first and then the short sides. Some slight tidying up on the cut edges with a plane and abrasive may be required. Mark the top and bottom with a coloured sticker, **photo 10**, so you can ensure that the grain matches up at the final assembly.

Lining the box

Prepare the linings to go on the inside of the box. They're 2mm thick, and project above the sides of the box by 5mm to form a ledge on which the lid locates. The dividers on the short sides feature a 2mm wide gap for the central divider to slip into. A little semi-circular scoop cut out halfway along the divider will make it easier to lift the needles out. Glue and cramp the linings

Fig 2



8 Cut the top and bottom panels to give an exact fit in their rebates

9 Cut the box in two using a small table saw (as here) or a fine-toothed handsaw

10 Put a coloured sticker on the inside of each box half so you can match the grain later

11 Cut the linings and central divider to size, glue them in place and cramp them securely

I used this Veritas edge plane to apply a slight bevel to the projecting lining pieces

13 Make up a frame to go round the top of the box. These shears cut thin wood well

Stick the frame on with contact adhesive. I've added a central veneer panel to this box

The other box has a stripwood inlay panel. Sand it smooth before gluing it in place

Give the finished box three coats of clear acrylic varnish, which dries in an hour

Take care to position the hinges and clasps accurately, using small brass screws or pins

and the divider in place and set the assembly aside for the glue to dry, **photo 11**.

Tidy up the box where necessary. The little Veritas edge plane is brilliant for this task, **photo 12**, as it enables you to bevel the outer edge of the lining slightly so the lid will slide smoothly over it.

Framing the top

Next, make a frame to go round the top of the box. The shears shown in **photo 13** are very good for mitring very thin sections of wood to length.

Glue the frame sections to the top of the box using contact adhesive, **photo 14**, and put a weight on top to hold the wood down while it cures.

This photo may be a little misleading because it shows the second box I made with a veneered central panel, but the principle is the same. The frame not only neatens the top; it also gives you a central area to decorate.

Decorating the top

For the red beech box I used strips of the same wood alternating with the yellowheart I had used for the frame, **photo 15**. I described this stripwood technique in the December 2013 edition of *The Woodworker*. For my second box I made the frame with strips of red beech, and inserted a plain veneer panel.

You could add veneer, fabric, fretwork, pyrograph pictures, stencilling or lettering – whatever you are good at! Cut a piece of very thin plywood which will exactly fit into the frame recess. Then create your design using this sheet as a backing and glue it into the frame when you've added the decoration. On the other hand you may decide to leave the plywood top just as it is; when varnished this looks quite acceptable. Alternatively, you could dispense with a frame altogether and simply veneer the lid edge to edge.

Varnishing the box

Give the box at least three coats of clear varnish, **photo 16**, rubbing down the first two coats. I find Ronseal's quick-drying acrylic varnish very useful for this sort of work. Brushes wash out easily in water, it has no fumes or odour, and repeat coats can be applied after just an hour's drying time.

The only fault I have to find, and this doesn't apply only to Ronseal products, is that the varnish is sold in a tin rather than a plastic container. Even if you're careful and wipe the top of the tin after use, I find that the metal soon rusts and I end up wasting varnish. As you can see in the photo, I now decant the remainder of the tin into a glass jar for future use.

Adding the hardware

Putting on the hinges and clasps needs some care and concentration. Mark the positions for the two small hinges first and then drill pilot holes for the brass screws. These screws are very tiny, but once in place they do hold the hinges securely, **photo 17**.

Close the box and mark where the clasps are to go. Small clasps like these are usually held in place with tiny brass pins. Whenever I make a box I have a hunt for some good-quality small brass hinges and clasps, but I must admit that I'm often disappointed with the limited choice available. You'll find details of two reliable online mail order suppliers below.

To finish off I lined the boxes with self-adhesive red baize and loaded up the needles. I must admit that the end result was very pleasing to the eye, and the two recipients of my handiwork were most appreciative!

FURTHER INFORMATION

Brass suppliers

- Hobby's
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BY KEITH SMITH

A stitch in time...

Wooden windows and doors are prone to weathering and eventual decay unless they're kept in good condition. Here's how to save yours from the knacker's yard

When the paint starts to peel off a window or door, and the timber shows signs of rot, the first reaction of most homeowners is to look up a window firm and get them to replace all the windows and doors in the house with PVC ones. This can be extremely expensive. It's often unnecessary and can, particularly with older properties, spoil the appearance of the house. However, there is an alternative. The damage often looks worse than it is, and making a repair is a relatively simple and inexpensive operation.

This opening casement has some rot in the bottom rail but is otherwise sound

Out with the old...

The fundamental principle of any repair is to remove all the rotten wood and replace it with new timber or filler. It's very important to get back to solid timber, as no glue or filler will stick soundly to rotten wood. It's also worth looking at why the timber has failed, because it may be possible to reduce the chance of future problems by, for instance, preventing water from 'pooling' on the frame.

No two repairs are exactly the same, but they do tend to follow a pattern as most damage is caused by water getting behind beading or through cracks in the paint along a glue line. With good maintenance, timber joinery should last for decades.

Window problems

Most opening casements fail at the bottom corner where water has got behind the beading. Once water gets into the wood it swells, cracking the paint along the glue line and causing further water ingress. The paint then traps this moisture within the wood, causing the rot to spread.

In the window shown in **photo 1**, the glazing beads have completely rotted away at the bottom edge and the rot has spread into the bottom rail. If possible, it's always worth removing all the paint before tackling the repair, as the window can then be painted with a new microporous breathable paint which will discourage rot from recurring. If not, remove the paint for at least 100mm beyond any signs of rot.

Fitting a patch

Next, pare away all the soft and damaged wood to leave as smooth and flat a surface as you can. Then cut a piece of wood to match the cut-out section of the rail as closely as possible, **photo 2**, together with a piece to fill the stop chamfer cut by removing the rot from the stile.

Use a polyurethane adhesive to glue the first piece in place, as it will foam up into the endgrain and help to protect it. The foaming action can be quite aggressive and the piece needs to be firmly cramped in place until the glue cures. Then glue the small fillet in place, **photo 3**, ensuring the glue line is as tight as possible; polyurethane adhesive has little strength where it foams up.

Cut away all the rotten timber carefully and prepare an infill piece to fit the gap

Cramp the infill piece in place, along with a fillet to repair the stop chamfer

With the new glazing beads fitted and primed, the casement is ready for repainting

This otherwise sound door had some unsightly rot in the bottom panel

Both the bottom rail and two of the vertical boards were affected

One board was so bad that I machined a rebate along its length...

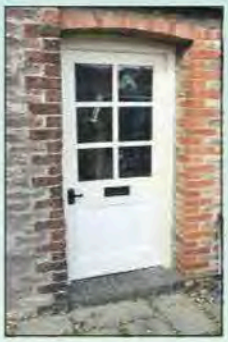
...and glued in a replacement piece which would be thicknessed down later

On the second board I just removed the rotten timber and glued in a small fillet

I rebated the rail and fitted a replacement piece across the full width

The repaired sections were replaced in the door and any gaps were filled

The finished door is primed and undercoated, ready for repainting



I used a kitchen worktop jig to cut a flat rebate into the face of the middle rail

This left a smooth flat face, flush with the glass and the lower panel

Trimming to fit

Once the glue has completely cured overnight, plane the fillet down with a small block plane and then sand the face with 150-grit abrasive using a random orbit sander. To make sure you don't scratch the glass, place a thin sheet of plywood over it. Prime the bare timber and, once dry, fit the pre-primed glazing beads before finally giving the repair a coat of primer/undercoat.

Once the opening light is re-fitted in its frame, **photo 4**, the repair should be almost invisible and the restored window should last for many more years.

Panelled door problems

A vertically panelled door has a weakness designed in because rain tracks down the gaps between the panels. It then sits in the groove along the top of the bottom rail and soaks into the end grain of the panels. This door has suffered in this way, **photo 5**, and the rot has spread into the top of the rail as well.

The first job is to get the boards out of the door and cut away all the soft wood, **photo 6.** It might be easier to replace all the boards in the panel, but here only two had any rot so it was worth repairing them. If the rot is extensive, the best course is to run a large rebate along the entire length of the board, **photo 7**, and to glue in a length of new timber, **photo 8**, which can then be thicknessed down to size once the glue has cured. Where the damage is more localised, **photo 9**, you can just glue a small piece in place and re-cut the bead detail by hand.

Patching a rail

Although the door's bottom rail had only a small amount of rot in one corner, gluing in a small fillet would leave it very vulnerable in the future. Instead, use a router to cut a rebate along its entire length and glue in a long fillet, **photo 10**. If any filling is needed, use a two-part filler before sanding the frame smooth.

Re-fit the panel using a flexible mastic to help seal the joints. Most mastics suitable for this job are silicone-based and will resist any paint finish. However, there are some relatively new mastics which can be painted without the risk of the paint peeling; they are comparatively expensive but worth the extra cost.

Prime and undercoat the finished repair, **photo 11**. The repaired door will look as good as new, **photo 12**, once the decorator comes and gives it a fresh coat of paint.

A problem fixed

A door I was asked to repair recently was unusual in that it was the central rail which

had rotted, and not just a little but a lot! I did advise that it would be better to replace it, but the owner wanted me to repair it and I couldn't resist the challenge.

The thing that saved the door was that rot had not affected the joint too much and the door was still rigid and basically sound. I needed to remove the top 15mm of the whole face of the middle rail to leave a surface which was smooth enough to take glue well.

After some thought I had the idea of using my kitchen worktop jig to act as a support for my router, **photo 13**, and to make multiple passes to rout it smooth and flat. This worked really well, **photo 14**. My only concern was catching the edge of the glass, so I pared the last few millimetres by hand.

Fill where necessary

I cut a new piece of wood to replace the rotten timber. I was able to run this flush with the right-hand stile, **photo 15**. The left-hand stile had some rotten timber along its edge, and I decided to extend the rail over the stile, **photo 16**, rather than adding an additional piece to the stile. This was glued in place and left to cure overnight.

There was a little bit of fillable rot in the bottom rail, and the two ends of the central rail also needed filling. For this I used a white two-part filler. This can be pushed into the joint and smoothed over, **photo 17**. With bigger joints, the filler can be applied and a thin plastic sheet and a block can be cramped over the joint to compress and flatten the filler, **photo 18**. This doesn't always leave a completely flat surface, **photo 19**, but it can be more easily smoothed down than a rough surface because it tends not to have any hollows. The repaired door was then fitted and repainted, **photo 20**.

Making a new door last longer

Some doors are beyond economical repair. If rot has spread into the tenons and the main structure of the door has been compromised, as in this door, **photo 21**, it isn't really practical to make a repair and the easiest solution is to fit a new door.

Cut the new door to size, fit the hinges and hang it temporarily. Then remove it and paint the top and bottom edges, **photo 22**. Modern doors are machine-made and this can leave large voids in the rebates right above the vulnerable joints, **photo 23**. I always like to fill these with mastic before painting all the rebates, **photo 24**, and I also paint the new glazing beads on all sides before fitting them in place.

I used a router bit to cut the moulding detail to both long edges of the rail

One stile had some rot, so I cut it away and extended the rail in a long mitre

With a tight-fitting joint the filler can be spread over it and left to cure

Otherwise cover the filler with a plastic sheet and cramp it until it has cured

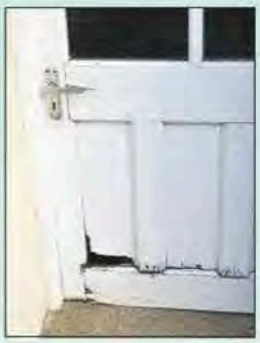
This leaves some ripples in the surface, but they're easy to sand away

20

Once the door is repainted and rehung, the repair is undetectable

21

If rot has got into the frame joints, the door is beyond economical repair



Cut the new door to size and hang it. The remove it and paint the top and bottom edges

Machine-made doors have large voids in the joints which need filling with mastic

On a new door I always paint the rebates and the new glazing beads

A picture such as this needs only three or four contrasting colours to be effective. It's a good idea to buy a bag of veneer offcuts so you have a good selection of colours to choose from. The background maple veneer for this picture is quite pale, but there are many paler veneers available. Sycamore is almost white by comparison, and also shades well with hot

BY PETER DUNSMORE

Marquetry: inlaying a motif

Last month I showed you how to inlay a name into a piece of veneer. This month I'll make a simple picture using a few more veneers, and introduce you to the technique of basic sand shading to add depth to the image

sand which makes it ideal for the flower petals in this picture. The leaves are cherry and the small insert in the flower is a yellow veneer whose name I know not!

Sand shading

This technique is quite simple to achieve. Sand obtained from a pet shop works well, but builders' sand is too coarse. Pour some sand into a small metal pan to a depth of about 30mm and heat it on a stove. I have a portable camping-gas type stove I can use safely at the work table. Take care: the sand gets hot enough to cause severe burns should the pan spill.

Test the temperature by inserting a strip of veneer into the sand and leaving it for about six seconds. Use tweezers, as the radiant heat is quite noticeable. Pull out the veneer and look at the colour change. What you're after is a gradual colour change from dark to light. If the end of the veneer is charred then either the sand is too hot or the veneer has been left in for too long. Experiment a little by turning down the flame or adjusting the time the veneer is left in the sand.

A point worth remembering is that once laid the veneers will be sanded smooth and this will remove some of the shading, so it's better to go slightly darker than required. The shading should be subtle, and the overall effect should be of a picture with some depth.

Working back to front

You will see from the following steps that I cut the picture from the background to the front. If you like, I cut the whole background leaf and then cut over a part of the leaf to insert the petal, instead of having to cut out each individual shape like a jigsaw. I can therefore concentrate on the part of the shape that matters and get a much better fit.

When working with a large piece of veneer such as the background to this piece, it's a good idea to secure the ends of the veneers with a strip of tape. This will prevent the tendency of some veneer to split along the grain as it's handled.

Finishing the picture

This picture is glued onto a 6mm mdf base using PVA adhesive. This has several advantages. Firstly, it is easy to apply and spreads evenly using an old printer's roller. When the picture is being pressed onto the base, some glue is squeezed through gaps in the cutting of the picture. These then close up as the veneers expand slightly.

Another advantage of PVA adhesive is that it can be reactivated with gentle heat from an iron. If the veneer hasn't stuck down, you can soften the glue and then press the loose part down until it has cooled and thereby secure it in place.

After selecting and printing the picture, use a black pen to outline it. Draw a fine line at 45° through the picture to aid its positioning on the veneer

Use masking tape as you did for the inlaid name in the previous issue to secure the picture in place. Check that it's parallel to the sides and positioned accurately

Mark out the outline of the leaves and stems (on the back of the picture, remember) with carbon paper and draw into the flower petal area as shown

Use the sharp knife to cut out the first leaf. This isn't a geometric design, so it is not critical that you follow the drawn lines accurately. Tilt the blade slightly to give a perpendicular cut

Slide the cherry underneath the window and position the grain as desired. Mark out the veneer with a series of pricks and cut out the leaf. The stem on this plant is made from walnut for a dark effect

Brush a little PVA on the edges of the opening and push the insert into place. The scalpel handle is ideal for pushing the piece into the opening

With the background pieces cut and fitted, start to draw the flower petals. Cut these separately rather than in one piece. Don't worry about getting a neat join where the petals converge; this will be covered later on

Insert a piece of veneer in the pan of hot sand for a few seconds before removing it. A little trial and error will be required to obtain the desired shading effect

Shade a few strips of veneer at the same time, sufficient to complete all the flowers. Note how the shading is very shallow to suit the size of the flower petals, and gradually fades away

Prick out the shape of the petal. Note how only a small amount of it is actually shaded. Several petals can be cut along the strip of veneer, knowing they will all have a similar degree of shading

Insert the petal carefully. On larger pieces of veneer there's a tendency for the piece to shrink when heated. Let the veneer acclimatise to the environment before marking it out

Note how the petals are cutting into the shape of the leaves, leaving a neat overlapping joint. This is why I cut the picture from the back pieces towards the front of the picture

The cut opening for the petal shows how I remove the redundant parts of the leaves at the same time. It is much quicker and easier to work using this method

The central golden insert in the middle of the flower covers the meeting point of the petals. It should be small enough not to obliterate all of the sand shading

I'm fortunate to be able to use a veneer vacuum press to glue the completed veneer onto the mdf, but similar results can be obtained using some chipboard and cauls with suitable cramps

I always apply adhesive to the base and not to the back of the picture. Roll out the adhesive evenly on the base and then quickly secure the picture in place. Hand-sand to a good finish and polish it up

BY MICHAEL FORSTER

RAISING MY GAME 4:
Good practice

When it comes to better woodworking, the difference is in the detail – small improvements in the right areas can bring disproportionate rewards. This applies to your skills as much as to your equipment

Over the last three issues I've looked at three vital areas: timber preparation, marking out, and some basic kit where I've found that quality is especially vital for the work I do. So the time has now come to consider those essential hand skills.

Mastering two tools

It's easy these days to undervalue hand skills, as there seems to be a machine or a jig for just about everything. However, there are times when the machines just aren't practical – for an isolated cut it might well take longer to set up the machine than to reach for the chisel, plane or saw. Simply having confidence in using the basic tools for basic tasks will in itself greatly enhance the pleasure of general woodworking. So to conclude this little journey I thought I'd focus on improving the skills with two really fundamental stalwarts of our craft – the saw and the plane.

Precision sawing

Many people would be surprised to hear a saw spoken of as a precision tool. Surely those jagged, file-sharpened teeth can't cut as precisely as a well-honed and polished chisel? Well, let's think again. Cutting shy and paring back to the line is a well-recognised approach to joint cutting and I don't decry the method in the slightest, but for some joints, particularly in smaller-section timber, there's no reason they can't fit perfectly straight from the saw.

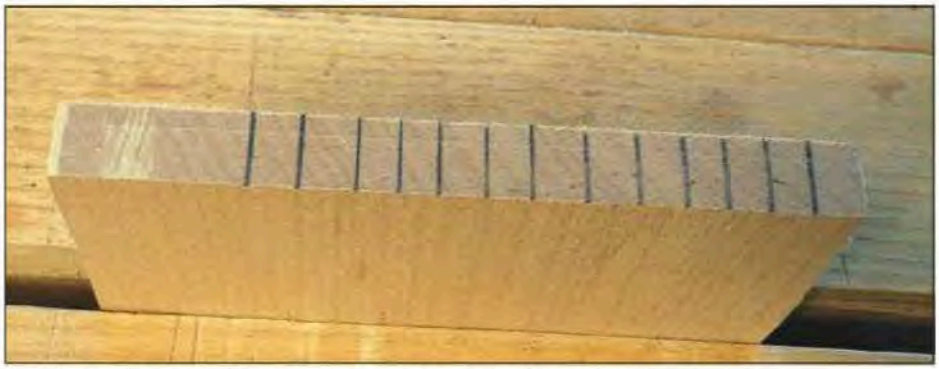
Learning to practise

Let's take a simple shoulder cut as an example. Until relatively recently, ugly gaps were almost a trademark of any joints I cut. Desperate measures were clearly required, and I decided to apply the practice technique

Confidence with the most basic hand tools can raise the satisfaction derived from woodworking to a completely new level

These teeth may look rough to a casual observer, but they're capable of real precision

The minimal set on the teeth keeps the saw accurately on track



Start by drawing a row of lines squared across an edge of the work

A pinch grip either side of the work means you can easily tweak the angle of the saw

Start the saw off with enough strokes to define each cut and no more

taught to me by my old music tutor. He had promised me that if I tackled learning my scales in his way I'd never need to re-learn them; the complex finger movements would all be firmly etched into my muscular memory.

Imagine a cartwheel rolling down an unmade country track and forming a rut as it goes. If the wheel were to follow precisely the same line enough times, the rut would be deepened to the point where it would guide the wheel unerringly and all that would be necessary would be to start it rolling and then leave it to the guidance of the rut.

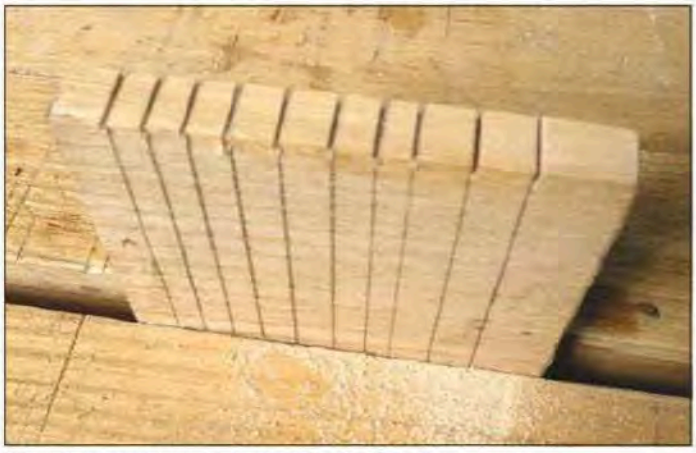
In repetitively practising a hand skill, we are getting ourselves 'into a rut' – a rut so deep that once the hands are set in motion they find it virtually impossible to follow any other course.

One step at a time

That means simplifying the operation by breaking it down into its elements and working carefully on each in turn, not moving on until that particular rut is good and deep.

My music tutor took a rigorous approach. A difficult passage would be broken down into its basic elements. Each one was then practised slowly so the rut would form quickly and reliably. I was required – and this is the crucial bit – to play each element faultlessly at least ten times in a row before being allowed to move on and tackle the next. A fluff on the tenth run meant starting again from the beginning. It concentrated the mind wonderfully!

So I decided to apply that approach to developing the basic skill of saw control. My



When it comes to practising tracking the face lines, mark them a fair bit longer than you need

The long lines reveal tiny errors that wouldn't show in the depth of a shoulder

personal target was to be able to cut dovetails straight to the line with routine precision, and then to glue them up without a trial fit.

Tools for the task

The first thing I did, as I mentioned last month, was to get myself a good-quality saw. For my dovetailing I chose a rip-cut dovetail saw, but a crosscut tenon saw would be appropriate for more general use. Apart from sharpness, the vital quality for one of these is minimal 'set' – the splaying of the teeth to alternate sides to stop the saw binding in the cut. My Veritas dovetail saw, with a set of 0.003in, hits that compromise perfectly… and at maybe half the price of its nearest rival.

Making a start

My first task was simply to be able to start the saw perfectly square to the face of the timber; there's no point in cutting any further if the cut is out of line to begin with. So I began by striking a series of pencil lines square across the edge of a piece of scrap timber. Using a pinch grip with my left hand to steady the saw, I made just enough strokes to define the cut.

After a few cuts, I checked with a square and found that the kerfs were consistent – each one angled slightly toward my left. The next few were more wayward as I first over-compensated and then began to home in on the angle. I continued, aiming for that elusive target of ten consecutive perfectly saw kerfs. I decided that once every day, even if I had no time for anything else, I'd go to the workshop and do a row of cuts.

Practise to learn

The practice paid off remarkably quickly – as good, concentrated practice generally does – and after a few sessions I achieved my ten times in a row. My next task was to track a line marked down the face of the timber, to form a cut that was precise in both planes. Most of the time, cuts of this sort will be relatively shallow – maybe 20mm or so in depth. For this purpose, though, I marked the lines long and cut as far as I could until the reinforced back stopped the cut. My rationale was that the longer line would make any tiny errors more visible.

Perfect cheek

Once I'd perfected that, I had one more stage to go. A dead giveaway of poorly-cut joints is cheek cuts running beyond the shoulder line (or not reaching them cleanly). So I wanted to be able to stop the saw precisely on the line every time, and that was the next task – a matter of marking a line parallel to the edge I was using and cutting down to it, still taking care over the angles of the cut. Ten of those in a row and the confidence was building.

However, I knew from past experience that having the skills is one thing; being able to count on them when it really matters is a stage further on the journey. When the joint I'm cutting is one of several that make up a commissioned box, the opportunity is there for nerves to undermine my performance. So for quite a while after reaching this stage, I'd do another ten-in-a-row session on scrap wood before I cut a critical joint. However, the need to do that gradually dwindled away as my confidence grew.

This general approach can be applied to a great many basic woodworking skills. Take, for example, those coffee tables with the machine-rippled tops that I mentioned last month. It seems most bizarre now that I would fit them in that state rather than simply pick up a plane and flatten them… which brings me to that other basic skill: planing.

Planed to perfection

Flattening wide panels would not make a good project for a beginner, however. It's much easier to work on an edge of, say, 20mm width. That's wide enough to support the plane but narrow enough to let you take repetitive full-width shavings and develop some basic skill in controlling the tool. A piece of straight-grained hardwood just a little longer than the jack plane is ideal for this work.

The aim is to take full-length, full-width shavings. You might need a few initial runs before the timber is flat enough to do that (bearing in mind that even a quite heavy shaving is probably only about 0.005in thick). Over time, the knack of starting with the pressure on the front of the plane and

Flattening a wide panel like this requires a degree of confidence in planing

Let's start with a simple edge. Note the plane's toe resting on a scrap block

Settle the plane with the left thumb pressing down firmly over the area being planed

The push comes from the feet; this stance gives much better control

As the handle reaches the timber, transfer the pressure to the back of the plane

By the end of the cut, the leading hand is simply guiding the plane with no downward pressure

The aim is to produce a full-length, full-width shaving every time

Taking stopped shavings between two pencil end marks is a very useful skill to practise

Do you remember these horrible 'before' dovetails I showed you in part 1 of the series?

transferring it to the rear as the handle moves to be over the timber will become second nature – as long as the practice is conscientiously done at this stage.

The right stance

Keep your arms and hands relatively still as far as practicable, and push from your feet so that your body leans forward, driving the plane. This will maintain much better control than trying to push from the shoulders – and will be less tiring, too. Another tip is not to be too keen to use the front knob. It's good to have it there when it's needed, but you'll get more control in edge planing by pressing the thumb down on the bed of the plane just in front of it and directly over the edge being planed.

Shaving practice

This article is about practice techniques, so let's practise. Simply take repetitive cuts, aiming to get a full-length full-width shaving each time by concentrating on the process: setting up the stance and the plane carefully each time and adjusting the pressure distribution as your rear hand moves over the timber. Some early shavings will undoubtedly go wrong – it's frustrating when after a few lovely shavings the plane tilts slightly and you get a bad one – but don't give it up as a bad job. It may take a few more shavings before the edge is flat enough to deliver the result you want again, but just keep going.

Well, here's an 'after' shot. These dovetails can be glued up without the need for a trial fit

Concentrate on the preparation stage, consciously settling the toe of the plane before beginning the cut. The idea is to 'get into a rut' with this whole process, just like the saw work, so take it steady and deepen the rut without any diversions. The time will soon come when it will all be second nature.

Stopped shavings

Once this has been mastered, it's also worth practising taking stopped shavings. This is a very useful technique for achieving and maintaining flatness in timber. Make a mark maybe 10mm in from each end of the flat, straight edge (at this stage we're not worrying about squareness of the edge, as we're simply gaining basic control of the plane).

Start the cut with the cutter positioned just after the first mark, and lift the plane as late as possible before the blade reaches the second one. It's a useful technique as it gives great control over the flatness of the board. You'll find that the plane will fairly soon stop cutting as the board develops a minute concavity and the long plane sole bridges over the top of it. You can then take a couple of full-length passes to remove the tiny bump at each end and the board will be microscopically close to perfectly flat. It's a useful technique in finish planing, to ensure that the board isn't becoming progressively more convex due to the run-on and run-off of the plane.

A personal journey

There's so much more that can be said about these skills. However, I didn't set out to write a comprehensive manual but to establish some basic skills that can then be developed.

These four articles have intentionally been heavily auto-biographical. I used precisely this approach to improving my own joinery (and it really was poor, I promise you), and I hope my experiences might be encouraging to anyone in the same position as I was. This isn't just a theory: I actually made this journey, and I know the difference it made to my enjoyment of woodworking.

It's not over, of course. I'm aware when I talk to cabinetmaker friends of mine that I actually have a very limited range of skills alongside theirs. However, I now know that those other skills – insofar as they're applicable to my kind of work – are all attainable. There's no mystique about it, and while I enormously admire and applaud their work I also know that they aren't a special breed; that would actually do them an injustice. They've learnt their skills by dedicated practice and determination, and that holds out a lot of hope for the rest of us.

BY PETER NICHOLSON

The Iron Bridge table

Occasional tables come in all shapes and sizes, and can incorporate a host of different design features. Mine is based on a famous bridge...

The industrial revolution has always interested me, and one weekend last summer I decided visit the Iron Bridge which spans the river Severn in Shropshire. This was the first arched bridge in the world to be made of cast iron, back in 1777.

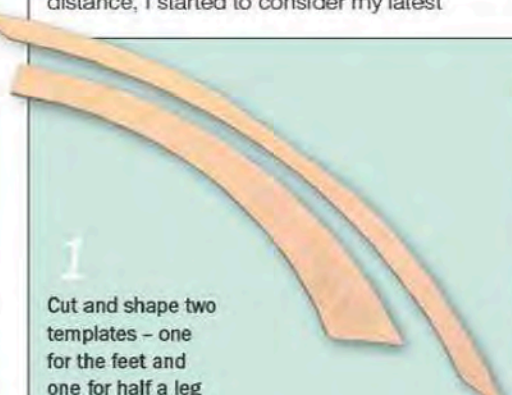
The bridge is constructed using over 800 separate castings, which are held together using woodworking joints such as mortises, tenons and dovetails. Looking at it from a distance, I started to consider my latest design request for an oak coffee table with a difference. Although I had no intention of designing a copy of the bridge, I thought I might be able to incorporate some of its curves and arches and design a piece of furniture which was visually pleasing as well as fit for purpose.

Engineering the design

The design consists of arched feet, cut out of the solid, supporting arched legs which meet on a chord. The table has an unusual curved tambour shelf below a toughened glass top, which is held in a 6mm rebate. The wooden top is a mitred frame with a bevel on the outside edge and inlaid stringing on the inside.

Making a layout

Woodwork projects are made much easier if a full-size layout is made on a sheet of plywood or mdf first. Not only are most of the unforeseen problems dealt with at the drawing



1 Cut and shape two templates – one for the feet and one for half a leg

2 Cut out a pair of feet and four half pieces for the legs on the bandsaw

3 Use a bench-mounted disc sander to smooth all the external curves

7 Glue and cramp the leg arcs together. Note the use of sacrificial cramping blocks

8 Place the foot and leg pairs on the layout and mark the chord intersection

9 Cut the chord intersections on the table saw by positioning the components as shown

stage, the layout also enables measurements to be taken directly from it to help the project, should any problems arise. Manufactured pieces of the project can also be offered up to the layout for checking or gluing.

Preparing templates

Cut and shape two templates from 6mm thick plywood or mdf – one for the feet, and one for half the arc of the legs, **photo 1**. Use these templates to mark out one pair of feet and four half pieces for the legs. Cut them all out on the bandsaw, **photo 2**. Then use a disc sander to smooth the external curves, and a bobbin sander to tackle the internal ones, **photo 4**. Check that matching components really do match by placing them on the layout, **photo 5**.

Joining the leg arcs

The pairs of leg arcs are dowel-jointed together. I gripped each one in a vice and used a dowelling jig to align the holes precisely before drilling them using a 10mm twist drill bit, **photo 6**.

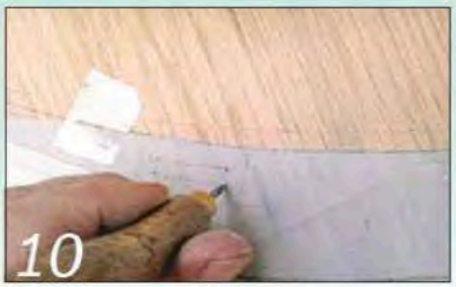
Glueing the pairs together is somewhat awkward. My chosen method was to glue a pair of sacrificial softwood blocks either side of

Then switch to a bobbin sander to tackle the internal curves

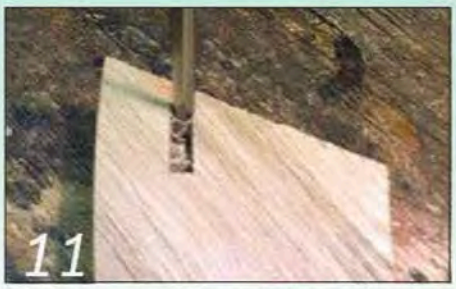
Check that matching components really do match by placing them on the layout

6

Use a dowelling jig to drill accurate dowel holes in the mating ends of the leg arcs



Use tracing paper over the layout to mark the positions of the mortises



Transfer these pin points to the legs and cut the mortises to a depth of 20mm

12

Rout a 6mm deep groove in each leg to take the edge of the curved tambour shelf

Glue and cramp the feet to the legs using the layout as a guide

Machine the slats for the tambour from the same board and number them

Glue a square of thick canvas to the back of the slats and weight it down

Hold the tambour flat with sash cramps while you sand its show side smooth

Insert the tambour in its grooves, then glue up, assemble and cramp the table frame

Plane a bevel on the edge of the table top and add some decorative stringing

the glue line, and then use these as a clamping surface, **photo 7**, after gluing and inserting the dowels. The legs are also clamped down to a flat surface; otherwise they won't stay flat. Any misalignment on the inside curve can be corrected after assembly with a spokeshave.

Back to the layout

The pairs of feet and the pairs of legs can now be placed on the layout so the chord intersection can be marked onto their edges, **photo 8**. These meeting surfaces of the feet and legs can then be cut on a table saw, **photo 9**. Note that the saw guards have been removed here for clarity.

Positioning the mortises

Place tracing paper over the layout so you can mark out the positions of the eight 6mm mortises using a bradawl, **photo 10**. These pin points can then be transferred to the legs and the mortises chopped out using a mortise chisel, **photo 11**. The mortises are all 20mm deep.

Next, use a router to form the 6mm deep groove in each leg that will house the tambour shelf. This groove joins together the two bottom mortises in each leg, **photo 12**.

Once all the mortises and grooves are cut and cleaned up, the feet can be glued and cramped to the legs using the layout as a guide, **photo 13**. The two top rails and the rails at each end of the shelf can then be machined and cut to length. Their ends will be stub-tenoned into the leg mortises later.

Making the tambour shelf

Tambours are generally used as a space-saving way of closing and opening a doorway, for example, or a roll-top desk. Although I've never seen one used as a shelf before, I could see no reason why it wouldn't work, and it would be an easy way to follow the curved groove machined in the legs.

You'll need 23 slats to make the tambour, but it's a good idea to machine a few extra because any that warp after machining will have to be rejected. Try to machine the slats from the same board if possible, and number them in sequence so the grain pattern is continuous, **photo 14**.

Assembling the tambour

Now glue a thick piece of canvas to the back of the slats with PVA adhesive and weight it down while it dries, **photo 15**. Apply the glue sparingly; you don't want the edges of the slats to become glued to each other. When the glue is dry, carefully bend each joint line to make the tambour flexible.

Trim the edges of the tambour to length and machine a tongue on each edge to fit into the leg grooves. You can do this with a router, a rebate plane or on a table saw. The show side can now be sanded, **photo 16**; use sash clamps and sacrificial plywood to keep the tambour flat as you do this.

Assembling the table frame

Next, you need to machine a groove in one edge of the two bottom rails to accept the tambour. Once the table has been sanded down to 320 grit, the joints can be dry-assembled to check for any problems. This is a good time to get the tail slides on the sash cramps set. Then it's time to glue, assemble and cramp up the table frame, **photo 17**.

Making the top

The table top is a simple frame construction, with the corners mitred and reinforced with biscuits. This inside of the top has a rebate which will hold the toughened glass. You can form this with a router, but an easier way of creating it is to glue and pin 6mm wide strips of oak to the inside edge of the frame.

I planed a bevel 20mm wide by 8mm deep on the outer top edge of the frame, and inlaid some stringing on the inside edge close to the glass, **photo 18**. I created the groove for the stringing using a 6mm router cutter, and rounded the corners of the table by drawing around a 2p coin and chiselling to the line.

The top is fixed to the base by driving screws up into it through the top rails; the screw holes are filled with oak plugs.

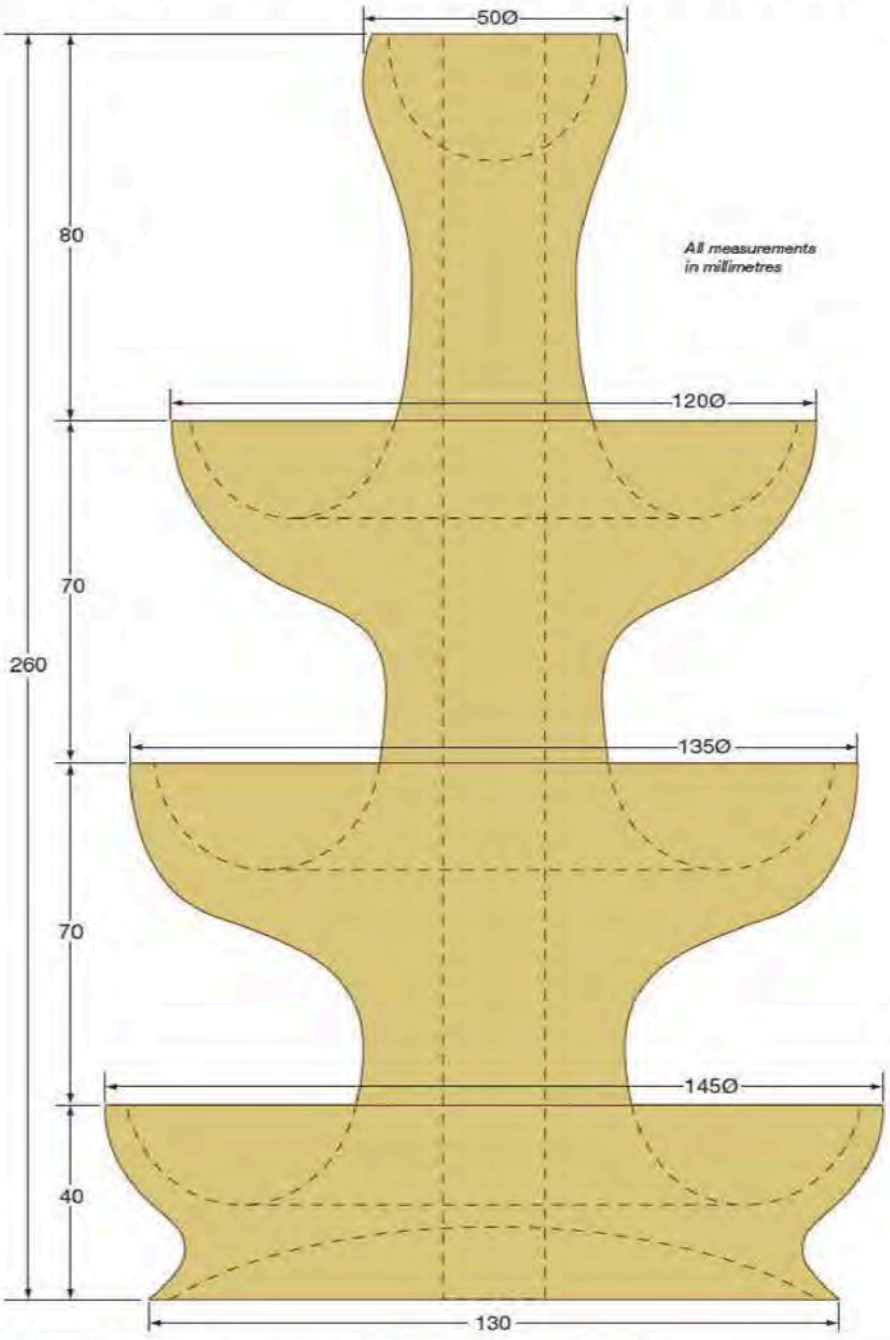
Finishing touches

I treated the table with three coats of Danish oil, sanded in between coats with 400 grit abrasive. I then applied a final coat of wax and buffed it to a nice sheen.

The 6mm thick glass top was bevelled at 20mm and then toughened. When you collect it from your supplier, check that it has a white number engraved near the edge; this is proof that the glass has been toughened and will shatter into safe crystals should it be broken accidentally.

BY CHRIS CHILD

Eggstravaganza!



This tiered egg tower is made from a semi-seasoned elm log about 180mm in diameter, which I cut down about six months earlier and stored in the wood shed. I cut off about 75mm of split wood from each end and discarded it, leaving around 280mm of solid wood ready for turning

The shape of the project is designed to counter the problem of splitting when the wood dries out. The thin-walled trays and the base are made so that they can shrink in on themselves without splitting. A hole is bored through the centre of the tower to provide an additional shrinkage space.

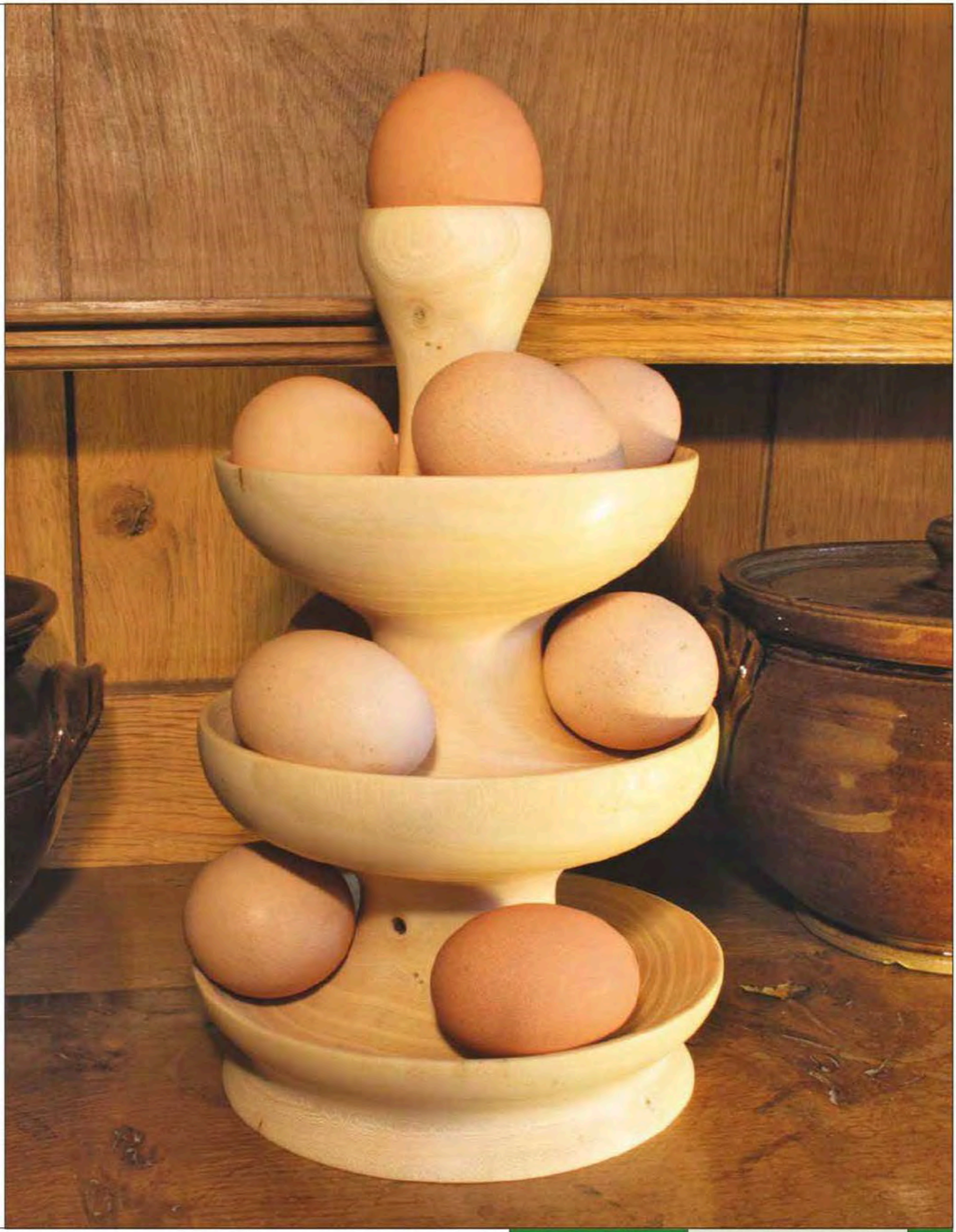
Start in the centre

I used my home-made centring device to find and mark the centre of each end of the log, **photo 1**. Select a large drive centre and hammer it well in before mounting the work securely on the lathe. Set the lathe speed to 500rpm or less, and turn the log down to a cylinder using a roughing gouge, **photo 2**.

Square one end of the log so it can be fitted with a faceplate. To do this, use a 3mm parting tool (preferably fitted with an extra long handle) to partially square off the end so that it's flat or slightly concave, **photo 3**. Rather than parting it off completely, leave a short spigot the same diameter as the hole in your faceplate, so it can be more easily centred.

Holding the work

With sound, healthy timber you should be able to hold the work securely using 25mm screws. I use No.10 Spax screws; these



Use a centre finder to locate the exact centre of each end of the log

Use a roughing gauge to turn the log to a cylinder at a slow lathe speed

Square off one end of the log with a parting gauge, leaving a short spigot

Fix the squared-off end to a faceplate with 25mm No 10 Spax screws

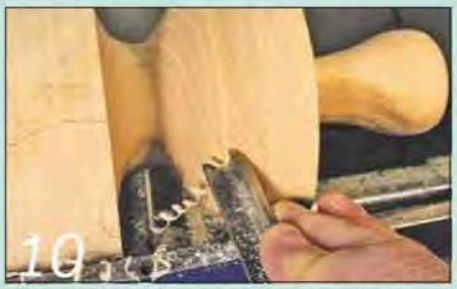
Mount an auger bit in the tailstock and bore a 19mm diameter hole down the centre

Hollow out a cup for the top egg using a small round-nosed scraper

Use a bowl gouge to turn the blocked-out section that will form the cup

Use the same gouge to shape the outside of the cup with some fine slicing cuts

Hollow out the first of the side bowls using a sharp round-nosed scraper



Take a series of slice cuts with the bowl gouge to shape the outside of the bowl

have machined serrated threads which wind straight into the end of the log, **photo 4**, without the need to pre-drill pilot holes.

You can of course use a compression chuck to hold the work, and this may be the only option if the wood is too soft to be held with screws. However, the advantage of a faceplate over a chuck is that it holds the work closer to the headstock, which reduces the risk of vibration occurring in the workpiece.

The central hole

After flattening off the other end of the log with a gouge, bore a 19mm diameter hole right through the centre, **photo 5**. I used an auger bit which I locked in the tailstock with a draw bar to stop it coming out of its taper.

When drilling into fibrous or irregular grained wood, I often find that the drill refuses to start in the centre of the revolving work. To get round this problem, start the hole using a small square scraper, so there's a shallow recess into which the tip of the drill can be located. As you drill deeper into the body of the workpiece, remember to withdraw the bit from time to time to clear the swarf.

To hide the resulting hole, you can turn a knob or carrying handle out of a separate piece of seasoned wood and fit it into the hole using a dowel joint, but you will need to do this after the egg tower has done all its drying out and shrinking.

An extra cup

An alternative course is to hollow out the hole and create an eggcup in the top of the tower. To form the cup, use a small round-nosed scraper and work the tool in a smooth arcing movement, starting in the middle and working out to the edge in a series of sweeping cuts, **photo 6**. After each pass with the scraper, test the size of the hollow with a standard egg, and continue shaping the cup until you have an easy fit.

To shape the outside of the eggcup, use a bowl gouge to reduce the top of the tower and form the blocked out section, **photo 7**. Then, with the same gouge, shape the outside of the cup using a series of fine slicing cuts, **photo 8**.

The next tier

It's when you come to hollowing out the bowl-like shelves of the egg tower that the real turning challenge of this project begins. You can do some of the work with the bowl gouge, but this requires working the tool directly into endgrain, which is very resistant to being cut in this direction. It tends to bend back on itself, resulting in a rough finish.

Instead I used a small round-nosed scraper, freshly sharpened, to hollow out

the bowls. I have the scraper fitted with an extra long handle to add leverage when it is extended over the toolrest. I bring the rest in as close as I can to give support to the tool, **photo 9**, but even so a very shallow cut is all that can be performed when the wood is so hard and unyielding.

The external profile

The outside of the bowl is much easier to shape, and this can be undertaken with the bowl gouge by feeding it round so it follows the curve and slices the surface cleanly, **photo 10**. Feel the wall between your fingers to test its thickness after each pass of the gouge. Re-sharpen the edge of the gouge if it starts to meet any resistance or rides out of its cutting path.

The second division

Now you can start work on shaping the next tier of the tower. I have a vertical tool post fitted in my toolrest which supports the back of the gouge and prevents it from slipping backwards at the entry of the cut, **photo 11**. You can usually take quite a heavy cut at first, but as you enter the lower section of the hollow you may need to reduce the depth of cut considerably according to how the tool behaves. Then test the shape of the bowl with an egg.

Special care must be taken to avoid catching the gouge on the opposite slope when working at the bottom of the hollow. The round-nosed scraper is a much more stable tool to use here, as it is held flat and horizontally on the toolrest. However, it can still dig in if too much of its cutting edge is brought into contact with the work face all at once.

Try to work the tool with the grain, by starting at the bottom of the bowl cavity and drawing it slowly backwards to the outer rim of the bowl, **photo 12**. In this way the fibres of the wood are cut off at their roots, producing a cleaner finish. Once again, test that an egg will fit in the bowl, **photo 13**.

Ground level

Shape the plinth of the tower by working the gouge from one side and then the other to form a shallow hollow, **photo 14**. This matches the simplicity of the rest of the egg tower, which is made up of a series of undulating curves that complement the organic shape of the eggs themselves.

After sanding the work smooth, apply a water-resistant finish such as cellulose sealer or one of the plastic epoxy finishes. To finish the tower, I used some food-safe oil which I simply wiped onto the surface with a soft cotton cloth.

The egg tower is now ready to be parted off, and for this job it is essential to have a parting tool fitted with a long handle. Make a series of angled cuts at the base of the plinth, **photo 15**, angling the tool so it avoids the screws in the faceplate. This will hollow out the base and provide a space for the sides of the plinth to shrink into without splitting, **photo 16**.

Start the second hollow. Note how the tool post supports the back of the gouge blade

Finish the hollow with the scraper, working from the centre towards the rim

Test that an egg fits comfortably; enlarge the bowl slightly if necessary

Shape the plinth by working the gouge from one side, then from the other

Hollow the plinth out with a series of angled cuts, ready to be parted off

Support the work with your free hand as you complete the parting off

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BY COLIN SIMPSON

Going steady

There are several tried-and-tested techniques you can use to reduce vibration when you're turning long, thin workpieces. The most successful of all is a device known as a lathe steady. Here's how to make one

The problem with turning long, thin spindles is that you're likely to encounter vibration as the wood flexes away from the cutting edge of the tool. Rubbing the bevel hard against the wood exacerbates the problem, so be gentle and just caress the bevel lightly against the wood. Another tip I can give you is to not tighten the revolving centre in the tailstock into the wood too much. This might introduce a bow in the wood, so tighten it just enough for the wood to engage in the prongs of the drive centre.

A steadying hand

Even so, you still might get some vibration. However, you can often dampen this by supporting the wood with the fingers of your front hand, **photo 1**. Don't attempt to hold the wood or press too much, and if you smell burning… let go! This technique will often get you out of trouble, but if you're doing lots of long, thin spindles then you should consider using a device called a lathe steady. There are many commercial steadies on the market, but they can be expensive and buying one for a one-off job may not be economically viable.

Made to measure

I had just this economic dilemma when I was asked to help my friend's son make a snooker cue – described in the March issue of *The Woodworker* – and decided to make my own lathe steady. Some of you have since asked for details of how I made it. The steady I used then was made especially for my Hegner VB36 lathe. It's a very non-standard lathe, inasmuch as it doesn't have the usual bed bars most lathes have, so for this project I visited a friend to make a steady for use on his Wivamac lathe.

Getting your bearings

The bearings you need for this steady can be bought easily online; I used a well-known auction site. Simply type 'nylon bearings' into your search engine and see what comes up. My bearings are 33mm in diameter and have a 10mm bore.

I used 18mm plywood for the body of the steady. All the measurements are for the Wivamac DB1200 lathe, but clearly these can be altered to fit your particular lathe. The clamping mechanism may also be different for your lathe, but I used the same method as the Wivamac uses to lock off the

Fig 1

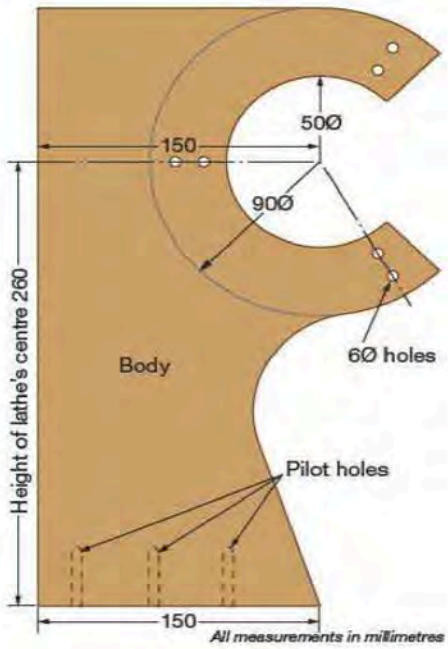
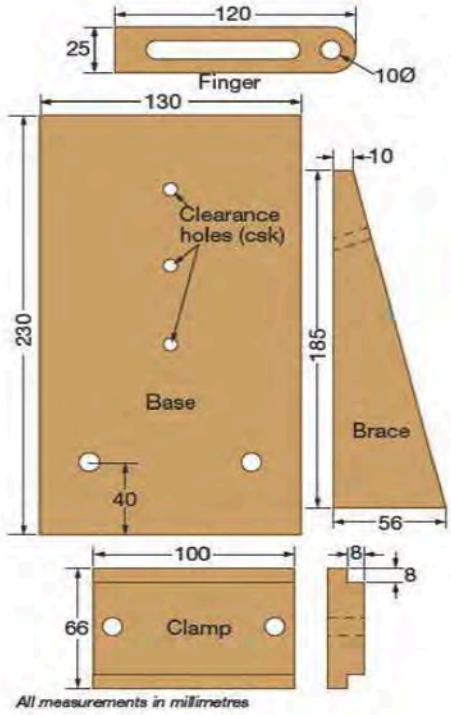


Fig 2



You can support thin spindles with your fingers positioned behind the wood

The T-shaped plate on the Wivamac and other lathes is fairly typical

Use a router table to make the rebates on the plywood clamping plate

Mark the height of the lathe spindle on some scrap wood standing on the bed bars

tailstock. Instead of the cam I used two 10mm nuts and bolts, fitted through the base to the clamp block.

Locking on

Photo 2 shows the locking mechanism for the Wivamac lathe. It's a T-shaped plate that slides between the two bed bars and is clamped to the underside of the bars by use of a lever-operated cam. To replicate the metal plate, I cut some ply to width and routed the side rebates on a table router, **photo 3**. I thought the length was too small to run safely through the router without my fingers getting too close to the cutter, so I left the wood longer than necessary, ran it through and then cut it to the length I needed.

Measuring up

Next, take a length of scrap wood and stand it on another scrap piece resting on the lathe's bed bars. The scrap piece on the bed bars is representing the lathe steady's base, and must be the same thickness as the base you intend to use. Mark the centre height of the headstock spindle on the vertical piece, **photo 4**, and transfer this mark to the ply you're using to make the steady, **photo 5**.

Now use a try square to draw a centre line from this mark to the edge of the plywood, and mark out the body of the lathe

steady as shown in **fig 1**. You can use a protractor to mark the 120° positions for the finger holes. However, if you don't have a protractor, simply set your compass or dividers to the radius of one of the circles. Start at the point where the centre line crosses the circumference of the circle and step round the circumference six times, **photo 6**. This should bring you back to your starting point. Now mark every other step and these will be your three 120° points.

I cut this shape out on the bandsaw, **photo 7**, and then used a drum sander to clean up the curves.

Making the base

The base of the steady is a simple 230 x 130mm rectangle, as shown in **fig 2** along with various other components. Cut this out and place it on the lathe's bed bars next to the clamp. Temporarily place the steady on the base so that the lathe's spindle is centred on the hole in the steady. Mark on the base the position of the front and back of the clamp, **photo 8**. Now mark the position of the two holes on the clamp. I've shown the position of the two holes in the base in **fig 2**, but if you have a different lathe, this method of marking out is still foolproof.

It's important that the two holes in the base line up with the two holes in the clamp. To ensure this accuracy I used double-sided tape to stick the two pieces together before drilling them, **photo 9**.

Adding the braces

Cut out the two braces and then glue and screw the parts of the steady together, **photo 10**. You should now have the body of the lathe steady that looks something like **photo 11**. The observant among you will notice that the positions for the holes for the fingers are marked but not drilled. This was my mistake! It's much easier to drill the holes before assembling the steady!

Fingers and bearings

The three fingers for the steady are also made from 18mm ply. They have a 10mm hole for the axle of the bearing and a 10mm slot to adjust the fingers in and out. Cut them out and radius one end on a disc sander, **photo 12**. I drilled the hole for the axle and then the holes at each end of the slot. I used a scrollsaw to complete the slot, **photo 13**, but if you don't have one a coping saw will do fine.

Finally, attach the bearings to the fingers using a 10mm bolt and nut, fit the fingers to the steady (again with 10mm bolts and nuts) and you're ready to go.

Transfer this measurement to the plywood you're using for the body of the steady

Set compasses to the circle's radius and step round the circumference six times

Cut the shape out on the bandsaw and clean up the curves on a drum sander

Mark the position of the front and back of the clamp on the steady's base

Drill the bolt holes through the base and the clamp in one operation

Cut out the two braces and glue and screw the components of the steady together

Your steady should look something like this. I forgot to drill the finger bolt holes!

Cut the three fingers to size and use a disc sander to radius the one end

I used my scrollsaw to cut the slots, but a coping saw will do just as well

Start roughing down your spindle to round at the tailstock end

Adjust the positions of the fingers so the bearings just touch the wood

You can now continue working on a spindle that's free from vibration

Testing testing

To test the steady I used a 35mm square of mahogany 600mm long. Mount this between centres and start roughing down the blank at the tailstock end. Rough down the first 200mm or so – the tailstock centre should prevent the stock vibrating, **photo 14** – and then attach the lathe steady. Adjust the fingers until they are just touching the round part of the stock, **photo 15**; then continue to turn the rest of the stock to round, **photo 16**. Hey presto! Absolutely no vibration...

A CHANGE OF NUTS

This lathe steady works well, but I think a couple of simple changes would improve it. Firstly, I would use T-nuts (as shown here) in the holes in the clamp, and bolt the base through to these from the top. This would make securing the lathe steady to the bed bars far less fiddly.

Secondly, I would use wing nuts rather than hex nuts to secure the fingers, as this would do away with the need for a spanner to tighten them and would make adjustments that much quicker to carry out.

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10 x 120 Grit: P-37518
10 x 240 Grit: P-37530

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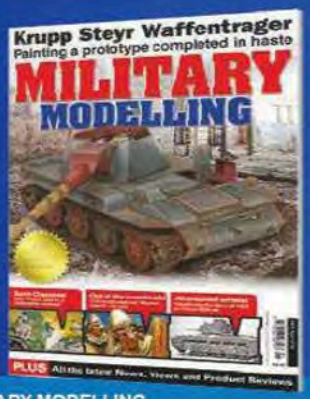

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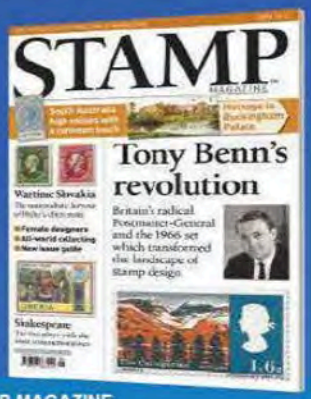

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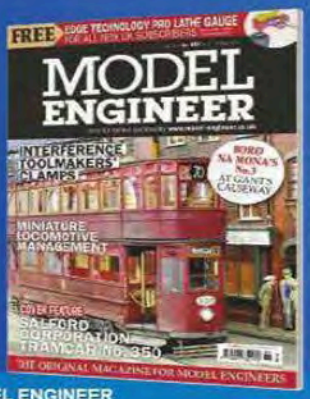

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Most planer thicknessers are large, expensive machines that need a lot of space. Here is a bench-mounted model that's ideal for the smaller workshop and has performance to satisfy the ambitious user

Draper BPT200 benchtop planer thicknesser

Most home workshops suffer from lack of space unless they're purpose-built. While you may dream of owning a panel saw or a large spindle moulder, that's never going to be a realistic proposition. However, many machines are produced in scaled-down versions to make them more usable and affordable for the space-compromised craftsman. This Draper planer thicknesser is remarkably effective considering its diminutive size, and produces a finish comparable to much larger machines.

£239.99

Design features

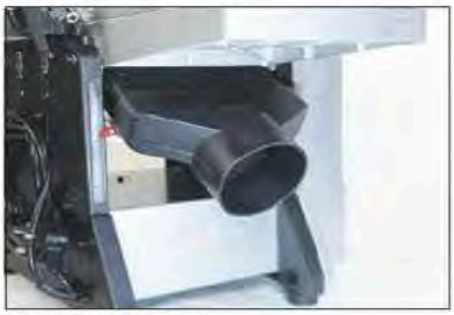
The Draper arrives almost fully assembled. It's only necessary to fit the rubber feet, attach the fence and bridge guard and install the dust extraction port. This is a neat little machine. It has a smooth alloy surfacing table with a depth-of-cut adjuster mounted on the rear. The side fence is pressed steel and can be tilted to 45°. An adjustable metal bridge guard is fitted. The machine is built on a metal frame and the front cover is plastic. A standard NVR power switch is mounted on the front, with an overload reset button beside it. The rear of the machine has storage hooks for the power cable.

Setting up the machine

To set the machine up for surface planing, the dust port must be installed underneath the table. This presses a micro-switch to allow the motor to run, so the planer can't be used without the dust port in place.

The adjustable pressed steel side fence can be tilted from 0° to 45°

The thicknessing adjustment handle simply slots onto its spindle



The dust port is installed underneath the table for surfacing work...

The machine is supplied with a useful selection of accessories

To convert to thicknessing mode takes a matter of moments. Both halves of the surfacing table stay in place. The bridge guard is removed and the thicknessing adjustment handle slots onto its spindle. Lower the thicknessing table and remove the dust extraction port. This is now fixed over the cutterblock on the surfacing table. Again it contacts a safety micro-switch. The thicknessing table has a support bar that can be pulled out to give additional support to the workpiece as it exits the machine.

Using the machine

This is an easy machine to set up and use. It has a standard universal motor, though this isn't unduly noisy. The tables are smooth and the timber passes easily over the cutters. The motor is powerful and can cope with dense hardwoods without complaint. The fence is secure and the cutter guard is reliable. Dust extraction is effective.

As the machine has a fairly small footprint, there is a tendency for it to tip, especially when dealing with longer workpieces. It's therefore a good idea to clamp it to the bench before using it, and slots are provided above the rubber feet for this purpose.

Thicknessing is equally straightforward. The scale is easy to read and the transport rollers pull the timber through smoothly. The finish it produces is good, needing only a minimal amount of sanding to remove the ripples.

Summing up

There is little to criticise here. Some of these small planer thicknessers can be irritating to use and often produce rather disappointing results. This is not the case here at all. This machine does everything you could expect of it without any problems. It's supplied with all the accessories you might need, including a pair of push blocks and a blade setting gauge for use when changing blades. Overall it's a great little machine that's ideal for the smaller workshop. ***AS***

SPECIFICATION

MOTOR		1500W
CUTTERBLOCK SPEED		9000rpm
CUTTING KNIVES		2
SURFACING TABLE LENGTH		770mm
THICKNESSING TABLE LENGTH		270mm
MAX CUTTING CAPACITY	planer	2mm
	thicknesser	3mm
MAX PLANING WIDTH		204mm
MAX THICKNESSING HEIGHT		120mm
THICKNESSING FEED RATE		6m/min
WEIGHT		28kg
ACCESSORIES	dust extraction hood, fence, push blocks, blade setting jig, Allen keys	

VERDICT

This machine is well made and easy to use, and produces excellent results with a minimum of fuss.

PROS
- Convenient
- Small portable size
- Good performance

CONS
- Limited capacity
- Prone to tipping if used carelessly

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- Draper
- 02380 494333
- www.draper.co.uk

The transport rollers pull the work through smoothly when thicknessing

...but is fitted over the cutterblock for thicknessing. Note the pull-out support bar

The surface planer mode can't be used unless the dust port is in place

The fence guides the work accurately over the cutterblock when edging

This little woodturning chuck with its various accessories is sure to prove popular with turners who produce mainly small-scale and miniature items. It's presented in a strong plastic carry case

CSK500K key-operated chuck set

£129.95

This little chuck has a totally enclosed, nickel-plated, rust inhibiting body. It's key-operated for one-handed use. It comes threaded for 1in x 8tpi headstock spindles, but an adapter is also included for ¾in x 16tpi spindles. With a set of jaws fitted the depth of the body is 44mm, and with the ¾in x 16tpi adapter fitted this increases to 54mm. It's indexed on the side and on the back with 24 divisions. A threaded adapter is supplied to convert it to a screw chuck if required.

Jaw features

The jaw types supplied will cover most chucking requirements for a small lathe. Each of the four sets of jaws is chemically blacked to inhibit rust. The inside edges have serrated grips rather than dovetails, and they hold the wood very firmly.

The sizes stated offer the optimal grip. There is some leeway; for example, ⅞in will go up to 1½in, but the grip will not be as effective. The fourth jaw of each set has a small pin on the underside which locates into a corresponding hole in the jaw slides. This ensures that the jaws are prevented from extending beyond a safe position, and this is a good safety measure.

The tommy bar fits very positively into one of two positions, and the scroll action is particularly smooth. Only one hand is needed for operation.

Summing up

This is an ideal chuck for a small hobby lathe, and will be of interest to those who only wish to turn relatively small items. As far as I'm aware there is no other chuck of this size and quality on the market, and I was very impressed with it. I've tested many similar small chucks over the years because turning in miniature has always interested me.

A suitable chuck must be compact and safe to use, with no sharp edges, because the turner is usually working close to the headstock. The finish on this chuck is very good and it meets all my criteria. The instruction leaflet is helpful, and explains how to use the accessories effectively. As a complete package including four sets of jaws, it offers excellent value for money. ***IW***

Each set of jaws is chemically blacked to inhibit rust

The chuck is indexed on the side and back with 24 divisions

The tommy bar fits positively and the scroll action is smooth

The chuck set is presented packed into a strong plastic carry case

SPECIFICATION

BODY DIAMETER	63mm
SPINDLE THREAD	1in x 8tpi, ¾in x 16tpi
JAW SET 1	⅞in spigot, 1⅜in recess
JAW SET 2	¼in spigot, ⅞in recess
JAW SET 3	1/16in spigot, ⅝in or 1 3/16in recess
JAW SET 4	2¼in spigot, 2⅝in recess

ACCESSORIES screw chuck adaptor, tommy bar, hex key

VERDICT

This clever little package is a pleasure to use, and represents excellent value for money too.

PROS
- All-in-one package
- Locking jaw slides
- 24-position indexing

CONS
- None

VALUE FOR MONEY ■■■■■
PERFORMANCE ■■■■■

FURTHER INFORMATION

- Axminster Tool Centre
- 03332 406406
- www.axminster.co.uk

Now that the Scribe-Master has been reduced in size and is quicker to set up than the original Charmar jig, it's a viable concept if you're in a situation where scribing has an integral role

Scribe-master Pro scribing jig

£299.99

If you've ever used one of those hand scribing tools with either plastic or metal pins that you push against any moulding to replicate it, then you'll quickly grasp the principle behind the Scribe-Master jig. Add a router to do the cutting, and you've got a powered scribing system.

To use the jig, a short piece of the material to be scribed is fitted to the sliding backstop. The angle can be set to suit an out-of-plumb wall by using a sliding bevel, or if you're happy with the fit to the wall, a standard square. The small aluminium angle brackets are then moved up against the top and bottom of the material, and the pin comb is pushed up tightly to the face of the workpiece.

Taking the profile

A small scraper is supplied to push the pins in firmly to the piece, and if you spend a little time here to get the individual pins into every portion of the mould, the final scribe will be as tight as possible. It's then a matter of flipping the comb over to set the negative profile, ready to address the guide pin.

The workpiece is slid in from below the comb, addressing the stops to ensure that the scribe positions correctly. Two adjustable rollers fit snugly up to the work for fine tuning to ensure it sits to any pre-marked work. To aid fast setting to such marks, there are a couple of holes on the exit side of the cutter position to fit a sacrificial block. After making an initial cut, this becomes the reference for any further work, so you can quickly mark up from pre-measured calculations with precision.

The work is held in place while you rout with a slide-in clamp that drops into place and slides along in a keyhole slot to trap the work once it's screwed down. It's fast and effective, and allows the work to be swapped in and out in seconds.

The backstop is set for square, or with a bevel to accommodate out-of-plumb work

The pin comb is pushed up to the sample and is fine-tuned with the supplied tool

Once the comb has been set, it is flipped over to act as a cutting template

The router locates in the pin plate with a 30mm guidebush and addresses the template

Fitting the router

To make a cut there's a sliding plate with a letterbox opening. It moves forwards and backwards in a couple of reference slots, and on this you fit the upper guide pin plate. This is the template that takes the router.

The router isn't actually directly fitted; it's all done with a 30mm guidebush on the router that drops into the receiver hole on the plate, with the plate housed over the letterbox opening to allow side-to-side movement.

This combination allows the router to move freely across the work as the guide pin addresses the comb, and with the lower letterbox plate machined to sit at a slight tilt, the resulting scribe is slightly undercut for a cleaner fit once the joint is positioned.

Using the jig

Speed is where the Scribe-Master really makes its mark. Once the comb has been set to suit the profile, each scribe takes just seconds, and for anyone doing a lot of scribing of one profile – skirting boards or dado rails, for example – as well as scribing flat work such as kitchen plinths over existing skirting boards, this jig really comes into its own.

As with any pin-guided system that has to address a sharp internal radius, there's still a marginal curvature left in where a traditional hand-cut scribe would leave a crisp internal corner. However, if you follow traditional methods of cutting the work fractionally long and springing the piece in position, the joint comes up very tight and even in hardwood it's difficult to spot any gap.

Cutting tenons

Alongside the scribing work, the main letterbox plate can be swapped for a tenoning plate and a set of riser blocks to give you a deeper capacity for external joinery sizes. Fitting the router with a bottom-cutting straight bit and altering the plunge accordingly allows you to make very quick and accurate tenons using the same principle as scribing.

This is without doubt an extremely useful and versatile jig that should stand alongside the worktop jig as an essential piece of kit for its scribing ability alone. ***AK***

SPECIFICATION

SIZE	550 x 310mm
MAX SCRIBING CAPACITY	195 x 32mm
WEIGHT	5.9kg

VERDICT

This jig not only delivers consistent results; it does it in double-quick time as well.

PROS
- Quick set-up
- Fast repeat scribes
- Tenon adaptor available

CONS
- Not ideal for one-off scribes

VALUE FOR MONEY ■■■■■□

PERFORMANCE ■■■■■

FURTHER INFORMATION

- Scribemaster Ltd
- 01304 204050
- www.scribemaster.com

The resulting cut is crisp and clean. Note the sacrificial block at the side of the jig

The letterbox part of the jig slides backwards and forwards in two parallel slots

The pin plate sits over the letterbox opening and slides from left to right

This clamp slides in and holds the workpiece firmly, ready to be routed

The advent of cordless tools had a big impact on hand screwdrivers but they still have their place, especially when it comes to driving slotted screws. This set will cater for most of your day-to-day needs

Stanley FatMax screwdriver set

£32

SET CONTENTS

Parallel-tip	30 x 6.5mm
	50 x 2.5mm
	100 x 4mm
	150 x 5.5mm
Flared-tip	100 x 5.5mm
	150 x 8mm
Phillips	75mm x PH0
	100mm x PH1
	125mm x PH2
Pozidriv	75mm x PZ0
	100mm x PZ1
	125mm x PZ2

VERDICT

This is a decent set of screwdrivers that will deal with most common screw sizes.

PROS
- Good range of sizes
- Comfortable handles
- Colour-coded grips

CONS
- No PH3 or PZ3 drivers
- Round shanks lack bolster area

VALUE FOR MONEY ■■■■■
PERFORMANCE ■■■■□

FURTHER INFORMATION

- Stanley Tools
- 0114 291 7146
- www.stanleytools.co.uk

This set of 12 screwdrivers caters for the times when you need that bit more control that a hand driver offers, offering six flat-tip and six cross-point drivers in a range of sizes, all packed in a fitted case.

Each blade is of chrome vanadium steel for durability and strength as well as corrosion resistance, with the tips having a sand blasted appearance which gives a slight texture for additional gripping within the screw slots or recesses.

The grip is very comfortable on all the drivers, each having a bulbous round profile for good grip along with a rubberised feel to aid that grip under load or if palms are sweaty! For the workshop, each driver has a hanging hole as well.

The flat-tip drivers are colour-coded red, the Phillips models picked out in yellow and the Pozidrivers complimented by blue accents, all as a top cap and a collar round the bolster area of the handles.

Pros and cons

A ratchet driver with interchangeable bits is a viable alternative to a set of drivers, but there's an issue with swapping bits over when you have a selection of fixings to deal with, so a set of drivers will always prove valuable. You can also get a better purchase on a fixed-blade driver, and for ultimate control a screwdriver has the upper hand over a power-driven one as well.

Getting a grip

One downside with this set could be the lack of a square or hexagonal bolster area, which allows you to get a wrench or spanner on the bigger drivers and gain a bit more purchase when loosening stubborn screws; these blades all have round bar profiles.

That said, this is a smaller set, suited for more common screw sizes from 2.5mm up to around 6mm, so anything above that would be better suited to a further dedicated driver.

That also accounts for the lack of a No 3 size driver in both Phillips and Pozidriv styles. This is more of an omission, as some bigger common screws use this head size. However, there are several other driver kits in the Stanley range, so you'll be catered for if you need them.

Using the drivers

Under load these drivers do the job admirably and drive well throughout. All in all, they're a decent set of drivers to cover common screw sizes, and at around £3 per tool that's a pretty decent investment. ***AK***

Each driver has a coloured cap and bolster for fast identification

All the tips have a textured coating to aid the grip on the screw

The handles are comfortable and with the rubberised grip they don't slip easily

The Bosch GSB drill driver range has been through several model and battery changes over the years. Here's the latest version...

Bosch GSB 18V-Li combi drill driver

£180 (web price)

This compact drill driver from Bosch is ideal if you require a tool capable of good stamina throughout the day without draining your own in the process of holding it, as it weighs in at only 1.9kg. A stubby plastic-sleeved 13mm chuck keeps things on a lightweight theme, but it's still of good quality and features a spindle lock for single-handed operation.

Stubby is certainly the operative word with this drill; if you want the ability to get into tight spots, it will certainly serve well in that area as it measures a mere 195mm from tip of chuck to back of casing.

Lights are commonplace on most power tools now, and this one is no exception. A bright trigger-activated single LED provides plenty of light around the chuck area. Still on the LED theme, a bank of them is built into the battery pack to indicate remaining power at the touch of a button.

Plenty of power

This drill isn't just about being lightweight and compact though; it still packs a decent punch with very passable drilling capacities. The two-speed gearbox provides up to 67Nm of torque power – a pretty impressive stat for such a compact drill, and good enough for most end users tackling a range of normal working tasks.

Nuisance collar

The one downside is the single collar that swaps between operating modes. It means that if you use the torque settings on the drill when driving screws, you have to run the collar around and back each time you swap functions. Once you get used to a dual-collar drill with separate torque that is over-ridden by the second drill function collar, trhis seems a big step backwards.

The trigger is excellent, so the torque setting could be dispensed with in favour of trigger control when screwdriving, but if you need the consistency of the torque collar you have to live with the lack of over-ride.

Summing up

This tool may not be as robust in build as some models, but it's one that has a good set of capacities for general work and could prove ideal if you do a lot of work at arm's length throughout the day where a heavier model could soon cause fatigue. *AK*

SPECIFICATION

BATTERY		18V 3.0Ah Li-ion
CHUCK		13mm
NO-LOAD SPEEDS		0-500 and 0-1700rpm
IMPACT RATE		0-25,000/min
MAX DRILLING CAPACITY		
	wood	35mm
	metal	13mm
	masonry	13mm
TORQUE SETTINGS		18
MAX SCREW DIAMETER		8mm
MAX SCREWDRIVING TORQUE		
	soft	28Nm
	hard	67Nm
WEIGHT		1.9kg
ACCESSORIES		two batteries, charger, L-BOXX

VERDICT

This neat little compact drill driver is well worth a look.

PROS ■ Very compact
■ Lightweight

CONS ■ Single collar for drilling and screwdriving

VALUE FOR MONEY ■■■■■□
PERFORMANCE ■■■■■□

FURTHER INFORMATION

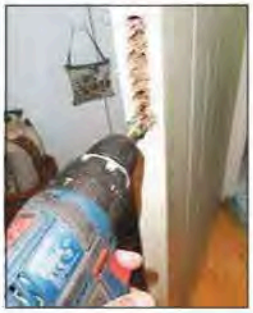
■ Bosch
■ 01895 838743
■ www.boschpowertools.co.uk

The single-sleeve chuck will take bits up to 13mm in diameter

A single LED fires a beam of light from the base just in front of the chuck

The torque collar controls the drill function. The rear collar is for hammer work

The drill's capacities are ideal for general on-site tasks such as fitting locks



Also known as the QuaDrill, the new Festool PD 20/4 E could easily be viewed as a drill for all reasons. Faced with the task of choosing just one drill for your desert island DIY needs, the chances are you'd go for this one

Festool PD 20/4 E percussion drill

Despite being unfashionably corded, the QuaDrill offers the user the tried and tested security of constant and never-ending power. Let's face it, as much as we all enjoy the freedom that cordless tools provide, there are times when an uninterrupted power source is a real boon, not to mention the increased torque that a mains-powered motor can deliver. This then is a real plus for the QuaDrill, and with a power cable a whopping 7.5 metres long, you can leave the extension at home if you feel like it.

Need for speed

This is a top quality tool that is packed with features, and all of which are genuinely useful. As well as four speeds, the QuaDrill offers a hammer option for drilling into walls and similar. While this isn't quite up to the efficiency of an SDS drill, the Festool percussion action will tackle most surfaces like block and brick with little difficulty. However, it's going to struggle a bit in something like a concrete lintel. Both for performance and physical comfort it's best to restrict the use of the hammer action to the two lower speeds only; you'll need ear defenders if you dare to use the top speed!

Stop start

As well as the usual progressive slow-start trigger control (with precise direction selector above), the Quad also offers an interesting 'speed set' button on the side of the handle. This delivers an old school 'binary style' on and off action – full speed or stop; it's that simple. This feature would be a definite bonus if you had the QuaDrill set up in a stand.

The body houses a useful magnetic bit holder; the LED light switch is nearby

The Centrotec chuck can be fitted and tightened in a matter of seconds

The speed and mode selector are at the top front of the drill body

The right-angled chuck can be used for drilling or screwdriving

Hold tight

Versatility is the name of the game when it comes to bit holding for a drill, in fact for chucks generally. The QuaDrill offers the customary Festool Centrotec quick-change chuck as well as a conventional three-jawed Jacobs type. This opens up to the full 13mm that not every drill seems to have these days. And just in case that's not enough for you, the good people at Festool have included a rugged 90° angle attachment which pretty much means access all areas for both the QuaDrill and its user.

Key less, chuck more

Always the innovators, Festool have come up with an almost staggeringly simple keyless chuck operation. Some readers will have had experience of many present-day chucks which, because of poor design, wear and tear or surface contaminant, can easily slip in your grip and cause friction burns… or, embarrassingly, can prevent you from making a neat bit change under the eyes of a new customer.

The Festool alternative doesn't even require you power the drill on. Just apply a bit of rotary pressure – hardly any – to the chuck. There's a click and then you feel either progressive tightening or an easy release. It's fantastic and really makes you feel good about the tool, the job and even life in general.

Body work

As soon as you've got this light and compact tool in your hand, even the non-moving parts of the QuaDrill are busy at work. The body houses a magnetic bit holder – very useful in these days of multiple fixing types – and the quadruple LED worklamp shines a light into the dark. The illuminati amongst us will be pleased to note that this can be switched off when desired. The kit includes assorted bit holders and a tough twist-grip extra handle for high-torque work which also holds the depth stop for accurate repeat drilling operations. ***MC***

SPECIFICATION

MOTOR		705W
GEARS		4
NO-LOAD SPEEDS	1st/2nd gear	0-400 & 0-7850rpm
	3rd/4th gear	0-1900 & 0-4000rpm
MAX DRILLING CAPACITY	wood	50mm
	masonry	20mm
	steel	18mm
MAX IMPACT SPEED		79,000spm
MAX TORQUE		30/50Nm
WEIGHT		1.8kg

ACCESSORIES Centrotec tool chuck and bit holder, keyless chuck, bits, side handle, Systainer storage case

VERDICT

This is a real contender for drill of the year.

PROS
- Industrial build quality
- Versatile performance
- FastFix interface
- It's corded

CONS
- It's corded

VALUE FOR MONEY ■■■■■□

PERFORMANCE ■■■■■■

FURTHER INFORMATION

- TTS Tooltechnic Systems
- 01284 760791
- www.festool.co.uk

The oval green 'speed set' button offers instant on/off switching

The drill comes with Centrotec, Jacobs and right-angled chucks

The two useful belt hooks swing out from either side of the body

This is the smallest Charnwood lathe, designed for hobbyists who want to turn small projects and for woodworkers who don't have much room in the workshop for a larger machine

Charnwood W815 lathe

This little lathe will be of particular interest to toymakers, modellers, pen makers and lace bobbin turners. The footprint for this lathe, should you wish to bolt it down on a baseboard or bench, is 590mm long and 135mm wide. The cast-iron construction makes a strong, stable vibration-free machine. It's quite heavy at 20kg but can be moved out of the way fairly easily when not in use.

Headstock, tailstock

The hollow headstock has a ¾in x 16 tpi spindle thread, so it will take most chucks on the market with a backplate adapter if necessary. A hollow headstock is of particular interest to ship modellers because longer spindles can be turned for masts and spars. There is no built-in indexing on this lathe (a useful facility for most modellers), but an indexed chuck and locking bar or an indexed plate would overcome this.

The tailstock will take 1MT drives and accessories, and there are plenty of these available in addition to the revolving centre provided. The knurled knob is hollow throughout and advances or retracts the quill; it's neat and positive in action.

Good handle, bad handle

The banjo has a smooth and positive cam-locking action via a sturdy good-sized chrome handle. However, the Bristol-type lever on the tool post slipped – a common fault with the cheaper levers of this sort. It would be well worth replacing this with a better quality lever if you experience a similar problem.

The toolrest has a 12mm diameter stem, and the round cross bar can be removed and replaced with other cross bars from the Sorby range. A shorter toolrest is often needed for very small work, so this is a useful feature.

£189

The hollow headstock will accept most chucks on the market

The tailstock takes 1MT drives and accessories; a revolving tail centre is included

The tailstock knob is hollow, and advances or retracts the quill smoothly

A small tray can be fitted to the end of the lathe to hold accessories

Work in practice

Variable electronic speed control is always welcome and makes it quicker to select the right speed for the diameter of work being undertaken (and of course for sanding). The motor is impressively quiet in operation.

The maximum distance between centres at 330mm will be adequate for most short spindle turning. The maximum diameter over the bed bars of 200mm is sufficient to turn a small bowl or platter. However, remember that this is a relatively small machine so the blank should be well prepared; it is not designed for large, irregular lumps of timber!

Charnwood particularly mention pen turning in their website write-up, and included their own pen mandrel with the lathe for us to test. It worked well.

Useful accessories

The lathe comes with a four-prong drive, a 75mm diameter faceplate, a revolving tail centre and some spanners. These accessories all fit in a custom tray designed to be bolted on the side of the lathe; this can be removed if you prefer. With these accessories the lathe can be up and running as soon as it's out of the box.

A drill chuck with a 1MT shank is relatively inexpensive and is worth adding to the kit to enable drilling from the tailstock and for holding work on the headstock with tailstock support. In due course a small scroll chuck could be added; one from Axminster is reviewed on page 75.

Summing up

This lathe exceeded our expectations and was a pleasure to use. The headstock and tailstock lined up accurately and the general build quality was good. There are now far fewer lathes of this size on the market; this is a worthy member of its class. ***IW***

SPECIFICATION

POWER	250W
SPEED	750 to 3200rpm
SPINDLE THREAD	¾in x 16tpi
SPINDLE TAPER	1MT
DISTANCE BETWEEN CENTRES	330mm
DISTANCE OVER BED	200mm
OVERALL LENGTH	690mm
WEIGHT	20kg
ACCESSORIES	drive centre, revolving tail centre, 6in tool rest, 3in faceplate

VERDICT

This is a true woodturning lathe selling at a very fair price.

PROS
- Compact design
- Variable speed
- Accurate performance

CONS
- Weak tool post lever

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- Charnwood
- 01530 516926
- www.festool.co.uk

The lathe is ideal for turning a wide range of small-scale objects

The chrome banjo handle is sturdy, but the tool post lever can slip in use

The variable speed control knob is positioned conveniently next to the on/off switch

The pen mandrel is an optional accessory. It produced a perfect pen!

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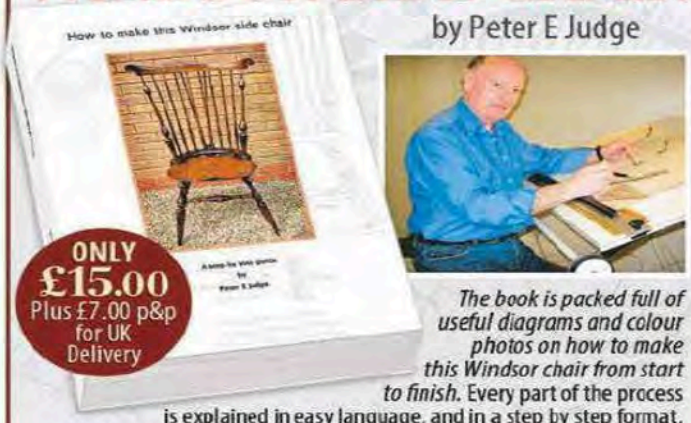
HOW TO MAKE THIS WINDSOR SIDE CHAIR

by Peter E Judge



The book is packed full of useful diagrams and colour photos on how to make this Windsor chair from start to finish. Every part of the process is explained in easy language, and in a step by step format, supported by dedicated photos and drawings, throughout its 420 pages.

Critique of the book from Mr R A of Florida. 21 Jan 2014

"Without doubt, it is the most detailed and comprehensive Windsor chair construction book on the market today. Finding detailed instructions on this subject has been difficult. I have collected every book and article I could find. Your book beats them all; no contest."

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www.makingwindsorchairs.co.uk

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Triton router table, model RTA-300, never used; £75.
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01305 786315 (Dorset)

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I've been framed!

BY MICHAEL FORSTER

Who would have thought that this innocent little framed panel could conceal a heffalump trap of mammoth proportions?

So, there I was, in my workshop, gluing up the panels for my wife's new desk – one door and two filing-drawer fronts consisting of framed raised-and-fielded panels which I'd lovingly cut by hand. I'd decided to use dowels rather than tenons for the frames.

What's that? Oh no: I'm not going to get drawn into the Dowels v Tenons controversy here. Suffice it to say that for this type of workpiece dowels have never proved inadequate yet.

A close shave

The fielded panels, being hand-cut, had sloping rather than parallel-sided tongues, so I wanted to make absolutely sure that those wouldn't hold the frame corners open on assembly. I'd spent quite some time painstakingly tweaking each edge, shaving by shaving, until it seemed to be a nice snug fit, and I didn't want all that careful work blown away at the last minute when the joints were gloopy, the glue setting, time short and sense of panic rising. I'm sure you know the scenario.

Be prepared

Where was I? Oh, yes. Everything looked beautiful, and I had to admit to a dangerous feeling of satisfaction-bordering-on-smugness as I lightly nipped up the cramps just enough to hold it all while I checked. I cut and grooved the dowels and prepared the bench area for the glue-up, ensuring that everything was to hand so I could pull it all together and check for wind and square before the dreaded grab point of the glue arrived.

I'm not generally a good person to be around at times like this, I'm the first to realise, so it was a good thing I was alone as I tightened the cramps to pull it all together and found that, now the dowels were in place, one stile was significantly proud of the rails on the face side.

Facing disaster

Are you there yet? I'd made the most elementary mistake of joinery and broken the golden rule I learnt some 57 years ago in probably my first school woodwork lesson. You can join in and chorus it with me if you'd like to: '*Always work from the face side…*'.

I hadn't bothered to get the dowels perfectly centred as, had I been doing the above, it shouldn't matter – but setting the jig against the wrong face did. Realising my mistake, I hastily separated the sticky joints and reversed the stile. Ahead of me still, are you? Yes, that's it. I'd set the dowels from the wrong side, but the groove from the face side. So it all looked good until the tongue hit the face edge where the groove should have been – and wasn't. Doh!

Take a break

Now, if I'd at least been consistent I might've got away with it, but this was irredeemable – especially as all this delay hadn't left me with enough time to whip it all apart again before the glue set.

At this point, I somehow recovered my presence of mind and behaved in a most uncharacteristic way: I left the half-assembled embarrassment on the bench and went for a cup of tea, rather than carrying on desperately trying to rescue it.

When I returned, I knew what I was going to do – just as long as I'd left myself the possibility. To my relief, the closest corner joints were still open just enough to get a very fine saw in there and cut through the dowels without scarring the shoulders. Now I just needed to clean them up, re-drill the dowel holes, and not forget (all together, now): '*Always work from the face side.*'

New variations on old techniques

Despite having made quite a number of furniture-related items over the years – and employed a wide variety of constructional methods to suit the job and budget – I was pleasantly surprised to come across a joint I've not yet used as I leafed through a selection of past copies of *The Woodworker*.

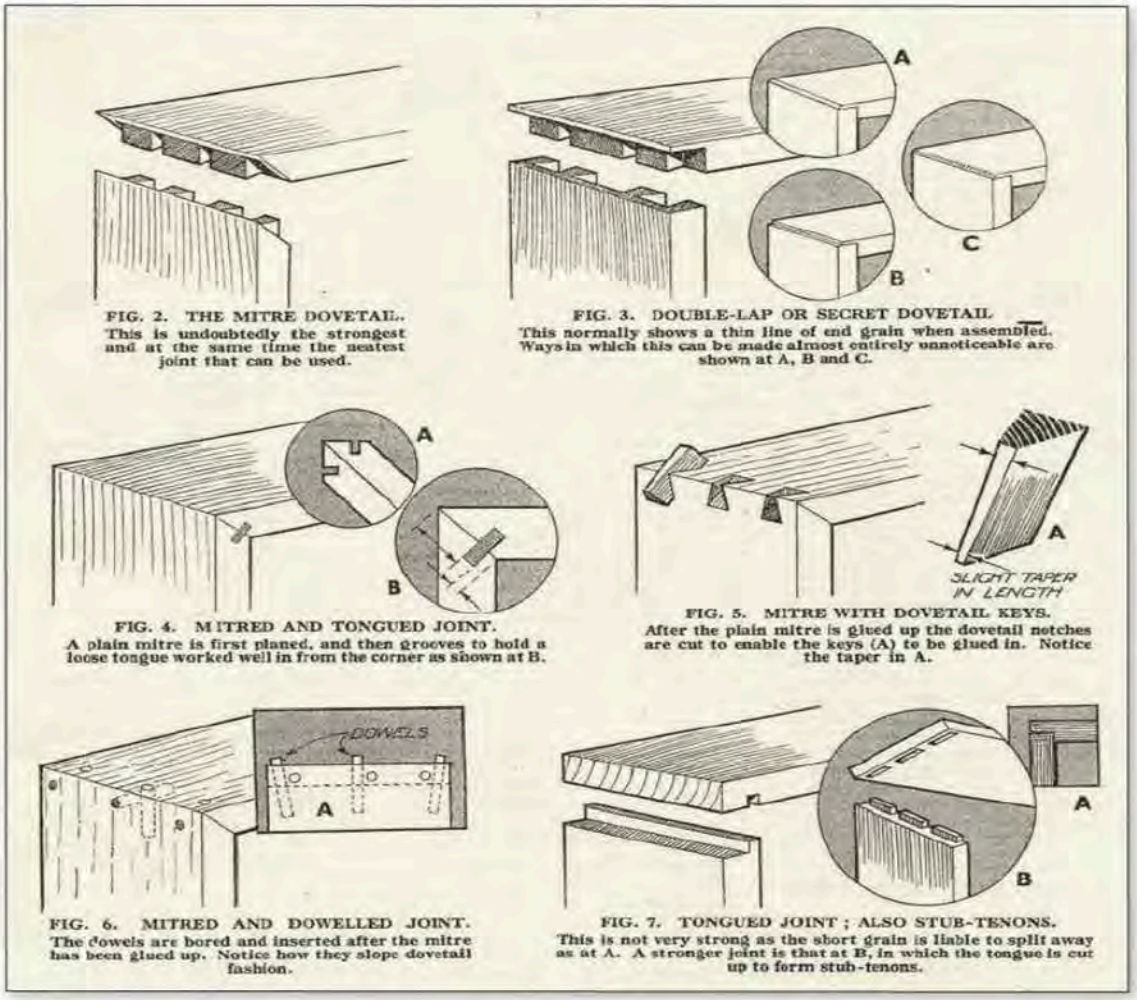

FIG. 2. THE MITRE DOVETAIL.
This is undoubtedly the strongest and at the same time the neatest joint that can be used.

FIG. 3. DOUBLE-LAP OR SECRET DOVETAIL.
This normally shows a thin line of end grain when assembled. Ways in which this can be made almost entirely unnoticeable are shown at A, B and C.

FIG. 4. MITRED AND TONGUED JOINT.
A plain mitre is first planed, and then grooves to hold a loose tongue worked well in from the corner as shown at B.

FIG. 5. MITRE WITH DOVETAIL KEYS.
After the plain mitre is glued up the dovetail notches are cut to enable the keys (A) to be glued in. Notice the taper in A.

FIG. 6. MITRED AND DOWELLED JOINT.
The dowels are bored and inserted after the mitre has been glued up. Notice how they slope dovetail fashion.

FIG. 7. TONGUED JOINT; ALSO STUB-TENONS.
This is not very strong as the short grain is liable to split away as at A. A stronger joint is that at B, in which the tongue is cut up to form stub-tenons.

In the spirit of education for the massed readers of our favourite mag, I'm pleased to present this technical page from May 1940 which shows a very useful selection of ways of jointing a carcass top. While many of us these days will be reaching for the biscuiter or the Domino machine in this situation, there are times when traditional alternatives are definitely worth considering.

I like the conversion of the tongued joint to stub tenons (Fig 7), and dovetails will always be satisfying to pull off cleanly and successfully. The treatment of the mitred joints is interesting, and if you don't fancy the biscuit cutting in this awkward situation, then maybe the dovetail key is the way to go. I shall definitely be trying a variant of it when the opportunity presents itself!

Mark

More from The Woodworker archive next month...

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