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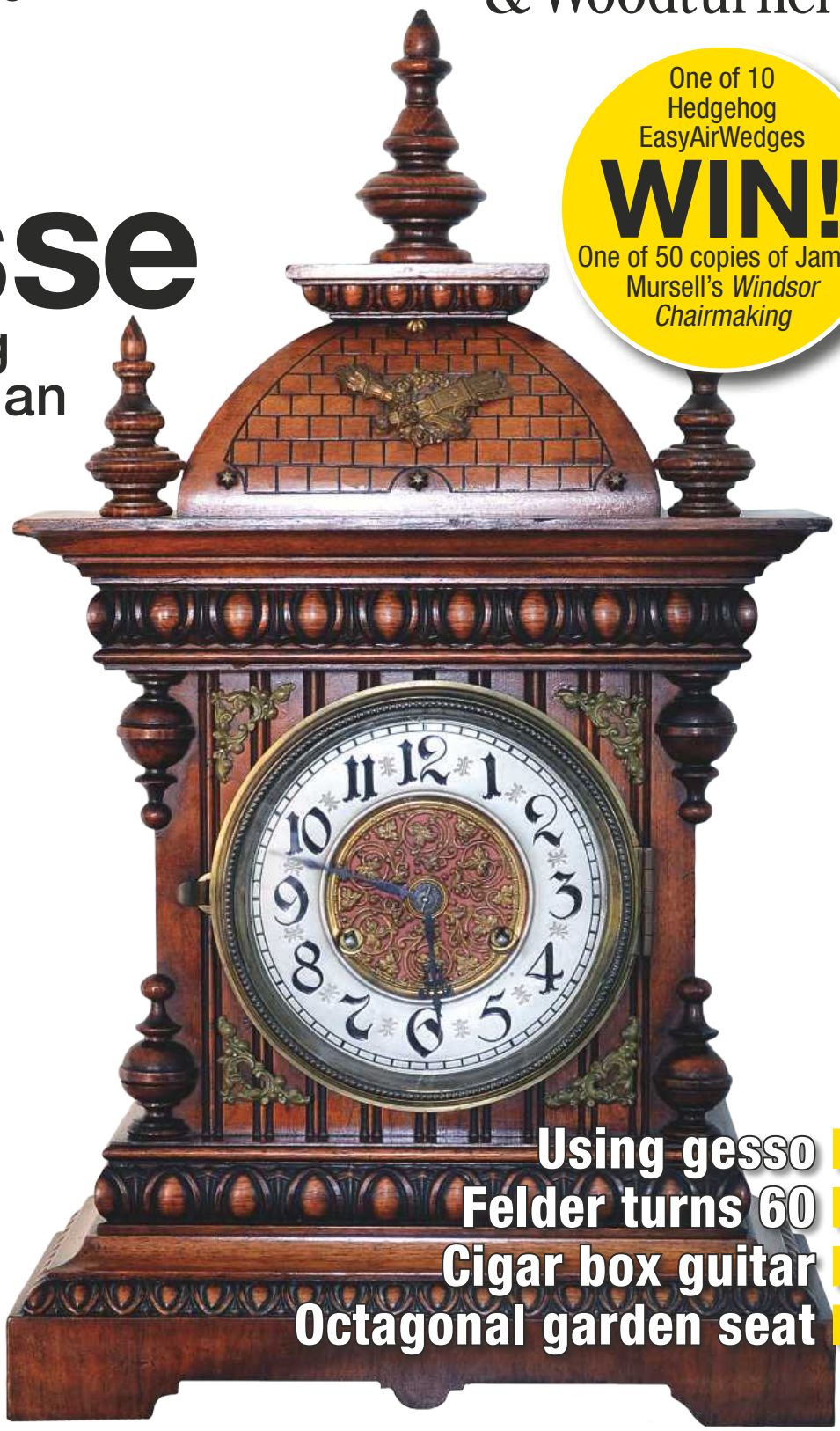

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Welcome

The editor learns a bit more about timber

There's always time for learning I think, but just how much time should we spend on our woodworking education? And would this be a conscious decision or just something that happens every day we're on the tools? Pondering on this between multiple carpentry tasks recently, I questioned just how much or how little my students should learn in a lesson. It must be true that the longer you spend learning something the better you'll know it, so should we just look at one subject exhaustively? Conversely, if you only spend a sketchy five minutes trying to understand a complex procedure, then you'll likely struggle with it the first time you try it on your own.

But is this really so bad? The second time will certainly be easier and it won't be until a few more times down the line that you will start to get a grip on this new skill. It can take years before you can call yourself a master of some jobs, and during all that time you're still learning. As someone entirely self-taught myself, I recall spending much of my early career getting things less than right and generally struggling to achieve the level of quality that I wanted. The lessons back then were slow and painful – and sometimes expensive – but ultimately all that I learned was solid gold and has stood me in good stead through the years right up until the present day.

Does that mean, though, that the only really worthwhile lesson is the learned-from-experience one? Is what we learn in an accredited college or on a recognised course alongside other students less or more valid than a fumbling trial and error method experienced alone? Clearly both methods have much to recommend them, so it's no surprise that the best system chosen by society is one which combines formal training at college with actual learning on the job.

This then is clearly the best way to go, but ultimately we all have to learn for ourselves, and it's the tough lessons from actual experience that are necessary to complete our education. So even if you think you haven't got the time for learning, you'll find soon enough that you've been doing it all along. Don't be late for your next class.

mark

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

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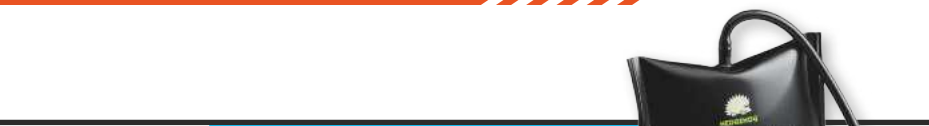

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See page 37 to find out how to enter

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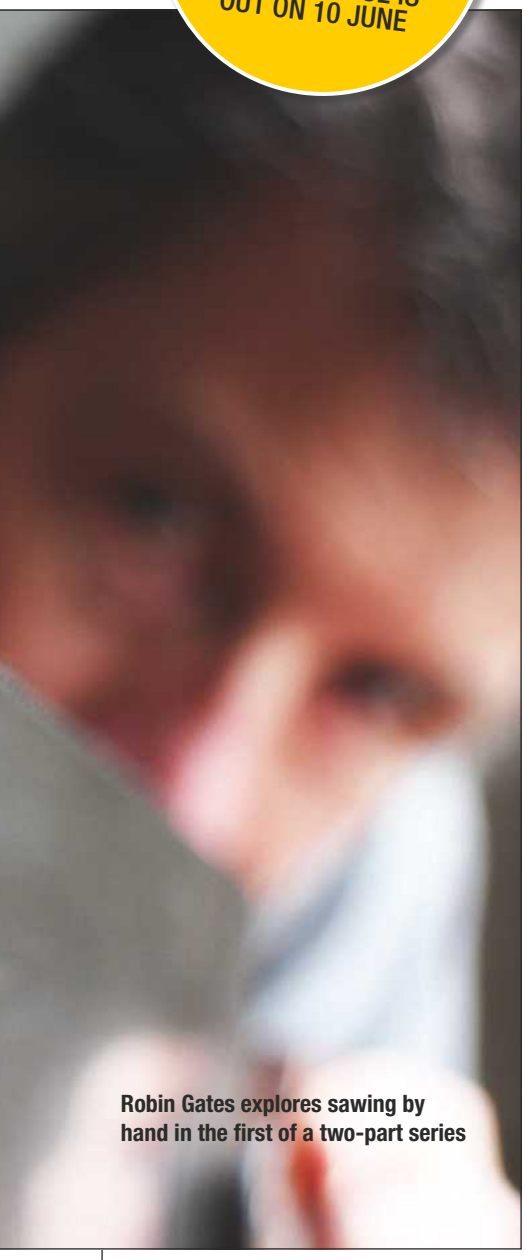

Robin Gates explores sawing by hand in the first of a two-part series

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The Woodworker & Woodturner

June 2016

Published by **MyTime Media Ltd**
Enterprise House, Enterprise Way,
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print & digital media publishers

The Woodworker & Woodturner, ISSN 1752-3524, is published monthly with an additional issue in summer by MYTIME MEDIA Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent TN8 6HF, UK.
The US annual subscription price is 59GBP (equivalent to approximately 98USD). Airfreight and mailing in the USA by agent named Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA.
Periodicals postage paid at Jamaica NY 11431.
US Postmaster: Send address changes to The Woodworker & Woodturner, Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA
Subscription records are maintained at dsb.net 3 Queensbridge, The Lakes, Northampton, NNA 7BF.
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In brief...

ANY OTHER BUSINESS

We all know that it's hard to please all of the people all of the time, but it's only when there's evidence of failure that we can actually do anything about it. Judging from some recent feedback, it's quite possible that we at *The Woodworker* may not be meeting the needs of all of our readers when it comes to project choices. When you think of the huge number of potential jobs out there it's no wonder that we've failed to deliver now and then for some of our readers, but we definitely want to avoid any further disappointments in the future.

Your project ideas

Don't forget that the magazine belongs to all of us, and we've all got a stake in its continuing future. My proposal then, is to compile a list of readers' project requests and wishes. So, if there's anything in particular you'd like to see, just drop me a line. As soon as we get a few in we can start to get a feel of what's wanted; then it's easy to make a decision, source the relevant article and publish it as soon as possible. If you're just starting out or starting up again after a lay-off you'll likely be hungry for as much work as possible, and probably something readily achievable at that.

On the other side of the coin, if anyone reading this has made something they're particularly pleased with and fancies providing a report of how it was done, we'd be glad to see it. Just write to me at the usual email address (**mark.cass@mytimemedia.com**) and be sure to attach a photo or two so we can get a good idea of what to expect. And don't be daunted by your imagined lack of writing skills, it's the actual job that counts.

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Since we all miss an issue of *The Woodworker* from time to time, it's good to know that you can plug any gaps in your collection by making use of our Back Issues service. Traditionally this was operated via www.myhobbystore.co.uk; however, there's now a brand-new place to find them at **www.mags-uk.com**.

Simply sign in on the home page then select 'The Woodworker' via the title or publisher (MyTime Media) listing on the menu bar. Add what you want to the 'cart', proceed to the checkout, pay, and await speedy delivery, direct to your door, without even breaking a sweat! It couldn't be easier.

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24 Turning pepper mills
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The bed bars of both machines have increased diameters for improved stability and their length has been revised to be a more compact and practical 610mm in length. Optional bed bar extensions are available for those who turn very large items between centres. The spindle thread of the lathes has been increased in size to the popular M33 thread, bringing it in line with our heaviest-duty lathes to give unsurpassed solidity and increasing compatibility across the range.The headstock features easy maintenance sealed-for-life bearings, two at the front and one at the rear of the spindle, providing excellent support for the movement of the spindle. The spindle itself is hollow, allowing a knockout bar to be used to aid removal of headstock accessories.

The tailstock, which now features a No.2 Morse taper barrel, also has an upgraded hand wheel to the rear, making movement of the barrel much easier. The toolrest has an improved one-piece cast design with a larger 25mm diameter stem, giving a more sturdy base to turn from with increased support for the chisel.

The CL3 remains a five-speed lathe, offering ample options for all woodturning tasks, and the CL4 features the famous VSLK variable-speed unit, offering incredible versatility with its responsive variable-speed change.

Variable-speed unit (CL4) provides simple responsive and smooth speed change at the turn of a dial

Shown with optional legstand

Hollow spindle allows use of knockout bar

New tailstock design features ergonomic hand wheel and No.2 Morse taper

Extendable bed bars, now with larger 40mm diameter

Headstock features M33 thread and sealed-for-life bearings

5 YEAR GUARANTEE

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Part 1

BY ROBIN GATES

With saw in hand

Robin Gates shares his joys and woes of sawing by hand, from the first pencil line to brushing away the dust

Sometimes when I pick up a saw I am momentarily awestruck by mankind's achievements with this simple hand tool. Down the years the saw in its many materials, shapes and sizes has felled sky-scraping trees, trimmed wafer-thin veneers and shaped everything from ships to cities. It's one of the founding tools of civilisation.

There's perhaps an element of nostalgia in the way I let old hand tools stir my emotions, overlooking the back-breaking labour they demanded of workers before the industrial revolution. But I suspect our ancestors' long familiarity with sawing timber by hand has been passed down in the DNA, a skill just waiting to be stirred. In the early years of the last century, a Neolithic flint dredged from the River Ouse in Norfolk showed that people have been cutting with a toothed edge for at least 6,000 years. If those six millennia were compressed into a single day and the history of the portable electric saw (invented less than a century ago) were compressed in proportion, we would have been using the power tool for only the last 25 minutes. Perhaps that's why I feel more at home with saw in hand than pushing the button on machinery.

The oldest adage

But when my cross-cut saw takes its first bite into a virgin plank, the ghost of a minor disaster returns to haunt me. I recall a lovely oak board well sawn, its ends square and splinter-free, and then the dawning realisation that one of my hoped-for timber twins was a tad too long and the other – irreparably – a tad too short. Measure twice and cut once may be the oldest adage in the workshop but there's nothing like a bit of experience to keep its truth alive.

Thankfully I make this kind of mistake less often now, which I attribute to the natural deceleration of growing older. The restless spirits who wrapped their mitts around my saw handles not so long ago must have moved on to bother someone younger.

But that isn't to say the sawing itself – once it begins – is slow. For my small projects the sawing is completed by hand as quickly as it might be by machine. It's in the measuring and marking out where progress has slipped into a lower gear. My old try square, for example, is a lovely thing in rosewood, brass and steel but I only recently thought to check if it was a true right angle (**photo 2**). This was easily done by pencilling a perpendicular from the straight edge of a board, then turning it over to pencil another and seeing if the two were parallel. Happily they were, so if I'm squaring around a piece of timber for a cross-cut and the last line doesn't meet the first (**photo 3**), I can rule out the try square as the culprit.

Such an error may be traced to the timber itself being out of square, in which case more care is needed with planing before selecting the best surfaces as face side and face edge and using only these as reference points for the try square. Another possibility is that for each line after the first the try square was positioned before the pencil, risking a cumulative error around the piece of three thicknesses of the pencil lead. It is better to place the pencil at the end of the last line drawn and bring the try square to it.

Knife, spur & scalpel

I used to shy away from a marking knife,

Checking the saw is straight and sharp

Testing the try square is a true right angle

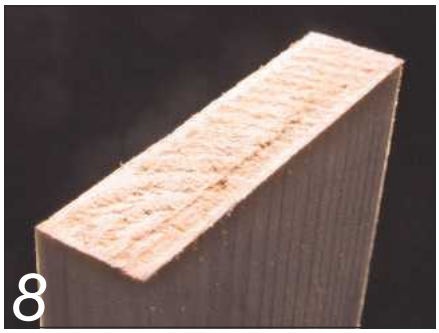
When lines don't meet

As you can see, the marking knife slots positively into its previous cut

Using a sharp pencil to improve the visibility of a knifed line

Using a chisel as a marking knife

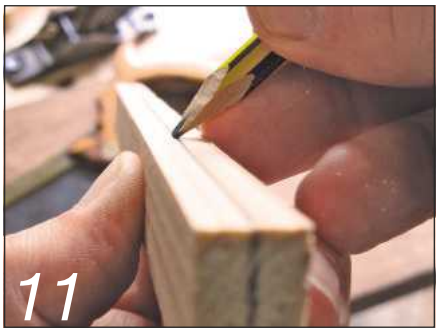
Swann Morton scalpels



Clean all-round cut after marking with a knife

An example of a 19th-century marking gauge with threaded beam

The panel gauge scribes far from the edge of a board



Using the fingers as a fence for a freehand pencil line

fearful of letting the square slip and scoring a mistake in the work. Using a pencil seemed safer. Now, with a more patient hand, I appreciate the greater accuracy of a saw cut made to a knifed line (**photo 4**). It's more durable, I can find it with a finger nail, and although less visible this is remedied by running a well-sharpened pencil inside it (**photo 5**). A chisel works as well as a knife but the smaller the better or the top weight makes it unwieldy (**photo 6**). I've also tried using a scalpel which is – needless to say – surgically accurate, and also inexpensive; a Swann Morton scalpel handle and packet of blades can be had for about £5 (**photo 7**). I find the real advantages of using any knife are that it slots unmistakably into the last line cut, it cleanly severs the surface fibres in advance of the saw and cultivates a generally more careful approach (**photo 8**). But I find a knife is unmanageable if used to mark a rip cut because the slightest swerve in the grain will try to steer it off course. A marking gauge is more reliable, with the stock to keep its chisel-edged spur at a fixed distance from the edge. My favourite is a 19th-century wooden gauge with a threaded beam (**photo 9**). The stock is tightened by a lock-nut, adjustable in seconds yet rock solid.

For a saw cut far from the edge of a board a vintage mahogany panel gauge does the job (**photo 10**) superbly. Its shapely stock, which fits the hand so well, has a rebate to register with the edge of the board but can still be prone to wobble if the beam is extended far, so a steadying hand above the spur helps it stay on track. I also find that a hammer tap on the boxwood locking wedge is ideal for ensuring it doesn't come loose on the job.

An inverted flexible rule makes an impromptu try square

In-line reflection in the saw used to mark a perpendicular

The reflection is out of line, so not quite square

Sawing on a kitchen stool, one hand supporting the waste

More primitive means are justified when the ends are less critical. The handiest of marking gauges is the hand itself, using the finger tips as a fence for guiding the pencil (**photo 11**). And just recently I discovered my Stanley retractable rule works as an improvised try square (**photo 12**). Although the flexible concave rule is too wobbly for pencilling a line if used scale uppermost, when inverted the edges are in contact with the timber; and if the case of the rule is pressed to the edge, it holds steady enough to strike a perpendicular (**photo 13**).

If the light is shining kindly on the timber, sometimes I'll lay the back of the saw across it and use that to mark the line. When the edges of the timber are in line with their reflections in the saw plate, this indicates the saw is at right angles to the edge. Working by eye in this way throws the responsibility for accuracy on the senses – and it's not a bad idea to keep those in good working order!

Hold it

My next consideration is holding the timber firmly, which is often a compromise involving G clamps, hands, knees and unsuspecting horizontal surfaces. In the absence of a saw bench or workmate an old kitchen stool is hard to beat, so long as you pop out the padded seat and rest on its wooden frame (**photo 15**). A step, a ledge, an extended drawer – it's surprising what can be pressed into service when there is timber in one hand, saw in the other. Resting the work across a toilet seat or wheelie bin offers the advantage that its lid makes an effective clamp. And a bench hook (**photo 16**) tames the most unpromising situation – a rough stone wall, for example – to provide a flat and square surface for even the most delicate of cuts.

Assuming the saw is sharp and straight only one detail remains before putting teeth to timber. Since a good line is no guarantee of making a clean start, and even drawing

Saw anywhere safely with a bench hook

Chisel a shoulder to guide the saw, which will ensure a clean start

the teeth backwards with the blade nestling against my thumb I sometimes splinter the arris of a brittle timber, I chisel a small trench for the saw to slot into. A vertical stab at the end of the line is followed by an oblique cut to chisel out the chip, making a shoulder to guide the saw (**photo 17**). This way I can begin sawing on the push stroke with immediate effect.

Three stages

I've identified three stages in sawing where things can go wrong: the beginning, middle, and end! And it's in the middle where I most fear an accident. One moment I can be standing so purposeful, eyes on the line, left hand supporting the timber, and the next I am staring in disbelief, the saw having leapt from the kerf and ploughed into me like a derailed train. Ouch! But the diagnosis is simple: loss of concentration. An even worse scenario is that I twist the saw, it jams, I push harder, it bows, kinks and returns to the rack like some failed design for sawing around corners. A bent saw hangs mockingly in the workshop for long after a scrazed hand has healed. Fortunately I haven't made these mistakes for a while but the memories still make me wince, and they prove the truth of another all-too familiar adage: practice makes perfect. You need to saw often to remain good at it. When I slip up is when I haven't allowed myself to become reacquainted with the saw, to settle into a comfortable stance and rhythm.

If the kerf is vertical it's easy to keep an eye on the quality of progress at both ends (**photo 18**). A shift of weight or tilt of wrist will correct the saw if it is going astray. But when sawing a board that's horizontal, with the exit of the kerf hidden, I turn it at regular intervals to saw from both sides alternately; this way any habitual errors should cancel out over the length. A sliver of timber wedged in the kerf and moved along as necessary will prevent the blade binding (**photo 20**).

When homing in on the end of the cut I try to remember to support the waste piece before it snaps off under the very last push of the saw. If conditions allow I'll clamp the timber to a sacrificial board supporting the whole area of the cut (**photo 22**). I find this essential when sawing plywood, which otherwise ends up with ragged fringes like a remnant of Annie Oakley's wild west jacket (**photo 23**).

So the saw has sawn and the measurements were correct – what can possibly go wrong? When will I learn not to blow away the sawdust in a confined space, only for it to rebound in my face! I blame those neolithic sawyers lurking in my bones – the brush hadn't been invented 6,000 years ago (**photo 24**). WW

Both ends of the kerf can be inspected when it's standing vertical

Timber tipped up in the vice makes for more comfortable sawing

The kerf is wedged open with a sliver of timber to prevent binding

Odd shapes call for improvised clamping while making cleats

Sawing plywood on a sacrificial backing board

Plywood sawn with and without a backing board

Brushing away the dust is safer than blowing it

NEXT MONTH

Robin Gates explores the idiosyncrasies of vintage saws and makes a simple peg rack to keep them handy

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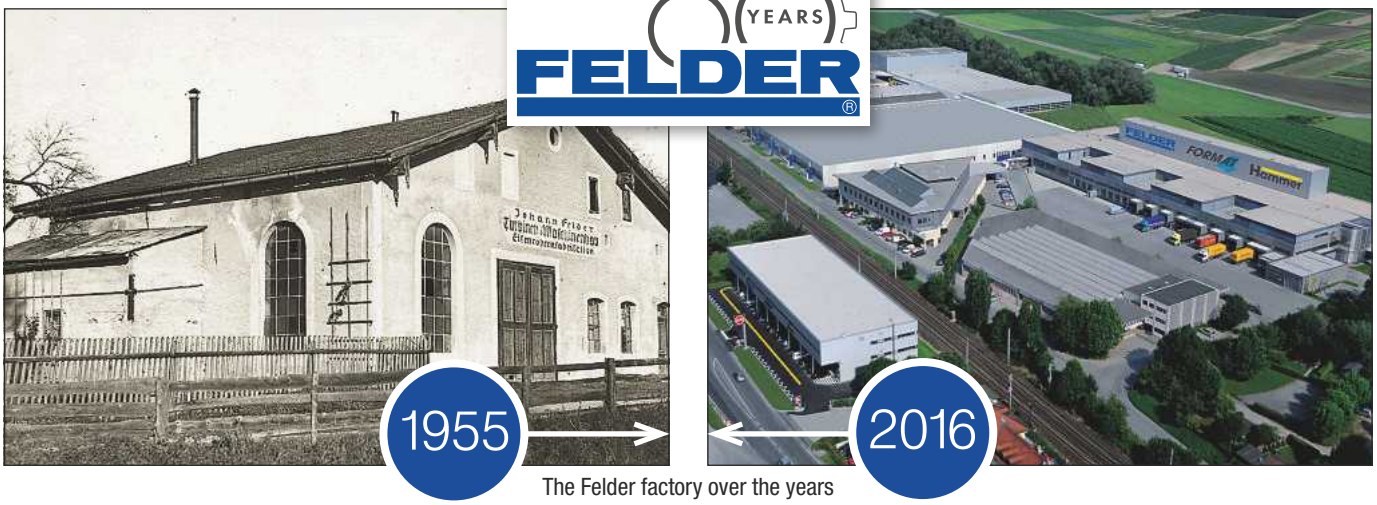

The Felder factory over the years

60 years of Felder

This year sees Felder celebrating its 60th birthday, so why not visit the UK headquarters yourself to take advantage of great anniversary deals and see these fantastic machines in action

It was 60 years ago that Johann Felder, together with his wife Gertaud, founded Felder as a company. Johann Felder junior created and worked in his workshop, in his parents' home. In the same year, 1955, they were already presenting the first Felder woodworking machines at trade fairs all across Austria.

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Workers at the Felder factory back in 1955

Growing with the times

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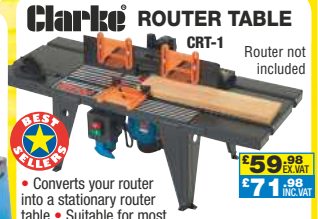

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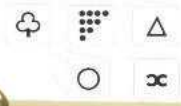


In your own write...

Here are just some 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 crowd; 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*, MyTimeMedia Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent TN8 6HF or send an email to mark.cass@mytimemedia.com

CHILD'S WINDSOR CHAIR

Hi Mark,

I am recently retired from over 40 years in the classroom (maths and geography) and am now enjoying developing some new woodworking skills. So far, I have made several pieces of furniture for various members of the family. I was given a subscription to *The Woodworker* for Christmas last year, and write to say how much I have enjoyed reading it!

For my next project I would like to make a scaled-down version of a Windsor arm chair for my 1+ year old grandson and was wondering whether you would know where I might acquire a set of plans? I have an excellent source of English hardwoods here in Oxfordshire and now just need the plans!

Many thanks to all those involved in producing *The Woodworker*.

Kind regards, **Duncan Hepburn**

Hi Duncan,

Sourcing plans is always tricky; the best ones are generally closely guarded and, if at all available, come at a price.

I don't recall ever seeing a plan for a child's Windsor chair, and would suggest the best thing to do would be to scale down a full-sized example. Very few Windsor chairs were made to plans so you'll likely have to investigate and experiment yourself. Make sure you:

- *Decide on the finished seat and overall height early on*
- *Draw it out full (child's) size on a board or paper*
- *Consider making a mock-up in scrap timber or cardboard*
- *Look at as many real-life Windsors as possible, then photograph and measure (with the owner's consent of course).*

Sorry I can't help you more, but I always think that half the fun is in the design and planning.

Mark

STATIONERY MEETS WOODWORKING

Dear Mark,

Looking through back issues of *The Woodworker* (November 2015), I note the contribution by Robin Gates concerning edge guards.

For many years I've been using stationery binding strips, which can be made more secure by gentle heating and squeezing in a vice. They can easily be cut to length and are suitable for all sorts of woodworking and metalworking tools. Secure with string or elastic bands; the normal length is 295mm. P.S. I started woodworking at the age of 13 and am still doing it today at the age of 91.

Yours sincerely, **Ray Harding**

Hi Ray,

Thanks for your input. I know one or two other woodworkers who are familiar with that type of guard; another one is the plastic strips that you can use to hang posters on the wall by clipping one on each end.

BACK TO BASICS

Dear Mark,

I'm not one for sending out random emails but thought I would after receiving this month's copy of *WW*. I'm new to this subscription, having requested it for a Christmas present and after picking up the woodwork bug over the last six months or so. I'm not a woodturner but the idea of making things like kitchen cabinets, drawers, shelving, etc. has a real appeal. As a new woodworker, the magazine really doesn't cover the kind of things I had hoped for. Don't get me wrong, it's good, but I really think it could benefit from a back to basics segment for people like me who haven't been buying the magazine since 1901.

The idea of building my own workbench, fitting out my own workshop with drawers and cabinets, etc. is really appealing. I'm certain there must be thousands of your readers whose experience on such matters could contribute to something like this? Sorry if it sounds like I'm complaining; I'm just a reader who is suggesting the type of content I would like to see, which would keep me interested and anticipating the next edition.

Dave Woodcock

Hi Dave, *I'm glad to have your feedback and sorry this issue has been a bit of a letdown. Things are at a slightly tricky stage at the moment (print publishing isn't exactly storming the charts) and, while* The Woodworker *continues to make a modest profit, cost-saving measures have sadly helped to clip our wings when it comes to providing top quality content.*

Myself and the tiny team will continue to do what we can with very limited resources, and can reassure you that the spirit of the magazine is still going strong. Your patience is humbly requested.

Here at *The Woodworker* we're always pleased to see photos of your work, and we know everyone else is as well! So send them in now and see if you can make the cut

Happy studying

In part 2 of this article, John English begins the second phase of building his adjustable width student desk

Part 2

Carrying on from the last issue, where I showed you how to make the first part of the desk, here I'll take you through how to make the desk top design, the file drawer and the drawer glides, which will complete the build.

Desktop design

The top is glued up in three separate sub panels that can each pass through a standard 317mm planer/thicknesser. The three sub panels are biscuited together to create the wide top. If a wide belt or drum sander is available at a local cabinetmaking shop, you can forego this step and ask them to run it through as a single panel. To make the three sub panels, begin with the two edge pieces (L), which are each 254mm wide. For the sake of stability, it's a good idea to joint and glue two or three boards for each panel, making them a little wider than their final dimension. Leave the boards as thick as possible during the glue-up, and for now make them around 50mm longer than their final dimension.

The middle sub panel is made up of two oak boards (M) and three walnut inlays (N). The inlays are simply ripped from a jointed board, and then planed to width. I planed the middle inlay to 19mm width, and the two outside ones to 22mm, so I would be able to run the completed panel across the jointer and have three inserts of equal width and a panel with straight edges. Glue and clamp the middle sub panel together, again leaving all five components as thick as possible until the glue cures (**photo 15**). After the glue is dry, scrape any excess hardened adhesive, and then run all three panels through the planer. The idea here is to render the top surface completely clean and level, the bottom surface relatively so, and still maintain as much thickness as possible. The best surface after planing will become the top. Then, rip the panels about 3mm over their desired width, and joint the edges until each panel is 254mm wide. You can then lay them out to select the best appearance (**photo 16**).

Mark the three panels for biscuits (or dowels) and then glue, biscuit and clamp them together (**photo 17**). Brush the glue to an even coat. During clamping, pay special attention to equalising the pressure from the

CUTTING LIST

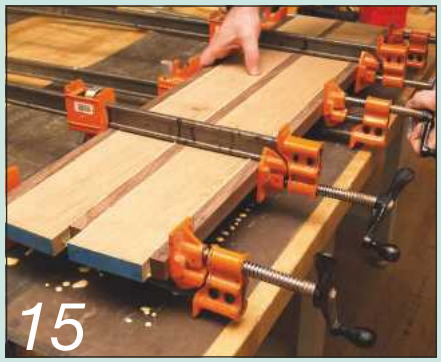
Ref	No	Item	T	W	L	Material
A	4	**Leg**	35	63	648	QS white oak
B	6	**Spindle – accent**	19	19	673	Walnut
C	8	**Spindle – standard**	19	19	673	QS white oak
D	2	**Top cleat**	19	41	609	QS white oak
E	2	**Bottom cleat**	19	41	609	QS white oak
F	2	**Top plate**	19	57	670	QS white oak
G	2	**Bottom plate**	19	57	670	QS white oak
H	4	**Feet**	19	86	86	QS white oak
J	1	**Stretcher**	19	121	794	Walnut
K	4	**Buttons**	4	10 1D	12mm OD	Walnut
L	2	**Top – edges**	19	254	914	QS white oak
M	2	**Top – centres**	19	19	914	Walnut
P	1	**Backsplash**	19	70	787	Walnut
Q	2	**File drawer – sides**	17	273	343	QS white oak
R	2	**File drawer – F & B**	17	273	162	QS white oak
S	1	**File drawer – bottom**	12	162	327	Oak plywood
T	1	**File drawer – face**	19	197	292	Walnut
U	2	**Pencil drawer – sides**	17	54	343	QS white oak
V	2	**Pencil drawer – F & B**	17	54	314	QS white oak
W	1	**Pencil drawer – bottom**	12	314	327	Oak plywood
X	1	**Pencil drawer – face**	19	349	73	Walnut
Y	4	**Drawer slides**	17	44	660	QS white oak
Z	4	**Drawer receivers**	19	44	457	QS white oak
AA	4	**Drawer receiver cleats**	19	19	457	QS white oak
AB	1	**File drawer stop**	10	19	267	Hardwood
AC	1	**Pencil drawer stop**	10	19	413	Hardwood

top and the bottom, to keep the desktop as flat as possible (**photo 18**).

After the glue has dried overnight, remove the clamps and scrape the joints (top and bottom) with a well-sharpened card scraper (**photo 19**). If you're not used to doing this, plug in an orbital sander. The results won't be as nice, but they'll suffice.

Place the completed top on a bench, face down, and centre the leg assembly on it, upside down. Clamp the legs in place, making sure the top plate is parallel to the edges of the desktop, and is centred back to front. Drill 6mm pilot holes through the top cleat and the top plate, using masking tape as a depth stop to avoid drilling into the desktop. These oversized holes will allow the top to move a little with changes in humidity, although the quartersawn stock won't expand or contract very much (compared to plain sawn boards). Extend the pilot holes into the desktop using a 1.5mm bit, again stopping the bit with masking tape to avoid drilling clear through the top (**photo 20**).

Bandsaw the cloud lift backsplash (P) to shape, and clean up the saw marks with a



Glue and clamp the middle sub panel together, again leaving all five components as thick as possible until the glue cures

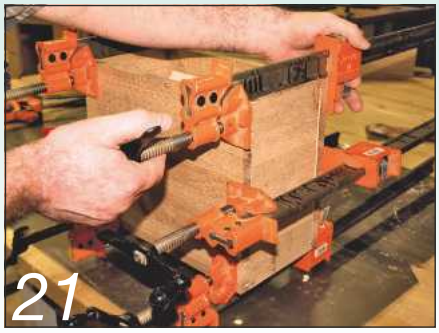
Once the panels for the top are ripped, lay them out to select the best appearance

Mark the three panels for biscuits (or dowels) and then glue, biscuit and clamp them together

During clamping of the top, ensure to pay special attention to equalising the pressure from the top and the bottom

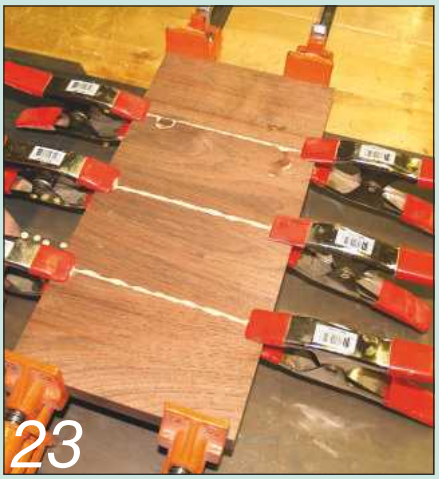
Once dry, remove the clamps and scrape the joints (top and bottom) with a well-sharpened card scraper

Extend the pilot holes into the desktop using a 1.5mm bit, again stopping the bit with masking tape to avoid drilling clear through the top



Glue and clamp the drawer together but allow the bottom to float without gluing

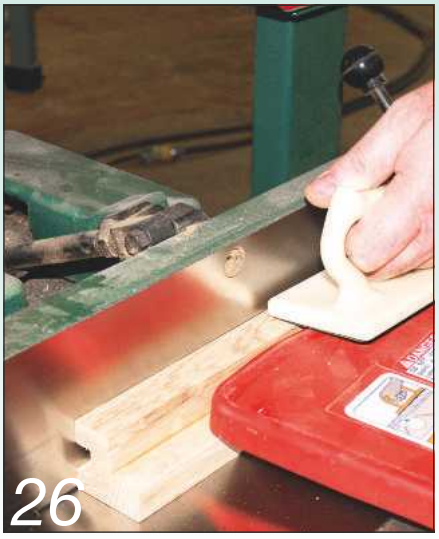
Screw the face to the drawer front using six 32mm screws driven into pre-drilled, countersunk pilot holes



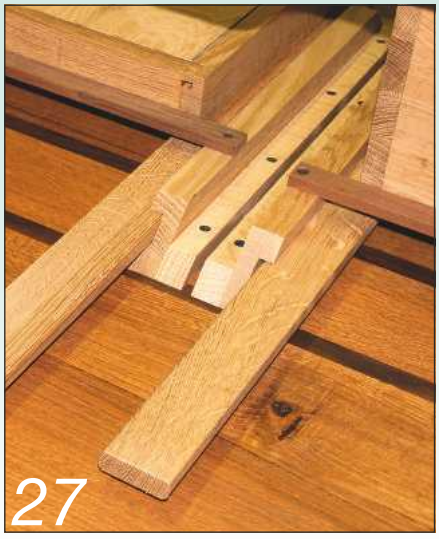
When gluing up the face, I like to use spring clamps to keep the edges aligned until the bar clamps bite

Secure each slide with trim screws, which have undersized heads

Glue a 19mm square moulding (AA) to the back of each channel, using spring clamps to hold the parts together while the glue dries



Scrape any excess glue, and then pass the moulding over the jointer once



Attach the receivers to the underside of the desktop with 50mm screws driven into pre-drilled, countersunk pilot holes in the cleats

belt sander. Use the same 3mm radius roundover bit you used earlier for the stretcher to clean up the edges. Glue and clamp the backsplash in place on the desktop, and secure it by driving four equally spaced 50mm screws up through the bottom into pre-drilled and countersunk pilot holes.

Single file

The relatively small file drawer actually holds a surprising number of standard file folders (about 24, depending on their contents). For those who don't need file storage and would prefer some extra legroom, the pencil drawer can just be widened to occupy the vacant space. Building the file drawer begins with jointing and then edge gluing enough 280mm-wide stock to make the sides, front and back (Q and R). After the glue dries, plane the stock to 16mm thickness and then cut the parts to size. The joint that holds the sides of the file drawer to the front and back can be made in a variety of ways. It's possible to carefully cut a rebated housing joint for each corner, and this makes for a very strong joint when glued up. Some folks like to machine a groove in each piece and insert a fillet (a strip of 4mm ply is great for this job). This is something that can be done with a swing biscuiter or a grooving cutter fitted in a router and fence. A router table is a useful accessory to have and certainly makes the job easier.

As with most drawer boxes, there's always a variety of methods that can be employed, and it's really a question of personal preference. It can be very satisfying to make a set of dovetails, but this is something that doesn't always suit every item of furniture.

Cut the bottom (S) to size next, and then mill grooves for it on the inside faces of the drawer sides, front and back. I like to plough a 6mm-wide groove with its bottom edge located 8mm from the bottom of the drawer part, and use 12mm-thick plywood for drawer bottoms. I rebate the lower edges of the drawer bottom to fit.

Glue and clamp the drawer together (**photo 21**), but allow the bottom to float without gluing.

The grain on the drawer faces runs up and down, in keeping with the aspect of the desk's spindles. Glue and clamp enough stock to make the file drawer face (T), and when the glue has cured, cut it to size, sand the face, and then round over the edges with a 3mm roundover bit chucked in the router table. Set the drawer on the workbench and clamp the face in place, centring it from side to side. The bench will

The desk is now complete

automatically flush up the bottoms of the drawer and its face. Screw the face to the drawer front using six 32mm screws driven into pre-drilled, countersunk pilot holes (**photo 22**). Don't glue it, as this would be a cross-grain bond, which would eventually fail and might cause cracking.

The pencil drawer is remarkably similar in construction to the file drawer, differing only in its dimensions. Mill and assemble the parts (U, V and W) in the same manner and sequence, and attach the face (X) with three screws. When gluing up the face, I like to use spring clamps to keep the edges aligned until the bar clamps bite (**photo 23**), and I pre-drill larger screw holes in the box and small pilot holes in the back of the face, so the screws holding the face can move a little as this wide board expands and contracts with the seasons.

Full extension glides

There's an elegant simplicity to hardwood drawer glides, which makes them perfectly suited to this project. The desk's design is reminiscent of the early 20th century, before the advent of modern metal drawer hardware. These wooden glides have just two parts: a male slide that is attached to the drawer, and a female receiver that is attached to the desk. Cut the four slides (Y) to size, and then bandsaw a rounded corner on the leading edge of each (this can be seen in the photo showing the desk with the drawers open, and in **photo 24**). Sand the saw marks, and then round over three long edges of each slide. The bottom inside edge of each slide is not rounded; it remains square so that it aligns seamlessly with the top of each drawer side.

Drill 3mm pilot holes in each of the slides. Glue and clamp the slides to the edges of the drawer body sides, aligning their inside edges. I like to secure each slide with trim screws, which have undersized heads that look a lot better than full-size bugle heads in this application (**photo 24**).

The female half of the system is made up of two parts glued together: a receiver and a cleat. The first of these, the receiver, is a simple channel moulding (Z), which is ripped and planed to size, and then milled by router with a suitable cutter fitted. The groove is 17mm-wide, to accommodate the 16mm-thick male slides. Using a 12mm cutter and reversing the second pass will centre the groove on one wide face of the moulding.

Glue a 19mm square moulding (AA) to the back of each channel, using spring clamps to hold the parts together while the glue dries (**photo 25**). Scrape any excess glue, and then pass the moulding over the jointer once, to ensure a flat face where it will be attached to the underside of the desktop (**photo 26**). Note the use of a pushstick here. Mitre the ends at 45°, making each of the four female slides 457mm long. Next, attach the receivers to the underside of the desktop with 50mm screws driven into pre-drilled, countersunk pilot holes in the cleats (**photo 27**). Make the countersinks just a little deeper than they need to be, and the screws will then be able to penetrate halfway into the desktop for a good, solid hold. Don't use glue, as the grain in the desktop is perpendicular to the grain in the drawer slides. Install the outside receivers tight against the top plates of the leg assemblies. Install the inside receivers so that there is about 2mm of play in the slides.

Mill a small length of hardwood stock to make the two small stops (AB and AC) that restrict the drawers' inward travel. Locate the stops so that the front of each drawer face is approximately 12mm shy of the leading edge of the desktop when closed. Attach the stops with 32mm screws driven into pre-drilled, countersunk pilot holes. I finished the project with six coats of natural Danish oil, a renewable finish that brings out the colour of white oak and walnut.

All being well, the desk should last at least until my daughter moves home after university, just while she's looking for a job, of course… WW

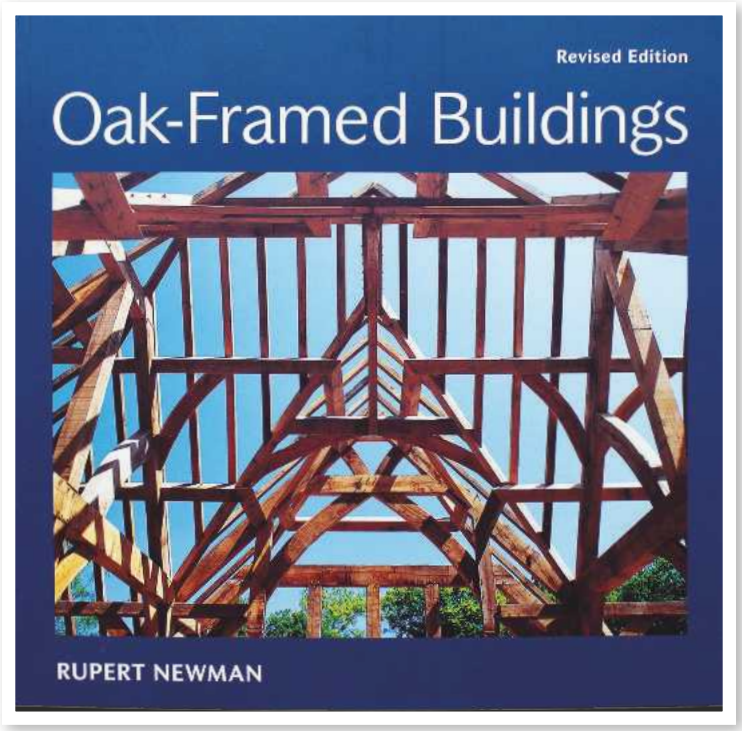
All you need to know about oak-framing

Mark Cass looks at *Oak-Framed Buildings* by Rupert Newman – a fantastic book covering the whole subject of building an oak-framed house or extension, from start to finish

Building one's own home is a dream for most of us woodworkers, and in Rupert Newman's excellent book *Oak-Framed Buildings*, there is both encouragement and sufficient instruction for anyone wanting to give it a go. When a person has spent most of their life involved in a creative process, there is little they don't know and much that they do. Fortunately for us readers and budding house builders, Rupert has written and compiled what I think must be the definitive guide to building a structure based on classic tried and tested oak framing techniques.

Although there is a brief introduction to the evolution of timber-framed buildings, the book steers clear of historical oak framing (a subject much covered elsewhere) and instead concentrates on the unique and traditional British techniques of timber construction used today. With an ever increasing interest in sustainable methods of building, the making of an oak-framed house has never been so popular, and this book comes at just the right moment.

Like any job, proper planning is essential, and never more so than when it comes to designing and building your own home. First off there is the land to consider, and there are plenty of welcome tips on sourcing a plot and acquiring the necessary building consent from the relevant authorities. From the very start – and throughout the book – it's clear that every aspect of the job will be treated seriously and with full attention, and all of the important stuff like raising a budget and making the most accurate estimation of likely costs is discussed in full.



Voice of authority

As you might expect from someone who runs his own timber framing business, there is plenty of personal experience and this first-hand knowledge is the stuff of value to all who would aspire to emulating the author and having a go themselves. Some of this experience is presented as a number of case studies, which both underline the theory content of the book and provide further inspiration for the reader. The photography is stunning, and photos of the carpenters at work make you want to get out there and get involved – barn-raising scenes from Western films spring to mind.

Sadly I've had no experience of oak frame construction myself and, despite being aware of the skill and expertise involved, was hugely impressed with the chapter on designing frames; there really is masses to it. Much of this wisdom and craft has evolved through the centuries, and is quite possibly at its peak right now, utilising as it does on a successful combination of learned knowledge, practical hand-skills, sufficient sustainably sourced timber and the availability of 21st century building aids, such as chain mortisers and mobile cranes.

A great reference & guide for oak-framers

As well as the inclusion of a number of useful references, contacts and places to visit, recent revisions have ensured that the technical content and official regulations – including health and safety – are fully up to date, making the book something close to the perfect oak-framer's reference and guide.

It's a really good book and, while it's a fascinating and informative read for the average layperson, anyone with a basic understanding of woodwork will really benefit, especially when it comes to the myriad technical details and a satisfyingly large amount of timber and tool-related terminology. WW

FURTHER INFORMATION

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- www.thegmcgroup.com

Footnote: Anyone with an interest in historical timber buildings could do worse than to visit the Weald and Downland Open Air Museum where over 50 buildings spanning 600 years are on permanent display in 40 acres of Sussex countryside. See www.wealddown.co.uk for further details

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Issue 2016-03-02 | Changes reserved

BY PETER BISHOP

THINGS YOU'LL NEED
Essential: Basic set of hand tools
Useful: Powered tools, including saws, drills, mortiser, etc.

Picket gate on a budget

Peter Bishop makes a traditional gate for his local tennis and croquet club, which will help to keep out unwanted furry visitors!

This traditional garden or, if you wish, picket gate, has been made on a bit of a budget. I'm involved with our local tennis and croquet club and a couple of years ago we installed a laser levelled croquet lawn to offer alternative sports for those less active. It's been a great success. We leave the lawn to over winter but this spring, when we came to cut it, we found at least one big dog had been allowed to run all over it, thus creating divots and some droppings! To try and stop this we decided a gate would be appropriate. As funds are always tight, I decided to make the gate using whatever old stock and ironmongery I might have to hand.

To make a similar gate, you'll need some cedar or any similar softwood or hardwood, plus a couple of days to make it. Please note that although many of these photos show machines unguarded for clarity, you should *ALWAYS* ensure that when operating equipment the appropriate guards are in place.

Offcuts & pales

We have a bridge over a stream that forms a natural barrier so this is where the gate would go. The first job was to knock up and fix a couple of side 'wings' onto which the gate would hinge and latch. These were simply made up of old hardwood 'bearers' and fixed in place with coach screws and bolts so that, if need be, they could be taken off in the future. With these two in place, I now knew how wide and tall my gate would have to be.

I started with a couple of lengths of 50 × 100mm nominal western red cedar, which was left over from a previous job so was basically free. With some judicious cutting these two produced the whole of the raw material for the gate including the pales! One piece of 50 × 100mm as it was; another piece ripped to 50 × 75mm with the offcut going towards the pales; three pieces ripped to 75mm wide, more pales from the offcuts, and then deep cut to 39mm with more offcuts again for pales. All the offcuts/pales were then passed through the saw so that they were an even thickness of about 16mm. With one more cut off the edge of a spare length, I then had enough of these.

So now I had a pile of finished size components: one 50 × 100mm for the main hinge stile; one 50 × 75mm for the outer stile; three 39 × 75mm for the top and bottom rails plus the brace and, of course, all those 16 × 50 × 75mm pieces for the pales (**photo 1**).

The frame

Job one was to make the frame (**photo 2**). The mortises were marked out on the stiles (**photo 3**) and cut on my machine, then I could chop the two rails to length and make the offset tenons. The rails are set back from the front face of the stiles by 16mm to match the thickness of the pales. With these four joints made the frame was dry assembled (**photo 7**) so I could mark the position of the brace out directly from it (**photo 8**). A couple more mortise holes and then the matching tenons and the main structure was ready. I trimmed and angle cut the top of the stiles and applied some slight bevels to the bottom ends. Then, with plenty of glue the whole lot was clamped up and checked for square (**photo 9**).

Making pegs

Now to make a few pegs for the joints. I drilled a couple of stopped 8mm holes through each of the outer frame joints and a couple more, right through, the brace joints (**photo 10**). Then I sliced up some gash, ash stock into a full 8mm square

1 The components are sawn to size

2 Here are all the sections, ready to start

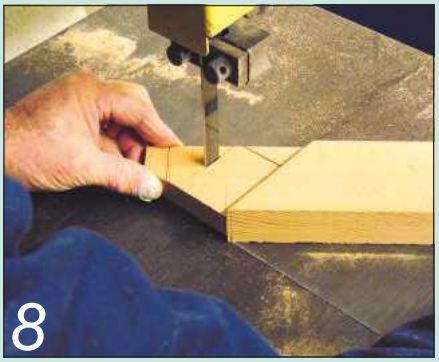
3 The two vertical stiles have their mortise positions marked out

4 Gauge marks locate the mortise holes in the width

5 Chopping out the stopped mortises

6 The mortise & tenon joints cut for the various frame pieces

7 The brace top and bottom rail mortise holes have been marked and now the shoulder slope of the tenons is taken straight off the dry assembly



The brace tenons are finished on the bandsaw

The gate frame is glued and cramped up and then checked for square

As you can see, each joint has two pegs driven into pre-drilled holes

Finally, the pales or 'pickets' are fixed to the gate's frame

The hand-made gate latch is fitted to the assembled gate

The latch in all its glory

The completed gate with its added hand-made touches

section. Yes, these are square pegs going into round holes! Well, nearly. I cut each peg to length, slightly pointed the one end and just knocked the corners off; this would be sufficient to make them work and create a really tight joint. Once they were ready, a touch of glue on the end and they were driven home. The brace pegs were trimmed off flush and the joints were good and solid.

Square pales

I decided to leave my pales with square tops, but even so, I did vary the length slightly from a lower height at the latch stile through to higher at the hinge stile. I set a 25mm spacer across the bottom between the stiles so that each of the pales would be raised up a bit. I'd calculated the width of gaps between each pale so found a couple of bits of gash stock to use as spacers. I used screws rather than nails to fix them on; this would make them easier to replace sometime in the future. I had some stainless steel ones so thought they'd be good to use. Working from the latch stile each pale was fixed in place (**photo 11**). This way, if there are any discrepancies in the gaps, the difference can be sorted with the last couple of pales near the hinge stile where they are less noticeable.

Butt hinges

Still saving money, I face fitted a pair of old, but sound, 100mm brass butt hinges. Once fixed to the post this face fitting would leave a good gap. I decided it was easy enough to make the latch (**photo 12**), using a strip of 12mm-thick ash about 305mm long; I thought this was tough enough for the job. It started out at about 38mm wide; I marked out the profile, drilled the pivot hole and cut the shape on my bandsaw. A bit of a tidy round the edges and the bar was ready. Three offcuts from the original piece were cut to form the bar guide. Once done, all were fixed to the gate and an old brass knob fitted as a lifting handle. The keep for the bar was made in the workshop and fitted on site.

Fixing in place

On the bridge, the gate was fixed between the two wings I'd already built a while ago. A bit of 'fettling' and it was hanging loose. I could now position the keep in the right place on the latch post. In case the gate needed to be fixed open, I'd got an old cabin bolt set ready to fix on. I positioned this in a convenient spot away from anywhere it might snag. A sign on the side saying 'No Dogs' and the job was a good 'un! WW

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KSS400	400mm	49.5mm	38mm	-60° to +60°	Yes (36v)
KSS60	408mm	61mm	47mm	-60° to +60°	Yes (36v)
KSS80	370mm	82mm	55.5mm	-60° to +50°	No

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The core structure. I started with one coach bolt to hold the first joist and a spirit level on top of the joist got the hole drilled accurately for a second coach bolt, then guided the placing of the parallel joist. It was then easy to position and mark the half-joints for the cross-members

Bracing the half-joints. Placing the first two planks for the seat along the length of the lower joists meant I could screw in to both sides of the joints, strengthening the joists considerably

Half done. Filling in with planks was fairly easy. Gaps between the planks let the rain run off, and undercutting the ends of the joists avoids scraped calves and makes the seat look lighter

Unobtrusive. From a distance, the seat looks a little like a frisbee that's hooked itself on to the tree!

BY TONY SCOTT

All done. Close up, sanded and sealed, the seat looks thoroughly welcoming

The seat with no feet

Tony 'Bodger' Scott makes a garden seat that won't foul a mower

From time to time, my shed gets too full of dust and I need a break. But every garden seat I've seen has legs – and they're a pain. Each time you cut the grass, you have to move the seat, or you have to spend tiresome time mowing around each leg, or buy a strimmer and go around the bench a second time once you've put the mower away. I wanted an easier way.

Construction

Eight 150mm coach bolts later, I had the beginnings of an answer: four stout joists, half-jointed around a pear tree (**photo 1**). That still left me with a worry: could the two joists on the underside of the half-joints cope with weight that would tend to open them up? The solution was to arrange the first two planks of the seat so that they held the vulnerable joints together (**photo 2**). It was then merely a matter of fitting more planks across the joists – and an octagon seemed a neat compromise between elegance and strength (**photo 3**). The seat isn't exactly symmetrical, but then the tree isn't either.

The outermost angled pieces were simply lined up with the inside corners of the squared pieces and trimmed off along the outside edge. A little wood-filler for the heads of the screws, some sanding, and a couple of brushed-on coats of teak oil, and the result is, I think, agreeably unobtrusive (**photo 4**), but sturdy enough to jump up and down on.

As for the tree, the seat hasn't bothered it a bit. Two years on, it's still growing happily and producing handfuls of pears for me and the local wasps. WW

Win 1 of 10 EasyAirWedges

We have 10 multi-purpose EasyAirWedges up for grabs

The EasyAirWedge is an inflatable wedge that replaces the need for carpenters and craftsmen to use wedges in woodworking and cabinetmaking projects. The innovative device helps with levelling and fitting of cabinets, carcasses and worktops as well as installing and fixing windows and doors. The versatile new tool is an inflatable bag manufactured from heavy-duty TPU, which simply slides into awkward or narrow gaps and around windows and doors.

The EasyAirWedge is then easily inflated or deflated with a few quick pumps of the hand pump to ensure the unit is held in just the right position. The EasyAirWedge makes the awkward task of fitting, levelling and adjusting heavy doors and other weighty objects a thing of the past; it will safely lift an impressive 120kg.

The EasyAirWedge comprises a unique patented rigid plastic core, which is hidden inside the bag and ensures the device will not buckle or bend while in use.

This handy tool-box essential is also ideal for lifting, levelling and adjusting white goods and kitchen units, cabinets and office equipment, water tanks, furniture and much more.

How to enter

Visit the website: www.getwoodworking.com/competitions, and answer the question below.

Question: What material is the EasyAirWedge manufactured from?

The winner will be chosen from all correct entries. The closing date for entries is 10 June 2016

Only one entry per person; multiple entries will be discarded. Employees of MyTime Media Ltd and Easy Innovations are not eligible to enter this competition

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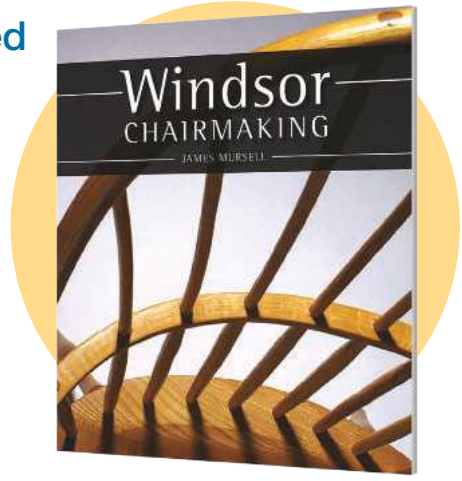
Win 1 of 50 copies of James Mursell's *Windsor Chairmaking*

If you're a fan of Windsor chairmaking, or want to find out more about it, this book is just what you need



Windsor chairs are a beautiful and traditional feature in any home and some 300 years of tradition lies behind chairs made today. This must-have book, written by expert on the subject James Mursell, is ideal for all chairmakers and students of furniture. It gives an interesting historical account of the Windsor chair, then moves on to discuss materials and tools before James introduces his own techniques. The book contains detailed plans of two English and American chairs, which are accompanied by explanatory text and interesting commentary, plus a multitude of photos of both. There is also a chapter on aesthetics and design and the book concludes with a wonderful gallery of Windsor furniture.

This comprehensive and helpful book reflects James' gifts as a craftsman, a teacher and an all round enthusiast for this style of furniture.

How to enter

Visit the website: www.getwoodworking.com/competitions, and answer the question below.

Question: The book contains plans for two different chairs – what are they?

The winner will be chosen from all correct entries. The closing date for entries is 10 June 2016

Only one entry per person; multiple entries will be discarded. Employees of MyTime Media Ltd are not eligible to enter this competition

"Leaving you with a complete drawing, which you can refer back to instead of relying on a measuring tape"

Setting out...

...from a rod will save you a lot of time and aggravation, says Andy King, if you understand the basics

Although it should be a given for pretty well any competent woodworker, the adage 'measure twice, cut once' can't be overstated. To avoid silly and time-consuming mistakes, it's so important. Equally important are face and edge marks, as they're used at all levels of woodwork; in general, they indicate the face and internal surfaces of a structure, so the edges all face inwards to each other. Furniture making is often an exception to this rule, as the best faces are usually the face and outer edges, so the marks are made accordingly. The logic is that you always use the face and edge as a reference when marking, thus avoiding slight discrepancies common in the lengths of each edge.

A basic set of tools for setting out square shouldered work will consist of a pencil, tape or rule, a square, a marking knife and three gauges – a marking (or pin), cutting and mortise gauge. If you have bevels and curves, a sliding bevel and a set of compasses will be needed, but let's just start with the basics!

"This method is foolproof. In this example, I'm setting out a rod for a sash window"

Setting out rods

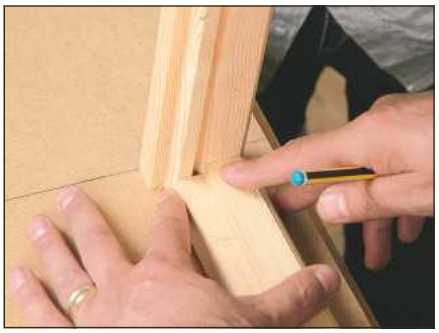
If you understand how to use a rod, you can make and set out pretty well anything without ever having to use a measuring device other than to take initial measurements. This makes your work far more accurate, as measurements can be unreliable and are easily lost or mixed up. If you have to replicate an existing piece, whether it's joinery or furniture, you can use a rod to mark the transition points, such as rail intersections, overall dimensions of the stock you're using. You can also set out the finished size and any other shoulder lines.

MDF or white laminate-faced board are good choices for setting out on, as they are stable, with fine surface texture, so you can see and mark lines easily. Two-dimensional objects, such as doors, windows and other similar items, can be set out with two setting rods: one for height, one for width, both showing a cross-section of the two to indicate positions of components. Three-dimensional furniture items will often need further rods to cover any different positions of components.

If you have an idea of what sized stock you will be using for a particular job, the stock should be machined up prior to any setting out. I always try to machine in any rebates, grooves or moulds before I set out, as these reflect the true profile of the stock being used. It's good practice to leave all components over-length; I never rely on the finish off a planer or thicknesser, as slight snipe has an effect on the setting out. I was taught to allow about 10% as wastage when calculating what is needed. To set out, you need to mark a baseline on your board. An adjustable square is very useful here to allow parallel lines to be struck easily. From the baseline, a right-angled line is made, which becomes the outer dimension of the work. Measure the

"Mark out the overall width (or height), making two right-angled marks to the baseline to indicate the outer dimensions; mark out the bottom rail transitions"

"An adjustable square is very useful here to allow parallel lines to be struck easily; we now have the length of our bottom rail"



"You can do a quick visual check with the actual components, using the face and edge marks to show that rebates/grooves match up"

"You can then accurately mark in the transitions, providing you with the exact dimensions of the top rail"

"Afterwards, connect all the transitions, rebates, grooves, moulds and quirks, so that you have a perfect cross-section of the joint"

"Apply the same process to the stiles. Mark the widths, then use a rule to transfer them – don't simply trace around the timber"

height, either with a pre-marked rod, or a measuring tape or rule and strike a further line. This needs to be repeated for the width. Using each component, starting from the overall outer marks, you position each one, marking in any transitions, quirks, rebates and grooves, plus moulds. Any parts that need to be set within the overall dimensions, such as rails or glazing bars, can be set out from your site rod if you have one, or if it's new, by measuring and marking the positions. Again, the actual components are used to indicate all rebates, moulds and the like.

Once all these are done, you should have a perfect representation of the finished piece, and be able to mark up the stock directly from it, showing all the shoulder lines and positions of mortises and tenons. It's then a reference to go back to during the making process; plus, if you ever have to make an identical piece, it's there to use again. You shouldn't have to use any tape or rule to lay out the actual stock once the rod is drawn up, so any measuring mistakes are eliminated.

Marking up the stock

Dropping each component onto the rod in its relevant position, you can mark in each intersection, so all shoulder lines and mortise & tenon information can be transferred to each section. If you have machinery, it's an easy enough option to set them up to cut tenon cheeks and bash out the mortises, but knowing how a gauge works is handy.

The face and edge principle is important here, as the stock of the gauge must ride against one of these faces, the exception being a cutting gauge if you use it to define a shoulder line. Mortise gauges should be set to the chisel you are using, not to the traditional parameters of 1/3, 1/3, 1/3. You should still try to come close to this rule, but you'll need to allow for any rebate or moulding and alter the size accordingly if needed. This should be evident at the initial setting out stage when you draw up the rod.

A pin gauge is used to strike a mark down the long grain, and is useful to define rebate shoulders prior to moulding, to minimise tear-out when machining. Mortise gauges work in the same manner, but are used to determine the outer walls of the mortise.

Using a gauge can take a fair bit of practice, as they can grab and wander in the grain. The trick is to make initial light strokes, rolling your wrist as you go.

In most joinery type applications you can get away with cutting across the grain to a pencil line, but the better option is to knife them in with a marking knife; this severs the grain and leaves a cleaner shoulder. It also gives a positive position for a chisel if you have to pare back slightly, or acts as a visual aid when cleaning up with shoulder planes.

"Use the width of the mortise chisel itself to mark out the mortises; don't rely on the 1/3's rule – you'll have to take into account rebates and the like"

This is only a basic guide to setting out and using rods, but if you understand the basics you can apply the technique to almost any project. It's practically foolproof, helping you to avoid the small mistakes that make the big differences in good woodworking. WW

In brief...

VERITAS LEADS THE WAY
Marking & Transfer Tool

This tool is a very modern interpretation of the traditional story stick. However, this is one you can use time and again and is a good deal more accurate than a wooden lath. The great advantage of this tool is that it lets you accurately mark or transfer several positions at once from a common reference edge. The basic tool includes four 75mm long marking heads, a 305mm stainless steel rod and a brass foot. The marking heads have a single straight reference edge (reversible by flipping the head). The heads will lock at any position along the rod. The brass foot fits on either end of the rod and is reversible for outside or inside measurements.

Variable Angle Fence

This innovative plane fence mounts onto the sides of the Veritas custom bench, shooting, bevel-up jointer and jack rebate planes. Two stainless steel thumbscrews use the tapped holes in the plane's side. The design doesn't limit you to right angles only; the fence pivots to allow the accurate and consistent planing of any angle from 45-135°. A spring-loaded lever locks the fence securely. Through-holes in the 280mm long aluminium fence allow you to attach a wooden extension or a tapered spacer for planing angles less than 45°.

Nine-piece Set Up Blocks (Metric)

This nine-piece set includes three vinyl shims (two 0.5mm and one 1mm-thick); 2mm, 4mm, 8mm and 16mm-thick aluminium blocks (a second 16mm-thick block is included to simplify 32mm spacing) and a 25 × 50 × 75mm steel block. The shims and aluminium blocks are 50mm long and accurate to within 0.05mm; the steel block is accurate to 0.018mm. Combined, the set allows stacking from 0.5mm to 123mm in 0.5mm increments. It is supplied in a hard-shell plastic case with dividers. For current pricing and more info, please visit **www.axminster.co.uk**.

ERGONOMIC SANDING

The new Makita BO6050J random orbit sander has two modes of operation. In the traditional random orbit mode for fine finish sanding and buffing, the motion of the pad is orbital action plus random action or free-rotation; this stops when firm hand pressure is exerted on the tool.

The alternative roto-orbit mode is ideal for stock removal, coarse sanding and polishing. Here the motion of the pad is a combination of orbital action and power driven rotation.

This mains powered sander, with 750W motor, will run the 150mm pad up to 6,800 orbits per minute and deliver up to 13,600 sanding orbits per minute. The maximum orbit eccentricity is 5.5mm. The soft-start system smoothly accelerates the pad when the machine is switched on for operator protection. Variable-speed settings can be selected via the dial, which is conveniently located on the slim-line body.

This narrow body with soft-grip gives excellent machine control, and the forward hand-mount enables accurate pressure to be applied directly to the pad. Once the machine is switched off the electronic pad brake swiftly stops rotation.

The pad has a hook-and-loop fixing to make abrasive changes quick and simple, and the pad can be changed without the aid of tools. It weighs just 2.6kg and is available in 110V or 240V versions.

The BO6050J has through-the-pad extraction, and a neat, slim connection tube below the body, which is positioned so it is not intrusive and simply connects to a vacuum dust extractor.

A new design of narrow depth skirt above the pad enables the pad and abrasive to get 'under' items to improve access performance. This versatile sander will become the core choice for cabinetmakers, and joiners – see **www.makitauk.com**.

JETTING AHEAD IN SCROLLSAW INNOVATION

Fitted with a powerful DC motor, this variable speed (550-1,600/min) scrollsaw can easily cope with cutting a wide variety of materials up to 50mm deep. The two blade arms are independently pivoted giving a straight up-and-down motion to the blade for a better quality cut. A 35mm diameter dust port allows the saw to be connected to a vacuum cleaner. A generous table (415 × 254mm), with a 406mm throat, tilts to 45° for bevel cutting. The saw is supplied with five pinned end blades, but accepts pinned or plain end blades.

A blower helps keep the cutting line clean and easily seen. When changing blades, a quick-release tension knob allows quick and easy change. The heavy cast-iron base gives stability and ensures low vibration.

The JSS-16A is priced at £119.95, see **www.brimarc.com** for more details. Please note that prices include VAT and are correct at the time of publication but may be subject to change without notice.

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In brief...

ROBERT SORBY KINDLES PYROGRAPHY FLAME IN MANUFACTURING DEAL

Premier woodworking tool maker Robert Sorby is to manufacture Peter Child's Artist's Pyrography Machine. The agreement to make one of the UK's most popular woodburning machines will harness Robert Sorby's production expertise and increase the availability of a product in high demand. The machine will still bear the Peter Child name but will be marketed by Robert Sorby's consumer operation, Turners Retreat/Craft Supplies.

Pyrography is an increasingly popular hobby with woodworkers and crafters. Using simple and easy to learn techniques pyrographers can create beautifully textured patterns and pictures burnt into wood and other materials. The machine's reliability and ease of use make it a favourite among craft hobbyists and pyrography professionals.

Robert Sorby's managing director, Phil Proctor commented: "We've been looking at developing our interest in pyrography for some time and what better opportunity than to work with an old friend. Peter Child has been a Robert Sorby stockist for many

years and our relationship has always been excellent. So when the opportunity presented itself, it seemed like the next logical step."

Turners Retreat/Craft Supplies will soon be launching a new website that will feature its own pyrography microsite. A range of courses from entry level upwards is planned with some of pyrography's best known names delivering workshops and advice. Supporting this will be what promises to be one the largest collections of pyrography blanks and accessories in Europe. The price of the machine is £109.75 – see **www.turners-retreat.co.uk**.

ALL THE LATEST FROM HITACHI

Hitachi Power Tools' comprehensive new product catalogue features its entire range of power tools, including its range of mains-powered products, cordless tools and outdoor power equipment, too.

"This is the first time we have brought all of our power tools and outdoor power products into one definitive catalogue," explains Simon Miller, brand & product manager for Hitachi Power Tools. "The catalogue shows that we offer a wide range of professional power tool solutions, with outstanding technology and fantastic warranty cover combining to deliver affordability, flexibility and choice to get the job done."

The catalogue also features the brand-new, tougher, faster and more advanced 18V 6.0Ah cordless range. This includes the new powerful DV18DBXL/JX combi drill, with its class-leading torque and lightweight, ergonomic design. The 6.0Ah 18V range also includes a bandsaw, circular saw, grinder, impact driver, impact wrench, multi-cutter and drill/driver.

For more details on Hitachi Power Tools and to download the catalogue, see **www.hitachi-powertools.co.uk**.

10 TURNERS WOW CROWDS AT AXMINSTER'S NUNEATON BRANCH

With almost 2,000 visitors, the '10 Turners Turning' event at Axminster's Nuneaton store proved to be quite a crowd puller and those who visited the store over the two days were not disappointed. Keen turning enthusiasts came from all over the country, from Glasgow to Southampton; some had even booked overnight accommodation so they could enjoy both days. A group from Tornyfusta, based in Majorca, also came over for the event.

Other popular attractions included Axminster's Ben Beddows showing the art of pyrography and pen turning; Shaun Vincent cutting intricate shapes and pieces with a scrollsaw; Craig Steele on bandsaws and Hollie Wise sharpening with Tormek.

As expected, the Ready Steady Turn competition was a big draw, requiring that each of the 10 turners step up to the lathe with 20 minutes on the clock to produce something of their choice. This was the part of the event during which they could show off, put out some banter or be humiliated, all with the aim of entertaining the audience.

Each of the turners created something very different, ranging from Andrew Hall's new wooden bow ties with various finishes to Phil Irons' hollow forms. Joe Laird's demonstration proved to be pretty spectacular. Joe's speciality is the Irish whiskey tumbler, which he blackens or toasts the insides of with a blow torch; a process which emits the pleasant smell evocative of vanilla and cinnamon. At this stage, the tumbler is quite unstable and has to be left for 12 hours at least before finishing. On Friday, both Jason Breach and Colwin Way managed to make the same item – a goblet – despite working with each other and spending three hours together in the same vehicle as they travelled to Nuneaton. Mark Sanger suffered from a wardrobe malfunction at one point and had to be disentangled by Master of Ceremonies, Martin Brown.

Favourite turner revealed...

Over the two days the audience was asked to vote as to who was their favourite turner or who they felt turned the best piece of work under pressure and close scrutiny. By so doing they would be entered into a prize draw to win a day's tuition with Jason Breach and Colwin Way at the Skill Centre in Axminster.

The big question remaining was who had come out top in the popularity stakes? In 2014 the accolade went to Leicester-based Richard Findley. Finally, once the votes had been counted, all was revealed with the most popular turner being Mark Sanger closely followed by Richard Findley and in third place was Steve Heeley. There was no prize for the top turner as such, simply the kudos of being voted 'Favourite Turner'.

To find out more about future events, see **www.axminster.co.uk**.

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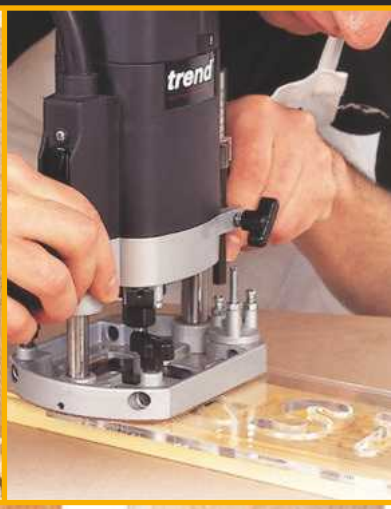



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Pure pleasure

There's nothing, says Tony Sutton, quite like the satisfaction of using hand tools you've made yourself

The first question, of course, has to be, "why make your own plane?" Well, for me, one of the greatest joys in cabinetmaking is to plane a board until it is the exact size you require, and has that lustre that only a hand plane can achieve. Planing the board with a tool that you've made yourself, however, takes that pleasure to a whole new level.

When I decided to try my hand at plane-making, my research led me to the lovely organic shapes of the Krenov-style laminated planes. These are named after the great James Krenov who, more than 50 years ago, decided that the traditional style of wooden planes, with a big handle at the back and a knob at the front, simply felt wrong in the hand. His answer to this problem was to begin designing his own planes, and the shapes he developed allowed them to be both pushed and pulled, which increased their utility and allowed them to be used in places where a traditional plane just wouldn't work.

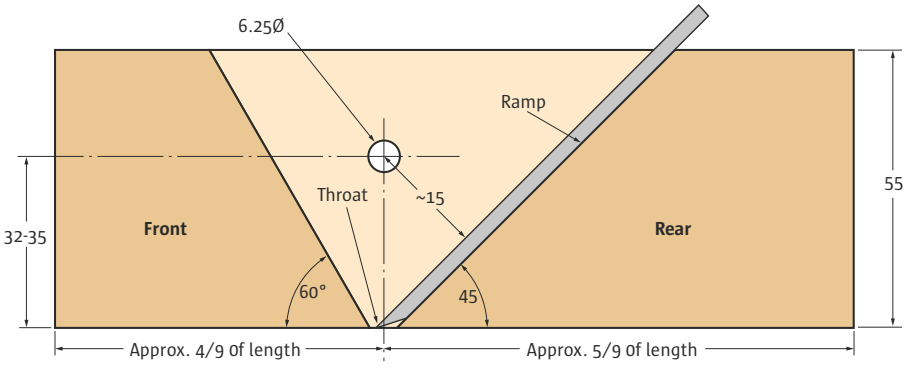
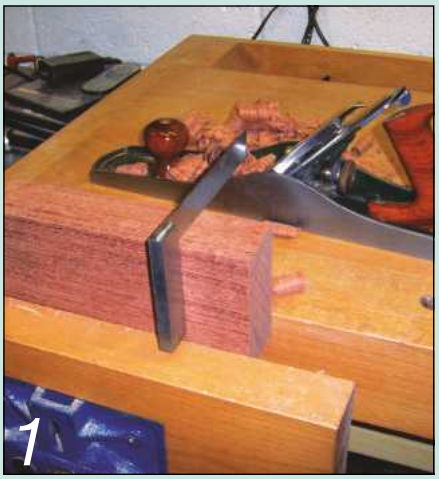


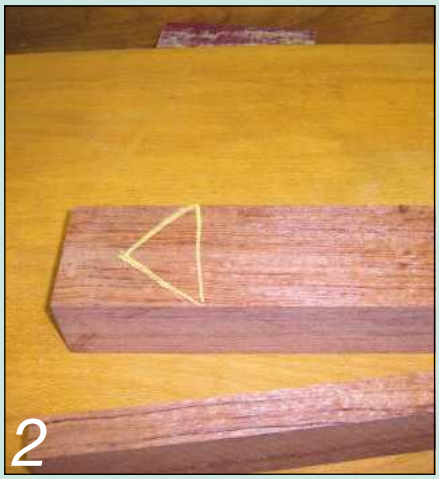
Fig.1 Typical geometry of a Krenov-style plane

Choose your timber

For hand tools, you need to use a good, stable hardwood; ideally, one with a distinct grain pattern that will disguise any glue lines. I chose bubinga for its beauty, strong grain, and easy working characteristics. Moreover, it's quite a dense wood, and gives the resulting tool a reasonable heft, which is something I like in hand planes. I managed to pick up a plank measuring 1,000 × 65 × 90mm from Good Timber, and have made three planes from it so far with enough wood left for one more.



A side and a face of the blank need to planed to give reference faces



A cabinetmaker's triangle ensures that everything is re-assembled correctly!

The bandsaw's minimal kerf helps retain the grain pattern on re-assembly…

… which is when that cabinetmaker's triangle comes into its own

The cheek pieces were hand planed flat to ensure a thin glue-line upon re-assembly

The plane that's shown being made here is approximately 220mm long, so after cutting the board to length, the first job is to plane a reference face and side (**photo 1**); I used a No.7 plane for this, but any bench plane will be fine.

Measure 74mm in from the reference edge and rip the wood down to size on the table saw. At this point, it's a good idea to chalk a cabinetmaker's triangle on the planed face. The triangle should point towards the front of the plane with the grain running towards the rear so that the back of the mouth doesn't tear out during use. To determine the lie of the grain, look at it from the side and orientate the wood so that the fibres slope downward from the front to the rear of the plane.

With the blank roughed out, plane the second side until it's pretty much parallel to the datum side and perpendicular to the reference face. It isn't critical for these to be exactly parallel and perpendicular at this point, but aim to get them close.

Now cut the cheeks off the blank. Use a bandsaw if you can, as their blades have narrower kerfs than table saw blades. If you use a table saw, however, you may want to make the original blank a little wider to take account of the material that'll be lost during the cut. Either way, set your fence to remove a 10mm-wide section and take a slice off either side of the blank.

The cabinetmaker's triangle now comes into its own here as it enables the pieces to be easily orientated to reform the original blank; if you're using a bandsaw, very little wood will have been removed, and the grain pattern will almost exactly match that of the original blank upon re-assembly. The final stage in preparing the sides is to run a hand plane over the rough-sawn surfaces to smooth them ready for gluing up later.

Cutting the throat & ramp

The geometry of a typical Krenov style plane is shown in **Fig.1**. In my experience, the angle of the front block is not particularly critical, but 60° seems to work well and that's the angle I use on my planes. The ramp angle is more critical, and the surface of the ramp must be flat and smooth as well as perpendicular to the plane sides. I've shown the ramp angle as 45° here, but a plane intended to be used on woods with difficult grains, such as those that reverse direction, may require a steeper angle, which may be as high as 60°. A little experimentation may be in order to find what works best and gives the least tear-out on the woods that you use. I carefully cut both the front and rear blocks on a mitre saw, but

there's nothing to stop you doing it by hand. Then plane them smooth with a hand plane to ensure an easy path for the shavings, and a flat bed for the blade to reference against.

The constituent parts of the plane are now made and ready for assembly. All we need to do now is to make the cross pin and drill the supporting holes in the side pieces.

Making the cross pin

Before establishing the position of the cross pin, I usually make the blade. Manufacturing your own blades can be quite taxing, though it is ultimately a very enjoyable process, and cost effective, too: the raw materials for the O1 tool steel blades that I've made cost just £3 from Tilgear. If you find the idea of blacksmithing a little off-putting, though, I'd suggest buying spare irons from Stanley planes until you get proficient, then graduate to irons from the likes of Hock, Lie-Nielsen, or Veritas.

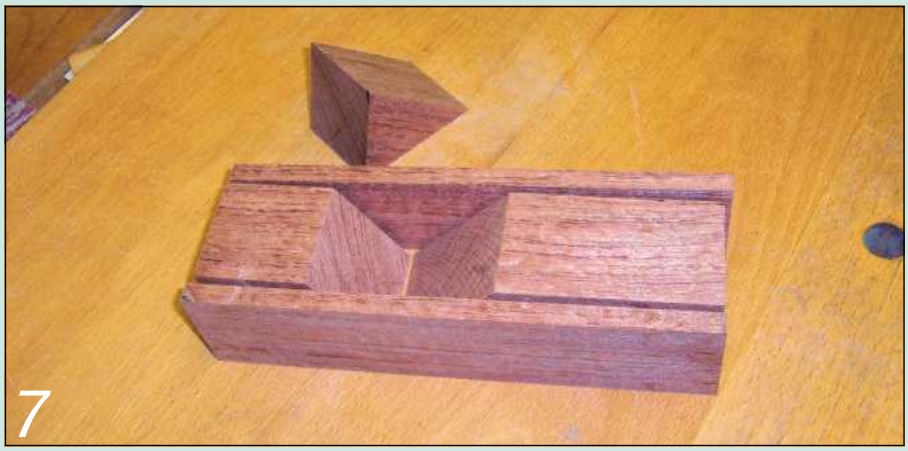
To determine the position of the pin, place the front and rear blocks against one of the plane's side pieces and draw reference lines along the slopes of both pieces. Next, draw a line parallel to the 45° line, but offset towards the front by the thickness of the blade (6mm in my case) to indicate the position of the rear face of the wedge on the finished plane. The vertical position of the cross pin may now be established by drawing a horizontal line approximately 32-35mm from the plane's sole. This line will be one of the centrelines for the cross pin. The cross pin itself is made from the offcut left over from cutting the original blank, which is ripped down to a strip 14 × 14mm. Position this blank on the centreline you've drawn, leaving adequate space for a wedge to fit between the pin and the blade; the perpendicular distance from the front edge of the blade to the centre of the cross pin location was around 15mm on my plane (see **Fig.1**).

After marking the position of the cross pin on one inner face, clamp both face pieces together taking care to have their outer faces touching. Now drill the 6.25mm hole for the pin on a drill press (**photo 8**).

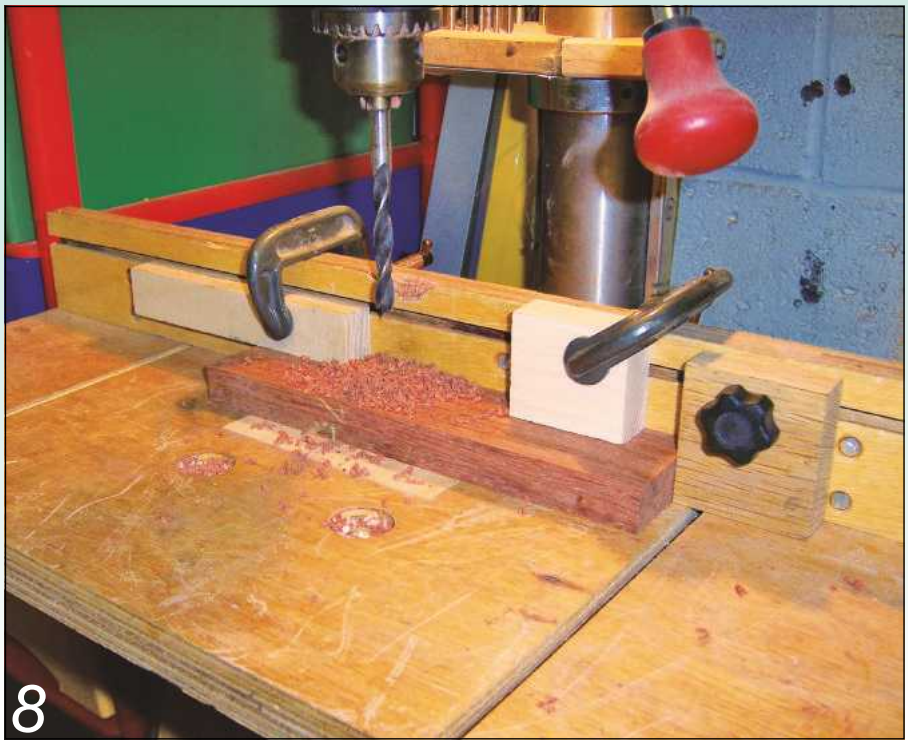
The cross pin is located in the plane's sides by a round tenon at either end, which allow it to rotate a little as the wedge is driven home. The following technique for cutting these tenons uses only a table saw and a drill press, and is described fully in David Finck's book *Making & Mastering Wooden Planes*.

Start by clamping the plane together and mark the length of the cross pin on the blank (**photo 10**). Cut the pin to length and then, holding it against the plane body, use a

It is a good idea to clean up the angled faces to ensure a good bed for the blade



With the body parts made, you're ready to make the cross pin



Clamp the side pieces together and drill the 6.25mm holes for the cross pin

Clamp the plane together to mark the length of the cross pin

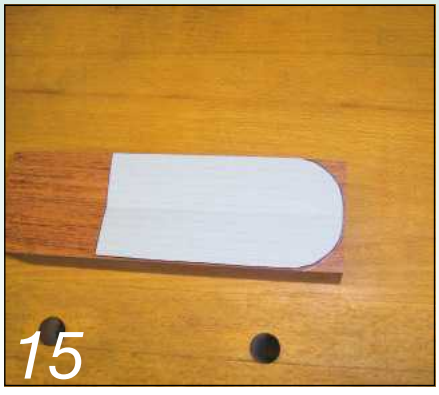
The shoulder cuts must align very accurately with the inside of the plane

Cutting the round tenons on the drill press using a plug cutter

Round the front of the cross pin

You can never have too many clamps!

Truing up the sole by hand planing



Transferring the curved shape to the plane from a cardboard template

marking knife to mark the position of the inside faces. Make cuts to form the shoulders of the cross pin's tenons. Now, make a guide block from a piece of scrap wood to support the cross pin while you cut the tenons by routing a 14mm-wide dado across it. Clamp the cross pin against a fence on the drill press using the guide block, and align the centre of a 6.25mm plug-cutting bit with the centre of the cross pin.

Cut the tenon right down to the shoulder cuts as shown in **photo 11**. Finally, round over the front side of the cross pin using a block plane (**photo 12**).

The plane can now be glued-up – don't get glued to the cross pin! – assembled, and clamped onto a flat surface, ensuring that you clamp all pieces tightly against the reference surface. Lay a piece of grease-proof paper underneath the plane in case of squeeze-out.

Creating the Krenov shape

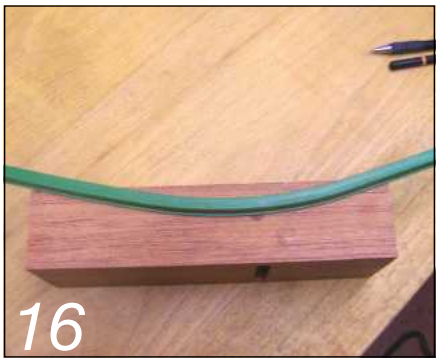
Once set, hand plane the sole to remove any misalignment between face pieces and the front and rear ramps, and to open up the mouth until the blade will just protrude through it.

A good tip that I picked up from one of David Charlesworth's DVDs is to scribble across the sole before planing. The marks will help you to judge when the shavings are being taken along the full length of the sole. Next, make a card template of the shape of the plane's footprint and transfer the shape to the sole of the plane (**photo 15**). To draw the curve on the plane's side, I use a flexicurve from a child's geometry set (**photo 16**), which I picked up at WH Smith a while back.

Begin the shaping by removing the bulk of the waste on a bandsaw (**photo 17**); you'll need to tilt the table in order to rough out the profile of the grips. Now the fun part starts! Using a spokeshave or two, shape the plane to suit your eye and hands (**photo 18**). I'm seriously considering adding a drawknife to my plane-shaping arsenal for this job. Once you're happy with the overall shape, it's time to start sanding. I use an 80mm random orbit sander for this, though any detail sander or even a sheet of abrasive will work equally well. Smooth the profiles and flare-out any high points. Once again, it is important to handle the plane often to make sure that the ergonomics and the feel are right for you (**photo 19**).

Shaping & fitting the wedge

Draw out the rough outline of the wedge on the triangular offcut left over from



A flexicurve from a child's geometry set – every toolkit should have one!

Initial shaping cuts are made on the bandsaw

The majority of the shaping work is carried out with a spokeshave

Use a detail sander and some abrasive to get the final shape right

Rough out the wedge on the bandsaw before shaping on a disc or belt sander

The wedge sanded to approximately the final dimensions

Flatten the sole of the plane with the blade retracted

Final fitting of the wedge is done by removing the high points using a card scraper

Making the plane's blade

I make my blades from O1 tool steel, which I buy from Tilgear; the O indicates its suitability for hardening by quenching it in oil.

Start by cutting off a 100mm-long piece as squarely as possible, then draw a line indicating the angle of the primary bevel on the finished blade; I used an angle of 30° on this plane. Using a bench grinder, remove material until you reach the guideline. Because the blade has not yet been hardened, there's no need to worry about blueing it or getting it hot while grinding. When you're done, clean up all edges of the blade using a hand file. The prepared blade should look something like that shown in **photo 26**.

For the hardening process, O1 tool steel should be pre-heated to around 500°C for 5 to 10 minutes before taking it up to the quenching temperature. I've experimented with a thermocouple and various heat sources and found that an ordinary gas ring will heat the blade to about 450°C, which should be adequate (**photo 27**).

Once the blade has been soaked at this temperature, you need to raise the temperature of the front 20mm or so to around 800°C, which is when the metal turns a bright cherry red. For this stage, I use a small oxy-acetylene gas set from B&Q (**photo 28**), although a propane torch will do the job given time.

As soon as the blade is up to the correct temperature, drop it into a large container of hardening oil (I don't actually have any, so I use engine oil instead, which generates plenty of smoke!) Once cool, clean off the oil and temper the blade by placing it in an oven pre-heated to 200°C and leaving it for an hour.

The final task is to clean the blade using a belt sander running at its slowest speed. Running the sander quickly can not only be dangerous, but may heat the cutting edge of the blade too much, and draw out the temper. When you're done, it's simply a case of honing the blade, and fitting it into the plane

cutting the 45° and 60° ramps. Initially, cut the wedge slightly oversize, to allow for fine-tuning later as the most important consideration when making these planes is to ensure a tight-fitting wedge for maximum performance. You can then rough out the wedge on the bandsaw (**photo 20**), and then tidy it up on a disc sander to approximately the final dimensions (**photo 21**).

The next step is to fit the blade into the plane so that the cutting edge is retracted by about 5mm, and then tap the wedge into place. Now, run the plane across a piece of 120 grit abrasive clamped to a flat surface (**photo 22**). Use a normal planing action until the sole is flat along its full length. Take care here as the abrasive removes wood quite quickly, and if you cut too far you'll open out the mouth of the plane too much.

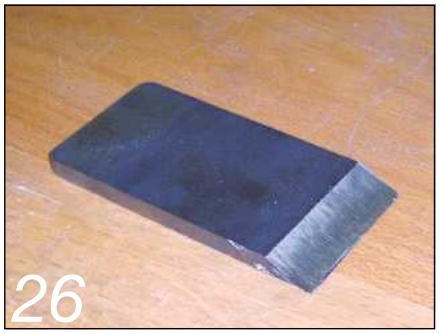
The final stage of the build is to fit the wedge properly. The secret to getting these planes to work well is to have a flat sole, a sharp iron and, most important of all, a well-fitted wedge. To fit the wedge, simply fit a honed blade in its cutting position and tap the wedge home and check that the rear of the wedge is in contact with the blade across its full width. If it isn't, then remove the wedge and scrape away the high spots using a card scraper. Once the rear is properly seated, re-insert the wedge, tap it home, and then remove it so you can inspect its front surface to see where it contacts the cross pin. Again, scrape away any high points with a card scraper (**photo 23**) until it makes contact across the full width of the cross pin.

Make some shavings!

Once the wedge is fitted correctly, the plane is ready to use and you should have the satisfaction of producing lovely long shavings. There is a very special pleasure in making furniture with a tool you made yourself, so go on, try it; you'll definitely enjoy it!

As a closing thought, I would like to extend my thanks to Philip Edwards for the chats and good advice he gave me during the putting together of this article. WW

Mark the primary bevel before grinding – 30° in this case



The primary bevel is ground on a bench grinder before heat treating

… then heat the front 20mm or so to a bright cherry red…

… before quenching the blade in oil

SOURCES

- **Good Timber**
  Tel: 01327 344550
  Web: www.goodtimber.com
- **Tilgear**
  Tel: 01707 873434
  Web: www.tilgear.info

FURTHER READING

David Finck, *Making & Mastering Wooden Planes* (ISBN 1-4027-2022-X)
John Whelan, *Making Traditional Wooden Planes* (ISBN 1-879335-69-1)
David Perch & Robert Lee, *Wooden Planes & How to Make Them* (ISBN 1-894572-49-1)

Tip

I usually apply a coat of Danish oil to my planes once built, but do not oil the 45° ramp, or the wedge, or the flat face of the cross pin. After a couple of days, I run the plane sole over abrasive on a flat surface once again as the wood usually moves a little in the first 24-48 hours and a little bump can appear behind the mouth

There is a lot of pleasure in taking shavings with a plane that you made yourself

Pre-heat the blade to around 450°C on a gas ring…

Clean up the blade on a slow-running belt sander

Coaster cool

Sarah Thirlwell uses plastic resin to inlay ash and turn two circular coasters

A variety of tools that will be useful for creating different grooves

YOU WILL ALSO NEED

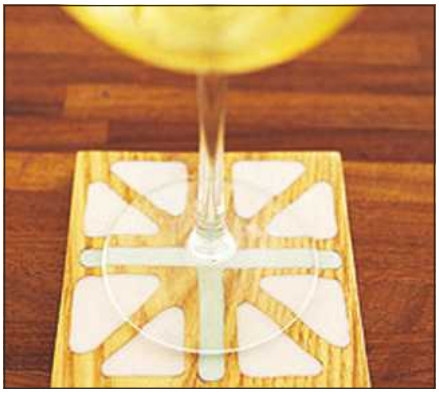
Ruler; pencil; scrap disc of MDF or plywood; faceplate; parting tool; scraper; wet and dry – 180-400 grit; abrasives; embedding resin and catalyst; translucent or opaque pigments; ash, oak or plywood; plastic gloves; containers to hold the resin (available from Trylon); lollypop sticks; Plastimax polishing compound; sanding sealer and waterproof/heatproof lacquer

A short while ago I was asked by the Charles Rennie Mackintosh Foundation to produce a range of bespoke coasters for the 78 Derngate House in Northampton. I was thrilled. Mackintosh's innovative architecture and furniture make him one of the 20th century's design icons. His use of dark timbers, mother-of-pearl inlays and his simplicity of design were characteristic of the Arts & Crafts movement and Art Nouveau in the United Kingdom. Apart from all this, his work has been a personal inspiration to me in terms of style, function and decoration.

So, with the challenge set, I pondered how to tackle the task of producing 150 coasters for the house. I first visited 78 Derngate for ideas and drew up a few designs. I then considered how the pieces were going to be made.

Mackintosh always used casein (more commonly found as an adhesive) to inlay shapes within his furniture designs. He first used casein-based plastic in the Chinese Room at the Ingram Street tea rooms in Glasgow in 1911. Casein is neither a thermosetting nor thermoplastic and is hard, brittle and insoluble. It was mainly used in the manufacture of buttons and small decorative objects, such as combs.

In Mackintosh's cabinets flat sheets were used. These sheets were made by extruding rods; they were cut into strips and placed in large presses for compression moulding into



Above and right: The square coasters Sarah made for a commission boast diverse patterns

Cut the ash into squares (up to 120mm is probably the size limit)

Mark and drill a disc of scrap plywood to attach to a faceplate, ready for the screws

Screw the scrap plywood disc to a faceplate

sheets. These sheets were immersed in formaldehyde to make them hard and insoluble in acid and water. They were then dried to reduce the moisture content to 10%. But this material did degrade and distort over time. Ridged plastics such as Plexiglas or Perspex were used to replace damaged pieces of casein and a contact adhesive was used to achieve the adhesion between plastics and timber.

Problem solving

Even so, I have always found inlaying ridged plastics problematic. Even when dry, the timber would be prone to a degree of movement, and I found that it was difficult to achieve the clean crisp lines I wanted, without any gaps. I therefore decided that embedding resin was a much better solution. It was quicker, easy to apply and provided much cleaner results.

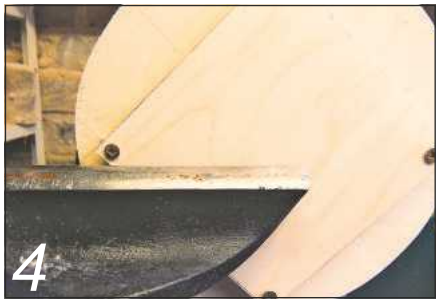
Using resin as an inlay does have its downsides, though. Resin is smelly and toxic and produces fine dust that can be hazardous to your respiratory system. It is also very messy and gets everywhere!

Why bother using resin, then? Well, there are many positives to it as well. For a start, it is a thermosetting plastic and therefore begins its life in liquid form and then sets hard enough to be sanded with normal woodworking machines, or by hand. It will also remain in a solid state even if in contact with heat or water. The resin can also be coloured with an array of pigments that can contrast or work with the colour of the timber.

A simple coaster

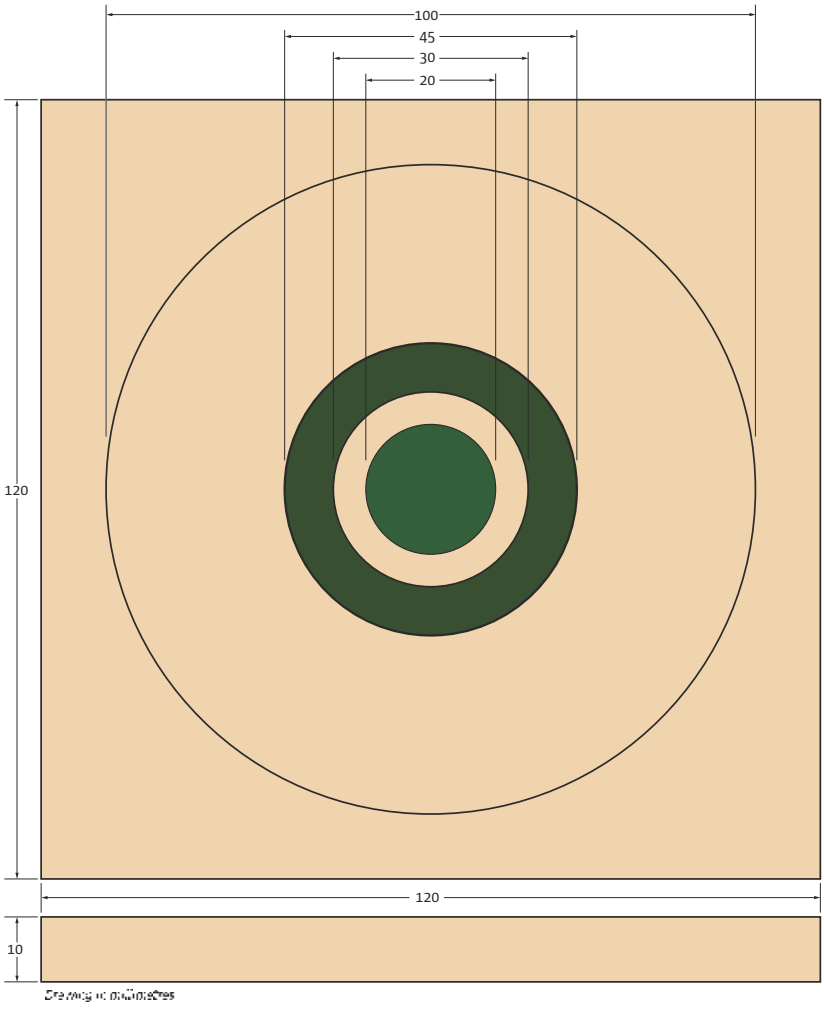
So how did I go about making the coaster? First off, bear in mind that it's best to use dry, open-grain oak or ash to produce coasters and place mats as they absorb the resin well and they are relatively stable timbers. You may also consider using a high-grade plywood.

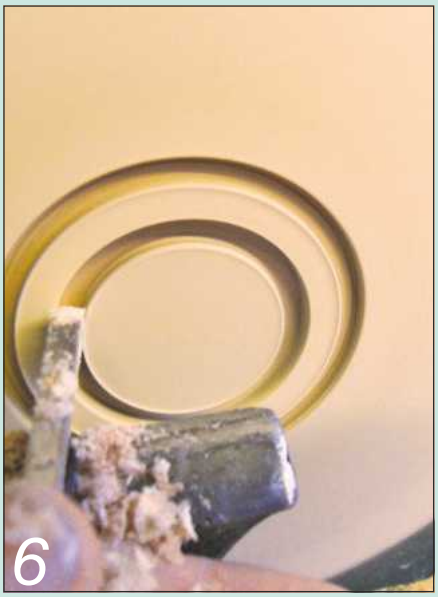
To begin with, cut the timber into thicknesses no thinner than 10mm; the thinner the timber, the more prone to warping it becomes. Then cut the lengths into 120mm



Mark a square the same size as the coaster onto the plywood and screw to the plywood in the marked space

Using your 10mm parting tool, part a groove, the outer edge being 22.5mm from the centre of the piece

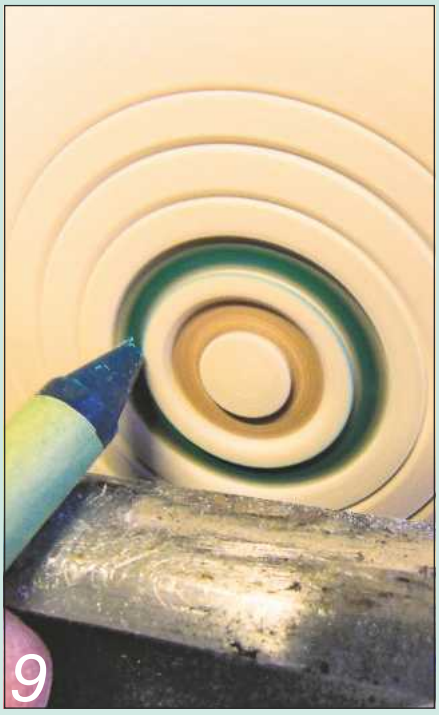




Part another 5mm groove (the inner edge 14mm) from the centre. Join the two grooves created together to make a 85mm-wide groove. Create another groove that is 10mm from the centre. Widen the groove using your parting tool until you have created a 5mm deep groove, which is 20mm wide

You can alter the thicknesses and depth of your grooves using a variety of scrapers or parting tools

You can also alter the number of grooves you create



If you do not have access to resin, try filling the grooves with a coloured wax crayon, Araldite, metallic fillers or wood filler

You could use a darker wood filler to contrast with the wood

To fill with resin you will need Trylon resin, catalyst and colour paste

Fill the cup with 50g of resin (for about six coasters). Mix resin with 2% catalyst

squares (a typical coaster would be approximately 100 × 100mm).

Screw a scrap disc of MDF or plywood onto a faceplate and on the opposite side mark the centres for the coaster to be placed. The coaster square can then be screwed to the faceplate and mounted on the lathe. Next, create a range of indentations using a variety of tools; parting, beading or sizing tools will all create very different effects. I used a simple 10mm parting tool to create grooves in the wood that were no deeper than 5mm. You will need to make the grooves deep enough that the resin will soak in but not too deep that you will waste the resin. The cut grooves can then be sanded to remove any excess wood.

You can cut as many grooves in the surface as you wish. Instead of mounting the coaster on the lathe to create circles you can also hand or machine-rout other shapes or various line and square patterns. If you don't have resin, you can try using other filling agents such as Araldite, metallic fillers, contrasting coloured wood filler or even a wax crayon.

A messy business

Now here's the messy part – the resin (if you're using it, of course). To limit contact with the resin, wear surgical gloves, goggles and a vapour mask. Make sure the work area is well-ventilated, that the workpiece is free of dust and that the surface you are working on is flat.

I used Trylon's clear casting polyester resin, which is also known as shallow casting resin, to fill the grooves. It is pre-activated and will cure with the addition of 2% catalyst. The setting time for this is dependent on the weather, but 25 minutes to part cure should be about right, while 24 hours should leave it dry and completely tack-free.

Once the catalyst is added a pigment can be used to change the liquid to your required colour. The pigment comes in 25g translucent or opaque coloured pots – these can be mixed to create your own tones or hues.

Darker colours such as black or blue-dyed resin may bleed into the wood grain, so try and stick to paler or more translucent colours. Another problem I find with using completely opaque colours is that I have been told that the finished coasters can look like they have just been painted on the surface. Using a completely clear or slightly

Mix in the appropriate colour paste and pour the mixture into the grooves, pinching the mixing cup to create a spout. You could also use a syringe

Fill each groove individually. Fill them as high as you can without spilling over the edge so as to account for shrinkage

When dry, remount the coaster onto the lathe. Sand and finish using a variety of abrasives

Use Plastimax polishing compound to polish the resin. Part the coaster off the faceplate

The finished coaster

Sarah in her workshop working on coasters for the Charles Rennie Mackintosh Foundation

translucent colour will allow you to observe the wood below and therefore allow people to see the cuts that have been made.

If you are making a large quantity of the same coaster, or you are unsure of the colour you are using I would mix your colours before you add the catalyst. Mix the resin with the pigments in separate containers ready to use, but don't add too much pigment as this will stop the mixture from curing.

When you are mixing the solutions together, refrain from whisking, as this will create air bubbles. Instead use a lollypop stick and gently mix the catalyst, resin and colours together. The exact ratio of catalyst to resin will depend on the manufacturer's instructions – always check that there is an information sheet supplied with the resin. Trylon sells disposable containers that are marked to make your measuring easier.

Simply pour the resin mixture into the coaster or use a syringe for precision. If you are using multiple colours, wait until one is dry before you add the next to ensure you don't bleed one into the other. If any bubbles appear in the resin, tap the side of the coaster to enable them to rise to the surface and then pop them with a small needle. The resin will shrink and so may need topping up a few times.

Back to the lathe

Once cured the resin-filled coaster can be remounted on the lathe. Any excess resin can be removed using abrasive and wet and dry. Plastimax plastic polishing compound can be used to produce a final sheen and remove any fine scratches.

The coaster can be parted off the lathe; you can taper the sides of the coaster for an extra detail. Please note that if it is square, then the finishing and sanding will have to be done by hand and it is much easier to make circular ones on the lathe! Finish the coaster using sanding sealer and a waterproof/heat resistant lacquer for added protection. WW

Tip

As an alternative to colouring the resin, why not apply a thin layer of resin to a thicker groove and embed objects such as sequins or glitter? Once the thin layer is set, top it up with more clear resin

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Finial Finesse

Approached by a customer and asked if he could sort out some mismatched finials, Bob Chapman gets to work with his Vernier callipers in hand as he undertakes an exercise in precision turning

"I've got an 1890s Black Forest clock and it's had two of its finials replaced at some time. The problem is that they are completely wrong. They should match the top one, but don't. They've annoyed me for 20 years and I've finally decided to get them done right. Can you help?"

I thought that I probably could and, and as the customer was local, I asked if he could bring the clock round so I could have a look at it (**photo 1**). He was quite right that the two smaller finials didn't match the top one, but I know nothing about antique clocks – was he sure they should be replaced? He was quite sure and, to back up his opinion, had done a bit of online research to produce photographs of similar clocks where all three finials matched.

Producing a working drawing

The top finial was about 100mm tall and he wanted the replacement side finials to be about 75mm tall, with diameters in proportion. Fortunately none of the finials were glued in and could all be easily removed, so he left the top one with me to make the copies from.

The first thing to do was to calculate the dimensions of the new finials and produce a working drawing. The original was quite battered and had long lost any crisp edges it might have had. Working along it with Vernier callipers, measuring the diameter and distances apart of every bead, fillet and

1

As you can see, the offending finials don't match the main one at all

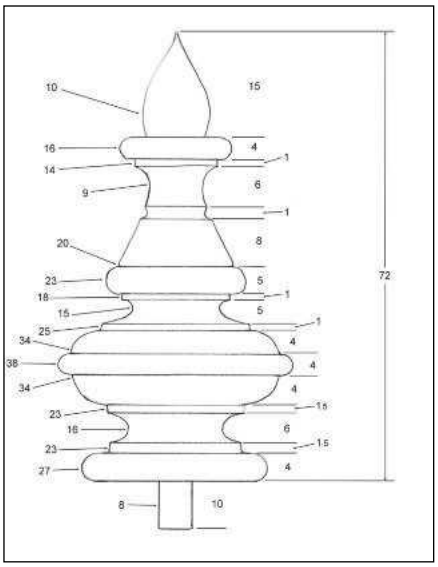


Fig.1 Measurements for the finial (all in mm)

Take a good sharp photo against a plain background

cove would be a tedious job at best and at worse, would lead to a loss of accuracy as a series of small errors accumulated. The only measurement I took from the original finial was its height, which turned out to be 96mm, a little less than four inches. Thus my finials, at three-quarters scale, should be 72mm tall.

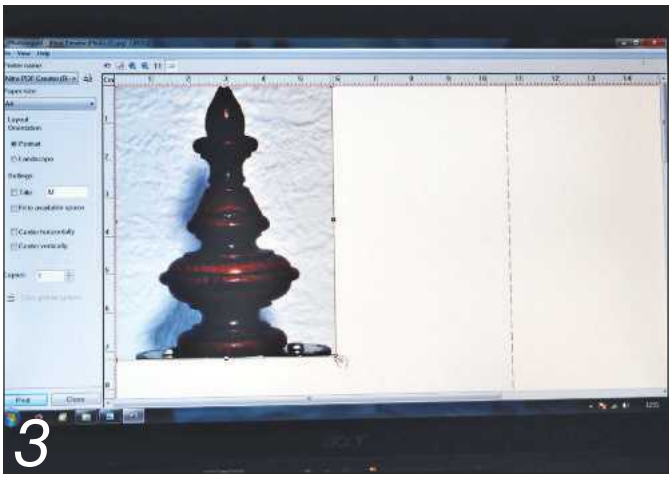
I solved the scaling problem by taking a 'full-frontal' photograph of the finial, propped up on a couple of batteries, which were conveniently to hand (**photo 2**). Loading this into my computer I scaled the image up to more or less fill an A4 page, and printed it. Tracing this outline gave me a line drawing of the finial but without dimensions. I then scaled the image down again until it was 72mm tall (**photo 3**) and printed it again. This gave me a correctly sized image on paper from which I could easily take the measurements I needed, using nothing more complicated than a rule. The dimensions were then added to the line drawing to give the working diagram.

A fiddly job

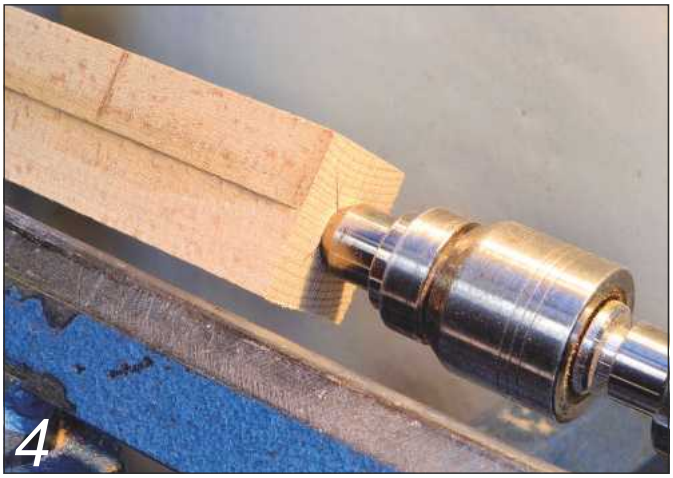
The owner had described the finial as being made from either mahogany or walnut, but actually it was neither. I could tell from the grain that it was beech, stained to match the rest of the clock, which did look like mahogany – at least in places. The biggest diameter on the new finials would be 38mm but, annoyingly, the only beech board I had was just 35mm-thick, so I had to glue two thicknesses together and then cut it down to around 42mm-thick with the joint down the middle. This was mounted between centres on the lathe. When mounting a glued-up piece like this it's always advisable to use a ring centre in the tailstock **(photo 4)** as a precaution against pressure from the tailstock splitting the joint. Using a spindle roughing gouge, the square section was taken to round and then reduced to 38mm (the maximum diameter required) along its length. Working a short way in from the end to allow for the bottom spigot, a shoulder was formed with a sharp parting tool, to give a starting point for setting out the piece. The first bead was 4mm wide and this was set out with the Vernier callipers (**photo 5**). To the right of this the diameter was reduced to 23mm for a width of 9mm. The bead was reduced to 27mm and rounded over. The 6mm cove was cut in, leaving the 1.5mm fillets either side (**photo 6**). It was at this point that I realised what a fiddly job I'd undertaken. All the measurements were tiny and had to be checked and rechecked frequently to get them right. The difference between 4mm and 4.5mm might not seem much but it's a 12.5% increase and it shows! On the bigger diameters I tried cutting the curved surfaces with the skew chisel in the traditional way, but it wasn't very successful because the tool is so big in relation to the work and there's too much of an opportunity to catch some other feature by accident (**photo 7**). Eventually I resorted to using the tip of the parting tool as a scraper and scraping the beads to shape.

Working along the piece, each shoulder was used as the datum surface for the next measurement before being rounded over (**photo 8**). The 3mm parting tool was the tool most used in forming the finial (**photo 9**), both for cutting in and rounding over the beads.

Checking diameters was ongoing through the work and I used the Vernier callipers extensively for this, at times stopping the work every few seconds to check (**photo 10**). I daren't risk the technique of using the callipers while cutting in with the parting tool

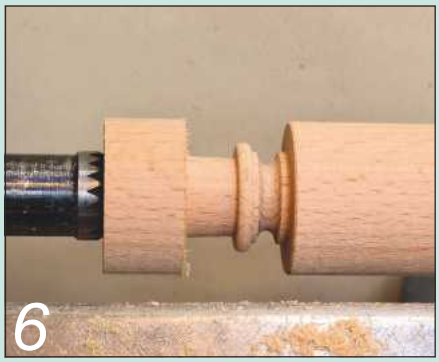


Adjust the size by the corner handle so height and width remain in proportion to each other



A ring centre won't split the joint as a point centre might

Vernier callipers are superb for these small measurements and mark the wood directly



Try to leave a clean, square shoulder to measure your dimensions from

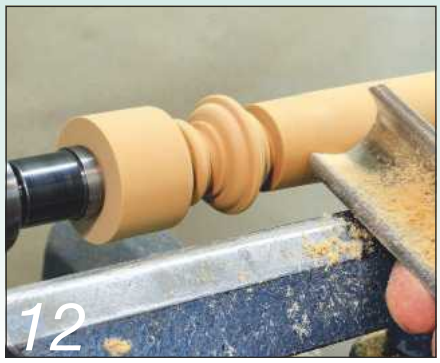
I gave up on the skew chisel and scraped the beads round instead

Note the shoulder to measure from

This narrow parting tool is just right for reducing fillets to size and as a scraper for small beads

Stop frequently to check diameters

This home-made scraper is 3mm wide and 5mm deep for extra strength



Reduce to the next required diameter with a spindle roughing gouge

Ensure to mark distances from one major feature to the next

because of the risk of 'overshooting' and creating a noticeably smaller diameter than it should be.

I couldn't possibly get my 10mm spindle gouge in to cut the tiny coves and instead they were cut using a specially ground 3mm wide round-nosed scraper (**photo 11**). As the piece progressed, the spindle roughing gouge was used to reduce the diameter to the next largest diameter required by the design (**photo 12**). Gradually the finial took shape as the positions and diameters of the various beads and coves were marked and cut (**photo 13**). Before trying to finish the tip of the finial, the spigot at the bottom was reduced to 8mm diameter (**photo 14**) to fit the holes in the clock.

Careful parting off

When work is supported between centres it is not safe to part off with the work rotating. At the moment of breakthrough the two pieces will sag and jam the tool. With a piece this size damage to the turner is likely to be minimal (unless hit in the eye) but it's still best to stop the lathe and cut through with a fine-toothed saw (**photo 15**). The piece can then be re-mounted by holding the spigot in the chuck jaws while the tip of the finial is finished (**photo 16**).

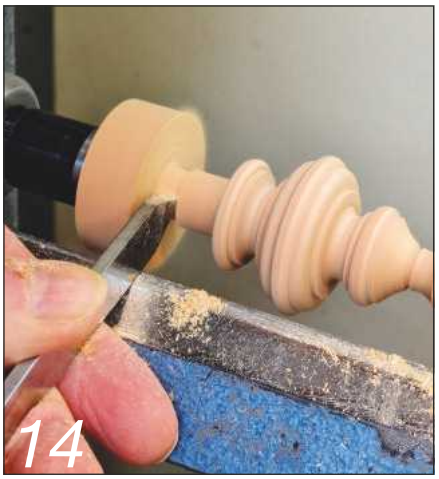
Finishing

The finial was sanded with 240 and 400 grit (**photo 17**) before removal from the chuck. The second finial is a repeat of the first but takes longer because it's more important that it matches the first one than that it conforms to the working drawing although, of course, they should be the same.

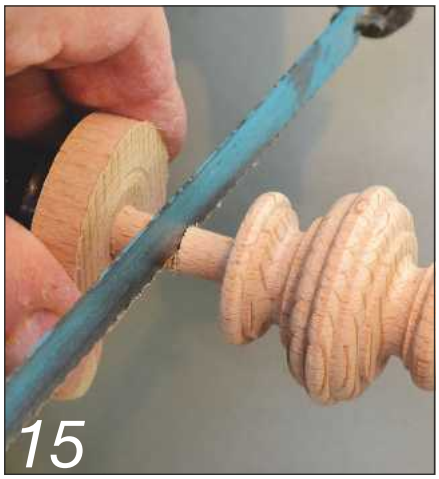
Using my collection of various wood dyes and using a piece of beech scrap as a test, I managed to mix up a reasonable imitation of the finial colour (**photo 18**). This was applied to the finials and, when dry, given a coat of sanding sealer. As well as the colour, the finish needs to have the same sheen as the original and the sanding sealer looked about right so no further polish was used.

A happy customer

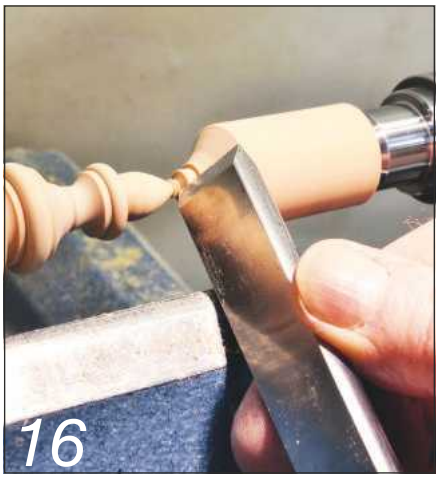
Unfortunately the finials had taken so long to make that no sane person would pay for the



Reduce the spigot to the correct diameter…



… and cut off with a hacksaw (lathe stopped)

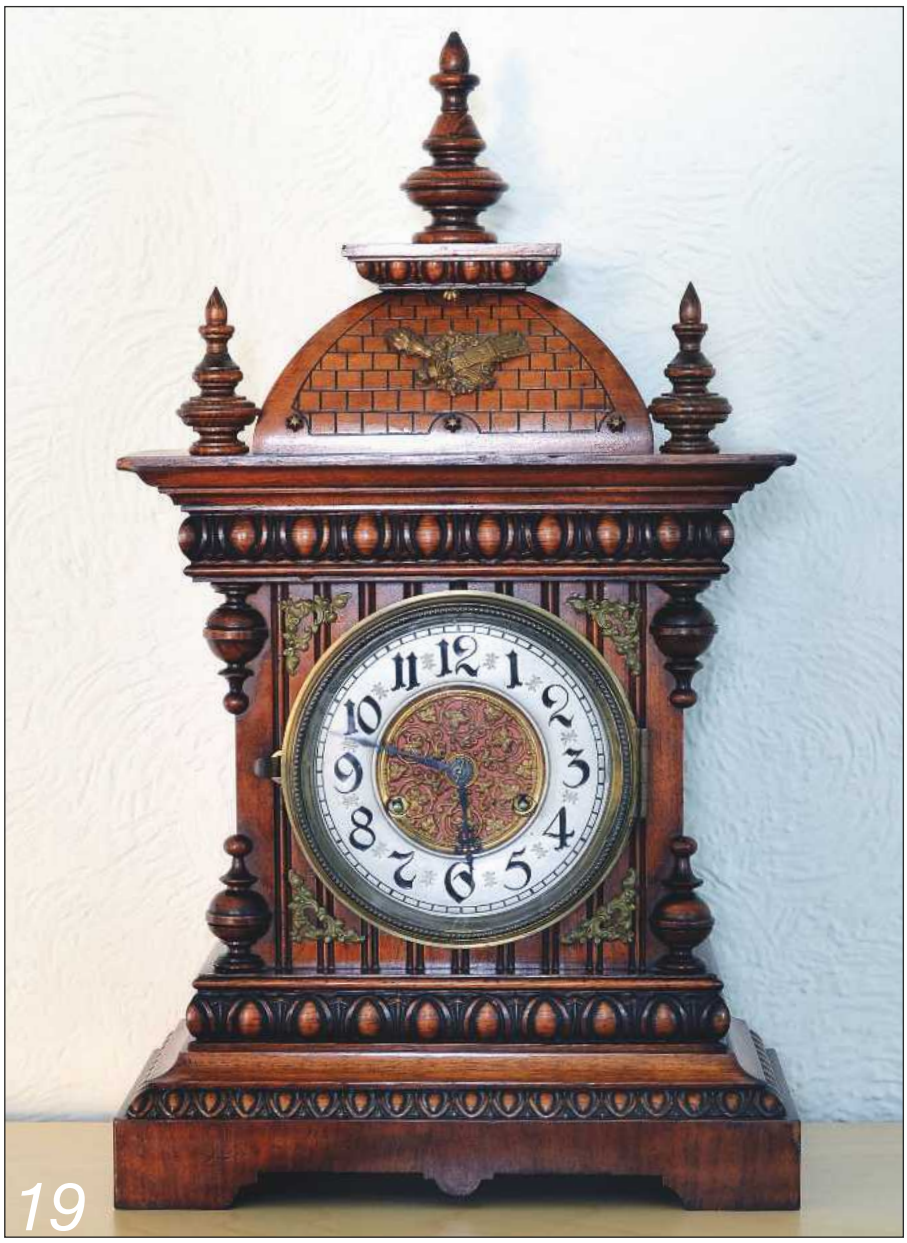


Hold the spigot in chuck jaws while completing the finial tip

Take care not to round over corners or reduce diameters when sanding

Mix until you achieve the correct colour and test on scrap wood

hours I'd spent on them. I made a financial loss on the deal, but I greatly enjoyed the challenge of making them, and the finials looked so good on the clock (**photo 19**) that my customer was delighted with them. I'm happy with that. WW



The finished job – and they do look right, even if I say so myself!

In brief...

WOOD AWARDS 2016: CALL FOR ENTRIES LAUNCHED

The Wood Awards: Excellence in British Architecture and Product Design has now launched its 2016 call for entries. Architects and designers from around the United Kingdom are invited to enter their wood-based projects and have until 27 May to submit their entries.

Established in 1971, the Wood Awards recognises, encourages and promotes outstanding design, craftsmanship and installation using wood in projects throughout the UK. The Wood Awards' elite independent judging panel not only judges all submitted entries but also visits the shortlisted projects in person, making the Wood Awards a uniquely rigorous competition.

The Wood Awards shortlist will be announced in July and the winners will be unveiled at a ceremony in London on 22 November 2016. The shortlisted projects will be on display at the ceremony and during the London Design Festival.

New judges

Michael Morrison of Purcell and Max Fraser of Spotlight Press return as chairmen of the Buildings and Furniture & Product judging panels. New to the Furniture & Product judging panel is Ruth Aram. Ruth heads up buying for the renowned Aram Store, based in Covent Garden. She says: "I grew up with design all around me. This unfettered access to design on a daily basis has greatly influenced who I am today and generated a hunger and passion for design."

Social media channels

Also new this year, everyone will be able to nominate contenders easily via Instagram and Twitter using the hashtag #WoodAwards2016. Once again within the Furniture & Product competition there will be a Student Award, recognising the value of student work in wood with £1,500 in prize money (£1,000 for the winner and £500 for People's Choice).

The Wood Awards top prize, the Arnold Laver Gold Award, goes to the overall winner of winners. Last year's winner was 'The Fishing Hut' by Niall McLaughlin Architects (pictured above). All previous category winners from 2003 onwards can now be found on the new digital archive on the Wood Awards' website.

With permission from the owner, anyone associated with a building or product completed in the last two years can enter. Buildings must be located within the UK while furniture and other products must have either been designed or manufactured in the UK. There are no restrictions on the size, budget or function of entries. The competition is free to enter and entrants may submit more than one project.

Sponsors

As a not-for-profit competition, the Wood Awards can only exist due to collaborative industry sponsorship. Arnold Laver sponsors the Arnold Laver Gold Award, which is the project that the judges deem to be the best of all the winners. Major Sponsors of the Wood Awards 2016 are American Hardwood Export Council, Carpenters' Company, TRADA and Wood for Good. Other sponsors include American Softwoods, British Woodworking Federation, Confederation of Timber Industries, Furniture Makers' Company, Forestry Commission and Timber Trade Federation. To find out how you can enter, see **www.woodawards.com**.

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Brand-new from Workshop Heaven and priced at £230; see **www.workshopheaven.com** to find out more.

TOOLSTATION PRIZE DRAW

Toolstation has announced the winner of its latest prize draw as Geoff Chant from Fareham. DIY enthusiast Mr Chant scooped the top prize, a Moondust Silver 2.2l Ford Transit Custom van worth over £27,000.

Other lucky winners also got their hands on a great selection of prizes, including a Milwaukee six-piece kit, Bosch multi-cutters, £200 worth of Crown paints, Streetwize power stations and a Karcher bundle.

The prize draw is the company's way of thanking customers for their continued business. 2015 was another strong year for Toolstation, as they opened their 200th branch and gained the recognition of being a *Which?* Recommended Provider, topping the DIY and Decorating category for the third year running. To find out more, see **www.toolstation.com**.

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A different tune

Mike Riley takes on a unique instrument project, constructing a cigar box guitar from recycled materials

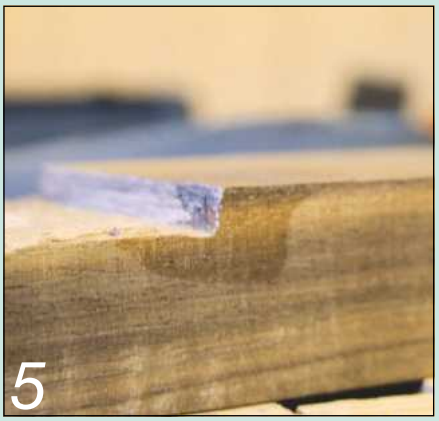
Through my years of woodworking experience, I've come to the belief that there are a great number of woodworkers moonlighting as musicians, with varying degrees of success. Among my immediate circle of woodworking acquaintances I can think of five offhand, myself included, who play the guitar either for a living or simply for pleasure. Recently I recall Good Woodworking magazine had a piece on Joe Brown and his woodwork, and indeed a few years ago Stephen Skolnik of Fischer-Z graced the cover, showing us his impressive recent projects. The magazine has also featured instruments hand-built by readers on multiple occasions over the years, all of them finely designed and built, and no doubt highly playable. For some years now, I too have harboured the desire to create my own instruments from scratch (note the plural – my plans quickly multiplied, as I'll explain later).

The problem tends to be that guitars, much like woodworking tools, are highly desirable to their audience, and guitar players of any ability or expertise are prone to suffering from a condition known as 'Guitar Acquisition Syndrome' (GAS for short). Those afflicted by this condition are often prone to spending hours at a time looking at and reading about guitars, particularly ones that they don't own. They will commonly go to all sorts of lengths to acquire new instruments, in some cases smuggling them home, claiming on discovery that the £3,000 1959 Les Paul had in fact been lying unnoticed for years in the attic. Others will claim to have found them in a skip on the way home from the shops, or to have been the happy recipient of the beneficence of some passing rock star. One thing can be said for certain: that GAS can tragically never be wholly satisfied,

The raw materials – cheap, cheerful and in the right hands can make for a surprisingly tuneful cigar box guitar

Planing the neck. It's vitally important that the neck should be flat and smooth to allow for the use of a slide

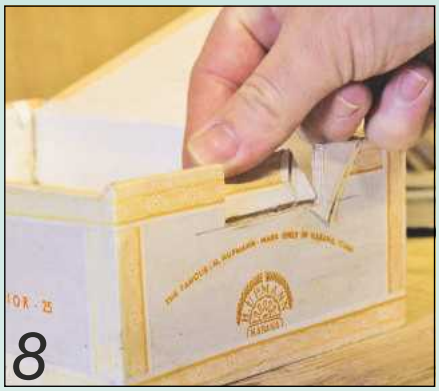
Chopping out the neck mortise to fit the cigar box (I managed to slip and cut into the good wood...)



I executed an invisible repair using epoxy

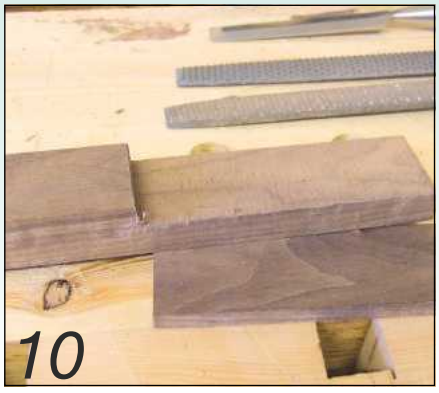
The slot I created had to be measured against the lid width for accuracy

Sawing slots so the neck will fit into the box...



... again, accuracy is key here

The neck slot was filed to ensure a good fit



The headstock of the guitar was then cut to its correct thickness

only temporarily appeased, and even then only through either spending astronomical amounts of money or committing to the huge degrees of time and energy required to invest in a guitar project.

Practical alternatives

However, I feel that I have found a third way, a method which takes the edge off the syndrome's symptoms while costing surprisingly little in terms of cash and time, as well as being a great and fun way to get kids into the workshop, perhaps over the summer holidays. I'm talking about the cigar box guitar. A CBG, as I've discovered they're termed by the cognoscenti, is a resolutely lo-fi instrument made almost entirely from recycled materials and most often played with a steel slide. Extra kudos points are awarded the more recycled materials are used, and for playing with a real glass bottleneck culled from a beer bottle rather than a shop-bought steel slide. The instruments are so low-tech that some have as few as one string, though three and four string models are far more common. However, despite the comparative lack of strings and the recycled materials used in construction, these guitars are no mere playthings. It is entirely possible to make an instrument which can be used for both performing and recording, indeed many of these projects are for entirely practical ends. While it's fair to say that CBGs and their players are more common in America, with both the sound and the look of the instrument more comfortably fitting into the traditional blues, Appalachian and roots-folk idiom, they are beginning to catch on in the UK. There is even a host of cigar box guitar events taking place throughout the year.

Rejecting materialism

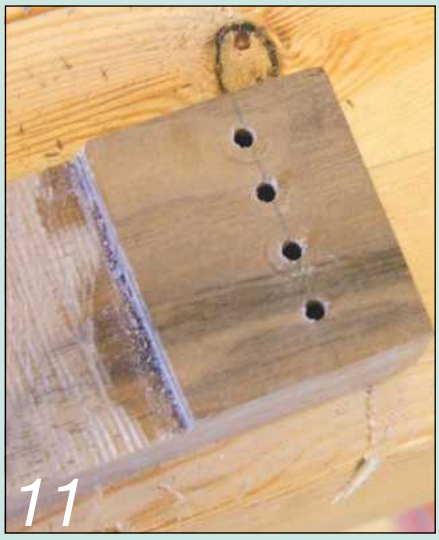
As for the materials required to make one of these things, I feel I should state again: the more that can be recycled, the better. Different materials will have different effects on the guitar's final sound, and therein lies some of the beauty of the thing – experimentation is really the order of the day here. As I've said earlier, I already plan to make several – I can't see myself, or anyone else attempting a project such as this, building just one CBG – the sheer range of tonal possibilities is too broad to be covered in a single project. However, for the simple guitar, a few basic parts are required. We need a neck and a body, and a few other bits and pieces that we can experiment with. We also need a bridge and a nut to pass the strings over,

some machine heads or tuning pegs, and of course, some strings. One string will do, though three or four is better. With the exception of the machine heads, which were shop-bought, all the other parts were recycled. I bought the cigar box itself on eBay for 99p (having first asked my local tobacconist for any unwanted cigar boxes to little success), while all the other parts were made from pieces lying around the workshop (**photo 1**).

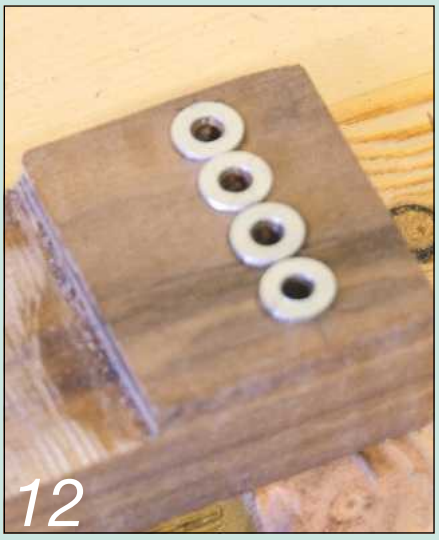
The acoustic guitar is at heart a very simple instrument. It consists of a sound chamber, which amplifies the vibrations passed into it from a sound board, over which strings are stretched. The strings vibrate when plucked, and these vibrations are transmitted to the sound board via the bridge sitting on top of it, over which the strings pass on their way to the machine heads at the top of the neck. The machine heads are used to tune the strings by increasing or decreasing the tension, turning a peg connected by gears to a post through which the string is passed. It's possible to make a non-geared tuning peg similar to those found on a violin if desired and tuning pegs can be turned or carved just as the urge takes. I personally found it easier to depart from the recycled ethos for a moment and just buy a set of six machine heads for £10 from my local guitar shop. This brought the total cost of the project to £10.99, though as I only plan on making a three-stringed model, this is in fact close to the cost of two projects!

No fretting

For the neck I used a strip of black walnut, an offcut from a previous project. The strip was approximately 51 × 25mm, and just under 914mm long. The length, while not critical, is very important as it will have an effect on the final playability – the shorter the neck, the less tension is required to bring the strings up to pitch. The scale length also has an effect on the overall intonation, as well as the number and positioning of frets. You can ignore this complication and opt to have a fretless neck as I chose to, though with a little maths and the help of a fret calculator it's possible to mark fret positions, set them with nails in the side of the neck or even insert frets in the fingerboard, though this is largely unnecessary for an instrument which is designed to be played with a bottleneck slide. A fret calculator can be found in the 'Free Resources' section of the very useful Stewmac website (**www.stewmac.com**). I planed the walnut strip down to its final size, and ensured that it was straight, square and smooth (**photo 2**). The neck is intended to pass through the cigar box body of the guitar, and stick out a couple of inches at the end, which usually means having to cut slots into each side of the box. Cigar box lids usually fit snugly when closed, so you'll need to cut a slot in the neck so that the lid can be closed without fouling the neck section. I chiselled, chopped and rasped the slot in my neck so that there would be a slight gap between the bottom of the lid when closed and the top of the neck (**photos 3** & **4**). Some have suggested that the neck should in fact be more in contact with the lid, but I felt that the gap would allow the lid sound board to vibrate more freely, producing a louder sound. Have I stressed the importance of experimentation yet? I actually managed to measure the length of the neck slot incorrectly, and ended up with a slot which was slightly too long, so I glued a short section of steel rod to close the gap.



Creating the holes that the strings will pass through (note that even at this stage, I intended it to be a four-stringed instrument)



I used washers to prevent the strings cutting into the wood, damaging the guitar and thereby affecting its sound

The machine heads are shown now in place, positioned so that the strings would not overlap or make contact with each other

String theories

At the project's outset it was my intention to make a four-stringed instrument, so I drilled four holes for strings at one end of the neck

(**photo 11**). Naturally, I ended up changing my mind half way through the project, opting instead to attach three strings. I then countersunk one side of the hole for the string ball to rest in and epoxied some small washers over the holes on the front of the neck (**photo 12**). These are intended to relieve pressure from the strings when they are under tension off the wood, to ensure that they don't eventually cut a path up the neck, which would lead to problems with tuning.

At the top end of the neck I was able to cut its thickness down by roughly half to form the headstock (**photo 10**), drilling three holes for the machine heads to pass through. It's crucial that these holes should be staggered so that the strings don't wind up interfering with each other or the machine head posts. I placed mine around the end of the headstock, effectively drilling one at each side (**photo 13**), although you could shape the headstock to accommodate for a different layout.
I made my nut from a 10mm bolt, cut to size and fitted into a groove cut into the neck with a round rasp (**photos 14** & **15**). A lower nut, a smaller bolt, and a deeper groove will lower the guitar's action (string height). Bear in mind that a high action is not important in a fretless slide guitar, but if you'd like to be able to fingerpick chords and notes, then a lower action would be necessary.

Bridging the gaps

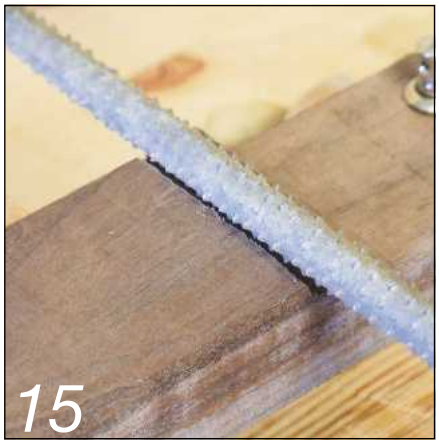
The bridge is an offcut of black walnut from a mitred box I made a few weeks ago. It was already triangular in profile, making it perfectly proportioned for the job – in fact I had to do nothing to it other than cut the ends to get an appropriate length. The bridge transmits the string vibration to the board and its positioning is vital to intonation, as well as the ability to tune the guitar; mine 'floats', held in place by string tension, in the manner of bridges on violins and mandolins; as a result intonation can be tweaked by moving the bridge up or down the body or twisting it as required.
I drilled a single small hole in the top of the cigar box to serve as a soundhole; I have read that the best results are achieved with fewer and smaller holes, but again experimentation in this area is the best way to achieve great results.
At this point, all that was left to do was to knock the sharp edges from the neck, for which I used rasps, abrasives and a couple of coats of Danish oil.

Considering that it cost next to nothing and took only a few hours to construct, the results of the project are pretty satisfactory. A little more pre-planning on my part, as ever, would have saved the one or two errors made, though these were minor and haven't adversely affected the finished product. It was great fun to make, and is great fun to twang away on. My wife, however, took one look at the boxy guitar before passing verdict: "You're insane," she said, and it's quite possibly true – I'm now thinking of changing my name to Blind Codger Riley or somesuch, before taking a trip down to the nearest crossroads. WW

RESOURCES

www.stewmac.com – a useful fret calculator and sells guitar parts (American site)
www.cigarboxnation.com – a great resource for all things CBG in the UK
www.cigarboxnation.com/events – information on all upcoming cigar box guitar events in the UK
www.highlystrung.co.uk – great UK-based supplier of guitar parts, which handily sells individual strings

Cutting the round tenons on the drill press using a plug cutter



Rounding the front of the cross pin

The 10mm bolt for a nut is shown in place, and will be held there by string pressure

Here's my walnut floating bridge, which was intended to provide a better guitar sound

The finished and strung model – note the small-sized sound hole I created on the body

Thomas Flinn & Co.

Saw & Hand Tool Manufacturer
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In brief...

MOTHING EATEN IN NORMAN'S DRAWERS

No one likes to discover that their prized cashmere jersey or vicuna scarf has developed more holes than an Emmental cheese. The culprit causing the damage is, more than likely, the not-so-humble clothes moth – a little pest with a big appetite, but help is at hand in the shape of Scottish woodworker Norman Mackay, who is making a range of bespoke elm furniture with cedar drawer bottoms. The reason is that the oil in cedar kills moth larvae and therefore prevents expensive woollens from becoming, well, moth-eaten.

Norman, a graduate of the Chippendale International School of Furniture, runs Woodeye Furniture from incubation space at the School, and combines a woodworking career with life as a musician. When he's not making music with Norman Mackay's Ceilidh Experience, a fusion band that mixes up the traditional with modern rock, he makes beautiful bespoke furniture for a range of discerning clients.

Norman has appeared on radio and TV and a film for which he wrote music was featured at the Cannes Film Festival. His cedar and elm chest of drawers was made to accompany two wardrobes, also made by Norman, for a customer in Edinburgh.

"Moths are secretive little beasties and don't much like the light, which is why they just love nice, dark drawers in which to lay their eggs," explains Norman. "They particularly like to munch on things like wool or fur but, having expensive tastes, don't touch anything common like synthetics."

In helping to prevent moth and beetle infestation, his cedar drawers therefore help expensive woollens and cashmeres survive for many years to come.

To find out more about Norman, see his website **www.woodeyefurniture.co.uk**.

TAKE THE PLUNGE WITH TREND

Trend is excited to introduce the professional's choice for plunge saw blades. This new range features premium quality saw blades with micro granular tungsten carbide tips for long lasting performance in timber and abrasive materials. They come in two sizes: 160mm × 48T × 20mm, which are suitable for the Festool TS55, and 165mm × 48T × 20mm, which are designed specifically to fit DeWalt, Bosch and Makita saws. Body hardened and tempered, these blades deliver an extra fine finish and also feature a positive hook ATB for finishing or fine trimming applications.

Trend's head of marketing, Luke Hulley adds: "We often hear from tradesmen who discuss their need for premium quality plunge saw blades that will give them the best results when working with timber and abrasive materials. We are proud to introduce these new saw blades that can provide the solution." Prices start from £47.94, to find out more and to see the full range, visit **www.trend-uk.com**.

A GRAND DAY OUT

Every July up to 400 artists, crafters, performers and musicians gather together in Waterperry Gardens to demonstrate their skills and show their work. Taking place from 14–17 July, this year's Art in Action event allows you to watch the potter pot, the painter paint and the sculptor sculpt. You can ask the masters of the arts of jewellery, textiles, woodwork and glassblowing about the secrets of their craft. In the ever popular Practical Classes section, you will be able to have a go yourself at the art or craft of your choice with the guidance of an expert teacher.

When you need a break, there is a great selection of food and drink available and the beauty of the famous gardens is also there to soak up. The Market, with over 100 designer-makers, is also there should you be looking for that special gift.

In 1977, 51 artists and musicians took part in the first Art in Action and 14,000 visitors arrived. Today, Art in Action welcomes approximately 25,000 people over four days. Visitors come to learn, buy and enjoy the exhibitions, classes and performances. See **www.artinaction.org**.

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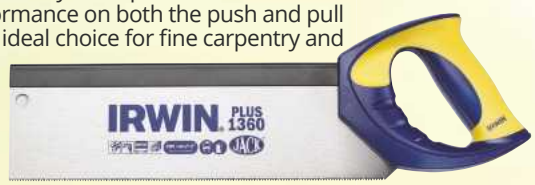

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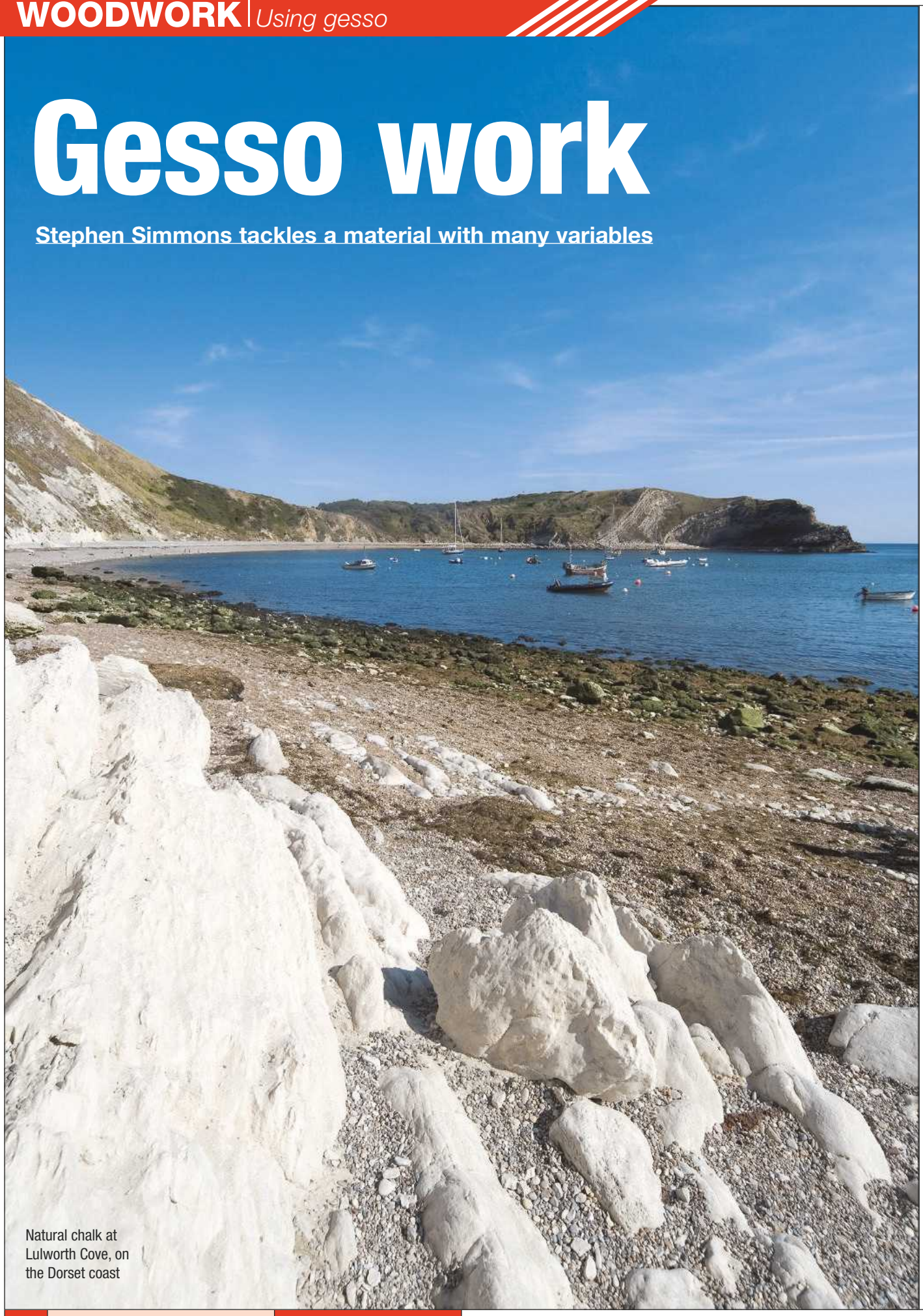
Gesso work

Stephen Simmons tackles a material with many variables



Natural chalk at Lulworth Cove, on the Dorset coast

Gesso isn't the most common material you'll come across in restoration, but as it provides a hard, smooth base for gilded and painted finishes, and as it's used extensively in the construction of rocking horses, you may well come across it. The first encounter can be a bit baffling as there are so many variables, including absorbency, temperature, drying time, proportions and consistency. Anything I compress into a few words here is likely to confuse rather than enlighten, so I'll just stick to the raw material itself and some basic points to give you an idea of what's involved. Be warned, though – the process is a long one and definitely not suited to an impatient temperament!

Origins & composite

The word gesso is derived from the Latin *gypsum*. It was widely used on medieval ecclesiastical statuary throughout Europe, and in later 17th century England the richly carved baroque mirror and picture frames depended on it. The raised work in chinoiserie was achieved by trailing strings of the oriental variety over the surface before lacquering.

The use of gesso, however, was not confined to fine furniture. In later Victorian and Edwardian times it was used on mass-produced furniture to disguise the use of inferior or varied timber.

In northern Europe, it was traditionally made from refined natural chalk (calcium carbonate), which is known as whiting and looks like icing sugar, along with a size; in Italy gypsum (calcium sulphate) was used instead of whiting. Size was originally made from parchment clippings, but rabbit skin glue is now generally employed as a substitute; it resembles brown sugar and, although opinions vary, it smells offensive. Both ingredients are available from Liberon. A basic ratio for the mixture is 30g glue to 40cl water to 245g whiting. The most important bit here is the glue and water for the size: if there's too much glue the gesso will be too hard with a tendency to split, and if there's not enough the results will be too soft. The amount you make will obviously depend on the extent of the job, but once you've got the hang of it, estimating the amount is pretty easy.

Traits & technicalities

Gesso has four main physical characteristics. Firstly, it is thick and opaque; this means that it fills the grain and obscures all characteristics of the ground wood to create the smooth white surface. Secondly, with the use of fine cloth it can cover all cracks and joins in the basic wooden structure. Thirdly, it dries extremely hard and can be carved in deep relief, and fourthly, it is very difficult to remove if applied properly.

Past this, there are some essential technicalities: the surface has to be sized to improve the adhesion of the gesso, and the gesso has to be applied all in one go – you can't have a break and come back to it the next day. For large pieces, this can demand a lot of physical stamina, not to mention foresight in preparing enough gesso for the job. It can also take up to 14 days to dry and harden properly and you can't speed things up, as you'll run the risk of cracking. Once hardened, it has to be cut back with a cabinet scraper or abrasive to remove brush marks, runs or build-ups – paint or gold leaf will only highlight any blemishes.

The process itself after the initial preparation is, of course, vital. All holes first need to be filled, screw or nail heads covered, the whole surface smoothed and completely de-greased. You then need to prepare the size by dissolving the dry glue overnight in water, heated in a double boiler to ensure that it doesn't boil, and then you can brush it on the work. The size will penetrate further, and so be more effective, if it is kept hot throughout – so the warmer the workshop, the better. If the material is very absorbent, a second coat may be needed once the first has dried thoroughly. The next stage – reinforcing – is not always necessary. It is intended to prevent the gesso from splitting with the differential movement of the wood at structural joints, but if there are no joints, there's no need for reinforcement! Plasterers' scrim or even strips of old cotton sheet can be used, but natural fibre is better than man-made, though it should be well-washed to avoid shrinkage of its own. Before the size on the work has dried, strips of cloth need to be soaked in size, smoothed firmly over the joints and left to harden, which can take up to three days.

Making & applying

Now for the fun part – making the gesso. Amalgamate the whiting with warm size, stirring it in with a brush to get a consistent mixture with no lumps or air-bubbles. Stubborn lumps can be sieved out, so that the final mixture runs smoothly off the brush, approaching the consistency of double cream.

After this, it's time to apply the stuff, which tends to be hard work. It's best done in a warm environment, hot from the pan and by brush. The size of brush depends on the size of job and there are no definite rules on the number of coats, but they all have to be done in one go. Apply coats straight after each other; it helps to alternate the direction of the brush strokes. It's critical that air bubbles and stray brush hairs are removed immediately. After the first two or three coats, all characteristics of the material – including any reinforcing strips – should begin to disappear.

All in all, using gesso isn't quite the palaver that it sounds – I hope that I've helped rather than befuddled! And remember, like many traditional materials, gesso doesn't have to be restricted to restoration. It's generally assumed that all Chippendale furniture was just brown wood, but his designs often exploited stark contrasts of colour and texture to great effect by using gesso. The same design possibilities can still be explored by the furniture makers of today. WW

The raw materials are simple – just be careful not to confuse whiting for icing sugar and rabbit skin glue for brown sugar!

Tip

Gesso may be laborious to use, but the equipment required makes it ideal for hoarders. The double-boiler for making the size is easily improvised with old saucepans, tins and wire coat-hangers

FURTHER READING

For more information, try *Restoring Rocking Horses*, GMC Publications 1992, by Clive Green and Anthony Dew (ISBN 978-0946819294), and *Practical Gilding*, Mac & Me Ltd 1984, by Peter and Ann MacTaggart (ISBN 978-1873132838)

BY ANDY KING

Turn your own bench cookies

Andy's biscuits might not taste as nice as Rockler's, but they do the same job

Rockler's Bench Cookies look nice, but in truth they are little more than flat, hard discs with soft rubber facings that stop them slipping on the bench and which grip the workpiece. Being half Scottish, I'm often referred to as a thrifty so-and-so. As I begrudge throwing away even small pieces of MDF, this is a good way of putting them to use!

Using a pair of dividers, I scribed 75mm diameter circles on some 19mm MDF and bandsawed out the circles roughly to size (**photo 1**). I'm looking to gain more experience with the lathe and surmised that something as simple as truing the discs up had to be within my capability! So fitting a four-prong centre in the headstock and a live centre in the tailstock, I simply aligned the prong of the headstock drive into the centre hole I had marked with the scribe, bringing the tailstock up and advancing the quill to apply enough pressure to grip. As the discs were already scratched to the correct diameter, it was simply a matter of turning them to the marks (**photo 2**).

The Rockler Cookies have a barrelled edge, so I replicated those, rolling the edges slightly. I also sanded the edges and sealed everything up with Speed 'n' Eez sanding sealer.

Routing mats are easy to get hold of, and cheap enough to buy; using a disc as a template, I cut out eight discs for the bases (**photo 4**). It's then simply a matter of using spray mount adhesive on the faces of the discs and also on the rubber, and then sticking the rubber in place. They may not look as classy and 'bling' as the Rockler ones, but they do an identical job for pennies rather than pounds (**photo 5**). WW

Scribe 75mm diameter circles on the MDF and bandsaw roughly to size

Turn the blanks to the circles you have scratched out, rolling the edges slightly

Routing mats for the bases are very easy to get hold of…

… and are easy to cut. Cut out eight discs for the bases

These biscuits do pretty much the same job as the Rocklers, although they're not as pretty!

This extractor from Axminster can be upgraded with the addition of a filter attachment

Axminster trade series XP380s extractor

£419.95

A few years ago the HSE was targeting vibration levels through power tools and now it's the turn of the dust extractors. No bad thing as it's the finer dust we cannot see that can cause the most damage, and although there has been filtration to micron levels in built-in workshop systems especially, the portable extractors have often been a bit more hit and miss as to what level they filter to. The current legislation is working to three defined categories of L, M and H (low, medium and high respectively) and already on many building sites dust-generation tools can only be used if they are linked to an extractor.

All of these ratings work to very high efficiency and while the L class hits some of the woodwork-related dust capture, hardwoods and other wood-based materials can require the M class rating, and with more aggressive and dangerous silica-type particles from stone and other harder building materials needing capture, the M class is a more efficient and all-encompassing extractor.

Speaking to a few people out on site on my Bristol area home patch, the L class for wood-related work seems to satisfy the site managers but it's likely that the M class will be the minimum requirement on site once there's a full take up of HSE regulation to ensure everyone is covered to the same standard.

This makes this particular extractor from Axminster an attractive proposition; it starts life as an L class model with a 0.5-micron capture rating. However, there's an additional Hepa filter module available that clips in between the collection drum and the motor unit that upgrades it to an M class model should a higher rating be required.

The difference between the two sounds surprisingly little; L class has to capture 99% of the dust it filters while the M class has to collect 99.9%, but these classifications are also defined by the concentration of the released dust. L has to be less than 1 microgram per square metre with M down to 0.1mg per square metre.

If anything, these very high values and the fineness of particles in relation to the amount of permissible dust released back into the atmosphere emphasise how the finer microscopic particles do the most damage to our respiratory systems.

What you get

Once you get past all the relative filtration rules and regulations the extractor itself is certainly a well-constructed little unit, and the compact size is certainly a bonus if you have to move your gear around from job to job.

The fitted wheel kit allows it to move freely around with you if you need to do a long run, although the 3,000mm-long hose gives good enough mobility for most scenarios.

A set of clips is supplied to clip the cable of the tool you are using to the hose to minimise snags and keep the cable from trailing around as you manoeuvre, and I found the system works very well in this respect.

The first filter is the collection bag; you can use the vac without one, however

A second thick felt-like filter seals the drum

The third fine nylon-type mesh acts as the final filter

The power take off will work with tools up to 1,600W

The upper motor housing is a steel casing with the lower canister in a very robust plastic, that is very thick walled – kick it around a building site or drop it off a scaffold and it looks as if it wouldn't even flinch.

The motor head unit is all steel for additional and equal durability. As with most dedicated extractors there's an independently switched power take off to allow the machine to auto start as soon as the power tool you have connected to it is switched on. Additionally, the extractor runs on for a short period after the tool is switched off to capture any residual dust generated.

Undo the two toggle clips and there's a three-filtration setup: the main dust bag to collect the majority of the waste along with a drop-in thick, smooth-coated felt-like one that seals the drum; the third filter is a finer thin nylon mesh type that drops in over the felt one to mop up the finest particles that have evaded the first two.

Cleaning machine

There's also a basic cleaning kit supplied: extension tubes and a floor-cleaning head, ideal for working in domestic environments as well. This is a dry pick-up machine only, so no wet work can be done, but it is still a good all-rounder for site and domestic applications alongside its ultra-efficient fine filtration.

However, it's the all-rounder moniker that does make it differ from the dedicated models offered by the tool manufacturers. While these will often include general cleaning kits, they also normally have either shake-down functions built in to clear the filters of debris when they are starting to clog alongside, or including audio signals or machine cut offs if the filter is clogged and efficiency drops; these, with the fine filtration, are normally additional features that define the M class.

My main concern is that this particular model doesn't have either shake down or audio, which may well prevent it from full site use should the legislation require these for an M class machine.

Summing up

Despite the lack of audio or shake down functions this is still a top-end extractor that works exactly as I would hope; it's very compact and lightweight, plus it is incredibly quiet in use, the usual high pitched whine that accompanies vacuums being muted to a very low level. It is, however, quite a costly unit and more so if you add in the additional Hepa filter to gain class M filtration, but whatever your choice, decent dust control should be top of any list, and this one has the Numatic pedigree to back it up. ***AK***

SPECIFICATION

POWER	1,100W
AIR VOLUME	2,400l per minute
CONTAINER VOLUME	1.5l
POWER TAKE OFF	1,600W max

VERDICT

A great low noise extractor that is compact and easy to move around, but unfortunately this all comes at a cost

PROS
- Option to upgrade the filtration class
- Built like a tank
- Powerful and compact

CONS
- No wet pick up
- Expensive upgrade if it may not meet future legislation for M class

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- Axminster Tools & Machinery
- 0800 371 822
- www.axminster.co.uk

A simple tapered adaptor is supplied for power tools

But it's with finer dust control where it excels; no visible dust escaped during my testing

The additional Hepa filter is optional and allows you to gain M class filtration levels

High-quality toggle clips secure the Hepa and motor housings firmly

The motor housing is an all-steel construction, which allows for additional protection

General pick-up jobs are quick and efficient; even bigger shavings and suchlike didn't clog the tubes

£199.94

If you're a woodturner looking to protect yourself from the dangers of dust, look no further than the APF 10 Evolution powered respirator from Axminster

Axminster APF 10 Evolution powered respirator

Made by JSP in the UK for Axminster Tools & Machinery, this helmet is supplied in a strong plastic storage box. The helmet should be returned to the box when not in use to protect it from any damage.

Out of the box

The powered respirator is assembled ready for use but all the parts are replaceable. It consists of a bump cap with a washable cover, a face shield, two filters and a lithium-ion battery pack. Included in the box is an air-flow meter, a charger and a charging dock.

The motor and filters are fitted at the front of the bump cap and the lithium-ion battery clips into the back of the cap. This battery will give eight hours of running time when fully charged and can be charged on or off the helmet, which is a very handy feature.

The charger shows a red light during charging, which changes to green when fully charged after eight hours. A spare battery can be purchased for £88.96 but for most people this would be unnecessary.

Filters

The filters are designed to filter out dust particles (not vapour) and are equivalent to FFP2 (this is the Euro standard E149 for non-powered face masks, which most woodturners will be familiar with). The filters cannot be washed or cleaned with compressed air and should be replaced with new ones when necessary. A pack of two costs £16.49.

The airflow testing device will indicate that this is necessary if it

The helmet comes in a strong plastic storage box, which is a great feature

The motor and filters are fitted at the front of the bump cap and the lithium-ion battery clips into the back

The lithium-ion battery will give eight hours of running time when fully charged

The charger shows a red light during charging, which changes to green when fully charged after eight hours

The filters are designed to filter out dust particles and are equivalent to FFP2

The airflow testing device will indicate that this is necessary if it drops into the red zone

drops into the red zone. The device should be used inside the helmet before commencing work.

How it works

This powered respirator works by blowing filtered air down over the face and out through the sides and bottom of the mask at a slightly higher pressure than the outside, thus forming an effective seal. Facial hair is not a problem and glasses will not mist up. The face shield gives good protection from flying debris. Although the visor can be replaced, overlays are available at £16.44 for 10 and woodturners in particular would be well advised to protect the visors with these peel-off films because it is difficult to stop polish flying up from the lathe and adhering to the surface.

On test I found this respirator to be easy to wear; it was cool, light in weight, well balanced and the motor was quiet. I experienced no breathing resistance, which any woodworker with a lung problem would find beneficial. Even after a full morning's woodturning I was comfortable, did not feel restricted in any way and my glasses remained clear. The instructions are good but the print size is too small – a common error these days! It is easy to recharge the battery and eight hours gives plenty of working time.

In summary

This respirator is well made and robust and having tried and tested most powered equivalents over the years, this is the best I have used and I am happy to recommend it. It is expensive but it should give many years of service if looked after and well maintained and I have to echo what one purchaser observed: we only have one pair of lungs and it is just as well to remember that. ***IW***

SPECIFICATION

- Lithium-ion battery gives eight hours of run time
- Constant clean airflow at 160l/min eliminates breathing resistance
- FFP2 respiratory protection to EN12941:1988 TH1P
- Bump cap provides head protection to EN812
- Full face visor for clear vision and impact protection to EN.166.B.1
- Lightweight and well balanced for excellent comfort

VERDICT

A great respirator for all woodworkers, especially woodturners

PROS
- Efficient
- Comfortable
- Easy to charge the battery

CONS
- A tad expensive, but worth it!

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- Axminster Tools & Machinery
- 0800 371 822
- www.axminster.co.uk

I found the respirator easy to wear; it was cool, light in weight, well balanced and the motor was quiet – and most importantly, it protected me from harmful dust

BE DUST SAVVY

Woodworkers are today better informed about the hazards of dust. There are lots of rules and regulations together with a plethora of numbers and letters, which can be confusing. It should be remembered that although these standards are primarily aimed at the industrial environment, wood dust is also a concern for most hobby woodworkers and we should try to reduce the risks and discomfort wherever possible. The four main areas to look at are as follows:

- Take steps to reduce the dust at source with an extractor designed for the purpose
- Wear a personal respirator or effective disposable mask
- Filter out the dust which has escaped and is circulating in the air with an ambient device
- Reduce the areas in the workshop where dust can settle and wipe these over regularly with a damp cloth

We take a look at the ACM 440 Professional bandsaw – an Italian thoroughbred for the small, professional workshop

ACM 440 Professional bandsaw

£2,034

The ACM 440 is as handsome inside as it is out

Made in Italy, the ACM 440 Professional is driven by a 1.5hp 100% duty cycle rated motor for durability under load and is matched by a German-made Klinger & Born braking system to ensure the heavy cast-iron band wheels are under full control when stopping the machine. The band wheel tyres are bonded rather than simply stretched to eliminate slippage and with the weight of the balanced wheels, the bandsaw has a very stable run both at start up and under load.

Equally as robust are the tensioning spring and post for setting the guide height above the work. Indeed, the spring is so heavy that it wouldn't look out of place on a car, and is paired with a heavy-duty Acme-threaded adjuster wheel to set the tension.

A simple finger indicator is linked to show the tension in relationship to the blade being fitted, and a viewing window in the top door allows this to be checked prior to setting the saw in motion.

The tracking is set from the back of the saw with a decent-sized knob to gain good purchase, and has a large locking lever to retain the setting. Alongside this is the locking knob for the guide post while positioned on the side is the rack & pinion knob to set the guide height.

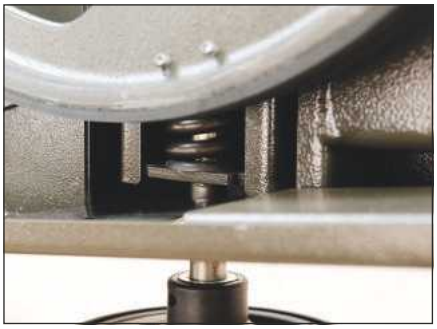
The upper and lower guide assemblies are identical: two side-adjusted discs and a similar rear disc for the thrust control. Each has a tool-free adjustment to fine-tune the settings when a blade is swapped to a different width, with the exception of the lower thrust disc, which needs a spanner as space is restricted to fit a thumb turn or knob. Setting the side discs is a breeze; back off the locking rings, screw the disc holders in or out until they snug the blade, back off a fraction and retighten the locking ring.

Cast-iron table

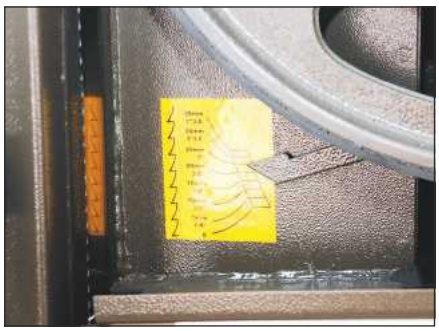
The table is cast-iron and finely finished. The front facing slot is unrestricted by the fence bar as it is fitted entirely to the left of the slot for easy blade swapping. Therefore with a wider blade there is no need to twist it onto the wheel.

The table is fitted to a heavy double trunnion with a large box-spanner adjuster. The table is pretty heavy and I found the long welded handle allowed me to control the angle before locking it off with the Bristol lever. One slight niggle: the blade got pinched on the table insert. This is because it is so thick and the saw, being brand-new, hadn't been cut to accommodate the tilting table so it needs a first cut to trim it for this. Jacking screws on this block ensure it sits dead flush to the table to prevent snagging on finer cutting jobs.

Of course the features often found on the lighter trade and hobby



The heavy tension spring is just visible behind the cast band wheel



A basic needle indicates the tension setting. The top door has a viewing window to check this

I found the tensioning wheel to be large and easy to operate

All the guides have tool-free adjustment and can be finely set

Each door is microswitched but still has a lock to secure it

machines are dispensed with in favour of a more Spartan tank-like construction to deal with the day in, day out heavy work it's capable of, and the 440 Professional is no different. So there's no quick tension-release lever, two-speed option or suchlike, but everything on the saw is heavily constructed from quality materials, with a continuous welded fabricated framework to maintain the tension under the load imparted to drive the blade up to 35mm wide.

On test

I tested the saw on a variety of rip cuts in oak, and first off was a piece around 150mm deep, unseasoned, wet and heavy. It put the saw under good load as despite being fitted with a decent-quality skip-tooth blade, the sawdust built up and compacted around the blade and in the gullets as the dust was so wet. The saw slowed considerably, requiring a slower cutting speed, but it still made cut after cut. A similar but deeper piece, slightly drier, cut with ease, so I gave it a final workout cutting some thin slices from a 250mm-deep seasoned board of ash. I could feed at a constant speed, with excellent results, and with no vibration through the saw, leaving a very clean finish on the stock.

In summary

The ACM 440 Professional punches very well for its size; it's not the biggest out there in physical size, which will fit in well with anyone looking to get a premium saw that puts out decent performance and power without taking up premium space. ***AK***

FURTHER ADDITIONS

ACM have now introduced a heavy-duty combined circle cutter and sanding attachment for the saw

SPECIFICATION

MOTOR	1.5hp
THROAT DEPTH	410mm
MAX CUTTING HEIGHT	280mm
TABLE SIZE	420 × 580mm
BLADE LENGTH	4,400mm
BLADE SPEED	1,500 m/min
WEIGHT	170kg

VERDICT

A great bandsaw if you're looking for something with a heavy build but an attractive price tag, which will fit into a smaller space

PROS
- Heavy build
- Excellent quality
- Easy blade swaps

CONS
- No resaw post
- 16amp power supply needed
- Blade pinched on table insert

VALUE FOR MONEY

PERFORMANCE

FURTHER INFORMATION

- ACM UK
- 01634 572 625
- www.acmukbandsaws.co.uk

The lower guides are easily accessible

The deep fence is easily set for square by minor adjustments to the running bar

This adjuster sets the table square to the blade

Cutting this wet oak caused the saw to slow as it clogged in the cut

It's hard to fault this nailer from DeWalt; it's a great performer all round, and is comfortable and light to use while incorporating some innovative additions

DeWalt DPN1850PP-XJ nailer

£149.95

It's entirely possible that some readers of this review will have missed out on the pleasures of using a nailgun, and, if you're one of this number, I would implore you to hasten down to your local tool supplier and request a demonstration immediately.

Ease & accuracy

A nailgun can make a huge difference on a job, and it's not just about speed if that's what you're thinking. Over the years I've come to really appreciate the ease and accuracy of an automatic nailer, whether it be gas, battery or air-powered. The real treat is the immediacy of the driven nail; a component is glued, carefully offered up, then bang, it's fixed.

A pneumatic nailer like the new DeWalt 18 gauge is ideal for the workshop, and with today's smaller and more compact compressors, can be just as at home on site. The 18 gauge gun is ideal for trim and general light construction, and with a wide variety of nail (or brad) lengths available, is as versatile as you'd like it.

New nose tip design

My first thought on opening the case and seeing this one was 'where's the oil bottle?' until I realised that it's an oil-less nailer (something of a rarity for air-powered kit). So, that was the first innovation, and it wasn't long before I noticed a second; an entirely new safety trigger system, one which ensures you no longer leave an indented mark on your work, particularly in softwoods. In fact the whole nose tip of the gun has been redesigned and reduced in size, making accurate nailing a lot easier than I've seen on most other nailers.

Pro features

I was also very pleased to note the tool-less jam release mechanism. This is a very desirable feature on a nailgun; inevitably a nail jam will occur at some point, and it's a lot easier to flip the nose open with a spring clip than it is to fiddle about with hex keys and bolts. And that wasn't all; the pro features just kept on coming with this tool.

Next up was the easy to operate nail depth set. Clearly marked, the yellow wheel gives the operator complete control over nail depth, a far cry from the days of having to adjust the pressure on your compressor.

Bump nail option

More unexpected for me of the new features was the bump nail option. Up until now something reserved for the larger gauge nailers, a bump (or sequential as they call it now) operation is where you hold the trigger and just bounce the nailer around on the workpiece. This is ideal for large panels say, and really lets you get a speed up on a job.

In summary

This nailer is a top performer: it's light and comfortable in use and has some great design additions. Finally, and with the sense of a comedy bonus, the DeWalt designers have also managed to incorporate an excellent pencil sharpener into the belt hook. Very impressive all round. ***MC***

SPECIFICATION

WEIGHT	1.24kg
NAIL DIAMETER	18 gauge
NAIL LENGTH	15-50mm
MAGAZINE CAPACITY	100 nails
TRIGGER TYPE	Sequential & bump
OPERATING PRESSURE	4.8-8.3 Bar

VERDICT

Light and comfortable to use; innovative, ergonomic and practical design

PROS ■ Every feature you could want from a nailgun

CONS ■ None to mention

VALUE FOR MONEY ■■■■■

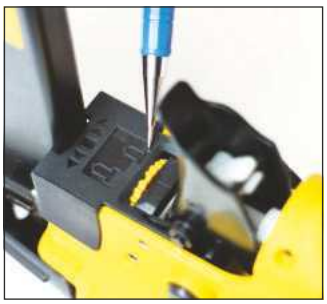
PERFORMANCE ■■■■■

FURTHER INFORMATION

- DeWalt
- 01753 567 055
- www.dewalt.co.uk

Magazine open, note yellow empty indicator and operation mode selector above trigger

The jam release mechanism is a real boon



Setting the nail depth on this piece of kit is clear and simple

The pencil sharpener set into the belt hook

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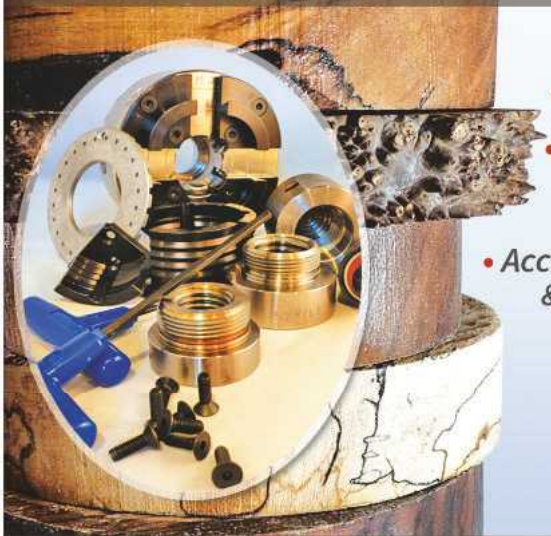

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01628 625 836 (Maidenhead)

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07818 410 591 (County Durham)

Wadkin pattern-maker's vice (UPV61). Good working order, buyer collects
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01992 620 9961 (Herts)

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Keep it light

This cantilevered coffee table design from *The Woodworker* of October 1955 encourages makers to keep things light and elegant

Coffee tables have been with us since the 1920s, and this one from *The Woodworker* of October 1955 is a fine example of experimental furniture from an era that some refer to as mid-century or even the 'Atomic Age'. But whatever nomenclature you prefer, they sure did make some interesting furniture in those times.

Fancy a challenge?

This piece is a great example of how to design a piece of furniture that looks like it could skip off the page. At first glance it looks more like a desk, and I wonder if perhaps this is how the cantilevered design started out. The glass top is a natural for a coffee table, and although I'm not a big fan of glass tops myself, I can see that it would be popular with many. Any sort of spindly furniture like this is always a challenge, particularly if it has a slightly heavier top than normal. Hardwood, as recommended by the author, is essential, right down to the dowels, as you would expect. This could well be a bit of a challenge for anyone wishing to make it today; your options would be to prepare your own dowel using a dowel plate or buy in ready-made from your local timber merchant. Given that this is either softwood or the lightest softest hardwood in existence (really, just try a piece; it breaks more easily than the pine equivalent), you're better off making your own. A dowel plate is simply a thick piece of steel with accurately machined holes in it through which a slightly oversized section of timber is hammered.

CONTEMPORARY

Glass Top Coffee Table

In common with many contemporary small tables the main feature of this design is its transparency, achieved by the use of a ¼ in. plate glass top and a dowelled lower shelf. The table will look best when standing against a wall or facing a settee, the cantilevered top providing easy access to the bottom shelf

THE proportions of the various members have been reduced to a minimum to make as elegant a design as possible. Careful jointing with a good glue line is necessary throughout. Straight-grained mahogany and beech dowels are suggested, although other hard woods may be used. The design will look best with a natural finish, wax polished.

FIG. 1. SIMPLE YET ATTRACTIVE
Stood against a wall it would make an attractive hall table

ROUNDED END OF TOP DOWEL

FIG. 2. DETAIL OF CONSTRUCTION

Side Frames.—A full-size drawing of both front and side elevations made from Fig. 3 will greatly facilitate setting out of this design. It gives the exact shoulder angles, etc.

The side frames consist of front and back legs, and should be made first. Notice that these are joined with a through tenon and open mortise to provide a touch of decoration. The legs are tapered down to ⅜ in. on the inside. Suitable triangular blocks of wood are required in clamping up.

When the side frames have been made and glued up, groove them for the top cantilevered rails as shown in Fig. 2, and glue these rails in position.

Shelf.—Next make up the bottom shelf. Care should be taken here to fix an efficient depth gauge to the drill bit to ensure that all the holes are exactly the same depth, and that the shelf glues up perfectly square. As the rails are only ½ in. thick the point of the bit must not be allowed to emerge. A Forstner bit would be more useful in this respect as the centre projects little more than the cutters. If a twist bit is used try it out on a spare piece of ½ in. wood and set the depth gauge accordingly.

The shoulders of the tenons on the bottom rails must be at a slight angle to fit the inside taper of the legs. (A full-size drawing will ensure correct setting out.) The bottom rails are planed at an angle on the top surfaces.

OCTOBER, 1955 202 WOODWORKER

Light & elegant

One of the things I like about this type of one page article is the way that just the basic information is supplied: a picture and a drawing of the key component parts. It's often left to the individual to decide on overall dimensions, and encourages the would-be maker to really think through the job and plan it out thoroughly before jumping in. Another tip provided is the suggestion that a full-sized drawing or rod is prepared. Although it might seem like unnecessary extra work, it really is the way to go and often you'll find yourself changing the plan for the better as a direct result. As with every piece of furniture, though, it's ultimately down to its creator to decide what's good or bad, but as this piece shows us, if you can keep things light and elegant you won't be going far wrong.

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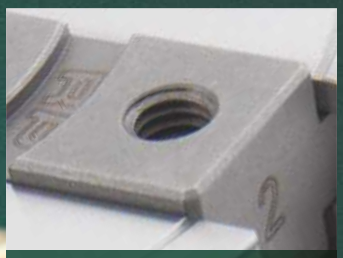

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