

# Woodturning

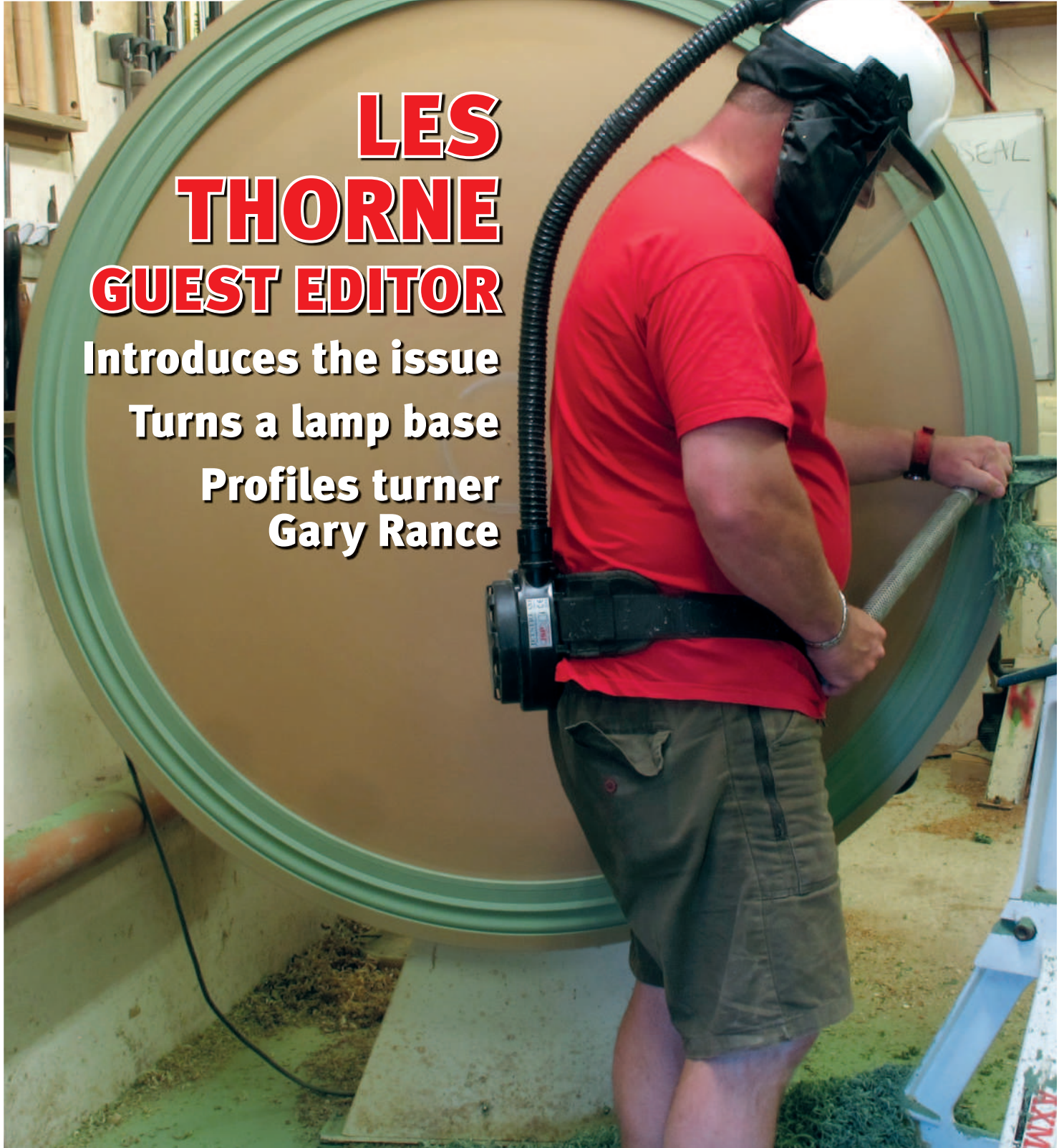
THE WORLD'S LEADING WOODTURNERS

**LES  
THORNE**  
**GUEST EDITOR**

**Introduces the issue**

**Turns a lamp base**

**Profiles turner  
Gary Rance**



**PROJECTS** Crudités server • Moveable spiral sculpture  
• Carving mallet • Offset square bowl • Compass

**TECHNICAL** Staining wood • Pyrography basics

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# Guest editor's letter – Les Thorne



If only my English teacher could see me now, Les Thorne guest editor of an internationally renowned magazine. What a great honour to be invited to help with this month's issue, put my own article in and, of course, being able to showcase master turner Gary Rance, who is one of the best spindle turners around.



PHOTOGRAPH BY LES THORNE

As a production turner I get to see the downsides of turning, such as deadlines and material problems, including quality and supply, as well as the upside of my job like interesting projects, demonstrating, teaching and the satisfaction of completing jobs. I am in a position now that I do not need to advertise my turning business, with the majority of my work being from regular customers.

I have been asked many questions during my demonstrations over the years and I would like to highlight some of the more often asked ones here. What is my favourite wood is something that comes up quite often, and I would probably say it's English burr/burl oak, mainly because it sells with splits in, so drying it perfectly is not so important. These big lumps on the side of the tree that we hold in such esteem were a massive problem for us at the

family-owned sawmill years ago, and they were quite often cut off to make the log much easier to process. What happened to them? Well, they were burnt! This also goes along with the 100s of tons of spalted beech we cut into small blocks that were used as spacers in pallets, because the wood was deemed too rotten to use for pallet boards – if only we knew then what we know now. I have to follow that question with my least favourite wood and that would have to be any timber that's difficult to sand, such as rosewood and resinous pine, as they constantly block up the abrasive, slowing the whole finishing process down.

The next most often asked question is how do I cope with doing large quantities of the same item without getting bored? That's an easy one to answer, I do get bored, but it's what

I do for a job and, like a lot of careers, it has the parts you enjoy and the parts that you don't.

So, in what direction do I see turning going in the future? Well, as a registered professional turner and a liveryman of the Worshipful Company of Turners, I like to think I am putting my experience into forwarding the craft of turning. My emphasis is always on safe practice rather than insisting you must learn this tool or that technique, as I fully understand that not everyone has the time to learn and practise the art of so-called 'proper' turning with traditional tools. I do tell all my students that if they can come out of the workshop with a big smile on their face and hopefully something they have made, then that's all that counts. Happy wood spinning everyone!

Happy turning! *Les Thorne*



# Contents

Issue 367



Cover image by Les Thorne



52

## Guest Editor

- 3 Guest Editor's letter**  
Les Thorne welcomes you to this issue of *Woodturning*
- 6 Table lamp base**  
Les Thorne combines traditional and contemporary design in his lamp bases
- 12 Gary Rance: An inspirational turner**  
Les Thorne discusses Gary Rance's unexpected path into woodturning

## Community

- 16 Subscriptions**  
Find out our latest offers for subscribers
- 60 Community news**  
Take a look at what *Woodturning* readers have been making
- 91 Next issue**  
Find out what's in store in the next issue

## Features

- 38 Diary of a professional woodturner – part 8**  
Richard Findley shares more of the highs and lows of life in a professional workshop
- 92 Women in woodturning: Julie Hagan**  
Writer Janice Elizabeth Berte dedicates this look at woodturner Julie Hagan and her work to our former Editor, Mark Baker
- 104 Traditional woodturning**  
Pete Moncrieff-Jury looks at the history of turned items in traditional crafts



6



12

94



100

86



## Techniques

- 18 Decorative dovetails on turnings**  
Dovetails are normally found in furniture, but Brian Horais shows how to add decorative dovetails to segmented turnings
- 24 Staining wood – the magic of iron and acid**  
Andy Coates takes an in-depth look at an old technique for staining wood
- 46 Sharpening and safety**  
Matt Long looks at how to maintain a sharp edge on your tools and keep safe
- 62 Kurt's clinic**  
Kurt Hertzog answers readers' questions
- 66 Pyrography basics**  
Put some fire into your creative process with Janice Levi's handy guide to woodburning
- 80 Turn your scraps into something special**  
Mark Palma suggests some practical uses for your offcuts

## Projects

- 32 Crudités server**  
Sue Harker takes inspiration from an ancient Chinese design for this elegant table centrepiece
- 52 Build your own compass**  
Les Symonds makes a useful compass for marking out bowl blanks
- 72 Cabriole leg**  
Alan Holtham demonstrates some simple off-centre turning to produce this cabriole-style leg
- 86 Offset square bowl**  
Emiliano Achaval learns from Stuart Batty how to create the thinnest of wings for this project
- 94 Interactional sculpture with multiple offsets**  
Nick Simpson uses turning to explore the relationship between a golden spiral and its background
- 100 Carving mallet**  
Cedric Boyns hits home with a self-carved mallet



32

## HEALTH & SAFETY

Woodturning is an inherently dangerous pursuit. Readers should not attempt the procedures described herein without seeking training and information on the safe use of tools and machines. All readers should observe current safety legislation when turning and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE).



# Table lamp base

Les Thorne combines traditional and contemporary design in his lamp bases

**I do many types of work as a production turner and lighting is one of my mainstays nowadays, whether it's ceiling or wall fittings or the more normal table lamp bases.**



Most of them are to the client's own design but every now and then I see a shape that will work out as a lamp. This particular one is inspired by a brass candlestick I saw many years ago in an antique shop. The interesting thing for me when making this piece was to gauge people's reaction to the round and brown one or the more shabby-chic, coloured one. I have kept the design simple but effective to make the turning process as efficient as possible, something I try to do when coming up with a design from scratch.





**1** After cutting the timber to plus 5mm on the diameter and to dead length, I mark the centres with a dedicated hollow live centre. This one allows me to punch a ring mark and then remove the point – a worthwhile investment if you intend to make a number of lamp bases.

**2** You can see how the ring picks up the punch mark to accurately centre the timber. I do this on both ends. The stem has had the corners removed to make the rounding of the piece much quicker, plus the added bonus of lots of kindling.

**3** This proprietary lamp auger is designed to pass through the tailstock to drill. The maximum you can go is determined by length of the protrusion x 2 as you need to work from both ends. The more you pull the drill out to clear the dust the more accurate the hole is likely to be.

**4** We have to drill in from both ends, which leaves us trying to drive a piece of wood with a hole in the centre. This is solved by the use of a counterbore drive. On this one the normal point is removed and the parallel shaft is inserted.

**5** Feet parallel to the lathe bed, overhand grip and tool handle lowered to use the bevel angle of the tool is the most effective way of roughing the timber to a cylinder. All I need to do once the cut is started is to transfer my weight from foot to foot, taking the tool with me.

**6** It's always worth making a story board with size details and the position of the shape changes. When copy turning, the vertical positioning of beads and fillets is crucial. I find using a 4H pencil will give me that slightly cleaner line and requires less sharpening.

**7** Where the design allows, I like to work with the top of my projects in the tailstock and the base in the headstock. When I made the first one of these lamp bases I was not sure whether to leave a fillet on the top or not. The diameter of this fillet is the same as the brass plate that I use to fix my lamp holder.

**8** I use the 10mm multi-purpose tool with a grind that's straight across to size the fillets. The diameter of these is 30mm, so don't do them all at this stage as you will weaken the whole piece. As I designed this lamp, I made the distance between beads 20mm so it works out as two widths of the tool; clever eh?

**9** Skew or gouge? I preferred to use the gouge for shaping the beads on this particular piece as I felt that I could remove more material with each cut and it allowed me to do the coves without picking up another tool. The short bevel of this 13mm spindle gouge tool gives me a perfect bevel-rubbed finish.







10



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**10** This cut is something that many turners struggle with because you are pulling the tool to your left side while keeping the bevel in contact with the timber. I have found that if you are not ending up with your right foot on tip toes you're probably not in the right place.

**11** A simple cove between the beads leaving a 3mm fillet on either side will give the best definition to the piece in my opinion. Use the 13mm spindle gouge with the short bevel and remember to cut downhill with the grain, working from the outside in.



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**12** The spigot that fits into the base needs to be a good fit. Modern glues, although very good, will not fill in the gaps left by a bad sizing cut. Any parting tool will make this cut and I prefer to use a pair of Vernier callipers as I find them more accurate than a pair of bow-leg ones.

**13** You must sand your work properly if you want the best results. I started with 180 grit and worked through to 400 grit. Do not be afraid to start with something coarser if your tooling isn't quite there yet. I find that sanding behind the work gives me a better view of what I am doing.

**14** Before I do any staining, I like to give the surface of the wood a spray with methylated spirits (denatured alcohol), which raises the grain and allows me to get the best prepared surface of the staining. Water would do the same thing and probably better but it does take longer to dry.



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**15** The base is cross grain and I have decided to friction drive it between centres using an MDF faceplate. The blank has been prepared to the finished thickness – this will make the whole process much easier as I do not have to worry about cutting the base flat.

**16** I have found that using a bowl gouge is the best way to make the blank round. I try to get the bevel in contact with the surface of the wood as quickly as possible as it will lead to a much better surface finish off the tool.



17



18

**17** I am standing slightly to the left of the spinning wood as this allows me to use a push cutting technique rather than the in-fashion pull cut. The tool handle is tucked into my side and angled down to give me the best control throughout the cut.

**18** Just like the stem you need to make a story board for the base. I am not sure about the bead detail and will decide on whether it stays when I turn the first one – sometimes doing a test is the only way of finding out what works and what doesn't.



**19** The details have to be marked in both the x and y axis on the template so you can transfer the details to the outside diameter and the face of the base. At this point I am thinking that I could have held the base on a screw chuck to allow me better access to the top surface.

**20** Grinding my bowl gouge with swept-back wings means I can remove a lot of material with each cut and I turn away the waste leaving a series of steps which can then be shaped. The toolrest is on the centreline, allowing me to cut above centre.

**21** The steps are created using a round skew in scraping mode. Use just the cutting edge, if you try to get a bevel in contact with a cross-grain piece like this the skew is likely to dig in. This technique tends to blunt the tool quite quickly, so sharpen frequently.

**22** Doing the detailing around the bead was always going to be awkward and I went with the spindle gouge as the shallower flute meant I could get in really close to the narrow bead. I found that doing a small pull cut around the bead gave me the best finish on the sapele.

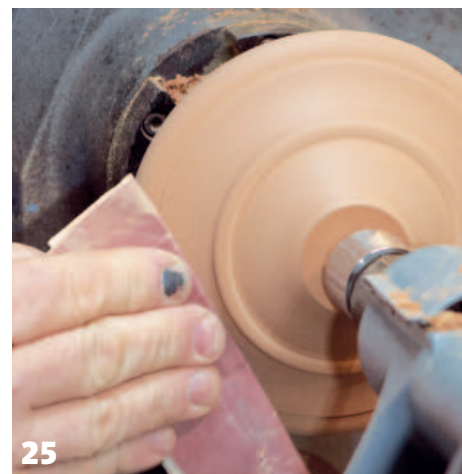
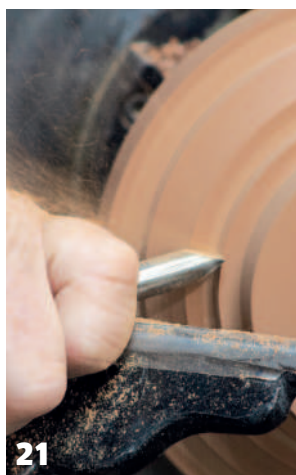
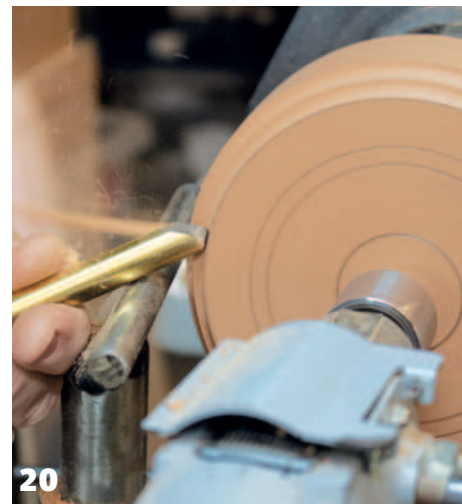
**23** If I was doing a batch of lamps I would drill them on the drill press – in this case I just drill a 7mm hole and, if you are careful, it's easy enough to drill a straight hole. I usually drill into the end grain of the base as you end up with a cleaner hole.

**24** The edge of the base was going to be left flat but it didn't seem to match the stem, so I have rounded this one over. Being cross grain, the bead is turned in the opposite direction than it would be on a spindle blank, this stops the grain tearing out.

**25** Sand through the grades of abrasive as before. I find I get better results if I use a small circular motion against the surface of the wood in about the 7 o'clock position. Using a pillar drill the base is then drilled with a 30mm hole to suit the spigot turned on the stem.

**26** The lathe makes a perfect clamp when gluing the lamps together and a good-quality wood glue will do the job admirably. Now is the time to look for any sanding scratches or tool marks on the surface of the timber as the stain will certainly show up any defects.

**27** I am using an earth-coloured, water-based stain as I find it's the perfect match for sapele, giving the piece the rich mahogany colour of a traditional piece of woodwork. I spray the stain on to the brush and work it into the grain.







28



29

**28** Using a water-based stain means I can keep a wet edge better, so there is less chance of getting a blotchy surface. The excess is removed with a paper towel and then I dry gently with a heat gun, being careful not to get the wood too hot.

**29** The wood needs to be sealed now. A cellulose-based pre-thinned sanding sealer is applied using a paper towel – this will remove a little of the stain but shouldn't cause any problems. Two coats should be ideal with a light rub down between them using an artificial wirewool.



30



31

**30** In the commercial world, most of the lamps I make will have a lacquered finish as it's so hard wearing. On this piece I decided to go with a paste wax finish. Remember to build up small layers of wax, allowing to dry enough before buffing – this will give the depth of finish that this lamp requires.

**31** Traditional-looking brown wood is all well and good, but sometimes you need a little colour in your life, so I have made an English sycamore version of the lamp base so that the pale timber will give me a plain canvas to experiment with other colours of stains.

**32** I have a dedicated small compressor instead of trying to run the airbrush through the main workshop compressor. The stains go straight into the airbrush without any extra mixing or thinning and I find that a suction-fed brush allows me to swap quickly from stain to stain with the minimum of fuss.



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**33** The airbrush does the technique of shading in better than anything else. I use the black stain to highlight some of the detail on the base. Always look to use a dual action airbrush as you will find this process much easier to do as the output is much more controllable.

**34** I shaded in every fillet and cove details between the beads and moving the airbrush in and out will vary the amount of black that you apply. I could have masked off areas or even used airbrush stencils to put patterns or details on the various parts, the airbrush really does give you so many options.



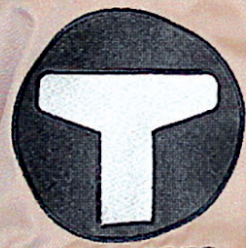
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**35** The process of applying the final finish on the coloured lamp is slightly different as I find the best results over a multi-coloured surface is achieved by spraying a sanding sealer as the cellulose based one can take colour off in the wrong place. A coat of satin lacquer will complete the lamp base. ●





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# Gary Rance: An inspirational turner

**Les Thorne discusses Gary Rance's unexpected path into woodturning**

**My task was to introduce the readers to someone I admire in turning and this man really fits the bill. Master turner Gary Rance is one of the best spindle and faceplate turners around, and he was a massive help to me when I started out on my turning journey many years ago. Whether you're a seasoned professional or a complete novice, you could do a lot worse than aspire to the quality of this guy's turning, both products and tooling ability.**



PHOTOGRAPHS BY GARY RANCE

## **Tell me about your background and training.**

I started a three-year apprenticeship at a small company called Joseph Reynolds in Chesham, Buckinghamshire, in 1975. I had just turned 16 and for the first eight months I would only turn faceplate work, including shaving bowls, salad bowls and lots of other faceplate work. The way I was taught was to be put on the same job for two to three months at a time. When I arrived, they were just taking out the steam engine that used to run the factory and replace it with an electric motor, so the whole factory was driven by a flat belt. The lathe I worked on was just a loose pulley and drive. The toolrest was made of wood and the bed bars were made of wood. There was no dust extraction. There was a pathway through the shavings to get to my lathe, but when it got too high, everyone had to stop and bag it all up.





### **What led you to woodturning?**

I never intended to be a woodturner. I left school wanting to be a gamekeeper, being a country lad, but could not get a job, so my mother sent me down to the job centre where there were two jobs on offer. One was a metal turner and the other a woodturner. I was offered a job at both companies, but I could not make up my mind, so I flipped a coin and ended up being a woodturner.

### **How do you like to work and what are your favourite tools?**

I am pretty strict when it comes to working. I start a 9am, have a tea break at 10am for 30 minutes, work until 1.30pm and back to work at 2.15pm until the end of my working day at 4.30pm. I work four days a week. Over the years I have been increasing my prices, so I don't have to work five days a week.

My favourite tool is the ½in round skew. I made my first one in 1978 and have used it ever since. I started with a ½in square skew. I also use a ¼in skew, box scraper and beading tools, which are all available from my website.

### **Describe your workshop – what is the set-up and how long have you been there?**

I have worked from home for the past 36 years. My workshop is a double garage (in length). I have four lathes, dust extraction, pillar drill,

bandsaw, planer & thicknesser and a bench grinder. For nearly everything I make, the timber is supplied for me so I can spend more time turning.

### **Which woods do you most like working with and why?**

My favourite timbers are laburnum, yew and boxwood. There are many more timbers I like but out of the three I would say yew is my favourite because every piece of wood is different.

### **Do you work with other materials as well, and how do they compare?**

I like to work with other materials, especially Corian and resin. I like to make pendants and pens.

### **What sort of finishes do you prefer and why?**

My favourite finishes are waxes. I use a lot of Chestnut lacquer spray which I use on my apples and other craft items, mainly because of the durability of the finish.

### **What inspires you and where do you get your ideas from?**

I get a lot of my inspiration from other people. I don't like to copy exactly, so I change the design slightly but you can get lots of design ideas from the internet and books.





**What is your favourite piece you have worked on and why?**

My favourite piece that I have worked on would be the humming tops. They are quite difficult to make and you have got to tune them in, so they hum. There are quite a few different techniques that we need to learn to make them but they are great fun.

**What is the most challenging piece you have worked on, and why?**

I recently made some bent legs which were very tricky to turn because of the flexing in the timber. You can see these on my Instagram page.

**How have the Covid-19 pandemic and lockdowns affected your work, and do you think any of the impact will be long term?**

I normally do 30 demonstrations a year, which obviously could not go ahead over the past 18 months, so it did go quiet for the first few weeks of lockdown. During this time, I set up an Etsy account. This has been very successful and offset any losses from the demonstrations. Things have started to go back to normal again and my income has increased over the previous year as more people have been at home and undertaken DIY and doing those jobs that they never had time to get around to, like replacing the table legs that the dog has chewed and broken spindles.

**What are your aspirations for the future?**

My aspiration for the future is to work less and earn the same money.

**What do you do when you're not wood turning?**

Although I enjoy my life as a woodturner, it has never been a hobby for me. My hobbies are walking and visiting different places. My main hobby at the moment is metal detecting and I do that every couple of days with my good mate Stuart King.

**How would you advise someone wanting to make a career out of turning?**

My best advice if you want to become a production turner is to take a lesson with someone who you know has made a good living out of woodturning. There are a lot of people out there who tell you that you cannot make a living out of woodturning, which is complete rubbish. I have given advice and taught turners how to make a living, one of whom was my apprentice, Phillip Jones. Other turners I have offered my advice and knowledge to are Michael Woods, Les Thorne and Richard Findley and they are all making a good living out of woodturning.

**www.garyrance.co.uk**  
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# Decorative dovetails on turnings

Dovetails are normally found in furniture, but Brian Horais shows how to add decorative dovetails to segmented turnings

**When you read or hear the term ‘dovetail’ in regards to woodworking you generally think of furniture and detailed joinery. Correct? So why is this article talking about using dovetails with segmented turning? Read on and you may find some new insights and challenges for your woodturning activities.**



## Dovetails are defined as:

‘A dovetail joint or simply dovetail is a joinery technique most commonly used in woodworking joinery (carpentry), including furniture, cabinets, log buildings, and traditional timber framing’ [Source: [https://en.wikipedia.org/wiki/Dovetail\\_joint](https://en.wikipedia.org/wiki/Dovetail_joint)]. So, how is it possible to introduce dovetails into round shapes turned on a lathe?

I enjoy evaluating traditional woodworking techniques not normally used in woodturning to see if there are ways to integrate them into non-traditional applications. Using dovetails with round, segmented objects turned on a lathe certainly falls into a non-traditional application category. But the problem is that dovetails, while they can be a beautiful part of fine furniture, are most often square in shape. Square shapes in woodturning are not the most exciting form to use in a segmented design. That said, I began exploring the world of dovetails and dovetail fixtures and discovered a treasure trove of decorative dovetails on the MLCS Woodworking site [mlcswoodworking.com]. Its dovetail fixtures and templates are part of its Fast-Joint Precision Joinery System featured on its website. With dovetail template names like Heart, Lollipop, Teddy Bear and Dog Bone, this array of decorative dovetails offers many choices to integrate dovetails into segmented turning.

The Fast-Joint system uses a router table and various templates to create a wide range of decorative dovetails. Using a template rig and

a guide bushing that is inserted in your router table, a spiral cutting bit then carves the desired dovetail contours.

This set-up can handle woods up to  $\frac{3}{4}$ in thick, which provides sufficient depth for many segmented turning applications. Some examples of decorative dovetail segments are shown in the image below. We are getting ahead of ourselves in this how-to article, so let’s step back and walk through the making of a segmented woodturning with decorative dovetails, similar to the images shown.



PHOTOGRAPHS COURTESY OF BRIAN HORAIS



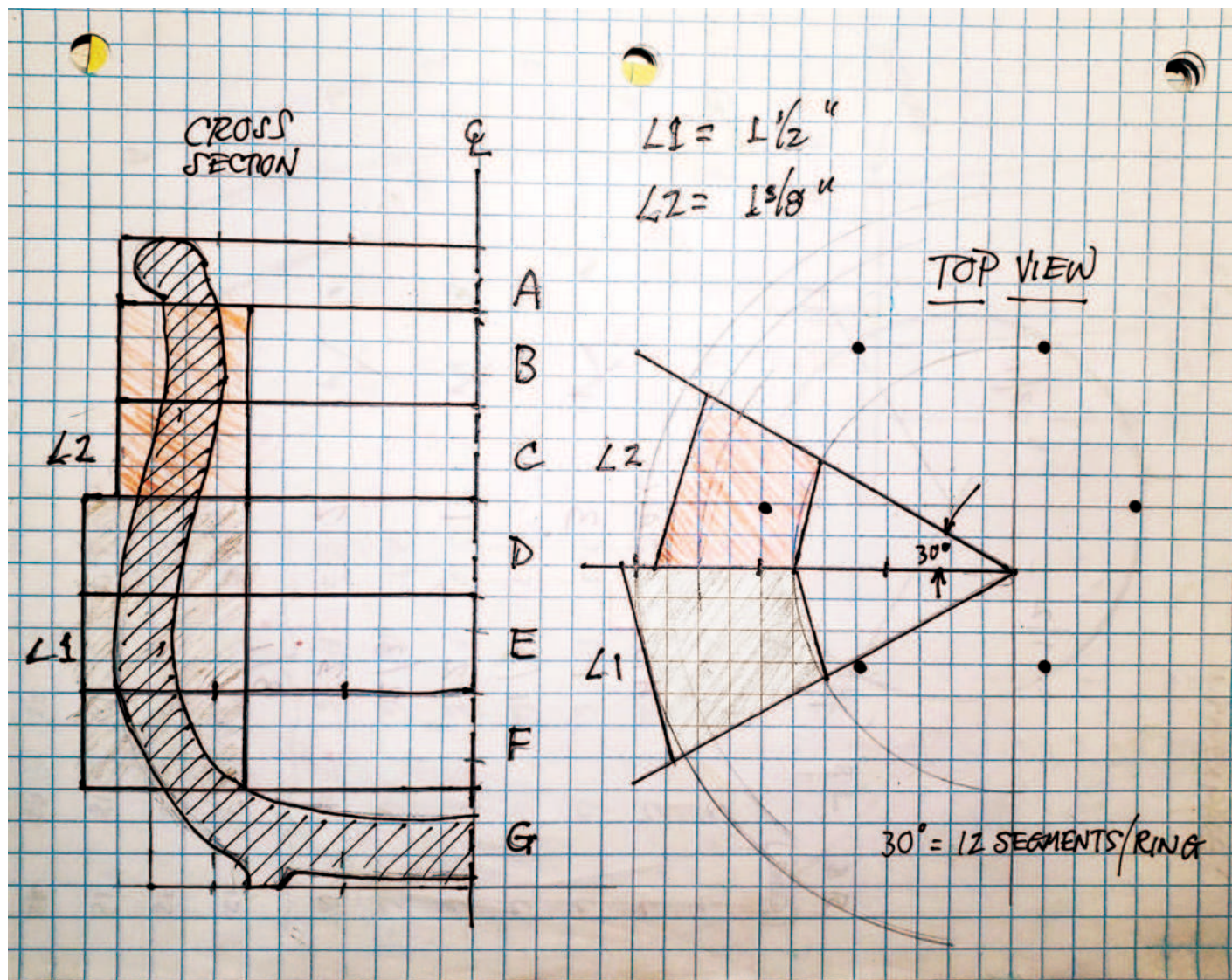
# Plans & equipment

## Materials

- Various boards of  $\frac{3}{4}$ in-thick contrasting woods
- Decorative dovetail templates from MLCS
- Graph paper (for concept layouts)
- Titebond II glue
- Watco Danish oil (natural)
- Abrasives down to 320 grit

## Tools & equipment

- Various bowl gouges
- $\frac{1}{2}$ in-thick negative rake scraper
- Four-jaw chuck
- Segment cutting sled



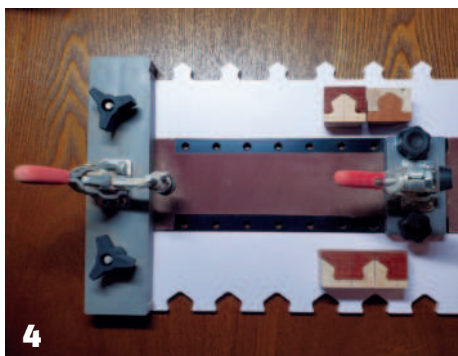
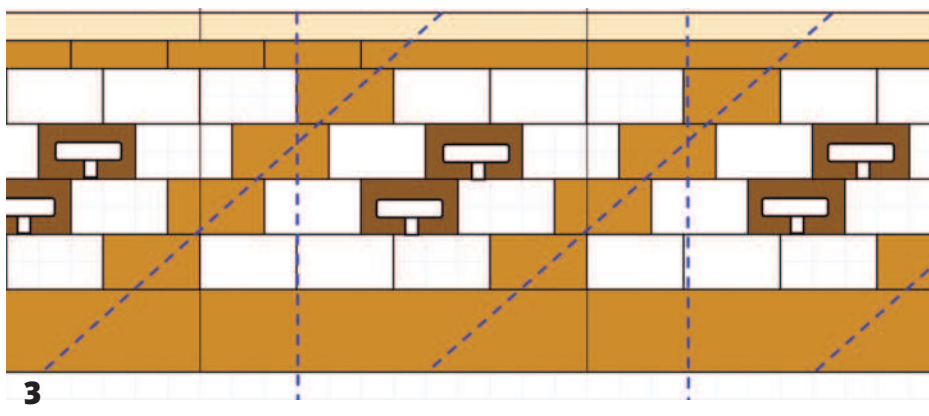
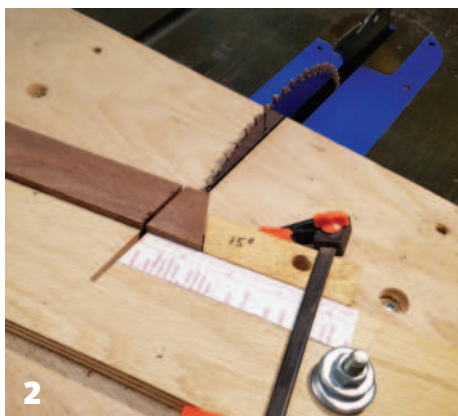
## Creating the segmented design

This article assumes that you have some knowledge of segmented turning techniques and are proficient at making segmented rings and segmented turnings. As with most woodturning projects, starting with a good concept sketch is very useful. This allows a turner to determine the segment dimensions and evaluate where to introduce design details. I like to draw full-size sketches on graph paper showing the cross-section and top views of the segmented rings. This allows me to determine segment sizing for each ring by laying out the segment thicknesses in full size and measuring the important outer segment dimensions for setting up a segment cutting sled on my tablesaw. The concept sketch shown was drawn on graph paper with four blocks per inch spacing. Once a design is selected and sketched, you need to choose your woods and additional detailed design features, such as the decorative dovetails discussed here. The wood is then cut into strips as shown in figure 1, with sufficient material to cut the individual segments that will be joined into segmented rings.



1 A variety of different coloured wood strips ready for cutting into segments.





2 Segment sled 3 Spreadsheet design 4 Fast-Joint holder 5 Router plate 6 Cutting the dovetails

I use a segment cutting sled on my table saw to cut the individual segments to the proper angles. (Photo 2) The segment cutting sled is set up to cut precise angles on the segment wedges, depending on how many segments are used in each ring. I like to use an even number of segments and typically use 12 or 18 segments per ring, depending on the overall design dimensions. I also like to use spreadsheet software as electronic graph paper to get a feel for how an overall design might look if it were laid out on a flat surface.

Photo 3 depicts a segmented design layout using decorative dovetails and the template 'MLCS Large Key' for the segments shown as darker brown in the spreadsheet design. If you don't have access to a spreadsheet programme, drawing and colouring the design on standard graph paper works just as well.

## The Fast-Joint system

MLCS Woodworking has developed a template dovetail system for use on routers. With the broad range of decorative dovetail templates available for the Fast-Joint system, you can create some truly unique woodworking designs. A detailed instruction manual is provided by MLCS to assist in setting up and using the decorative dovetail cutting system. The Fast-Joint holder system (Photo 4) allows a woodworker to create a line of dovetail cut-outs and then, using the same holder, reverse the unit and cut the complementary dovetails that will fit in the first line that was cut. Clamps provided on the dovetail template structure ensure that the wood is held firmly in place. A special router plate insert is provided that fits on most router tables. This plate includes a brass bushing with a small lip that rides on the edge of the dovetail template (Photo 5). Precision manufacturing of the templates provides repeatable and accurate dovetail cuts. I have found that for segmented turning applications, it is best to cut a string of four or fewer dovetail patterns to make sure you can easily fit the two dovetail cut-outs together. Instructions provided with the Fast-Joint system give descriptions of how to centre your router bit on the router plate template. They even provide a tapered centring pin to aid in setting up the system on your router. Because the cutter tip is cutting interior and exterior contours of the dovetail shapes, it is essential to make sure the centring step is completed with accuracy before cutting dovetails. An up-cut spiral router bit cuts the shapes with sides perpendicular to the upper surface to ensure the dovetails fit throughout the entire cut. Wood thicknesses up to  $\frac{3}{4}$  in can be cut using this system. This provides sufficient thickness for integration of the dovetails in a segmented woodturning design.

## Creating the dovetails

A number of MLCS decorative dovetail template designs would look great when integrated into a segmented woodturning. An important criterion in selecting a design is finding one with sufficient space between repeating designs to allow for cutting the segments to the desired dimensions. Once you have chosen your design, mount the templates and your wood section on the holder and begin cutting the dovetails on the router.

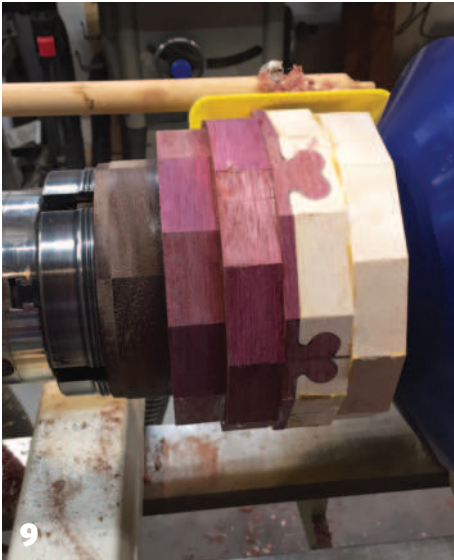
(Photo 6) Several passes on the router is the best way to cut the dovetails, cutting off a small amount each time. You will know you are done when the cutter bit is no longer cutting wood. Complete your cuts on the complementary template mounted on the other side of the holder then cut the two strips apart and fit them together, allowing sufficient width for your design. The two segment sides shown (Photo 7) with more than four dovetail patterns required a little more fitting than I anticipated. Some sanding may be necessary. Once you have fitted and glued the two sides of the pattern, cut the segment wedges. The image shown (Photo 8) shows how the segment cutting process is marked on a strip of completed dovetails by using a segment already cut to the desired dimensions. Marking the centreline of the dovetail design, make sure that the designs repeat at the desired spacing. If you look closely, you will note that you can alternate the direction of cutting the segments to maximise use of the segment strip. This decorative dovetail is the Wide Arrowhead design.

## Building the segment ring stack

For the design shown, I chose a heart-shaped dovetail pattern to integrate a lower darker section of my segmented vase design with the lighter upper section. Only six of the dovetail cut-outs were used for the entire circumference, which was composed of 12 segments as shown in the image (Photo 9). Adding segments between the dovetail designs with matching cut thicknesses of light and dark wood provides a continuous design interface. Keeping the design simple highlights the beauty of the decorative dovetail designs. Here's another view of the design during the build process with the heart-shaped segments. (Photo 10). When the stack is completed and the overall shape turned to the desired dimensions, you have a finished product as shown (Photo 11). You may note that I added a twist to the upper portion of the vase. If you have followed some of my earlier articles this should not come as a surprise.

In summary, it is possible to add dovetails to segmented turnings. With the variety of decorative dovetail templates available, let your imagination be your guide and create some truly unique turnings.



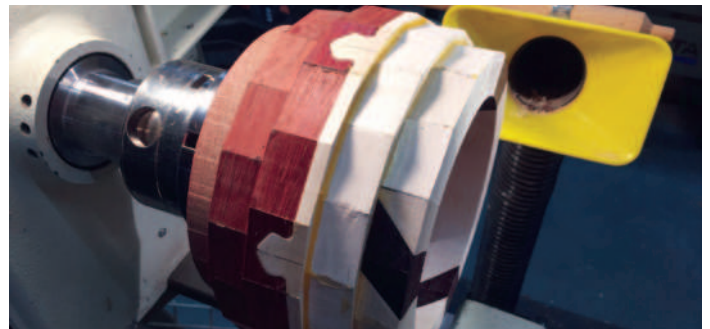


7 Dovetail patterns 8 Cutting the segments 9 Dovetail hearts ring 10 Heart design stack 11 Dovetail heart vase



### Selecting the dovetail pattern

To create a segmented design, it is important to have an overall shape in mind and to select your woods for the segments and layers. Contrasting woods provide the best 'eye appeal' when creating a design. The image shown provides a view of the template patterns and finished dovetails that were made using contrasting woods (Above). These different patterns become part of your design 'palette' for creating your overall segmented design. Once you have cut the desired number of decorative dovetail segments on your cutting sled, they should look like this (Below).



### Alternate dovetail ring design

The variety of decorative dovetail designs available with the Fast-Joint system provides many opportunities for segmented design variations. The Arrowhead dovetail designs were integrated into another vase design shown here in the segmented stack build-up on the lathe (Above). Eighteen segments per ring were used on this design and the Arrowhead pattern was repeated in the upper section of the design as shown in the finished vase (Below). ●





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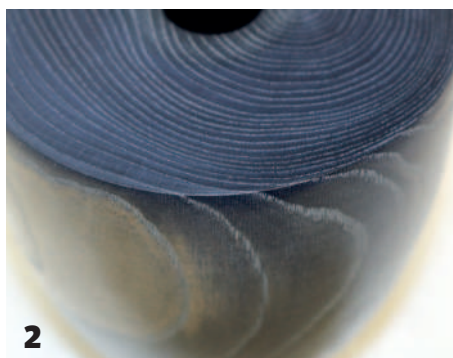
# Staining wood – the magic of iron and acid

Andy Coates takes an in-depth look at an old technique for staining wood



PHOTOGRAPHS BY ANDY COATES

Ash pots – Left hand untreated, right hand treated



1 Sweet chestnut pot on the lathe 2 Pot stained with iron sulphate solution, and lime waxed – end-grain view 3 Side-grain view

Social media is either your idea of hell or of heaven, and in truth it can be both things concurrently, but I have a confession – I use one platform constantly, and it can be a fabulous method of sharing ideas, discussing issues, techniques, tools, coffee, dogs, and any number of other things, but it can also be a great way of discovering things people want to know about. Staining wood with an ebonising solution is one that came up recently. Whenever I mention using vinegar and wirewool I get inundated with queries, opinions, and ‘perfect recipes’... and it can be mildly irritating because, in truth, it couldn’t be any more simple.

I have used the wirewool and vinegar method for many, many years, and have never had a problem with either preparing the solution or using it, but this is not the experience of everybody who has tried, and one particular query got me thinking it would make an (hopefully) interesting, and useful article.

## Why do we want to stain wood?

I suppose the first thing we ought to establish is why we want to stain

wood. As woodturners, especially those who produce decorative work, the question will seem somewhat redundant – we stain because it provides a decorative feature, but that is not the only reason we might wish to stain wood. Staining wood can be a function of restoration, where new wood needs to be coloured to match old wood. Staining wood can be a process used to give new external wood, such as on a cabin, a weathered appearance to blend the structure into its environment, or a repair or addition into the existing weathered structure. Staining wood can also be a method of preservation, making the surface waterproof to some extent. Staining wood may also be used to make one species of wood resemble another – possibly rare and expensive – wood, such as making holly look like ebony. Or it may simply be to make an otherwise dull species more interesting in any of a number of ways.

The above example, a hollow pot turned from sweet chestnut, would have been rather dull if left natural, but by treating with iron (II) sulphate solution, and using a liming wax to fill the grain, the result was a more visually appealing pot.





4 Left to right: Malt vinegar, distilled vinegar, cyder (sic) vinegar 5 Fresh batches of soups made from each of the above and my old soup

## Why not use proprietary wood stains?

This question has often been asked at demonstrations over the years, and it is a fair one – why not just use proprietary wood stain?

**From an entirely personal perspective there are a number of reasons:**

- Cost: proprietary stains are an expense
- Workshop-made stains can often be made from existing supplies
- Workshop-made stains work differently to proprietary stains
- Workshop-made stains allow you to feel like a wizard

Most proprietary stains comprise a colourant and a carrier, which may be a solvent, water, petroleum distillation product, lacquer, varnish, or even shellac, and they have a binder added to encourage the pigment to adhere to the wood.

They may be in the form of a pigment suspended in a carrier, or a dye dissolved in a carrier, and both stain the wood in slightly different ways. Dyes, for instance, are preferred on close-grained wood species because they penetrate better than pigment-based stains. And then there are differing levels of transparency, which affect how the wood looks after staining, some allowing the grain to be seen through the colouring, others hiding the grain beneath a coat of pigment.

The stain I am discussing here is entirely different from any of these types of stain – it is made in a different way, and works in a different way. And you can get it in any colour you like... providing it is in the spectrum of black.\*

\*not strictly true, but close enough

## The Solution

So, what is this solution for staining? Well, you have all probably heard of it, and many will have tried it, but there is an awful lot of confusion over what it is, how to make it, and how it works, and I have seen some frankly bizarre commentary on it.

Essentially the solution is made by immersing steel in an acid. Specifically steel wool in vinegar (mild acetic acid). We use steel because of the iron content, and steel wool because it has a huge surface area compared to, say, a handful of old nails, but you need to ensure it is either uncoated steel wool, or used steel wool (because using it removes the protective oil coating which speeds up the process).

We use vinegar because it is a mild acid, readily available, and not dangerous, and any colour or brand of vinegar will work. It doesn't need to be expensive, malt, distilled, cider, or any other particular type, it all works. While some domestic culinary vinegars will be 4-8% they will all work. In the interests of illustrating this I decided to do a test between malt, distilled, cyder (sic) and my old, now five years in the jar, pot of rancid soup.

My old pot was started five years ago to replace the one lost in a workshop fire. Nothing was weighed, or measured, just half a jar of vinegar and half a jar of wool pushed down into it. It's usually malt vinegar, because it's cheap, and it only ever gets used wirewool, and is topped up as required. It has never been strained, filtered, or sent away to a posh finishing school. And it works every single time. I refer to it as 'the soup'.

## Did you know?

### The very nearly science bit: So, what happens in the jar?

Collect your supplies: vinegar, wirewool and a jar with a lid. A mason jar will work as well as an old pickle jar. Half fill the jar with vinegar and push in the same volume of wirewool and poke it down into the vinegar. Place the lid on loosely and put it somewhere it will not get knocked over. You might clearly mark the jar as POISON to avoid the eternally curious playing with it.

The acetic acid will immediately begin to attack the steel, breaking it down and dissolving it. The chemical reaction gives off a small amount of hydrogen, but not enough to worry about, although leaving the cap loose allows it to dissipate to

the atmosphere. It's an exothermic reaction so the jar may get warm. Nothing to worry about. The result is:

**Iron + acetic acid → iron (II) and (III) acetates + hydrogen gas**

You end up with a brown, soupy mixture of various iron (II) and iron (III) acetates, and it is these that react with the tannin in wood to produce a colour change. The soup does not stain, it causes a chemical reaction in the wood.

There are some who insist that it takes anything from days to weeks to be ready to use, but in my experience it can often be usable within hours. There are also claims that it should be strained and filtered... I never have. Any gunk from

the soup can simply be wiped off. As I regularly add both fresh vinegar and used wirewool, the soup just continues to develop.

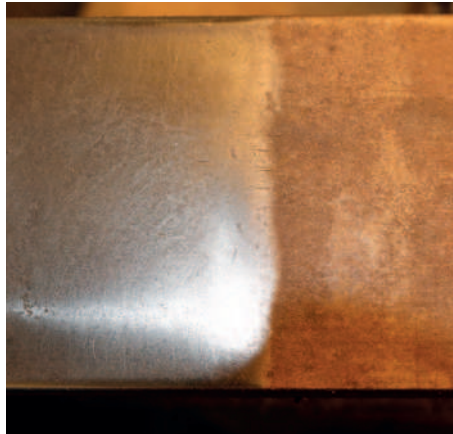
This brings us to an alternative recipe for approximately the same solution. You may have used ferrous sulphate crystals to make a lawn-conditioning solution. You may even have noticed that if you happen to spray it on certain materials, such as concrete, it can stain. Well, it can produce similar results to the wirewool and vinegar solution when used on wood. However, I have tried this with different brands of ferrous sulphate and the results have been less dramatic than with those of the soup. But you may wish to try it.



## Top tip

When using the soup, ensure you clean all splashes from the lathe, tools and equipment. You may have noticed from time to time that when turning certain wood species, usually ones with high tannin content, such as oak or chestnut, the shavings turn black, and the lathe bed can turn black. This is the same reaction occurring between the steel of the lathe and tools and the tannin in the wood.

When using the soup you also have a very mild acid in play and this can result in exaggerated oxidation of lathe and tools. So keep it clean!



8



9

8 Mortar and pestle with old galls 9 Crushed galls steeping in hot water

## Reaction enhancers

Some people like to enhance the reaction by adding another step in the process, namely adding tannin to the surface of the wood prior to painting the solution on. This can be achieved with any solution high in tannin, such as brewed tea or coffee. I will say that this is not something I do – most of the species of wood I use it on are already high in tannin content – but if you were attempting to change the colour of a species with low, or no, tannin content, then you might find this technique helpful.

There is, however, another option. Not for the first time while writing an article for *Woodturning* magazine we can go back to the writings of Pliny the Elder for a tip. Oak galls have been used to produce writing inks for thousands of years. Galls are spherical growths on the twigs of oak trees that are caused as a reaction to a parasitic wasp laying its eggs in the twig. The galls are loaded with tannin and have been used to make black ink.

There are a number of recipes for making the ink, but for our use we do not need to get too technical. All I have done is to crush the galls in a mortar and pestle and then steep them in hot water until the solution is cold. Once again we come to the issue of straining, and it is entirely up to you. Once you have the resulting solution it can simply be painted on to the wood prior to painting on the wirewool soup. The increased tannin on the surface of the wood may increase the reaction. My own feeling is that, because this extra tannin is largely on the surface of the wood, as would be the case with the other options, the resulting colour change may prove to be prone to eroding with handling of the piece. But, again, it may be something that you would like to experiment with.

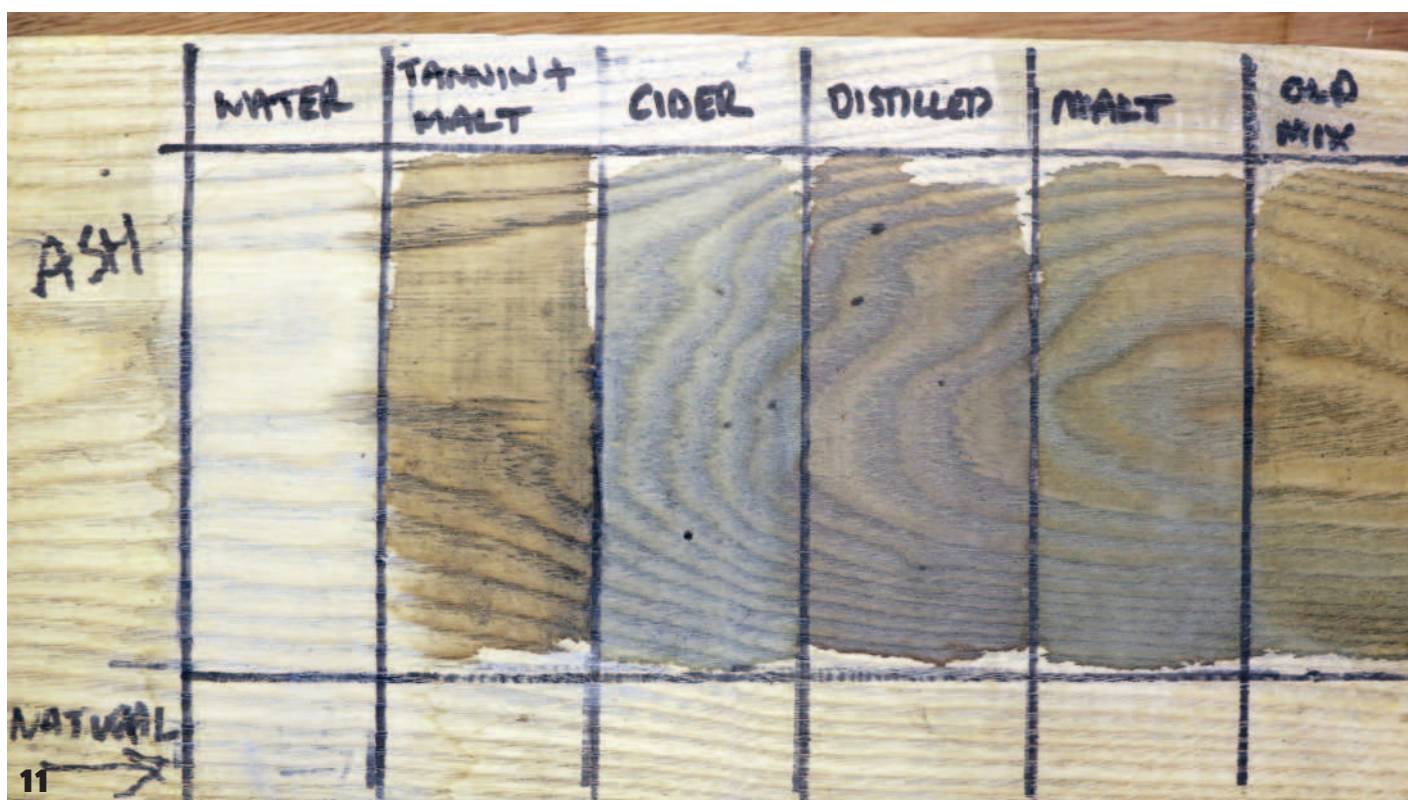
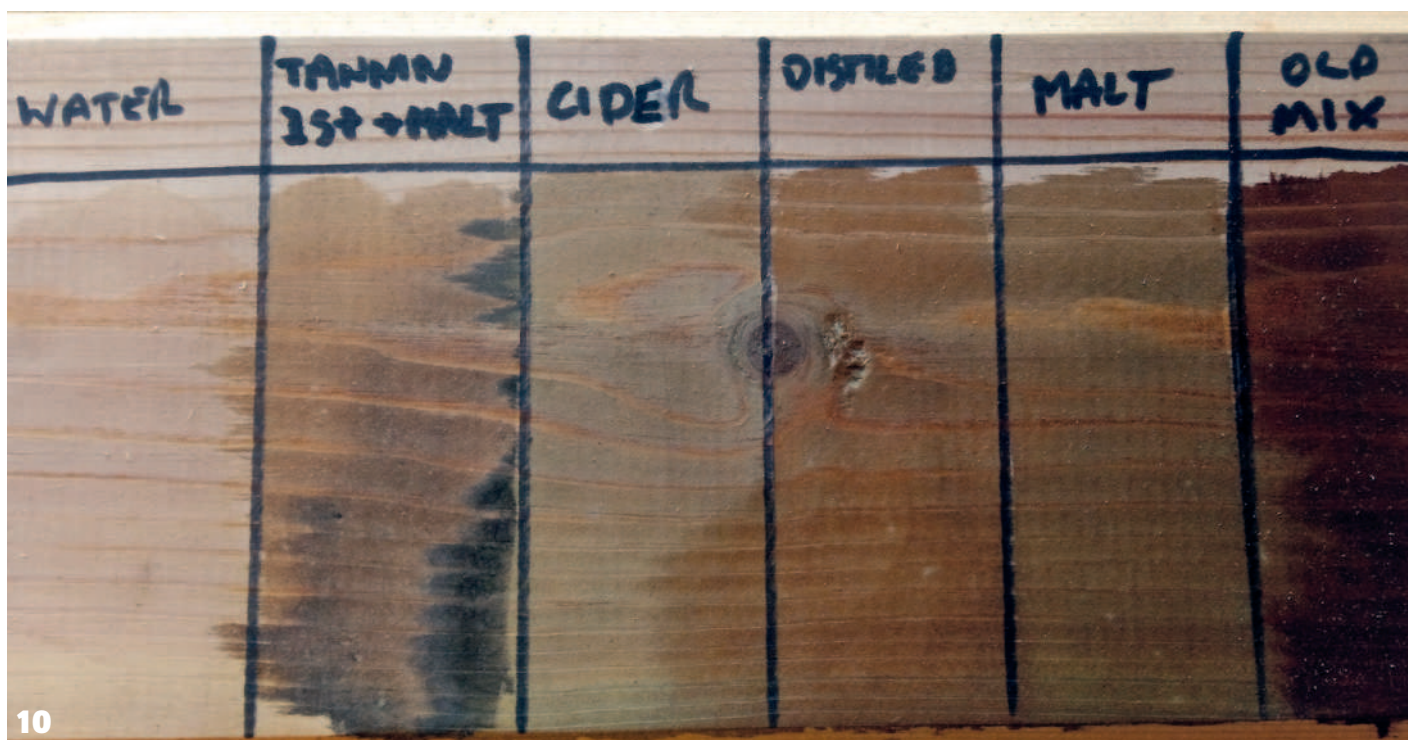
## A test

I have already said that you can make the soup using any type of vinegar, and you can, but there can be a difference in the resulting colour reaction, so I did a couple of quick tests to see what they might be. The soups were freshly made the day before, so had not sat reacting for long. I added my old soup to the test as a comparison. The boards were not abraded, and abrading a workpiece to around 180 will improve the end results, but this serves as an indicator.

The first board is a piece of pine tongue and groove. You can see the result of using the oak gall enhancing soup on the second from the left (far left is a water control panel), and the result is not pleasing, although it did appear to cause a darkening in places. The next three to the right were all quite similar in shade, and my old soup caused the darkest reaction. Keep in mind that this reaction can continue and may be affected with longer exposure to sunlight.

The next test was on a board of ash. Using the soup on ash tends to result in colour changes with a more greenish hue than on, say, oak, which tends to be more black. It was interesting to note that on ash the colours produced by the different vinegars were notably different, which suggests it may be worth experimenting with. The panel where I used the tannin enhancing soup first resulted in a colour change almost identical to that produced by my old soup.





10 Results on a piece of pine floor board 11 Results on a piece of ash

### Which species can you use this treatment on?

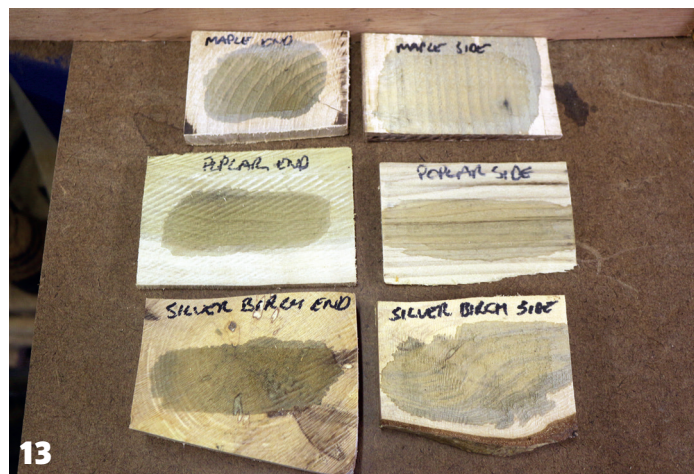
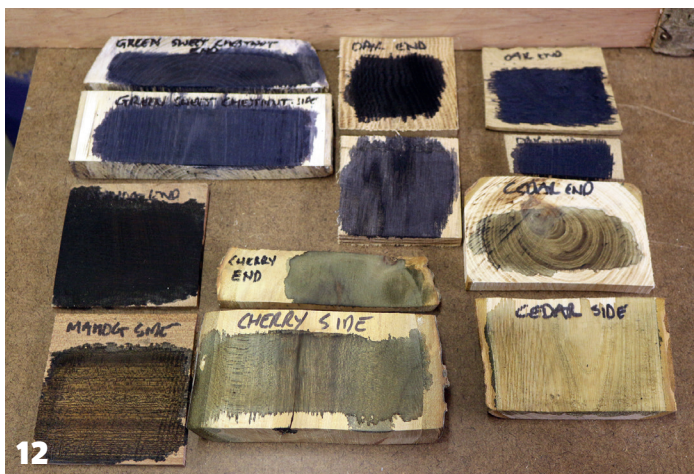
The short answer is any species. They all have different tannin content, so will each produce different results, and it is these differences that make it interesting for me. With oak and chestnut I usually want the result to be a deep black, so I am less interested in trying an alternative soup, but on species such as silver birch I like the muted, aged effect produced by the silver grey colouring. There is often a powdery residue of the iron salt on the surface after drying, which can be wiped off with a piece of clean cloth, or fixed with hairspray to produce the aged wood look.

Each of these samples had one application of soup with a brush and were then allowed to dry naturally before I took a photograph. The soup used was my old soup, as doing the same for each of the soups would require a full magazine of images. I would expect similar results from each batch of the fresh soups.

You can clearly see the range of colour and hue, and the high tannin woods – oak, sweet chestnut and mahogany – are the darkest, certainly on the end grain, and this side/end-grain variation can result in a pleasing gradation on a turned piece that will have areas of each within the body of the object.

In order to give the enhancing soup a better test, I painted it on to the side and end grain of two pieces of silver birch log, the right-hand pieces were painted with the old soup. Once the enhancing soup was dry it was then over-painted with the old soup. Once dry there was no appreciable difference between the results. I chose silver birch because the tannin content is not that high and I have treated this species so often that I know pretty much what to expect, and the results in both cases were as I would expect. So no advantage was gained using the enhancer.





**12** Results on sweet chestnut, English and white oak, cedar, cherry and mahogany, side and end grain **13** Results on maple, poplar and silver birch, side and end grain  
**14** LH Enhancing soup, RH Old soup **15** LH Old soup over enhancing soup, RH Old soup

## Using the soup in practice

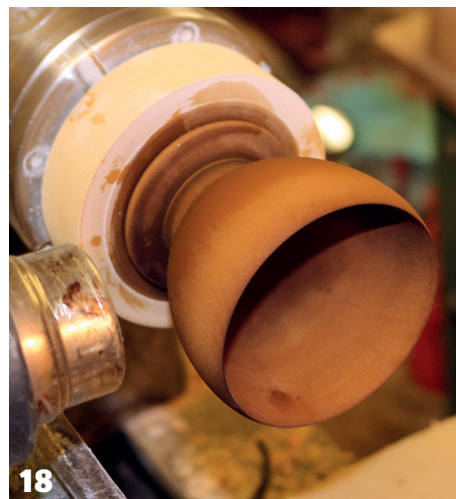
In practice the technique is no more difficult than applying oil or sanding sealer. I turned a set of three matching pots from maple, silver birch and sweet chestnut, and treated them all exactly the same way.

The pot is abraded to 180 grit – too fine and the pores will effectively be sealed and resist penetration of the soup. The soup is painted on with a brush, being careful to ensure the coverage is even and without drips. I then use a heat gun to speed up drying and de-nib the raised grain with a nylon pad. You can apply a second coat at this stage and may achieve an even more pronounced effect, but there is a limit to how many times you can do this, which is determined by the amount of tannin in the wood. When there is no further change you are done.

The results are, as expected, quite different. The sweet chestnut is a deep black, and the maple a warm, brownish hue, the silver birch is

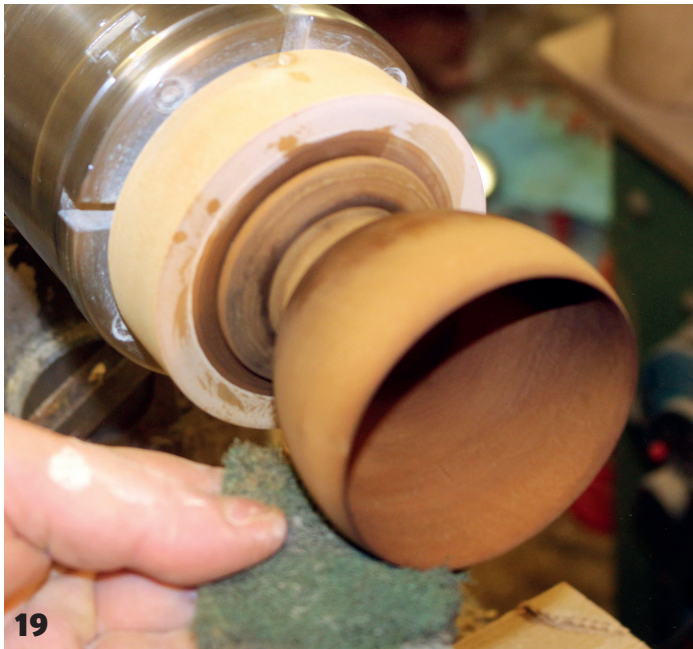
midway between the two. On a properly finished piece these results are pleasing and can improve an otherwise bland wood. On more open-grained wood the grain can be back-filled with a coloured wax to further enhance the look. On the whole, the results I usually want are deep black or an antique appearance, so I am quite easy to please. And I have never been displeased with the results.

The lead image at the start of the article is of two pots in ash. One is untreated and the other has been treated with the old soup. The hue is quite green and once oiled this looks really quite pretty, and improves the overall effect of the pot. You may not even like the idea of changing the colour of your wood like this, but it is fun and it is interesting. The results are often a surprise. And if you enjoy it and like the outcomes, maybe you could have a think about adding pattern by using a resist in certain areas? There is a long road of experimentation ahead of you like the look of the road. ●



**16** Small pot of maple turned for treating **17** Applying the old soup **18** Force drying with a heat gun



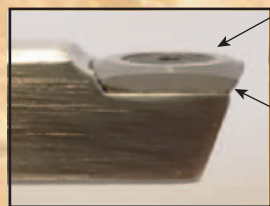


**19** De-nibbing with a nylon pad **20** Pot after drying and de-nibbing **21** Pot after second application and drying **22** Pot after applying Danish oil and buffing **23** Left to right: maple, sweet chestnut, silver birch





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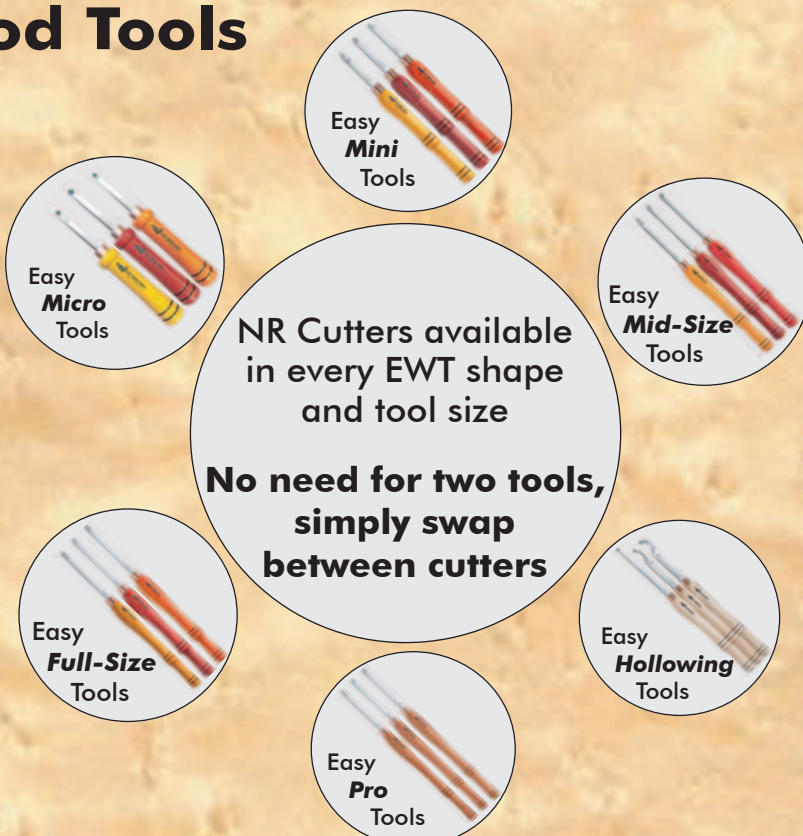
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# Crudités server

Sue Harker takes inspiration from an ancient Chinese design for this elegant table centrepiece

The inspiration for this crudités server came from an internet search on ancient Chinese ceramics, where I saw an image of a small dish with an attached saucer with decorative edges.



As with all new woodturning projects there was a period of thinking time. For example, I needed to decide how to adapt the ceramic example to suit wood, and what size and species of timber would suit the project. Did it require an insert to protect the inside of the turned dish? And finally, at what point should the decorative grooves be cut out of the rim?

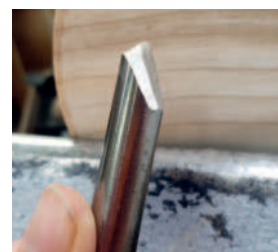
I decided on a piece of ash, which is a native timber suitable for food use, and to shape the dish so it could be used with or without an insert. Finally, the bowl blank required would be too thick to cut out the shapes at the beginning of the project, so the underneath of the server needed shaping first.

Variations of this server could be made, for example the grooves cut on the outside rim could be replicated on the rim of the internal dish, either in line or offset. The dish could be turned as a separate item and the plate could have a recess, like you would find on a saucer, for the dish to sit in. Or indeed, any variation you would like to make.

## Top tip

Pictured top you can see the secondary bevel ground on my  $\frac{3}{8}$ in-long grind bowl gouge. By reducing the length of bevel, the tool becomes more versatile in the bottom of bowls where full bevel control is not possible in most situations due to the limitations imposed on the swing of the tool handle by the depth and diameter of the vessel.

With the secondary bevel ground (bottom pic), the tool can reach closer to the dish for refining the shape. When cutting the plate section towards the base of the dish rotate the flute of the tool so it faces the dish and lower the tool handle so a shearing cut can be taken on the dish. At all times be aware of where the swept-back wings of the tool are and avoid touching two surfaces at the same time.





# Plans & equipment

## Materials

- Piece of ash approx. 260mm diameter x 70mm thick
- Food-safe oil
- Dish insert

## Tools & equipment

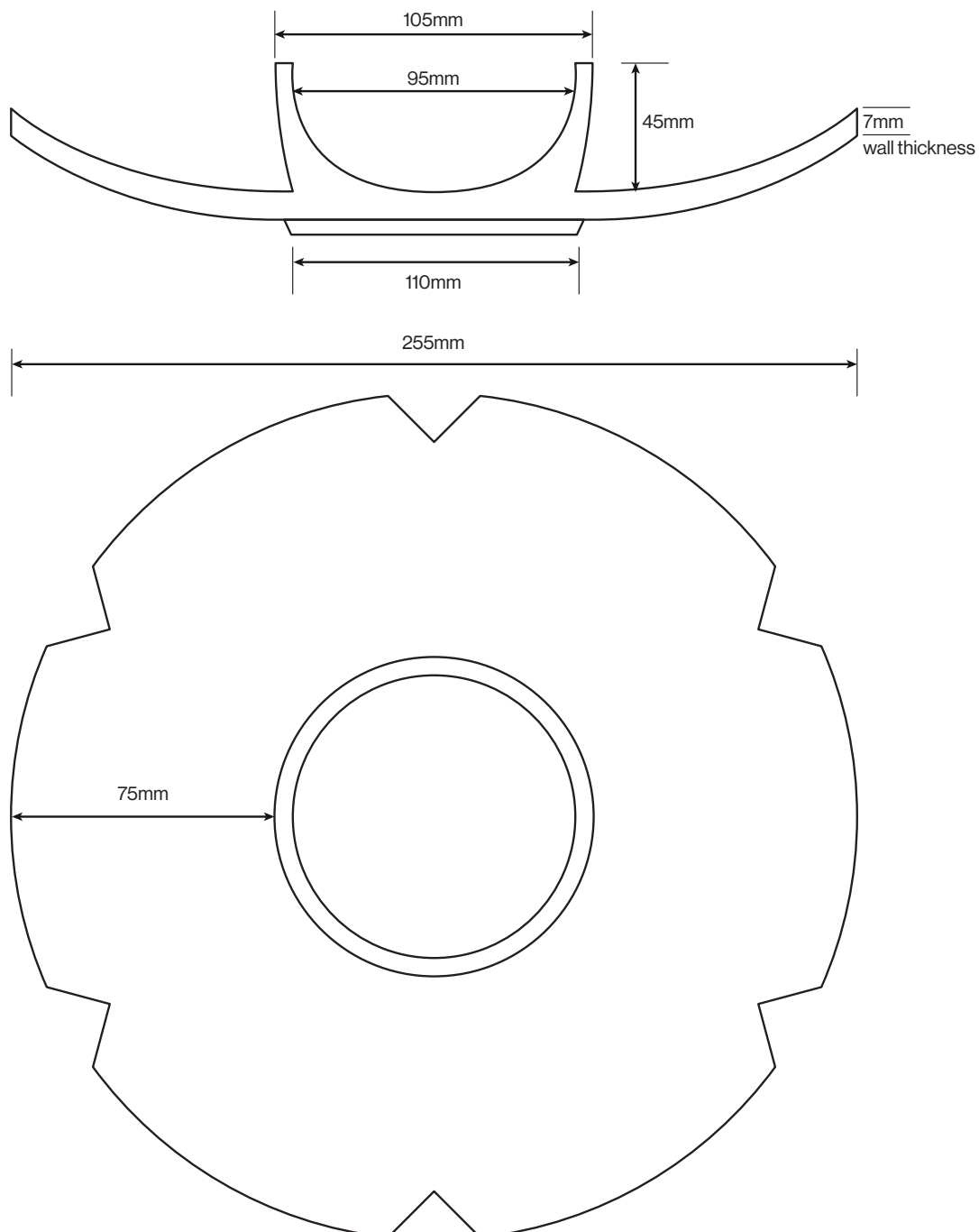
- PPE & RPE as appropriate
- $\frac{3}{8}$ in standard grind bowl gouge
- $\frac{1}{8}$ in parting tool
- $\frac{3}{8}$ in long grind bowl gouge
- Flat shaft skew chisel

- Bandsaw, jigsaw or hand saw
- Rotary sander
- Abrasives 120, 180, 240, 320 and 400 grit
- Battery drill fitted with sanding arbor

## Did you know?

### Remounting method for removing the chucking evidence

If you don't own a vacuum chuck, an alternative mounting method can be achieved by turning a small dome of timber to fit the internal shape of the dish and cover with a small piece of router matting. Offer up the dish and locate the tail drive in the hole cut earlier in the centre of the spigot and tighten the tailstock. The tail drive will need to be left secured in place during the process of removing any evidence of chucking. Turn away as much of the chucking spigot as possible and sand while still secured. Remove from the lathe and use a carving tool to remove the pip that is left. Sand smooth, starting with 120 grit and working through 180, 240, 320 and 400.





**1** Mount a piece of ash measuring approx. 260mm diameter x 70mm thick on the lathe using your usual method. True up the outer edge with a standard grind  $\frac{3}{8}$ in bowl gouge.

**2** Using the same tool, true up the front face. Cut a small hole at the centre point with the edge of an  $\frac{1}{8}$ in parting tool. This hole will be used to assist with remounting the bowl for removing the evidence of chucking once the server has been turned.

**3** Cut a spigot the correct size for your jaws with a  $\frac{1}{8}$ in parting tool. Here I am cutting an 85mm diameter spigot to fit my large jaws. A flat section at the bottom of the spigot is turned for the front face of the jaws to butt up to. The jaws I am using are dovetailed. A flat shaft skew chisel laid on its flat side is used to cut a dovetail into the chucking spigot to ensure maximum hold.

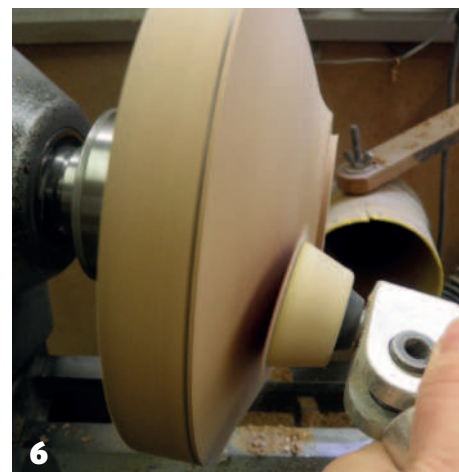
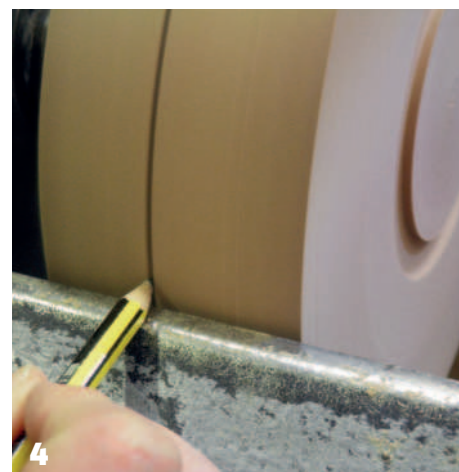
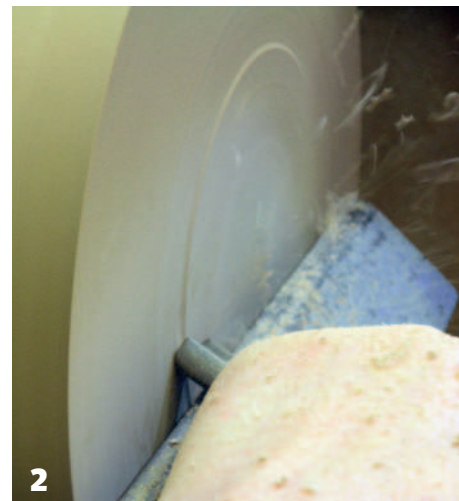
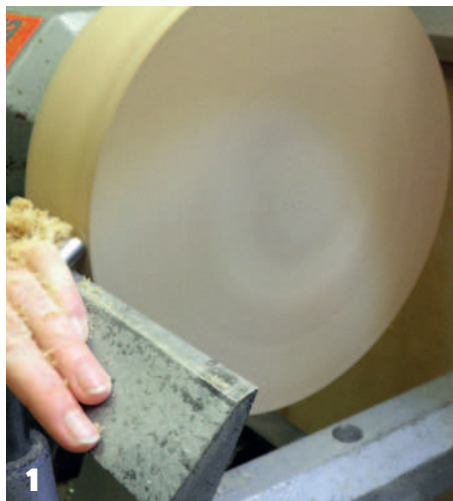
**4** On the outer edge, at 35mm from the front face, draw a pencil line around the diameter of the piece of timber. This will be the thickness required to form the plate part of the server.

**5** From the flat section at the base of the server, shape the underneath into a stretched-out ogee shape, finishing at the drawn line reference mark. Use a standard grind  $\frac{3}{8}$ in bowl gouge for this.

**6** A rotary sander is used to sand the underneath of the server, starting with 120 grit abrasive and working through 180, 240, 320 and 400.

**7** Using an indexing system, mark six equal points around the outer edge of the remaining timber. Place the toolrest at centre height across the edge of the server. Starting with the indexing pin located into number 24, draw a line across the width of timber using the toolrest as a guide. Then rotate anti-clockwise to number 4 and repeat the process. Continue moving round using locations 8, 12, 16 and 20 drawing a line across the width of the timber at each number.

**8** Continue the lines drawn on the edge of the server on to the underneath surface for each of the six reference marks to a length of 10mm. Next, at the top of the extended line, measure 5mm to the right and 5mm to the left and make a reference mark. Using the reference marks, draw the required shape for cutting out.







9



10

**9** Remove the timber from the lathe and lay the flat face of the server on the table of a bandsaw. Secure the bandsaw blade carrier to the correct height to allow the thickness of the server to run underneath without catching. Carefully cut out each of the six drawn shapes. Instead of a bandsaw, a jigsaw or hand saw could be used to cut out the shapes. To minimise sanding, try to cut each shape the same size and with as few saw blade marks as possible.

**10** Here you can see the pattern created by cutting out the six shapes. These cutouts should not impact on the turning of the internal shape of the server, but care needs to be taken not to touch the timber while it is rotating. To assist with this, most of the sanding will be done with a rotary sander.



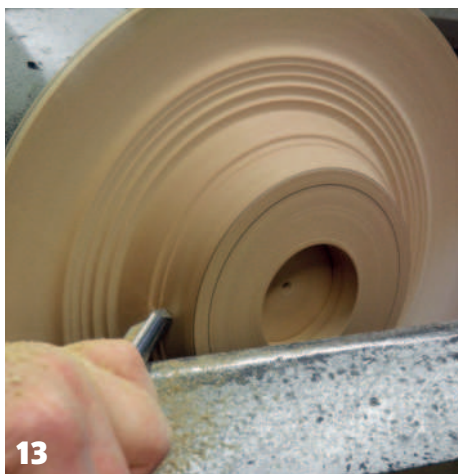
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12

**11** Next, remount the timber on the lathe using the chucking spigot cut earlier. True up the front face with a standard grind  $\frac{3}{8}$ in bowl gouge.

**12** Measure the widest diameter of the insert being used. The dish will need to be turned a larger diameter to allow for the wood to move. This insert measures 90mm, so reference marks need to be drawn at 105mm diameter for the outside of the dish and 95mm for the inside. Starting from the outer edge, remove the excess timber to form the plate section of the server. Each cut will create a step of timber near the dish area.



13



14

**13** To remove the steps created when shaping the plate, change to a  $\frac{3}{8}$ in long grind bowl gouge. With the wings of this tool being ground back, better access to the bottom of the dish can be achieved. Remove as many of the steps as possible to make room for refining the plate section.

**14** Working between the outside shape of the dish and the plate, remove the excess timber until access is restricted by the bevel of the tool. When cutting the transition between the bottom of the dish and the plate, take care not to catch the tool on two surfaces at the same time.



15



16

**15** Grind a secondary bevel on the long grind bowl gouge, this reduces the length of bevel, making the tool more suitable for refining the transition area. Cut along the plate towards the base of the dish and, once the dish is reached, rotate the bevel of the tool towards the dish and lower the handle of the bowl gouge to take a shear cut along the dish. Continue with this cutting method until the desired shape and wall thickness is achieved.

**16** Next, using a  $\frac{3}{8}$ in standard grind bowl gouge, remove the inside of the dish, following the outside profile as you progress.



**17** Try the insert in the dish for fit. Holding the insert firmly, rotate the lathe by hand so the base of the insert rubs the timber on the area it touches.

**18** The insert should have left a shiny line on the timber, which can be seen by shining a light over the surface. Draw a pencil reference mark over the shiny line, this will assist when refining the shape. Repeat the process until the insert fits correctly. The base of the bowl needs to be curved with no obvious changes in direction, so the server can be used without the insert, should you choose.

**19** Use a rotary sander to sand the plate part of the server up to where the sander can reach without catching the side of the dish. Start with 120 and work through 180, 240, 320 and 400.

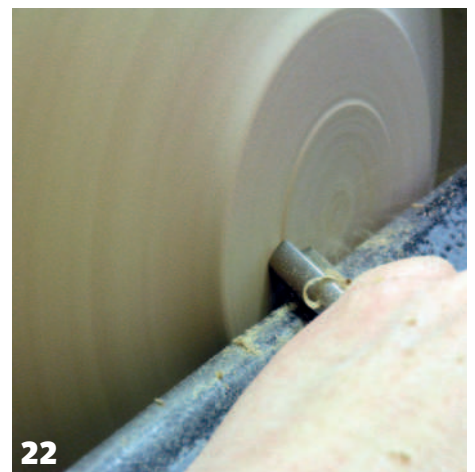
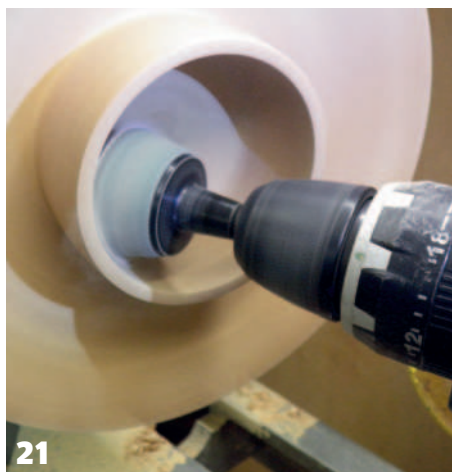
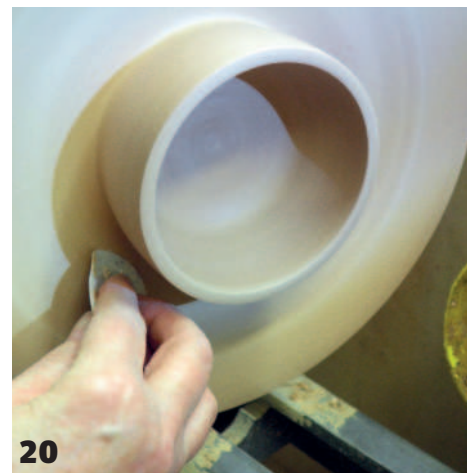
**20** Sand the outside of the dish and the area of the plate where the rotary sander could not reach by hand, using the same grits as above. Blend the sanding into the already sanded areas as you progress.

**21** Using a battery drill fitted with a sanding arbour, sand the inside profile of the dish. Work through the same grits of abrasive as previously used.

**22** With the crudités server turned and sanded, remount on the lathe using your usual method. Here I am using my vacuum chuck so the tail drive can be removed, allowing full access to the foot. With a standard grind bowl gouge, remove the chucking spigot. Sand to a finish using the full range of abrasives. An alternative mounting method can be achieved by turning a small dome of timber to fit the internal shape of the dish and cover with a small piece of router matting. Offer up the dish and locate the tail drive in the hole cut earlier in the centre of the spigot and tighten the tailstock. The tail drive will need to be left secured in place during the process of removing any evidence of chucking. Turn away as much of the chucking spigot as possible and sand while still secured. Remove from the lathe and use a carving tool to remove the pip that is left. Sand smooth, working through the same abrasive grits as previously used.

**23** With the server still held on the lathe, sand the cut-out shapes. This can be done by folding the abrasive in half, using the thickness of the abrasive to apply the correct amount of pressure. Alternatively, use a sanding jig that can hold the abrasive and fit tightly into the shape. Work through all the abrasive grits until all the cut marks have been removed.

**24** Apply several coats of food-safe oil to the finished server, allowing the prescribed drying time between coats. The server can be re-coated with the oil at any time during its use to replenish the finish. •





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# Diary of a professional woodturner – part 8

Richard Findley shares more of the highs and lows of life in a professional workshop



When I write my monthly diary, I always try to be as honest as possible, sharing the successes as well as the problems and difficulties that I experience along the way. Generally, there are more highs than lows, but from time to time there are issues that need dealing with. This month I had another issue with laminations; I could easily leave this out of my diary, but I think we can all learn from these experiences, so I will share. There was also the usual mix of production work and one-offs to keep me busy, along with a small job with Christmas in mind.

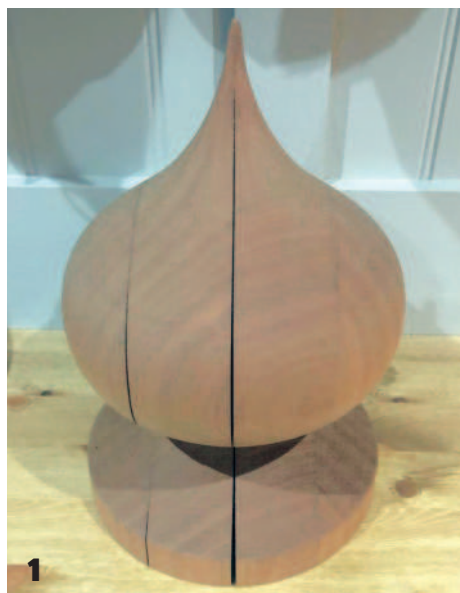
## Glue woes

A few months ago, I wrote about a problem I had with some laminated table pedestals splitting along the joints. After much thought, I identified the issues that I believed led to the problem. One thing I didn't blame

for the issue was the glue I was using. When I remade them, I bought a new batch of glue to ensure it was as fresh as possible, but I didn't really think it was the main problem. Blaming the glue somehow felt like the old proverb of a bad workman blaming his tools. This month, however, I had another lamination issue that indicated that the glue was at least part of the problem.

The project was a laminated finial for my niece's summer house. Her partner is a builder and, having renovated and extended their cottage, he had built a summer house to finish off the garden. It needed a finial to cap off the apex of the roof, so I was called. It was a fairly straightforward onion-shaped or minaret finial, made from laminated sapele, a wood I often use for outdoor work as it has good resistance to the elements and can easily be painted or stained.





PHOTOGRAPHS BY RICHARD FINDLEY

**1** The failing glue joints **2** Despite the reassurances, I didn't get on well with Cascamite **3** The Aerolite glue was much more successful **4** The replacement finial

I used the D4 white wood glue that I've been using for some time and laminated the layers together in my press. All seemed fine and it turned well, but I did notice that quite soon after sanding the finial, I could feel the glue lines. This is something that can happen over a period of time and is referred to as 'creep'. It generally isn't something to worry about, especially on a finial that would be on top of a roof, but I was surprised to feel it so quickly. The finial was collected but within days I had a message, along with a photo, saying it had cracked and wondering if there was anything that could be done. Unfortunately, the only thing to be done was to re-make it.

This time, the only thing to blame was the glue. The wood had been in my workshop for months and sapele is a reasonably stable timber. I had made it during the cold spell in December, but I was careful to wait until the workshop was up to temperature before gluing. I did some online research and found a few useful comments. It seems that the D4 glue I had been using has a short six-month shelf life from the date of manufacture and there were reports that its strength drops dramatically as that date approaches. My bottle was a month inside the six-month period, so should have been fine, but apparently not!

At this point I threw my dummy out of the pram and decided I needed a completely different glue for laminating – I couldn't have this happen again. After further research, it seemed that there was a general consensus that Cascamite is the best glue for this type of work. Cascamite has been around for years and I remember using it a few times in the early days when I worked for my Dad. At the time, we used to use 'animal glue' for most jobs. This is a traditional glue that came as a block of dense brown jelly (an odd description, I know, but it's the best I can come up with) which was heated with water in an electric gluepot to reach a glue-like consistency. On the odd occasion animal glue wasn't appropriate, the tub of Cascamite would be reached for. There came a point in the late '90s when we could no longer get animal glue, so we moved over to PVA for everything and we rarely had problems... apart from one batch I remember, that didn't stick anything together!

What we knew as animal glue is available again but is sold as 'pearl glue' in the UK, as it is now provided as little beads that need soaking and melting down into glue form. This is still favoured by furniture restorers. In the US I believe it is known as 'hide glue' or 'brown glue'.

I had heard, from various people who still regularly use Cascamite, that the product had been hit by manufacturing problems and wasn't as good as it used to be, but from a little more online research, there seemed to be reassurances that these issues were in the past, so I ordered a tub to give it a go. Even the lid of my new tub informed me that it was 'back to the Cascamite you know and trust'.

I followed the instructions to the letter, mixing two parts powder into one part water by weight. It mixed together well but was whiter than I remember. I tried it on several pieces and left them in cramps overnight. All of them failed, worse than even with the dodgy bottle of D4. So I turned back to my online research. One name kept coming up – Aerolite Oneshot. It seems this is basically the same product, a urea-formaldehyde resin glue, but this had never had the problems Cascamite had experienced. My research suggested Aerolite was the original glue used to build wooden framed aircraft during the war (had my Grandpa still been with us, he would have been able to confirm this as he spent most of the war building and repairing these aircraft) and was mostly available in 25kg sacks, which is too much for a small operation like mine, but I found an online supplier selling 1kg tubs and so, with my fingers firmly crossed, I ordered one.

As before, I mixed up a pot, carefully weighing out the 2:1 ratio by weight. The mix was the cream-coloured glue I remember from the '90s. I tried it on several pieces and this time, the bond was perfect. In fact, they may have been the tightest, cleanest joints I've done. With renewed confidence, I laminated more sapele for another finial. The joints were tight and even once sanded they remained smooth to the touch. This type of glue is known for resisting creep, so the finial should remain smooth, even outdoors. The only downsides associated with this type of glue are the long drying time, which is around eight hours, but I always leave laminations in the press at least overnight, so this won't be a problem for me, and that it needs mixing might put some people off, but I think that I can mix up just what I need so it should be very economical – at least it will be once I get better at judging the quantity I need.

I am hopeful that my glue woes have been solved. I will keep a bottle of white glue (although not that particular D4) as it will still be more convenient for some small gluing jobs, but for laminating, I'll be using my new Aerolite.





**5** The scoop I made now lives in the glue bucket **6** Scoop in use, weighing out glue powder **7** Steve Bisco's article **8** My walnut card holders

## Scoop

My new glue comes in powder form in a resealable bucket. I mix it with tap water in a disposable paper cup, stirring it with a wooden lolly stick. I needed a means of moving the powder from the bucket to the cup. I remembered that I had made some scoops a few years ago, so decided I would make myself a scoop that could live in the bucket with the glue powder. I used a piece of beech from my offcut pile. Turning a scoop is much the same as turning a goblet, only instead of turning a stem and a foot, the stem is the handle. With the footless goblet parted from the lathe, I cut a section of the cup away carefully on the bandsaw to reveal the scoop. It is a simple little project and just what I needed for my glue. If you have a baker in your life, they are ideal for weighing out flour or sugar and other such items.

## Card holder

Speaking of jobs for myself, I also squeezed in a project I've had my eye on for a while. Way back in *WT354*, Steve Bisco made a pair of playing card holders that jumped out at me as I have two young sons

whose hands aren't big enough to hold a hand of playing cards properly. I remember having the issue myself as a child and it is frustrating that you have to spread cards out on a table or on the floor and try to hide them behind a cushion or whatever comes to hand.

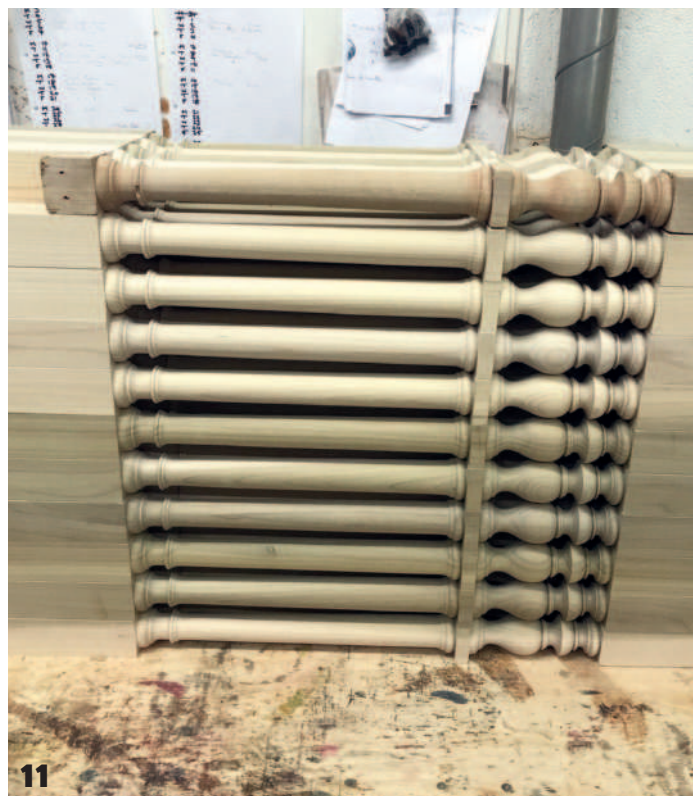
As Andy Coates mentioned in his Editor's Letter in *WT364*, I still look forward to receiving my copy of the magazine, but I read it in a different way these days. It is rare for me to find a project that makes me think 'I really want to make that!', so it was a lovely thing to find. I even took my magazine into the workshop to copy the dimensions and profile, something I haven't done for many years.

The beauty of the project is that you make what is essentially a slightly complex bowl and cut it in half, to make a pair of card holders – just right for my two sons. With Christmas coming up I made a set in walnut and paired it with a pack of cards each and a book of family card games for my youngest son and a book of card tricks for my older son. I felt very pleased with myself, as Christmas presents are very much the domain of my wife. We even managed to play a few card games over the festive period and the holders worked a treat.





9



11

9 The finials and caps in the workshop 10 One of the finials and caps in place  
11 The batch of 55 spindles with the original on top



10

## Picture from a happy customer

In my last diary, I wrote about a set of ball finials I had made with caps to fit on a customer's newel posts. A week or so after sending them off to the customer I received an email saying how pleased she was with them and a photo of one of them in place. Most of my work leaves me and I never see it again – this is the one drawback of my workshop-based job. I'm often promised a picture but rarely get one, so it is always a treat to get a good quality picture of my work in place. I always think that good joinery should go almost unnoticed, especially by people not in the trade – it should just be there looking neat and finishing things off. The photo of the finial and cap in place is just that, understated, but looking neat, as if it had always been there and part of the original design.

## Spindles

While on the subject of staircases, I made a batch of spindles for a customer in Lincolnshire. I had made 15 spindles to match an original sample for them the previous year to finish off a staircase alteration, but when the painter saw the state of the originals compared to my new ones he suggested they replace them all to maintain the quality of the renovation. So I was called to make another 55. Despite my habit of keeping hold of story boards for far too long, I couldn't find this one anywhere, so got the customer to send me one of the originals to copy.

It was an interesting and classic two-part design with a vase shape in the lower part and a long taper in the upper, with a square section separating the two. I often refer to this sort of spindle as a knuckle buster, because it is rare to get through an entire batch without needing at least one plaster.

Although the original was pine, I use tulip for painted spindles as it gives a better quality finish and, with the recent increases in the cost of softwood, it isn't a much more expensive option, but without the knots and splits found in even good quality pine, there is far less waste.

These spindles were a finished 50mm square, so I had to buy 65mm thick timber. I ripped the boards into spindle blanks on my saw and then planed and thickened them to 50mm. Each was marked out and then mounted on the lathe. You can imagine that by the time I'd turned 55 of them I had become quite efficient. I have two banjos for my lathe, so set up a toolrest in each, either side of the central square. Set up like this, I can leave my rests locked in position and don't need to move them at all throughout the turning process.





**12** The first batch of Signature beading and parting tools arrived and were dispatched



**13** The trophy base ready to send out



**14** Walnut ring stand with polished silver insert

COURTESY OF FENELLA WATSON DESIGNS

## Signature tools

My first batch of 25 Signature tools came in last month. They were all sold so I spent a day (with the help of my sons acting like my little elves) packing them up and labelling them ready to send off to their new homes, in the UK, US and one even headed for Saudi Arabia. The second batch is on order and should be with me early next month. Most are already spoken for, so a third batch will be going through soon after, I'm sure. I hope people enjoy using them. I have been adding lots of videos to my Instagram account showing how to make various different cuts so people can get used to using them.

## Trophy base

Trophy bases are quite regular work for a jobbing turner like myself. New trophies often come with rather nasty looking plastic bases, sometimes the original is damaged or full of engraved shields, sometimes a new base needs adding to give more space for more engraved names. A customer emailed me in need of a base for a new trophy. It had come with a plastic base that he wasn't keen on and he wanted a plaque engraving with the name of a colleague who had passed away, to award as a commemorative trophy.

I have a local engraver who makes plaques for me, and also passes commissions for bases and backboards to me from time to time. Generally, I make trophy bases in oak or sapele, or tulip if they are to be painted. The customer liked the look of sapele, which I stain to give a richer mahogany look. I laminated two pieces together to achieve the required thickness using my new Aerolite

glue. I continue to be impressed by the joints with this glue.

I drilled an 8mm pilot hole through the blank, which allowed me to hold it on my screw chuck to turn the profile, a simple stepped shape with scotia to add interest to the edges. The trophy had a length of threaded rod fitted to the base so I reversed it to drill a counter bore hole from the underside to allow a nut to fix the trophy securely in place. I stained it and applied four coats of hardwax oil before giving it a gentle buff and fitting the engraved plaque with pins. The customer was delighted with the result and felt it was a fitting tribute to his friend.

## Ring holder

When I get an email from certain customers, I just know it will be an interesting job. I had just such a message from a silversmith and jeweller I know through Instagram. I've only done a couple of jobs for her in the past, but they were both lovely jobs involving her silver work. This time she wanted a simple base to show off a client's ring, and she liked the idea that she'd come up with so much she decided to make a couple of extras to show off other rings. She supplied me with a ring and a silver insert with a neat slot cut in it. All I needed to do was turn a walnut base with tapered sides and a recess to accept the silver insert. Beneath the insert, I turned a curved recess to allow the ring to drop through and sit comfortably. It was a simple job and again finished with my favourite hardwax oil and buffed. I received a photo with the ring and the silver insert hallmarked and polished, which reflected the ring perfectly. I love simple and effective design, and this was a perfect example of this and a lovely collaboration to be involved in. ●



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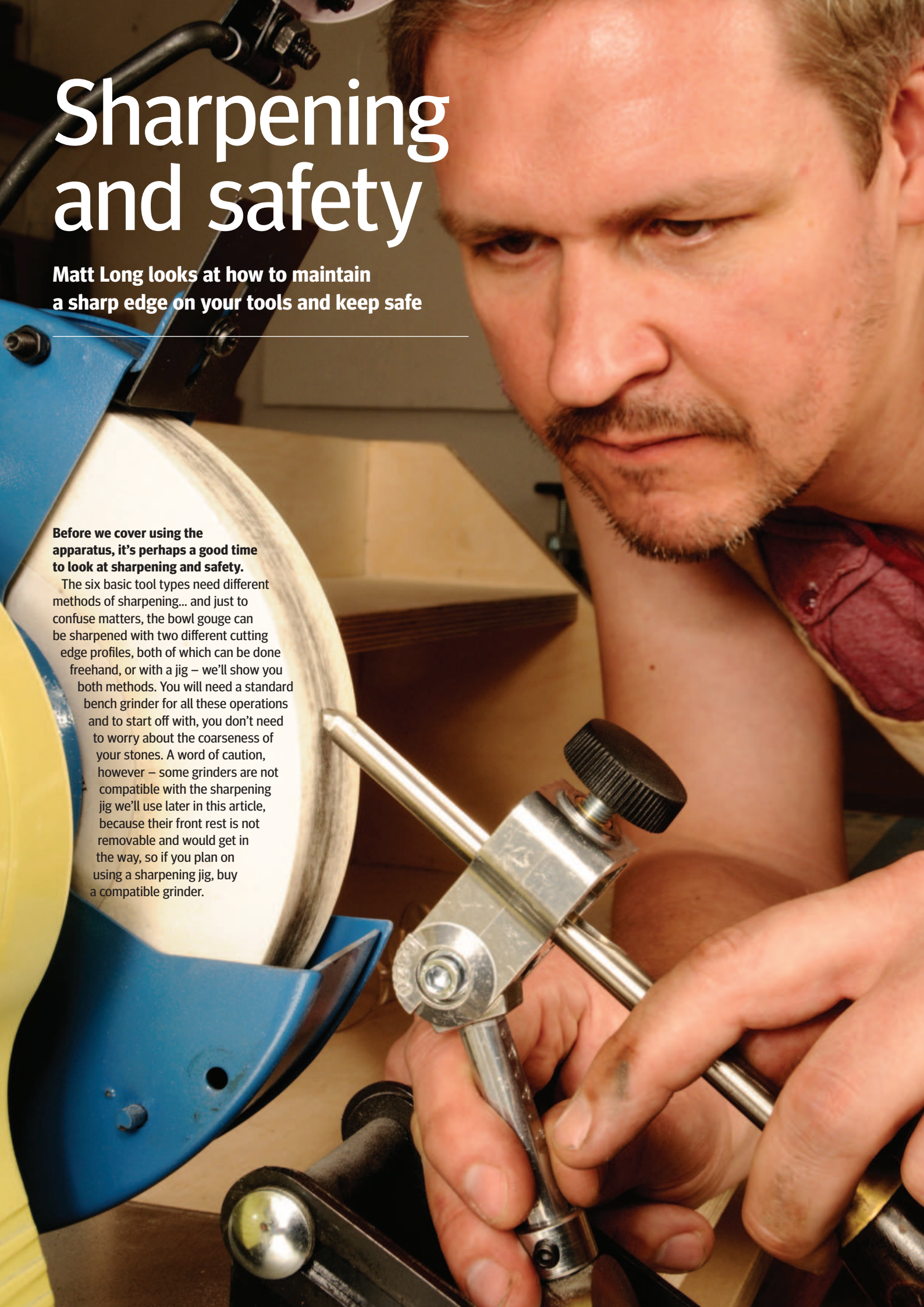
# Sharpening and safety

**Matt Long looks at how to maintain a sharp edge on your tools and keep safe**

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**Before we cover using the apparatus, it's perhaps a good time to look at sharpening and safety.**

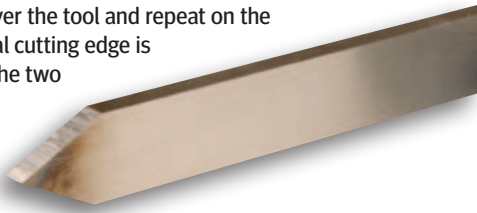
The six basic tool types need different methods of sharpening... and just to confuse matters, the bowl gouge can be sharpened with two different cutting edge profiles, both of which can be done freehand, or with a jig – we'll show you both methods. You will need a standard bench grinder for all these operations and to start off with, you don't need to worry about the coarseness of your stones. A word of caution, however – some grinders are not compatible with the sharpening jig we'll use later in this article, because their front rest is not removable and would get in the way, so if you plan on using a sharpening jig, buy a compatible grinder.





## Parting tool

The parting tool is the easiest to sharpen. You simply set the toolrest to create the required angle for the parting tool – the inclusive angle can be anything between 30° and 45°. So, with the tool held against the rest, gently push the tool into the grinding wheel to create a clean grind, then turn over the tool and repeat on the opposite side. The actual cutting edge is the line created where the two ground faces meet.



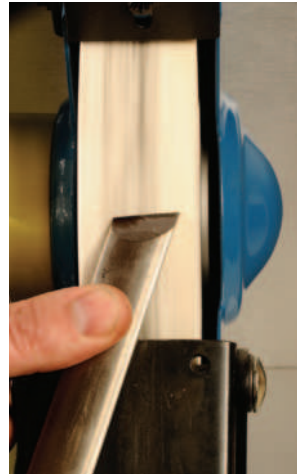
With the toolrest – or here the sharpening jig – angle set, grind off one side...



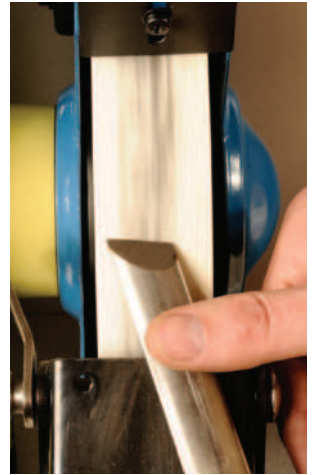
... and then the other, to create an inclusive angle of between 30° and 45°

## Skew chisel

The skew is perhaps the next easiest tool to sharpen, given that you are just grinding a flat on both sides of the tool to create an angled point. As you can see, the sharpened edge is at an inclusive angle of between 25° and 35° and – when the blade is viewed from the flat side – has a canted rake edge of about 25°, too. Set your tool guide to the correct angle and grind one side and then an equal amount on the other, to keep the cutting edge in the centre of the tool shaft.



The skew is similar to the parting tool for grinding. First one side...



... then the other is ground. You just need to be careful to keep both blade angles

## Scraper

Scrapers come in all sorts of shapes and sizes. For your first scraper, we advocate getting a round-nosed version. Sharpening this tool involves a slightly more complicated method than the skew. For the scraper, you are creating a blunt bevel on one side of the tool to create the edge used to clean off your workpiece. A little like a cabinet scraper, you are in effect creating a burr edge, which actually cuts the timber. To sharpen, set your grinder toolrest to the correct angle, somewhere between 45° and 80° – about 60° is a good place to start – and present

the scraper to the grinding wheel so one end of the bevel will touch the wheel. Then push the scraper on to the wheel and sweep it around with your fingers, pressing the tool on to the rest and into the wheel with an even pressure, until the full scraping edge has been sharpened. The cut is made by the wire edge created at the intersecting line between the flat top of the scraper and the ground bevel.



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Push the scraper into the wheel at one edge first, to start the grind...



... then with even pressure on the wheel and toolrest, sweep the handle around...



... until all of the scraper edge has been ground, creating your cutting edge

### Top tip

When sharpening on the grinder, take care not to overheat the tool. The first sign of this is the bluing of the blade as it overheats. If it does overheat, do not quench the tool in water, as this can cause micro fractures to occur in the high-speed steel used in turning tools. HSS is now the most commonly used steel for turning tools and this is because it offers increased wear resistance over the carbon steel used before. As with all cutting tools, they have to be both hard enough to take an edge, and flexible enough not to snap when in use.



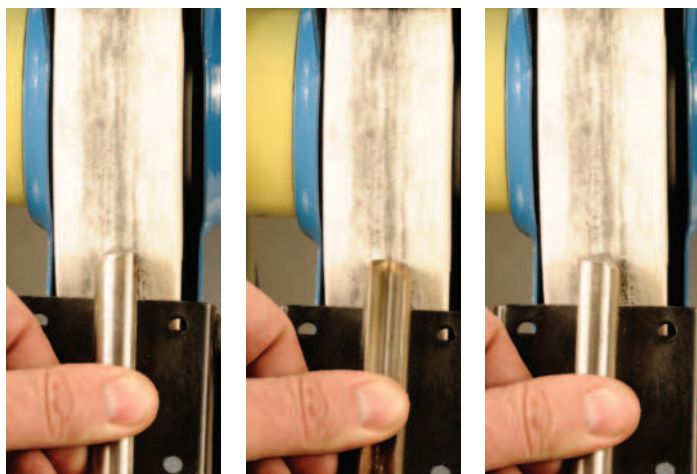
## Bowl gouge

The bowl gouge can take two different kinds of bevel. There's the straight grind, which most tools come ready prepared with, and the swept-back profile, often called a fingernail profile. The swept-back profile is now the most commonly used grind on the bowl gouge because it gives more actual cutting edge on the tool than the straight grind, and allows the cutting edge to get into tighter areas because the flute sides – known as wings – are swept back. As your turning skills develop, you will find out which grind best suits your turning skills.



Here are four bowl gouge profiles. The normal profile on the left is followed by successively more swept-back grinds

### Straight grind



Start with the flute facing to the right to start the grind...

... then smoothly rotate the tool along its axis...

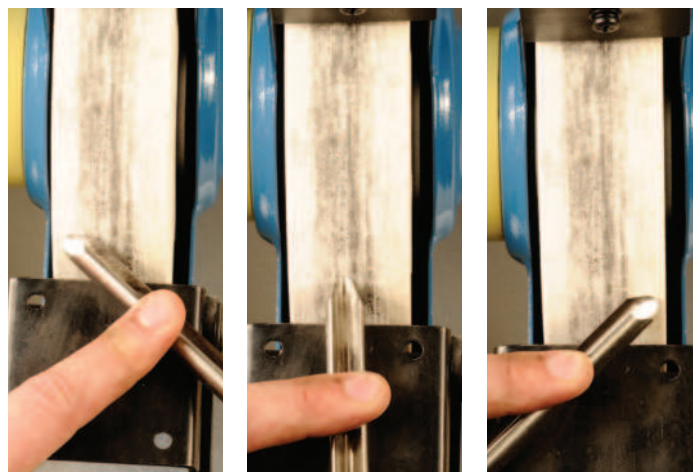
... until the flute is pointing directly to the right

To create the straight grind on this tool, the bevel should have an angle of between  $80^\circ$  and  $45^\circ$  –  $45^\circ$  is a good place to start. Here, just like for the spindle roughing gouge, the tool is rotated along its axis to grind the bevel. First, set up the toolrest correctly, then with the tool's flute pointing directly to the right, push the tool on to the grinding wheel. When the grinding wheel bites, turn the tool along its axis so the full face of the tool is ground. Repeat until happy with the result.



### Fingernail profile

The swept-back profile is quite a lot harder to achieve on the bowl gouge, as it involves a swing and rolling motion at the same time. What you are attempting to do with this grind is sweep back the wings of the gouge, giving you more cutting area and easier access to the workpiece. Start off with the flute of the gouge pointing to 2 o'clock and the tool presented to the wheel at an angle of about  $45^\circ$ . Then sweep the tool across the grinder while at the same time turning the tool along its axis until all the bevel is ground. An alternative method of achieving the swept-back grind freehand is to cut one wing of the tool, then the other, and then blend in the central part of the gouge. To be honest, the easiest and most consistent way of creating and maintaining this type of grind is to use a jig, discussed on the next page.



Start with the flute at 2 o'clock and a  $45^\circ$  angle...

... then rotate along the axis and sweep the tool...

... finishing with the tool pointing at  $45^\circ$  the other way

## Spindle roughing gouge

The spindle roughing gouge takes the simplest of the grinds on the gouges, as it is basically straight across, creating a flat profile when viewed straight down from the flute. To create the profile, set your toolrest to give a bevel angle of between  $35^\circ$  and  $60^\circ$  –  $45^\circ$  will serve you well to start with. Then push the tool down on to the rest with the flute pointing to about 2 o'clock, and gently push the tool into the grinding wheel. Keep the cutting tool square to the wheel and rotate the tool along its axis to grind the bevel equally across all of the tool cutting edge.



Present your gouge to the wheel with the flute pointing to 2 o'clock...



... then rotate the gouge along its axis, keeping firm pressure...



... until all of the bevel on the gouge has been ground



## Spindle gouge

The spindle gouge also takes a swept-back profile, sometimes called a lady finger profile. This is achieved in a similar way to the bowl gouge swept-back (or fingernail) profile, outlined on the previous page. The difference in the two profiles is not too obvious, but the spindle gouge tends to have a more pointed outline when viewed from above, looking straight down on to the flute. Again, the degree of difference is very much a personal preference and as your turning skills develop, you will naturally find the degree of curvature which suits your turning style.

## Swept-back profile sharpening jig



First, set the angle of the bevel grind with the tool clamp arm...



... then set how far the tool protrudes from the clamp...

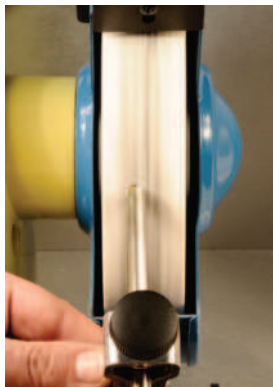


... and finally, the height of the tool clamp arm

To create the swept-back style of grind on your spindle and bowl gouges, you can buy a jig to help with this difficult grind. The jig holds the tool steady so that it will follow a sure course as you sweep it around and twist the tool at the same time. The jig screws on to your bench in front of your grinder, then you have to set three physical parameters. First, set the angle of the arm which connects to the tool holding clamp – this sets the angle of bevel you are grinding... most jigs come with a measuring device to help you work out this angle. Then set the distance the tool will protrude from the clamping device – this will also effect the angle of the bevel you grind. Finally, set the height of the arm between the pivoting joint and the tool-holding clamp. Once these parameters are set, the jig guides you as you sweep the tool across the grinding wheel.



Follow the same arc as when cutting by freehand...



... but this time allowing the jig to guide the grind as you make it...



... finishing with the gouge at around 45° to the right

## Top tip

Use the edge of your sharpening bench, or make a small jig, to mark how far each tool protrudes from the tool clamp, so you can replicate each bevel accurately by using this mark again and again.



## HEALTH & SAFETY

### Turning safely

- The first rule of turning safely is knowing how to use the tools and equipment. Turning is a perfectly safe pastime, as long as you know what you are doing. But the combination of a fast-moving workpiece and sharp metal tools needs care. In this series of articles, we hope to have given you all the information you need about using and maintaining your woodturning equipment before you even get near a lathe – that way you should have enough knowledge to start off safely.
- However, even with the best knowledge and practice, things can go wrong, so it is essential to protect yourself. Even experienced woodturners occasionally have problems. When turning bowls, for example, many a turner has caught a tool edge, causing it to dig in, and the workpiece to shatter. Also, even with the best chucking in the world, a workpiece can work loose. To minimise risk, always wear a full face shield. Protecting your eyes and face is essential. Also, never wear loose clothing, and tie back long hair.
- It is also essential to protect yourself against wood dust. The harmful effects of timber dust are well known, so both ambient and localised extraction are essential. And not just when sanding. When turning seasoned timber, small amounts of dust are released. Obviously, when sanding, this problem is at its worst. In my workshop, I have ambient dust removal, and I always like to wear a Trend airshield when doing any woodwork which puts dust into the air. When sanding on the lathe, I also use a local extraction point, just to make sure. A workshop extraction unit and a hose clamped to the lathe bed are sufficient here. The exception to the above is when turning green timber. Here, there are so few particles released during turning, extraction is not necessary.



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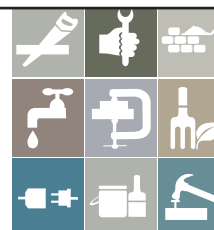
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# Build your own compass

Les Symonds builds a useful compass for marking out bowl blanks.

The cost of commercially prepared woodturning blanks is understandably high, after all, the dealer has to source and season the timber, then convert it into blanks and hold it in stock for sale. This process can result in months, or even years, worth of delays while the dealer waits to recoup their investment, so clearly, undertaking at least some of this procedure yourself will result in financial savings for you.



If you can buy slabbed timber from a local sawmill, then all you need is a means of marking out the circular bowl blanks and a bandsaw on which to cut them. Lots of woodturners keep a stock of simple circles in a range of diameters, cut out of thin sheet materials, so that these can be laid on a balk of timber and drawn around, but a large pair of compasses gives the woodturner more scope, especially in the range of bowl blank sizes that can be marked.

In our example, we will be making a pair of compasses which is capable of using pencils, chalk sticks and felt pens to mark your blanks with. We'll also be looking at an alternative to the traditional compass point, which can sometimes be a problem when marking out the surface of pre-finished materials where a pin-point mark might not be wanted, so we'll also make a soft rubber/plastic centre point for times such as this.

## HEALTH & SAFETY

There are a few points to consider when reducing spindles to small diameters and when parting them off. We often work with the fingers of the hand holding the working end of the tool extended over the workpiece and supporting it from behind, as seen in Step 9, or holding a piece when parting off, as seen in Step 20. Caution must be taken at such times. Ensure that there are no loose, baggy sleeves and that the fingers never touch the timber close to the toolrest – in this case, keep your fingers behind the workpiece!



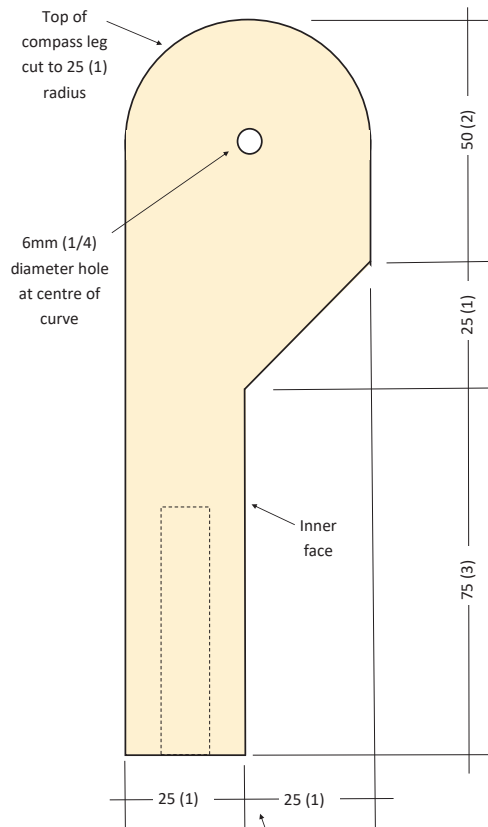
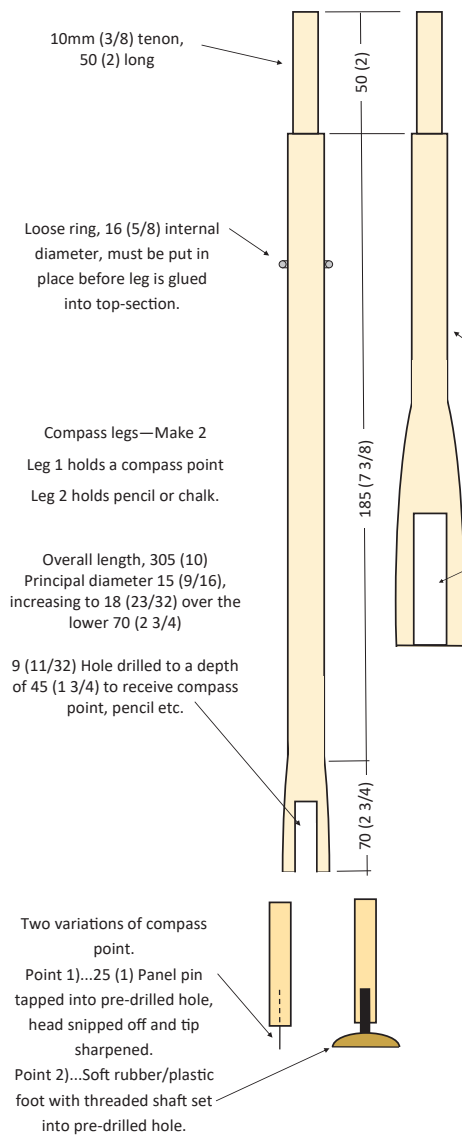
# Plans & equipment

## Materials

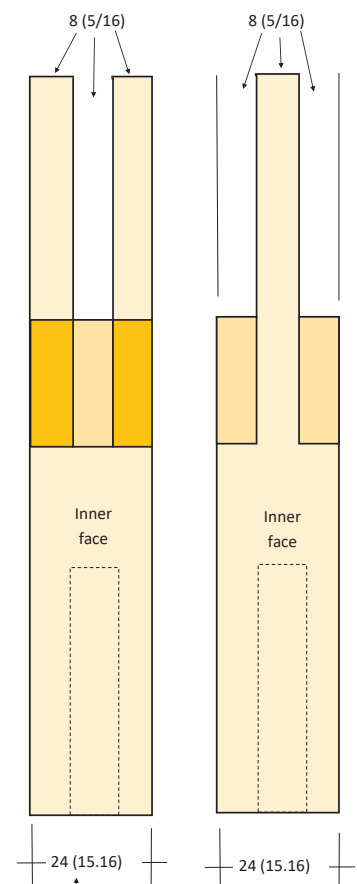
- Beech
- Compass-leg tops 2 @ 150 x 50 x 24mm
- Compass-legs 2 @ 350 x 25 x 25mm
- Extra Compass-leg 1 @ 200 x 25 x 25mm (optional)
- Compass point, 1 @ 75 x 12 x 12mm
- 25mm brass panel pin or similar
- Rubber/plastic foot on threaded stud (optional)
- Abrasives
- Metal rings (two needed), 16mm internal diameter
- Metal ring to fit felt pen (optional)
- Set screw and wingnut for main assembly
- CA and epoxy adhesive as required.

## Tools & equipment

- PPE & RPE
- Lathe with drive and live centres
- Spindle roughing gouge
- Skew chisel
- Parting tool
- Chuck with jaws closing to 20mm diameter
- Jacobs chuck to fit into tailstock
- Work bench with vice
- Hand saw (fine tooth)
- Bench chisel (25mm)
- Drills, 1.5mm, 6mm, 9mm, 10mm
- Thickness callipers
- Junior hacksaw and fine files
- Coping saw



Compass-leg tops — cut two of these.



Central slot cut into top of one piece...

...outer cheeks cut away from top of other piece.



## Did you know?

Welded/soldered metal rings are available through internet auction sites, but it will require a little searching to ensure you obtain the correct size. In our example, 16mm internal diameter rings have been used for the main assembly, but for the optional extra leg used when marking out circles with a felt pen, I have used a split ring (key ring) and these are perfectly acceptable.

**1** Mark the centres quite precisely on the ends of the two main compass legs and place one of them between centres, then use a parting tool to form a tenon to fit your chuck jaws. At this point, do not turn the square section down to a cylinder.

**2** Remove from the lathe, remove the drive centre and fit the chuck to the lathe, setting the chuck tenon into the chuck, but not tightening the chuck jaws until the tailstock is advanced and the live centre engaged in the centre mark left by the drive centre in Step 1. This will ensure good alignment.

**3** With the chuck now tightened, retract the tailstock, remove the live centre and fit a Jacobs chuck with a 9mm drill, then advance it to the workpiece, switch the lathe on (toolrest locked out of the way) and drill a hole into the end of the compass leg to about 50mm depth. A piece of masking tape around the drill makes a good indicator of depth.

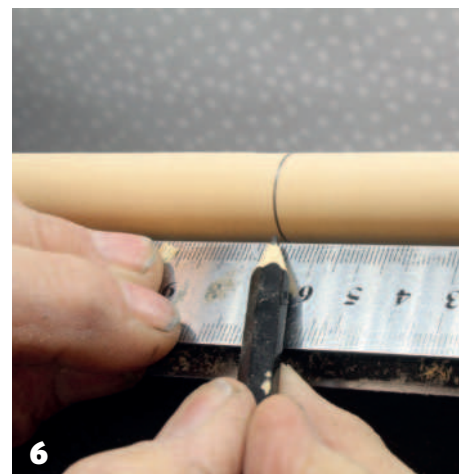
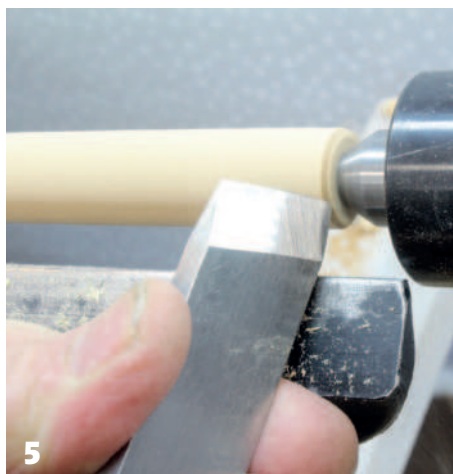
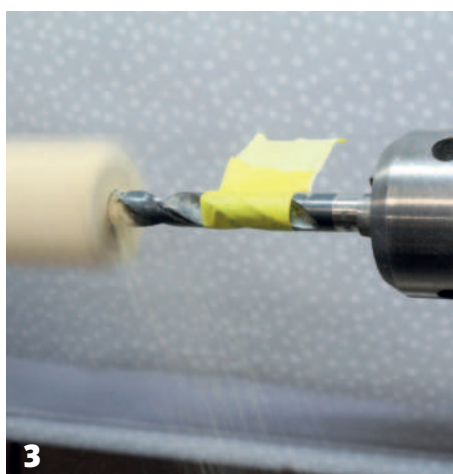
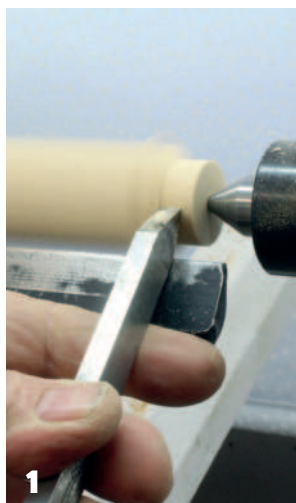
**4** Remove the Jacobs chuck and reinsert the live centre, advancing it to the workpiece and then locking it in position before reducing the workpiece to a cylinder of about 19mm diameter.

**5** Using the toe of a skew chisel, clean up the end grain with a slicing cut, but stop just short of letting the skew touch the live centre – the tiny ring of material left in place will be removed by sanding at a later stage.

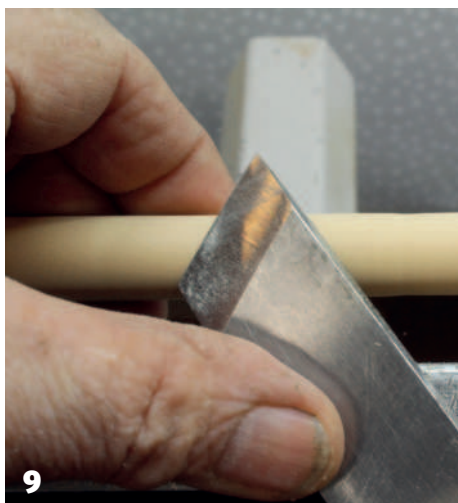
**6** With a steel rule laid flat on the toolrest, make a pencil line around the workpiece at 70mm to the left of the shoulder at the tailstock end. This marks out the bulbous end of the leg, where such items as the pencil or compass point will fit.

**7** Using a parting tool and starting immediately to the left of the pencil line just drawn, cut a shallow groove down to 16mm diameter (1mm over the leg's finished size).

**8** Using a skew chisel, refine the first 70mm of the leg to blend the bulbous end down to the diameter of the rest of the leg. Take the right-hand end down to 18mm and aim for a gentle, slow curve down to the leg.







9



10

**9** Reduce the rest of the leg down to 15mm diameter. Note that the loose ring is 16mm internal diameter, so it is important that you don't leave any bulges along the length, so check the diameter at many points along it.

**10** Abrade the leg down to 240 grit (the toolrest and tailstock should be removed for this operation and then put back into place when abrading is finished) then draw two pencil lines around the leg, one at 255mm and the other at 305mm, both measured from the shoulder at the tailstock end.

**11** Working immediately inside each of these two pencil lines, use a parting tool to reduce the diameter down to 10mm, thus marking out the tenon on the top of the leg. If this operation results in any torn fibres which might later be visible, abrade them away before the next step.



11



12

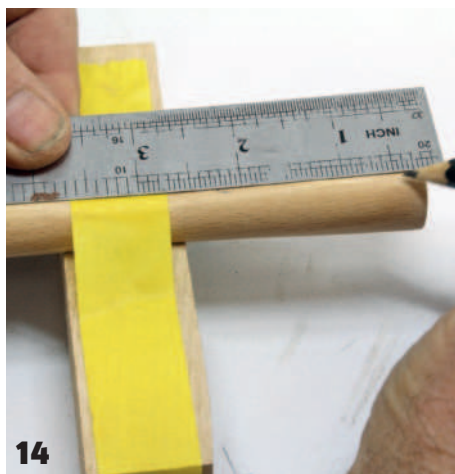
**12** Use a skew chisel or a spindle gouge if you prefer, to reduce the whole of the tenon down to 10mm diameter.

**13** Retract the tailstock and use a parting tool, cutting immediately to the left of the tenon, to part the leg off. If this leaves a tiny central core of torn fibres on the top of the tenon, pare them away with a bench chisel.

**14** At the bottom (bulbous) end of the leg, mark a pencil line along the leg's centreline, from the end shoulder back to about 60mm, then make a single saw cut down along that line. This can be done by hand, but if you choose to use a bandsaw, rest the leg on a pair of V-blocks to ensure its stability before commencing.



13



14

**15** You can now try slipping a metal ring over the top end of the leg, inserting a stick of chalk into the hole at the bottom and then using the ring to clamp the chalk in position. If this doesn't tighten sufficiently, wait until Steps 21 and 22 when this issue will be addressed. Repeat Steps 1 through to 15 for the second leg and for any further legs that you choose to make.

**16** Set the workpiece for the compass point into a chuck and reduce it to 10mm diameter along about 60mm of its length. You shouldn't need to have the tailstock engaged for this task.



15



16



**17** Slip the bottom end of one of the legs on to the workpiece, press it home and then make a pencil mark on the workpiece, about 5mm to the left of the end of the compass leg. Remove the compass leg.

**18** Clean up the end grain, make a shallow centre mark and then drill a 1.5mm hole, about 15mm deep, into the end of the workpiece for your 25mm panel pin to be tapped into.

**19** Tap the panel pin into the hole (you can add a smear of CA adhesive to the pin if you wish, but you will need to work quickly if you do), leaving about 7 or 8mm protruding, then snip the head off the pin and use a small file to shape a point on the end of it. This can be done with the lathe revolving at slow speed, in which case the file should be slowly drawn back and forth to avoid using just one small area of the file's surface.

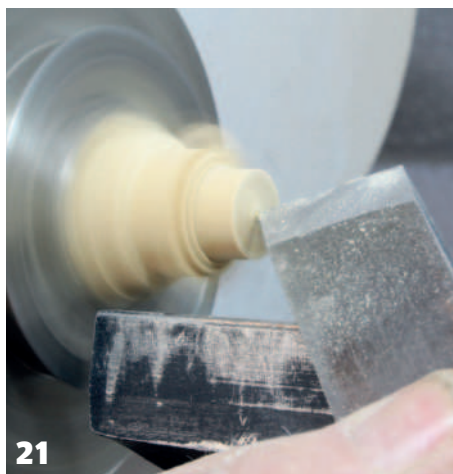
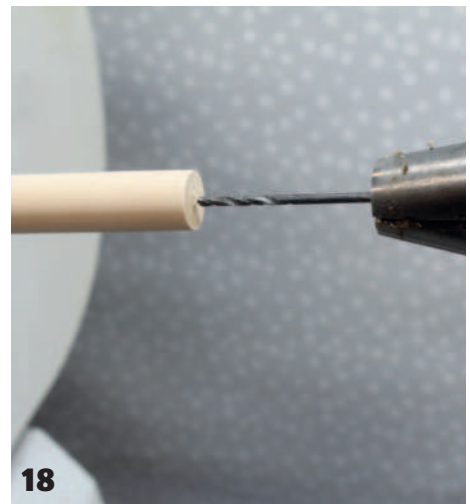
**20** Finally, part off the compass point, but at the beginning of this task, form a small chamfer around the headstock end of the 10mm stem so that it slips more easily into the bottom end of the compass leg.

**21** The following two steps are necessary only if you need to refine the shape of the bulbous ends of the legs to improve the grip of the legs on the pencil, chalk or compass point. In this case, clean up the end grain of the remnant left in the chuck from Step 20.

**22** Using a 9mm drill in a Jacobs chuck set into the tailstock, drill a shallow hole, just 5mm or so in depth, into the timber. This can be used as a drive centre to refine any of the legs that you may need to refine. In which case, slip the leg into place with the tailstock and live centre to support it, using sufficient end pressure from the tailstock to enable work to continue. Refine the leg's shape as you feel necessary and check for tightness on the centre point/chalk etc.

**23** Taking the blank for the tops of the compass legs (in this example, both are cut from a single length of beech), mark out all the relevant details as shown in the drawings. Note that, at this point, the two pieces are identical.

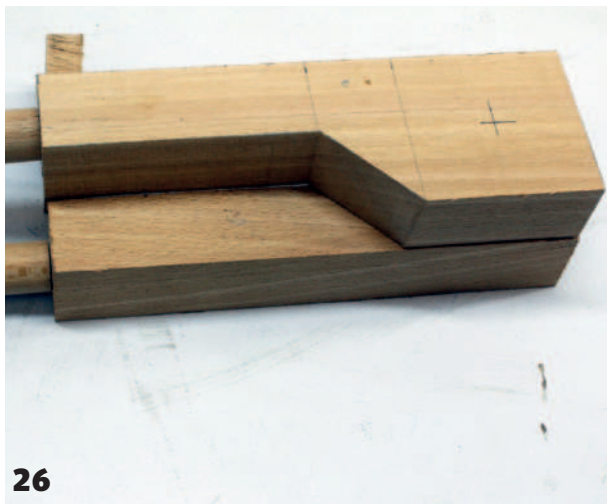
**24** Cut the two pieces out and clean up any saw marks. Don't worry about the top (square) end of each leg at this point as it will be radiused at a later point. Carefully mark the centres on the bottom of each piece and make a physical mark with a bradawl or other suitable centre point.







25



26

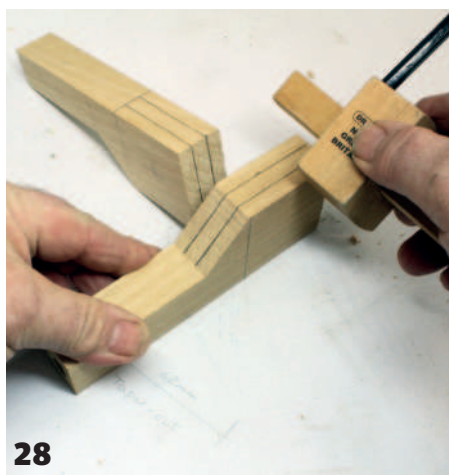
**25** Set each piece in turn into a work vice which is fixed or clamped to a bench, and drill a 10mm hole to a depth of 50mm into each piece. It will make things easier if you drill a smaller hole (about 5mm) first, and then let the larger drill follow the course of this hole.

**26** Lay the two pieces down on the workbench, one on top of the other, just to ensure that they have been marked and cut out correctly, making any amendments now, if necessary.

**27** Note the 45° sloping face of each workpiece. Use a try square to extend pencil lines right around each workpiece, both at the top and at the bottom of this sloping face.



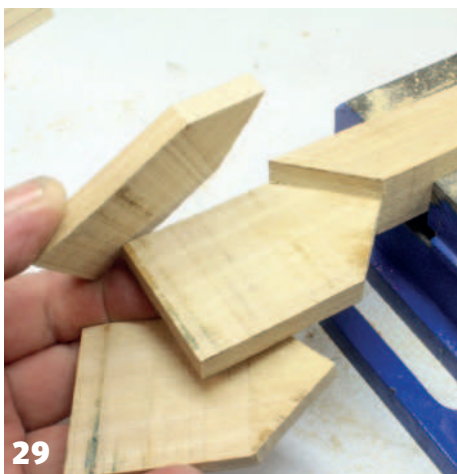
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**28** Use a marking gauge with a pencil set into it to mark two lines right around the upper end of each workpiece (refer to the image). These lines should be 8mm in from the front and back faces. From this point forward, these two identical workpieces will be cut differently, thus making a matching (but not identical) pair – think of them as a pair of gloves!

**29** Taking one of the workpieces, cut down the end grain and across the front and back to remove the two outer cheeks, leaving a central tenon. Refer to the image before starting.



29



30

**30** Taking the other workpiece, similarly cut down the end grain, but then cut away the inner, central section with a coping saw, creating a socket for the tenon cut in the previous step, to slot into. Clean up and abrade the saw cuts, trying the two workpieces for a good fit and making any amendments necessary before progressing.

**31** Assemble the two workpieces and place them in a vice, then drill a 6mm diameter centre hole for a pivot pin. In this case, a 6mm set screw and a knurled nut are being used. Form a radiused end to the top of the unit and then hand-sand to soften all edges.



31



32

**32** Finally, assemble the whole unit, using a smear of two-part epoxy for the leg with the compass point. If you don't plan to use the optional leg for a felt pen, then the pencil/chalk leg could also be glued into place, but if you wish to make them interchangeable, use something like a dome-headed screw, 20mm long, to extend into the leg top such that it passes right through the tenon on the top of the leg. ●



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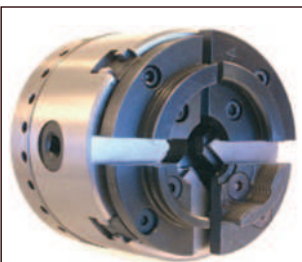
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# Community news

What have you been turning? Please email your images to [WTEditorial@thegmcgroup.com](mailto:WTEditorial@thegmcgroup.com)

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## Lockdown segments

I thought you might like to see some of the segmented bowls I made over lockdown. I used the wedgie sled system on my tablesaw to cut the segments with the saw angled to 20°.

There are 177 pieces in each bowl, and most have floating bottoms, but not all.

*Kind regards, Gerald Ruddick*



---

## Important extraction

I was delighted to see in issue 365 some information and advice on dust extraction, a subject too often ignored.

Many moons ago I took over the job of county adviser for design & technology to a large local authority. In getting to know the patch I visited a school where they were obviously quite keen on woodturning, with a row of four lathes. At that time no one had really paid too much attention to the issue of dust extraction, it was a question of just opening the window! Not enough? Then open it wider!

The head of department was quite a go-ahead lad and had, without any official permission, thought that some 4in Osma-type piping stuck together with blast gates would do the atmosphere a power of good.

I had a chat about the need to appreciate the dangers of static electricity and how essential it was to negate the problem as soon as possible.

I was conscious that my role was 'advisory' and not with any power to insist. And a new boy too! He ignored me and about two weeks later a substantial part of the workshop burnt down.

I repeat this hoary tale so that maybe a few of you will appreciate the essential of an earth cable being attached inside the extraction tube and firmly earthed. An Osma-type system with earth is excellent if you are operating from home, but without earthing everything in sight, it could cost you your home if you neglect the safety aspect.

*Austin V Matthews*





## Turning tulips

I would like to show you my latest lockdown creation – a vase complete with tulips inside.

I have been woodturning for 60 years and have made numerous vases in the past, but never the flowers to go with one.

*Kind regards, Ron Ingall, NW Leics*

## Waddesdon lime

Recently I was fortunate to be gifted some lime from Waddesdon Manor. The tree was over 200 years old and planted by the first Lord Baron Rothschild. It yielded 70 tonnes of wood distributed to artists countrywide.

I made the three bowls (shown bottom left). The Queens Park Centre manager Sarah made her first and the offcuts were used by the carving group.

*Regards, Phil Francis*



## To boldly turn....

During lockdown I, like many other turners have found a little more time to experiment, turning something a bit different than the usual bowls, vases etc. It started when one of my grandkids, said: 'Granddad, can you make me a space ship please?' 'Easy', said I! Not so easy when you have to start from scratch. The design above is based on the based on a popular fictional spaceship, but for copyright reasons, quite a bit different. The main body is made from a 12 x 4in London plane blank, cut down the middle and hollowed out to make room for the electrics, LEDs, battery etc., the rest just bits of scrap timber laying about the workshop. A friend of mine helped with the wiring – beyond me – and all the lights work, going round just like the real thing.

*Best regards, Jim Harris, member of West Sussex Woodturners*



# Kurt's clinic

Kurt Hertzog answers readers' questions



PHOTOGRAPHY BY KURT HERTZOG

**1** Rpm can be deceptive. What is important is surface feet per minute. The larger the turning, the slower the speed since, at the outer diameter, it is really moving **2** When planning your machine needs, always consider what your standard mix of turnings are but also what you may grow into the future

**I'm thinking about upgrading my midi lathe, which runs at 3250rpm, to a full-sized lathe but I'm just not sure if 2000rpm is fast enough.**

The good rule of thumb for safe and effective rpm, as taught by the late Dale Nish, is  $\text{rpm} \times \text{diameter (inches)} = 6000 \text{ to } 9000$ . Obviously, if all your work will be pens and lace bobbins, you'll have good use for a high-rpm machine, although you probably wouldn't need to upsize your lathe if you were mostly doing those types of turnings. If you will be turning work of larger diameter, whether spindle or faceplate, you can run the maths and decide if 2000rpm will be a somewhat limiting factor in your work. Since you are considering upsizing your lathe to full size, you must need the capability for larger, or longer, work. If your typical work is usually greater than 3in in diameter, your 2000rpm might be adequate.







**3** When accepting commission work, be certain that sufficient non-refundable advance monies are collected. If cancelled, will the work be easily sold to others?

**I had a customer place an expensive order with me weeks ago. Their piece is near completion. I just got an email to cancel the order completely. Out the blue with no explanation. They just want a refund. What would you do in this situation?**

There are many issues involved here. I can't answer for you, but I can suggest some things to think about before deciding. First and foremost, did you quote a delivery date and are you meeting it? Do your paperwork, order forms, website, or other manner of custom work document the details of your cancellation policy? Are time limits for cancellation, indicated loss of deposit monies, or other clearly stated penalties indicated for late cancellation? Are they within any of those time limits? Can their order be sold to another customer without too much time or money lost? Are they a good past or potentially future repeat customer? Of course, you may not want them back. I can't answer for you but, in my opinion, unless you stand to lose a lot in the way of sunk cost, be stuck with a likely long-sitting difficult saleable product,

or other big setback, I'd seriously consider accepting their cancellation. Refusal poses the potential trashing you'd receive at their hands among their circles, your current/potential customers, and certainly alienating them forever. Hopefully all of this can be avoided. This good gesture, along with your peace of mind by just walking away, will likely be worth your loss, providing it is minor or bearable. Having a well-documented and understood cancellation policy is always key. Delivery date commitments, along with a large percentage (non-refundable) upfront order deposit on custom work will usually minimise these situations. With no reason from them regarding their cancellation, it is difficult to feel any compassion regarding any change of heart or possible payment difficulties. Of course, if you fail on your side of the order contract, i.e., delivery dates, committed features/function, or other stated deliverable, the monkey is always on your back to make an agreeable compromise or allow full refund. Personally, I'd try to get some explanation for the cancellation just for curiosity's sake and weigh the questions above before I decided.





**4** As a beginner, individual or small group classes on fundamentals is highly recommended. Get those basics properly with over-the-shoulder guidance **5** After you've gathered a sound set of the fundamentals to build upon, you can take advantage of video or remote learning of specialty interests **6** I most often turn my pens on my mid-size lathe. I find that I'll use its speed capability from a few 100 up to around 3000rpm at various stages of work

**I just purchased a lathe and tools and have never turned before. Are online classes reliable or should I find a real-life class to learn everything? Or will YouTube suffice?**

Congratulations on your start in woodturning. I hope your purchase is going to serve your needs as you envision them now. I highly recommend that you get some in-person instruction right at the start. Learning the safe methods of work mounting, speeds and feeds, tool sharpening, and basics of woodturning (ABCs) are key skills to obtain immediately. Without learning them correctly at the beginning, you'll likely engrain bad habits that can range from very dangerous to you, anyone or thing nearby, or your tools/equipment. Seek out a local club. Depending on your location, there is likely one quite nearby that welcomes newcomers. Most will let you visit several times before joining and the joining cost will likely be your best turning investment. Most clubs have teaching programmes, mentor programmes, or other methods to get you started safely and efficiently. Nothing beats having an experienced teacher immediately at hand getting you started safely and with sound fundamentals to build upon. Self-taught turners are like self-taught golfers. Try to unlearn that horrific slice or hook after you've developed it and made it rote! Later in your turning progression, you can add specialty techniques, projects, and tool usage via online, video, or YouTube teaching. This is after you've learned the basics and have a good control of them. The caution I always share regarding online learning is to be cautious. For everyone on the internet who is a very capable and competent turner/teacher, there are as many or more self-professed experts who are detrimental or unsafe. It is imperative that you be able to ferret those people out. With good, safe basic skills, you'll have a far greater ability to see through self-professed experts who are blowing smoke.

**I am just wondering – is 2000rpm fast enough for pen turning?**

My short answer is both yes and no. There are people who make very nice turnings on pole and treadle lathes. Perhaps not usually pens but beautiful turnings. Turning pens at 2000rpm is certainly doable but, in my opinion, less than ideal. I trust you won't be finishing pens with rub and buff, so sharp tools and light touch will let you make pens at 2000rpm max if you must. To expand somewhat, if you are only going to do pens, I think I'd much rather have a lathe capable of higher rpm. My minis say they will spin at 3900 max. That is on the highest pulley ratio at the highest speed control setting. Perhaps I've gone that absolute max rpm, but probably not or rarely. I don't really pay attention to rpm numbers. I turn up the dial to go as fast as is safe, get rid of material quickly, and yet provide a quality cut. That is how I select my speed. It is changed often, using the same methodology, depending on the turning function, whether roughing, detailing, sanding, finishing, or any special need based on the tool being used. I most often turn pens on my 12in lathe, which has a 50-2000 and 100-4000rpm set of pulleys. I am often frustrated when I go to max rpm on the speed dial and can't go as fast as I want because I'm on the slow speed pulleys left from turning something far larger. A move to the high range pulleys for pens, I'm never at the top but I'm certainly well above 2000rpm. If you run Dale Nish's formula as mentioned, a 1/2in pen blank would run between 3000 and 4500 as a maximum safe turning speed. When I sand, the speed goes way, way down, so max speed is never an issue there. If you are going to turn other items with pens only a part of your mix, you'll need to pay attention to the Q&A above and run the maths with your mix. With bowls, platters, lidded boxes, etc. in the range of 3in or more, 2000rpm would be more than serviceable. You could live with a limit of 2000rpm if you only turned pens, but I'm pretty sure you'd be disappointed. You make the call based on your balance of work and their sizes.



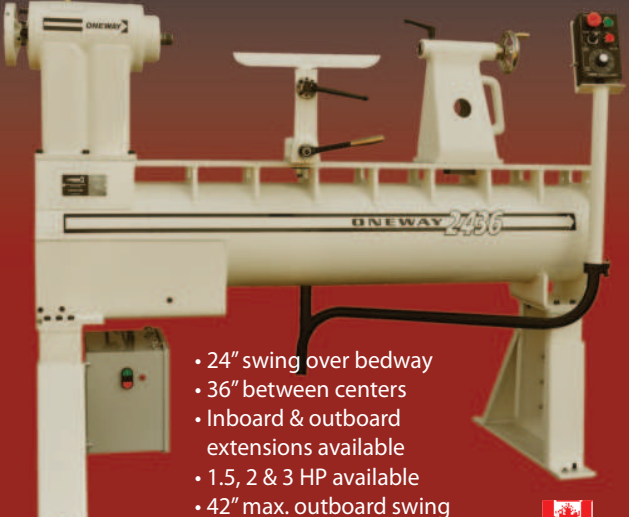


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# Pyrography basics

Put some fire into your creative process with Janice Levi's handy guide to woodburning

---



Pyrography, or 'writing with fire,' is an ancient art of which evidence has been found throughout the world, from ancient China to the Roman Empire, Peru to Egypt and at most points in between. Initially, small metal rods were heated to apply various patterns. In the 20th century when electricity could be used to heat the metal tips, pyrography and woodburning spread in popularity. The art form was even widely advertised in women's magazines as a suitable hobby. Today, woodburning is an enhancement technique favoured by many woodturners, male or female.

**1** Earlier electric models of woodburners resembled soldering irons. Although such machines are still readily available today, they have largely

been replaced by variable temperature machines. When trying to decide which machine would be most useful for your requirements, it's a good idea to look at the pros and cons of each. The earlier, solid-tip burners do not allow for temperature control. Although some models do now include a rheostat in the cord, there are other considerations. The tips are heavy and therefore slower to heat up and cool down. Shading is controlled by how quickly or slowly the area is burned rather than by temperature control. There are, however, some pros for selecting this machine. It is much less expensive than a variable temperature burner. If your preference is for branding rather than artistic burning (which we will discuss later) then this type of machine could also be an excellent choice.





1



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**2** The variable temperature machines feature burning tips that are less dense and therefore heat up and cool down quickly. Because the temperature can be varied, burning patterns ranging from very dark to very light can be accomplished. The variety of burning tips is much greater than with the solid tip woodburner. With most variable temperature machines, the fingers are closer to the burning tip than with a solid tip burner, which allows the artist better control over the pattern to be applied. Variable temperature machines do cost more, but the final choice must be made according to how the artist intends to use the burner most of the time.

**3** Basically, there are two ways of applying a burn pattern – branding and artistic burning. Branding involves holding a tip firmly against the wood until a burned pattern is created. This pattern is generally repeated numerous times to create a pleasing overall effect. Artistic burning involves moving the tip across the surface of the wood to create a pattern. Many artists will combine both techniques within one project.

**4** Because branding is fairly straightforward in its application, I'll concentrate on artistic burning in this article. If you have not already selected a machine, there are several things to consider. Higher wattage machines will cost more but will make branding easier. These machines have a quicker rate of heat recovery. The extra wattage can also be quite useful for artistic burning.

**5** Also look at whether or not the machine only comes with fixed burning tips or replaceable tips. If the tips are fixed, you'll have to buy the entire handpiece/tip for every single tip design you prefer. If replaceable tips are available, you can purchase one handpiece

and numerous tips to fit into it – less cost and less clutter. Also, look at how the tips are replaced. Some brands require tiny screws and a screwdriver, while other brands use a puller to make changing tips easier. Another thing to consider is the length and size of the handpiece. Some are bulky and the fingers are not close to the tip. Others are comfortable in size, but the heat is vented near the fingers. There is hope, however. If happy with the machine but not the handpiece, most new brands come with adapters and the various handpiece brands are interchangeable.





**6** Besides a woodburner, there are a few additional items that will come in handy if you are planning to use pyrography in your turnings. I prefer 4B graphite pencils for drawing straight on to the wood. The 'lead' is softer and does not dent the wood and the marks are easier to remove than 2B pencil lines. Graphite paper will be useful. The most common type is dark grey in colour, but the white is good if patterns are being applied to dark woods. Blue graphite paper lines are the easiest to remove – a slightly damp cloth does the trick.

**7** Other items that are probably already in your arsenal may come in handy – flexible ruler, drafting triangle, French curves, sandpaper, small brass brush, a pocketknife, 91% rubbing alcohol, quality coloured markers, coloured pencils, and spray fixative.

**8** The woods you choose will affect the quality of the burn. Softwoods (basswood, white pine, holly, cherry, poplar) can be burned to a very dark chocolate brown or black. Hardwoods allow for more variety in shading and are good for complex shading projects (maple, mahogany, pear, walnut). Fine-grained woods show very little colour change across the grain and are generally preferred. Open-grained woods like oak and ash are not recommended as the burning tip buries itself into the open grain, creating unsightly blotchy areas.

**9** Lighter-coloured woods allow for more variety in the colour range of burning, while dark-coloured woods result in a richness and depth of tone. Be aware that the burned pattern on dark woods will be more subtle and the entire pattern may be lost if you decide to apply an

oil-based finish to the piece. Finally, end grain does not generally burn as well as cross grain.

**10** There are a few safety issues to consider. Sometimes pyrography involves smoke which is toxic. Set up a fan near your work to draw the smoke away from you. Do not have the fan blow across the burning tip as the air will cool the tip. Make sure the area is properly ventilated. If you are branding, there will be an excess of smoke and it may be necessary to wear a mask or even a respiratory system. Artistic burning does not usually generate much smoke, but ventilation precautions should still be taken. It also helps to hold the handpiece so the heat goes up and not back into the pen and your fingers.

**11** As with any project, it's always wise to practise on waste wood before touching the burner to your beautiful woodturning. For general practise, a simple piece of thin birch plywood will work. The three burning tips that you will probably use most often include a writing tip, a skew, and a shader. There are several sizes of each tip.

**12** The writing tip can be a bent wire but, more recently, the ball tip has shown itself to be a better choice. Most manufacturers sell three sizes of ball tips. The smallest one is good for very hard, dense wood. The medium ball is the real workhorse of the three while the largest size is often used for branding.

**13** The skew looks very much like a woodturner's skew and is excellent for burning straight or nearly straight lines.



## Top tip

### Here are a few helpful hints that will make your woodburning experience better:

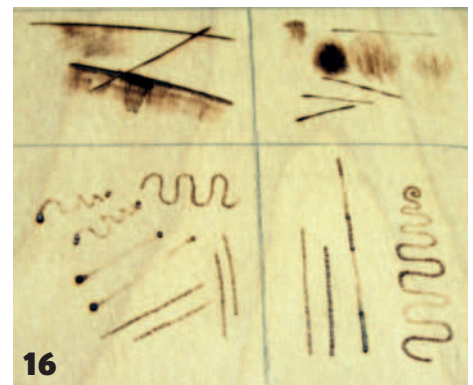
- When making curved lines, use your little finger as a support and rotate your hand around your little finger.
- Turn the work instead of your hand when possible.
- Make yourself as comfortable as possible. Secure the work to be burned at a comfortable height.
- Do not bear down on the pen too much as it may cause the tip to bend. Rather, increase the temperature setting or slow down the movement to get the desired darkness.
- Keep a piece of scrap wood handy and touch the tip to it before touching it to the actual turning. This helps to dissipate the heat and void ugly blotches.
- When shading large areas, use a shader to lay down a very light shade all over the area before then building up the darker areas. The burner reacts differently on raw wood and wood that has been lightly burned.
- You can also use a knife to highlight a burned area or to lighten areas burned too dark.
- From the art world, lay down a thin shadow line on a lower leaf or petal to suggest a shadow being cast by a leaf or petal above. To create the feeling of light striking the upper petal or leaf, use a white coloured pencil to highlight some areas.
- Keep pen tips clean. Carbon builds up on the tips but can be removed with a soft brass brush. Some books say to use sandpaper and you can if using the heavier, solid tip burner, but it can damage the more delicate tips used on variable temperature machines.
- Do not change tips when the pen is hot – you risk damaging the pen's heat element. Turn off the machine to change the tips.
- Store tips so they are protected. If possible, keep them in the protective containers in which they were shipped.
- Use a heavy-duty extension cord if an extension cord is required.
- Turn off the burner when you leave the work area.



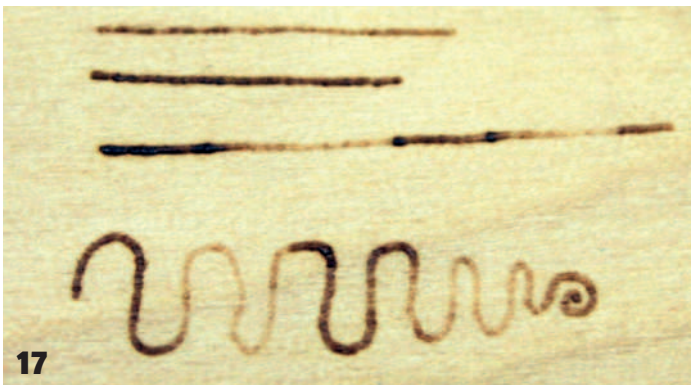
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**14** There are several shaders, including spoon shaders, square-nose shaders, round-nose shaders – all of which work well for most shading projects.

**15** You are now ready to start practising. If you are using a variable temperature woodburner, the depth of the burn can be controlled by the temperature setting, but there are two other variables to consider. The speed at which the tip is moved across the wood also helps determine the darkness of the burn. The faster the darker, the slower the lighter the burn. You can also go over the same line a second or third time to increase the darkness. And finally, a third way to control the burn is by pressure. Press a bit harder and the burn will be darker, less pressure and the burn will be lighter. The novice pyrographer is often tempted to dial up the temperature until the tip is glowing red hot, but artistic burning rarely requires a red-hot tip. Dial back the temperature and rely on speed or pressure for a darker burn. Remember, smoke is toxic.

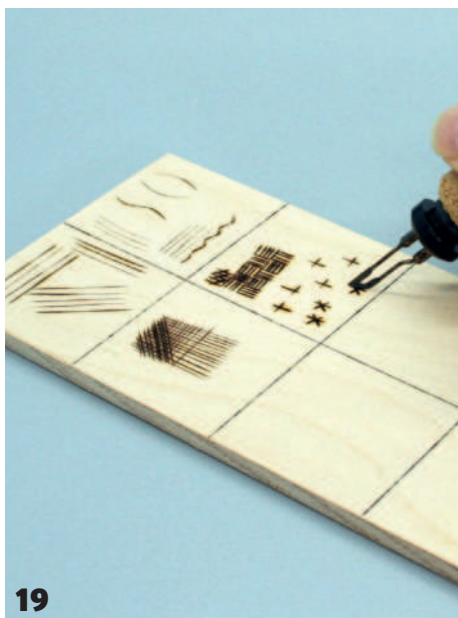
**16** Since most of the turning projects will involve curved lines, start practising with the ball tip first. It feels like holding a pencil, but you have probably already discovered that it does not behave like a pencil.

If you have already tried using the tip to sign your name, you probably discovered that it left a dark blob at the beginning then the burn line almost disappeared completely and finally, it left a small blob at the end.

**17** So, what went wrong? Keep in mind that the heat builds up in the tip and the instant it touches the wood, that heat is dispersed quickly. Visualise a pilot practising touch and goes at the local airport. The plane is slowly guided toward the surface, gently touches down, slows way down, then gently lifts into the air again. That's the same process the artist must use. Gently touch the tip to the wood, slow way down, then gently lift the tip off the surface.

**18** Practise making straight lines then curved lines. You will soon discover that the ball is called a writing tip for a reason – it does a better job at curved lines than straight lines. You can also use the writing tip as a shader. Try stippling. Simply press the tip into the wood for an instant then lift it. Repeat. Repeat... Stippling makes an attractive dark-brown to black background pattern. You can also move the writing tip in tiny circles about 2mm. The tighter the circles, the more solid the background shading becomes.





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**19** The skew is an excellent tip for making straight or nearly straight lines. The pilot's touch and go system works for this tip, too. Gently touch the entire surface of the skew to the wood for a bolder line, draw it along slowly, and then lift. The skew cuts through the grain beautifully whether moved with the grain or against it. Pivot the skew toward the tip for a thinner line. Try rolling the handpiece in your fingers to coax a somewhat curved line with the skew. The skew can be used to create hatch lines and multiple hatch lines for a shading effect. Simply draw parallel lines very close together to form the hatch lines. Add perpendicular and diagonal hatch lines for a darker effect.

**20** There are several shaders available on the market. The spoon shader creates a soft background shadow. The square-nose or round-nose shader can create a similar effect. The shaders, unlike the writing tip or the skew, are generally plopped right down on to the wood – no airplane touch and go needed. An added bonus with the shader is that it can be turned over and used like a skew to draw a straight line. There are several techniques for using the shader. One is to gently move the tip in a tight circle to create a soft, even shadow. For bolder shading, drop the tip of the shader against a burned line then briskly pull it away. The resulting burn is dark up against the line but fading to nothing as it is pulled away from the line.

**21** Many woodturners are also gifted artists and they can use their 4B pencil to draw beautiful designs right on to the wood. For the rest of us, patterns may be the answer and patterns are available everywhere. You

can harvest leaves from your own yard to use. Put them on your copier, size them to suit your turning then draw around them. You can also find patterns for free online as well as in pattern books that can be purchased. Use your copying machine to print a pattern the size you want. If applying the pattern to a flat surface, the process is simple. Place the pattern over the desired area, use blue painter's tape to secure the top edge, slip in a sheet of graphite paper under the pattern and secure the bottom. Now trace through the two thicknesses to leave the pattern on the wood.

**22** To apply the pattern to a curved surface, cut slits every inch or so into the top and the bottom of the pattern. Starting at the top edge and in the centre of the pattern, slightly overlap the two edges of the centre slit and tape it to the curved surface. Move to the next slit and repeat the process. When the top portion of the pattern has been secured to the turning, slip the graphite paper underneath and begin securing the bottom portion of the pattern by overlapping the slits and taping them to the turning. Trace through the two thicknesses. It will be necessary after removing the pattern to use a pencil to line up some of the pattern lines.

**23** Another method for applying a pattern to a curved surface is to wad the pattern into a tight ball. When you begin to un-wad the pattern, you will notice that the paper will be curved. Tape the top portion of the pattern, along with all the wads and crinkles, to the turning. Slide in the graphite paper and then tape the bottom portion of the pattern. Draw through the thicknesses. You will also have to do some touching up with a pencil when the pattern is removed.





**24** Some of you may want to experiment with using patterns printed on a laser printer. The pattern can be transferred to the wood using a Xylene pen. Simply place the pattern print side down on to the surface then saturate the back side of the paper with Xylene. I do not care for this method as it puts too much ink on the wood for my taste and the laser ink cannot be erased, so you have to be sure to burn every little area where the ink appears. Another method I do not care for is to tape the pattern on to the wood then burn through the paper. I like to see exactly where I am burning and how dark or how light. That is not possible when using this method.

**25** If you have a very heavy hand and the graphite is very dark on the wood, erase the majority of it before burning. Use a quality art eraser. After burning the pattern, use a quality eraser to remove any graphite lines that still remain. Occasionally, there will be a brown overburn and this can be removed with 90-100% rubbing alcohol and a soft cloth. If necessary, use 320 grit abrasive to remove any stubborn overburn.

**26** Artistic pyrography can borrow heavily from the art world. Look at paintings to determine where shadows are added for depth. Where the petals of a flower or leaf appear to be raised, a white coloured pencil can add interesting highlights. Simply outlining a pattern is just the beginning. With added shadows, highlights and texture, the piece comes to life.

**27** Every now and then you might make a mistake and burn an area that should not have been burned. Use a sharp knife, such as a pocket or wallpaper knife, and gently scratch the burn line. Scratch a bit to each side of the burn line so as not to create a trench in the wood, then use your abrasives, from 120 up to 320 grit, to smooth out the area.

You can now burn in the correct area, and no one will ever notice the mistake. If there is a great deal of rough texture over the entire burned area, use 600 grit abrasive and lightly sand the area.



## Conclusion

As with woodturning, pyrography requires practise. I still struggle with remembering to gently touch the wood with the burning tip and to slow down when drawing a line or signing my name. Hopefully, this introduction to basic pyrography will pique your interest and you will give it a try. Go online to find numerous woodburning videos, pull out that burner you bought two years ago and start using it. ●



# Cabriole leg

Alan Holtham demonstrates some simple off-centre turning to produce this cabriole-style leg

---

**Although often described as a cabriole leg, the result of this off-centre turning is not strictly a cabriole leg, but rather the nearest approximation you can get using a conventional lathe.**



Proper cabriole legs are more highly shaped and involve a lot of cutting on the bandsaw and then even more handwork. Commercial cabriole legs are made on a copying lathe with variable centres and an array of fixed tooling to form the shape in one pass.

Whatever you want to call it, this type of leg is a common feature of stools and tables, adding a bit of style, even to a more contemporary design and, once you have got the hang of the principle, they are actually very quick to produce.

The technique is quite straightforward, with accurate marking being the key to success, but you do need to be careful with the turning during the off-centre phase, as it generates a lot of vibration and you cannot always see clearly what is happening at the cutting edge.

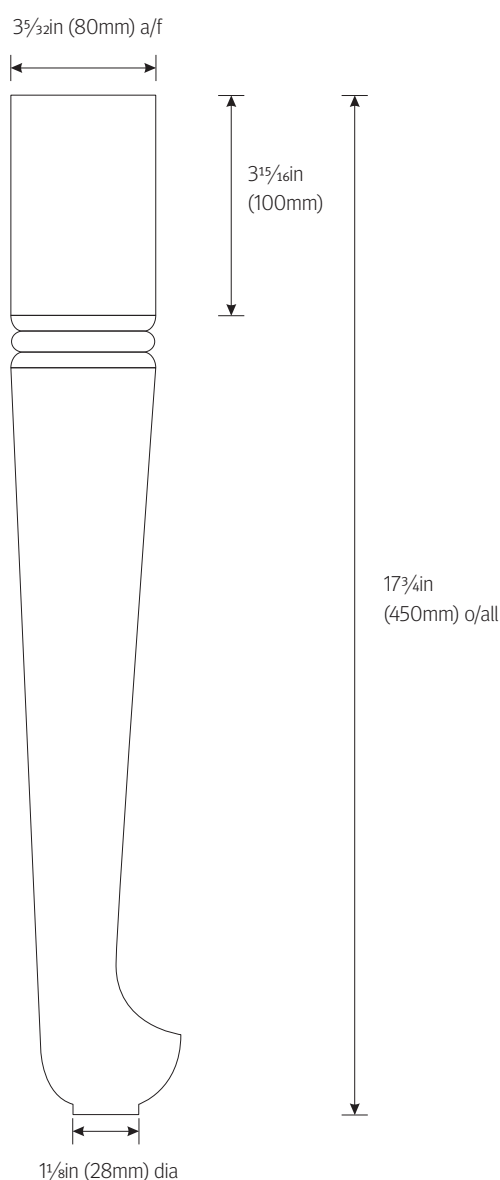


# Plans & equipment



## Tools used

- 1** Parting tool
- 2**  $\frac{3}{8}$ in (9mm) spindle gouge
- 3**  $\frac{3}{4}$ in (19mm) skew chisel
- 4**  $\frac{3}{4}$ in (19mm) roughing gouge



**1**



**3**

**1** First, it is essential to mark out carefully. Draw on the blank where you want the pummel to be formed, marking the line clearly so that it can be seen as the lathe is revolving. Then mark the centre at each end; this must be spot on, or the pummel will be off-centre relative to the turned section. A dedicated centre finder makes this job relatively foolproof.

**2** Drill a small pilot hole on the centre as a start for your drive centre. If you simply bang the centre in without first drilling this pilot hole it usually moves slightly to one side, particularly on coarse-grained timbers, and you will end up with uneven shoulders on the pummel.

**3** Mount the blank carefully on the lathe, making sure the centres remain in place and that the toolrest is adjusted to be clear of the spinning corners. For a  $2\frac{1}{2}$ in (63mm) section blank I would start the lathe at about 2000rpm.



**4** Mount the work between centres, checking that everything is secure and the toolrest is brought up as close as possible. The speed should be about 1500rpm for a piece like this 2½in (63mm) square blank, provided it is reasonably well balanced.

**5** For once the first tool to use is the skew chisel, not the roughing gouge, and I prefer the thinner, oval-section type for this sort of work.

**6** To separate the pommel, make an incision with a skew chisel resting on its back. Approaching the spinning work carefully, make the first cut well into the waste side of the pommel line.

**7** Gradually work back towards the line with each successive cut, making them a little bit deeper each time, until you eventually reach the line.

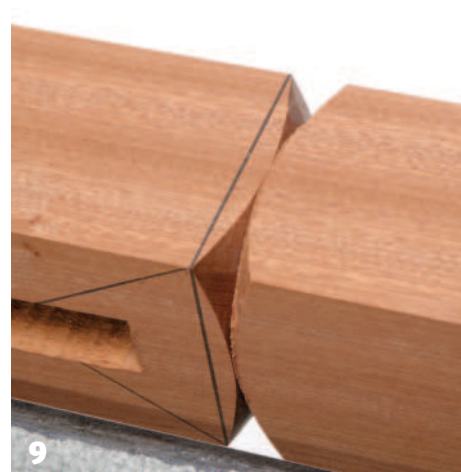
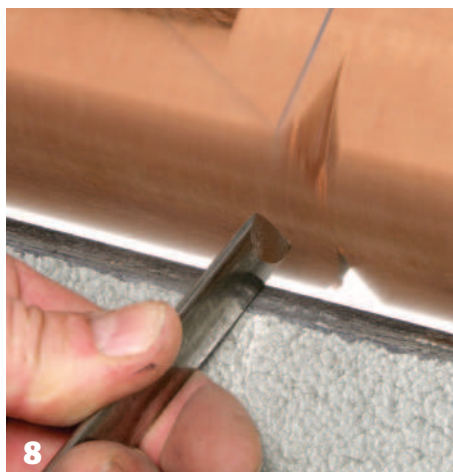
**8** Only take very light cuts, otherwise the chisel will bounce around and you'll end up with a series of ridges on the pommel ends.

**9** Finish off with a single light slicing cut all the way in, to leave a clean face to the pommel ends. A shallow bevel angle ground on the skew is also a great help here if you are struggling.

**10** Once the pommel has been established, you can safely rough the rest of the blank down to a cylinder, but always stop the lathe before moving the toolrest, in case you catch the pommel corners.

**11** Start roughing out from the right-hand end using the gouge with the handle well down to maintain bevel contact. The cut is very intermittent to start with, but you will soon get some bevel support.

**12** Start each successive cut a bit further back to the left each time, cutting down until the cylinder is perfectly round with no flats remaining.







13



14

**13** If you are confident enough you should be able to work up to the pommel shoulder with the gouge rolled right over on its side to cut with the outer wing.

**14** If you are not too happy doing this with the gouge, use the parting tool instead to cut a neat transition from square to round.

**15** Once the corners have been removed, a big gap opens up between the rest and the wood, so move it in carefully to minimise the amount of tool overhang.

**16** Complete any turned detail at the top of the leg, using the skew chisel on its back to get in tight against the shoulders.

**17** Don't overdo the detail, as it will end up slightly off centre when the leg centres are moved. However, this shouldn't show unless you come too far down the leg with it.

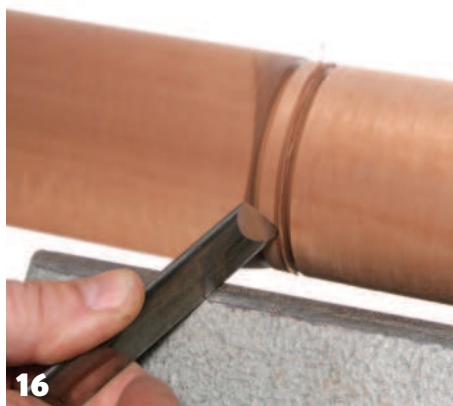
**18** Next, determine the amount of offset for the foot. Usually, the narrow 'ankle' of the foot is half the diameter of the main cylinder, so you need to measure the diameter of the cylinder just below the square section.

**19** Here, the diameter is  $2\frac{1}{2}$ in (63mm). Divide this figure in half to give the ankle diameter, then divide it in half again to give the amount of offset necessary to achieve this. So  $2\frac{1}{2}$ in (63mm)  $\div 2 \div 2 = \frac{5}{8}$ in (15.75mm). For a stool or chair leg where the foot is to point out towards the corner, mark this offset out on the diagonal, measuring away from the centre.

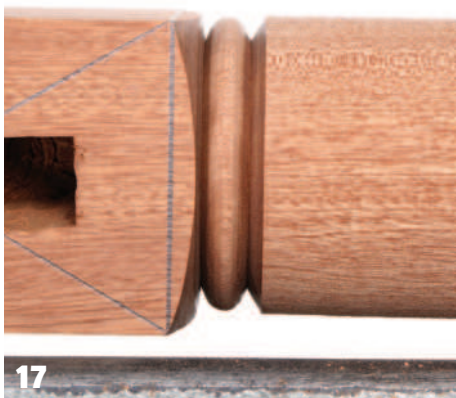
**20** On a long leg this is enough to provide an accurate offset, but on a shorter one offsetting just this one centre will result in the top being slightly eccentric as well. As you want the top part to remain true to the original centres, the trick is to move the top centre slightly in the opposite direction to the bottom one. This makes such a difference to the finished appearance. Determining exactly how much you offset the top is a matter of trial and error; keep making tiny adjustments until it runs more or less true again.



15



16



17



18



19



20

## Top tip

Orientate it correctly relative to the mortices in the top of the leg, or the foot will point the wrong way (it should be on the diagonal that divides the two mortices). Remount the leg on this new centre, making sure it seats accurately.





**21** Before starting the lathe, spin the work by hand to check clearances – with this amount of eccentricity you do not want the work smashing into the toolrest. Check the toolrest for security as well, as the inevitable vibration will try and loosen it.

**22** Set the speed down a notch or two as well to help minimize this vibration. In this case I have reduced it to 950rpm to allow for the imbalance.

**23** Start roughing out again, approaching the wood carefully as you cannot see the extremity very clearly. Aim to reduce the blank down to the diameter based on the new centres, which shows up as a solid ghost image within the blur of the revolving work.

**24** There is very little contact with the tool when you start. This will increase progressively as you cut further in, but hold the tool firmly on the rest to stop it bouncing at the start of the cut.

**25** As you scoop away the foot begins to form, but stop the lathe regularly to see how the shape is developing.

**26** The blank will eventually appear cylindrical again, but there may be a flat left on the back of the leg. You will have to turn down further to get rid of it and achieve the correct ankle diameter.







**27** I use a shallow  $\frac{3}{4}$ in (19mm) roughing gouge for the whole operation. You can form the foot with this as well, as the size and bulk of the gouge provide extra support where the tool overhangs the rest to scoop in the foot. A smaller gouge is likely to vibrate too much with this amount of overhang.

**28** When you are happy with the shape, stay on the 'off-centre' centres and sand the leg thoroughly, using the abrasive wrapped around a block for the straight sections.

**29** Take care near the foot section. Hold the abrasive underneath the revolving work, gradually blending the straight and radiused sections together.



**30** Now return the blank to the two original centres and shape the underside of the foot using a spindle gouge. You can make the toe as heavy as you want, simply by making the foot more bulbous.

**31** Do any shaping work at the top of the leg as well, then finally sand these centres again, to blend the two profiles.

**32** The finished leg. It is not a true cabriole, but it is the nearest you will get on a standard lathe.



### Top tip

You might need to do a bit of final hand sanding with the lathe stationary to finish the transition area. ●





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# Turn your scraps into something special

Mark Palma suggests some practical uses for your offcuts

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We have all finished a project and wondered what to do with the offcuts and scraps. Store them? Toss them? Think of giving (or selling) someone a piece of furniture and adding that much more to the value proposition by making something special that gets used in daily life. So, let's sort out those scraps and make some small bowls and plates. We'll add a food-safe finish and give someone something that can knock about the kitchen and remind the recipient of your skills as a craftsperson. This project can be done on any size lathe and requires only a few basic tools.

## Sorting, marking and preparing the stock

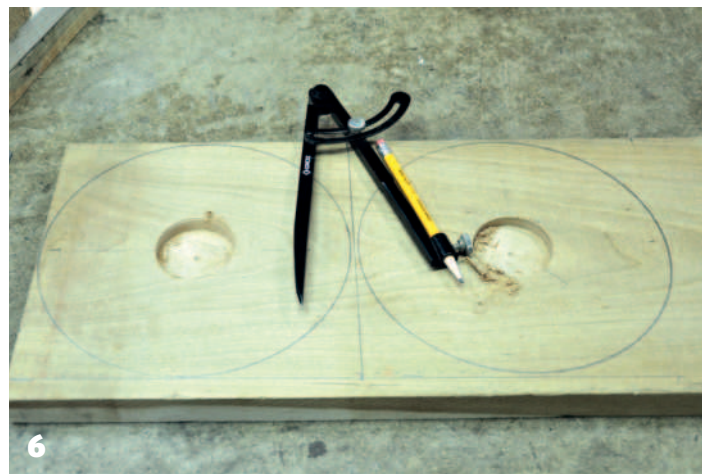
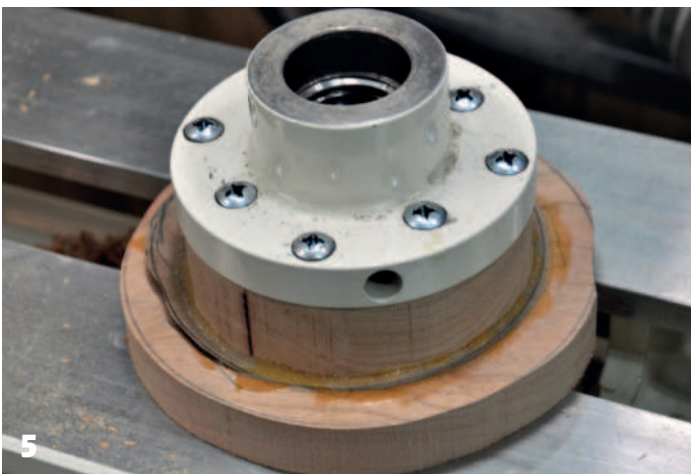
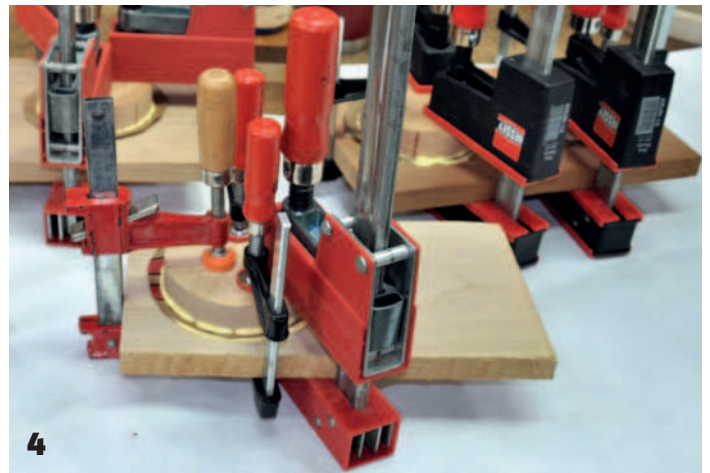
There's usually a reason boards are set aside, such as wild grain, odd colour patterns, knots and voids. Although often unsuitable for furniture, they may make beautiful turned plates and small bowls. The very characteristics that work against them on a table top may just turn

an ordinary piece of wood into something extraordinary. So we sort through the wood looking at how to centre or highlight those features we ordinarily hide (**see photo 1**). A ruler and a compass work to lay out ideas. A clear plastic disc (cut from a piece of packaging or transparency stock) in your desired diameter lets you view the grain through the plastic.

Sometimes the biggest piece isn't the best, so size your pieces focusing on grain and character, not maximum yield. Plates of 5-7in are popular for snacks and appetisers, while plates of 9-11in are popular for full meals. Cull out any splits, cracks or bad knots – don't risk your personal safety with questionable timber. Do not rush this step as it will pay dividends in the final piece. If you are gluing up smaller stock to make larger pieces, use a water-resistant glue, good joining and clamping techniques for safety (**see photo 2**).

After the proposed piece(s) are laid out on the boards, decide on your





**1** Let's find something useful in this pile of scraps **2** Work around knots, splits and bad areas to find the best grain pattern **3** For faceplate turning, make a sandwich with brown paper separating the work and sacrificial disc **4** Use adequate clamping pressure and let faceplate glue-up dry overnight before screwing the faceplate on to the work **5** Finished faceplate assembly ready for the lathe **6** For drilled recesses, clamp carefully when drilling and lay out cut line after recess is drilled

lathe mounting strategy before cutting out the stock. We show two different methods here. A very traditional method is to use a sacrificial glue block, a piece of brown paper bag and wood glue. Cut a glue block a little larger than your faceplate. Centre it on the blank – an extra compass line just larger than your glue block is a big help (see photo 3). Make a 'sandwich' by gluing the paper between the glue block and the side of the blank you plan to make the top of your finished work, clamp and let dry overnight. Then use your compass to draw a circle from the centre of the glue block and cut out the disk. This compensates for any small shifting of the disc in the glue-up process (see photo 4). Use No.10 or 12 sheet metal screws (do not use drywall or hardened screws) and securely mount the work on the faceplate. To remove the glue block after turning the outside, slide a sharp woodworking chisel between the glue block and the blank. A tap with a hammer will tear

the brown paper loose and allow you to turn the inside (see photo 5).

A second method is to make a shallow hole in the top of the blank (what will be the inside of your plate or bowl) with a Forstner bit that is large enough for your chuck to expand into and grasp the blank. On the chuck shown a 2in bit works perfectly. Clamp the work securely when you drill this hole for safety, that is why we recommend making the hole before you cut a disc as it is generally easier to more securely clamp a straight-sided piece of wood. The depth of the hole is around  $\frac{3}{8}$ in, but remember to take the point of the Forstner bit into account when determining your drilling depth so that you can completely remove that indentation from the finished work. The indentation is used by your compass to make the circle you then cut out to make the blank. This circle does not need to be exact – a jigsaw or bandsaw works well (see photo 6).



## HEALTH & SAFETY

### Turning safely

Wearing gloves at the lathe is usually considered a potential hazard, and not one that is advised. I wear them for two reasons: I was turning very dry wood and the chips are abrasive on the hands, and, more importantly, I suffer with arthritis in my hands, and wearing the fingerless gloves allows me to continue working at the lathe for longer without pain. There are, however, a number of reasons why gloves might be considered appropriate.

- Cold workshop
- Preventing 'chip burn' from abrasive shavings hitting the hands
- Arthritis – hands may be cold even in a heated environment and cold hands are unsafe workers
- Dermatological condition that would be exacerbated by contact with wood

- Gloves may be required to prevent cuts and nicks for those on blood-thinning drugs

#### Alternatives to gloves for the above reasons might be:

- Organise some form of safe local heat to the lathe and allow the workshop to warm up prior to working.
- Use duct tape or elastic self-adhesive bandage across the back of the hand. If it becomes caught it will pull off rather than drag the hand into the rotating lathe.
- Pocket warmers – with the lathe stopped, hands can be warmed periodically
- Barrier creams or thin nitrile gloves with a low rip factor. 'Tearaway' gloves are sold but opinions of their effectiveness vary.
- Have haemostatic gauze close to hand in the workshop to treat small wounds in the eventuality.

First, treat the situation as you ought to treat any potential danger in the workshop: do a risk assessment. What are the potential dangers and how might you mitigate against those outcomes?

The primary risk is that gloves become caught in the revolving workpiece or chuck, leading to anything from minor injury to loss of digits and other trauma. The only certain way to avoid this is not to wear gloves. If, for whatever reason(s) you decide that this risk is worth taking then the next best mitigation is to ensure that your gloved hand never comes into contact with the rotating work or chuck. And this will require concentration and diligence.

Whatever your reasons for deciding to wear gloves, you must remember not to do so complacently. There is a very real, and potentially life-changing, danger to be appreciated before taking that step.



**7** We have work ahead of us – the scrap pile yielded a lot of pieces **8** True up the edge to bring work to round and establish approximate diameter **9** Remove excess wood with step cuts and true up the bottom **10** Mark out the tenon with a compass

In this project we took a pile of offcuts to see what would emerge. The before and after pictures showed that a relatively small pile of timber will yield a large quantity of gifts. However, whether you make one piece or a large assortment, the technique is the same and fairly straightforward.

Have a plan in your head before you start as you do not have much extra timber to play with. Plates and small bowls work well with simple

shapes. On a bowl the foot should be around a  $\frac{1}{3}$  to  $\frac{1}{2}$  of total diameter. On a plate, 50-60% may make for better stability (see photo 7).

At a medium speed, bring the work to round with a  $\frac{3}{8}$ in bowl gouge (measured based on the diameter of the steel, not the width of the flute). true up the outside and then remove some of the excess timber below your largest diameter as you approach the bottom (see photo 8).





**11** Remove excess wood and shape outside of your work **12** Rotate bowl gouge to lightly use wing to carefully shear scrape the piece to final shape **13** Power and hand sand outside. Note some scratches remain that need to be removed in this picture **14** Finished outside of a plate **15** A small, well-cut tenon will hold the work and become the finished bottom **16** Face off the work and establish your rim

A series of step cuts with the gouge can take the bottom corner off and start to get some general shape. Shut off the lathe, reposition the toolrest to the bottom and take as little timber off the bottom as you can to get the bottom running true (see photo 9). Now use a compass to mark out the diameter of your chuck (do not let the right point of the compass touch the wood, so hold it back  $\frac{1}{4}$ in from the work at all times).

Use a sharp parting tool to just cut outside the line you have drawn and remove the timber outside this area to gain some room to work on refining the tenon. Again, remove as little wood as possible. A dovetail tenon, if properly cut, will hold in the chuck with only  $\frac{1}{8}$ in in total height. Stop the lathe and move the toolrest up so that a skew on its side is just at centre. Cut a small recess for the dovetail (see photo 10).

Reposition the toolrest so that it is positioned for your bowl gouge to turn the outside. As these are small, thin pieces, use light cuts with this smaller gouge (see photo 11). A heavy hand will not suit the project well. Shape the outside of the piece and refine it as necessary with a shear scraper. Make sure your tool is very sharp as plates will flex under heavy cutting pressure, particularly on larger diameter pieces as you approach the rim (see photo 12).

Shut off the lathe and critically review your work. Fix any bumps or tear-out (see photo 13), then sand carefully through 400 grit. Stop the lathe frequently and fix any radial scratches by hand sanding the area. Do your best work – you are making an heirloom! (see photo 14).

### Turning the inside of your bowl or plate

Carefully mount your tenon in your dovetail chuck. In the pictures a set of No.2 dovetail jaws was used for the smaller pieces and No.3 dovetail jaws for the larger plates. If you have cut your tenon well, despite its small size the work will be held firmly. Do not over-tighten the tenon (see photo 15).

Properly position your toolrest, spin the work by hand to make sure everything is correct and then start the lathe on low rpm and bring it up to medium speed after you confirm all is as it should be. Using your freshly sharpened gouge take light cuts to establish a rim. Do not take heavy cuts or you will rip the tenon right out of the chuck. Next, start to remove some of the excess from the inside to excavate the extra timber from the inside of your bowl or plate (see photo 16).





**17** Refine the outer section of a plate with a scraper – note the wood towards the centre of the plate remains in place to dampen vibration **18** Power sand with your first grit to remove any tear-out or small bumps **19** A finished piece right off the lathe – note shavings off sharp tools **20** Apply a food-safe oil finish and allow to dry – note this is an additive project **21** The final yield from our pile of scraps

With plates it is sometimes helpful to leave the centre  $\frac{1}{2}$  of the excess wood in place until you establish final wall thickness on the outer inch or two. A thick radius profiled scraper (with a fresh edge) was used to refine the final shape of the outer sections of the plates and to take the last pass or two to remove any humps or bumps. Make sure the rim isn't razor sharp, a small radius can be cut (or sanded) to make for a durable edge.

For plates and small bowls meant to knock around a kitchen a  $\frac{3}{16}$ – $\frac{1}{4}$ in wall thickness works well. Keep measuring as you proceed towards the centre of your work so you are maintaining uniform wall thickness. As it is hard to put timber back on, go slowly, stop the lathe and measure and get it right. A 1mm thicker bottom often works well to add some weight so the bowl or plate feels right and is stronger. As mentioned, take a final pass or two with a freshly sharpened scraper to make sure the interior is smooth and has no bumps. As with the outside, get this right and fix any tear-out, bumps or other turning issues. Do not feel bad if it takes a few tries to get a plate right. This is an advantage of starting with scraps, there is no shame in throwing away a failed piece. Keep practising and after a few pieces you will master the techniques (see photo 17).

Sand the piece. Power sanding the first grit often helps. Turn your lathe (and drill) speed way down to 250-400rpm, make sure your cord is safely away from the spinning work and gently touch a fresh sanding disc

to the work. To see if you are pushing too hard, lift the drill away from the work while it is running (see photo 18). If the rpm increases when removed from the work, you are pushing too hard. Sand through the grits (either by power or by hand). Stop between grits and look for areas that need more attention or for any radial scratches you need to hand sand out. The goal when you finish at 400 grit is a flawless interior (see photo 19).

## Finishing your pieces

Avoid the temptation to put a shiny finish on these pieces. If you are trying to make usable pieces, choose a food-safe oil finish you like. In my shop I make small batches of an oil and wax finish by taking one part beeswax and three parts walnut oil. This is melted in jelly jars partially submerged in hot, but not boiling, water (beeswax melts at around 62-64°C). To use the finish, I set it in a pan of hot water for 10 minutes to soften it and wipe it on with a soft clean cotton rag. An oil finish is repairable by the recipient, just tell them to not put the pieces in the dishwasher or soak them in dish water (see photos 20 & 21).

This is not only a great project to use up some scraps, but also to reconnect with the lathe and hone your turning skills. There is nothing like eating lunch off a plate that was turned in your shop. ●



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# Offset square bowl

Emiliano Achaval learns from Stuart Batty how to create the thinnest of wings for this project

**As president of the Maui Woodturners Association, a chapter club of the AAW, I get to host all travelling professional artists who come through Hawaii to teach on the islands. After almost two years without a single in-person meeting, I was pleased to host one of the most famous instructor-woodturners, Stuart Peter Batty.**



We had six days of hands-on classes at my studio and one club demo. We saved a few days to have fun, and we had the opportunity to work on a few articles for the magazine. I was intrigued by one of Stuart's signature pieces, his winged offset bowl. I have made a lot of those, but his have wings that are barely  $\frac{1}{8}$ in thick. And he told me he would show

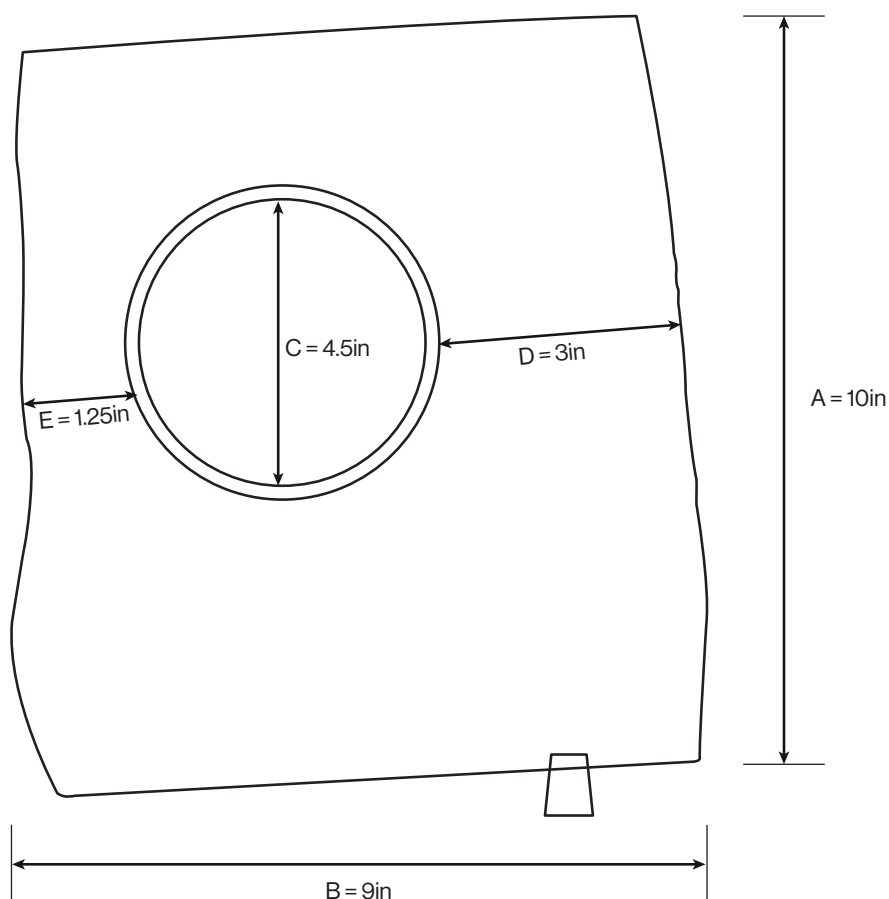
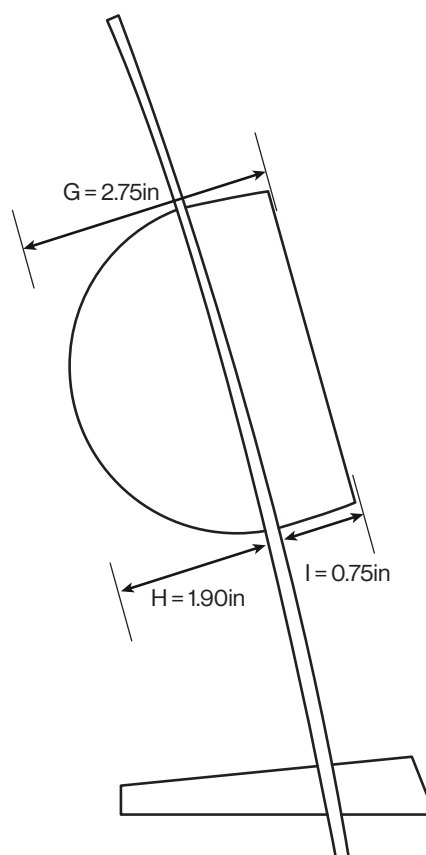
me how to cut the wings thin, without any torn grain. When you cut the wings with a bowl gouge, you always end up with a lot of chipping in one of them. So to say that I was curious to see him in action was an understatement. I hope you enjoy reading the article and learning from Stu as much as I did. We hope to motivate you enough to give it a try.



# Plans & equipment

## Tools & equipment

- PPE & RPE as appropriate
- $\frac{5}{8}$ in bowl gouge
- $\frac{3}{4}$ in bottom bowl gouge with  $60^\circ$  bevel
- $1\frac{1}{4}$ in wide x  $\frac{1}{2}$ in negative rake scraper with  $22.5^\circ$  bevels
- $\frac{3}{8}$ in square beading and parting tool
- Recess tool with  $15^\circ$  angle to match the Vicmarc jaws
- Painters' masking tape
- Extra piece of wood for the jam chuck
- Abrasives down to 320 grit
- Danish oil





**1** Preferably, start with half a log. When you prepare it, try to cut off the pith. Start with the blank balanced between centres, and centred as much as possible. Make the face flat with some slice cuts using a bowl gouge.

**2** Mark a circle a little bigger than the finished bowl. Start bringing down some of the mass from the wing. Offsetting it later will make it smaller. Slice cuts with a bowl gouge, moving the tool back and forth, is the best way to remove the bulk of the wood.

**3** Turn the blank around, still between centres. Bring down some of the wings on the other side with a bowl gouge, or a negative rake scraper (NRS).

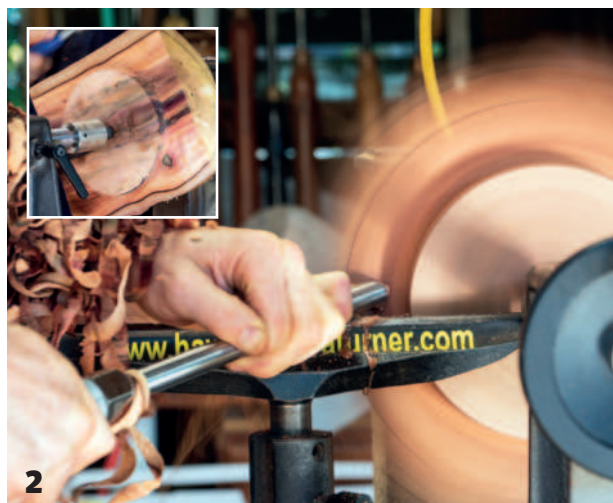
**4** You will offset the square-edge bowl twice during turning it. Start by moving the centre  $\frac{1}{2}$ in diagonally. It will offset by 1in. Start turning down the wings on the top side. Flip it, position it precisely in the centre holes and do the other side.

**5** Notice here how the bowl gets a bit smaller and offset. This reduction will happen twice again in the next step, so it is worth keeping this in mind when initially marking the dimension at the first stage; allow enough of a diameter to provide for the three-stage reduction.

**6** You are now going to offset the blank for a second time. Again, move diagonally about  $\frac{1}{2}$ in. Take a look at the flute position, slicing action by the lower wing. Be careful not to close it too much. If you do, you will be scraping, a shear scrape that would dull the tool fast. If you close it even more, you could have a catch.

**7** Now you will offset the blank for a third and final time. Take a look at the picture: number one is the original centre point. You are now on number 3. You can see the lines of the bowl from the prior offsetting centres.

**8** Before making the wings any thinner, you will start shaping the lower part of the bowl. You can also take some of the wings down with the bowl gouge. The faster the lathe speed, the easier it would be to take light cuts. Speed up the lathe within safety parameters and your skill level. Here the speed is about 1400rpm.







9



10

**9** An important step: you need to make a spigot for the chuck. Make sure you have a good fit. You can test that with one spare jaw if you have one in a drawer, or since you are in between centres, use the actual chuck.

**10** Put the winged bowl in the chuck. Notice the width of the wings is still thick, and how the top and bottom of the bowl match in size. Keep the tailstock in place for safety reasons.



11



12

**11** Start with a bowl gouge, keep working on the wings and carefully turn the upper part of the bowl taller as you go along. This is the part where things get interesting. Using a negative rake scraper makes for an easier job, and you won't have one corner chipping away. You have the piece securely in the chuck and also have the tailstock for additional support. A higher lathe speed here helps make smooth cuts.

**12** To get a good, crisp intersection where the bowl meets the wing, you need to use a small parting and beading tool. When you sharpen it, you also get a small burr on the side. Gently use it as a negative rake scraper, first on the sidewall, then on the wing.



13



14

**13** Now you need to make a recess in the bowl to work the back of the piece. The recess is effectively where the bowl interior will eventually be. Make the recess parallel-sided and deep enough to accommodate the chuck jaws in expansion mode.

**14** Turn it around and put it in the chuck. Do not over-tighten the chuck. When used in expansion mode there is a real danger of splitting the form. Once again, for safety, you will bring up the tailstock.



15



16

**15** Now you have the piece on a recess and can make the wings thinner with a negative rake scraper. You can take some of the bulk with a bowl gouge, but stop and use the NRS when you have vibration. Remember that using an NRS is like using an abrasive. You are cutting with a burr that will last 20 to 30 seconds at best. Sharpen often, make sure you don't scrape once the burr is gone, or you will tear the grain and have to start all over again. Take a look at the quality of the cut with a fresh burr.

**16** Like you did on the top, you need a parting and beading tool to end up with a nice, crisp intersection where the bowl meets the wing. Again, bear in mind that you are using it as a negative rake scraper and the burr lasts 20 to 30 seconds. Finish making the wings thin with a wider NRS.



## Did you know?

This is the small parting and beading tool that Stuart Batty likes to use to get both sides cut clean where the bowl meets the wings. Both sides are sharpened at 22.5°. You can almost see the tiny burrs raised on the main edge and the sides.



**17** Now you have completed the wings on both sides. You have crisp and clean edges. Turn the piece around and grab it by the tenon to finish hollowing out the inside of the small bowl. To remove the bulk of it, a bowl gouge would be the most efficient tool.

**18** Stuart uses a bottom bowl gouge with a 60° bevel to finish the bottom. This tool leaves a glossy, perfectly cut surface that needs little sanding. If you have one, use it to finish the inside of the bowl.

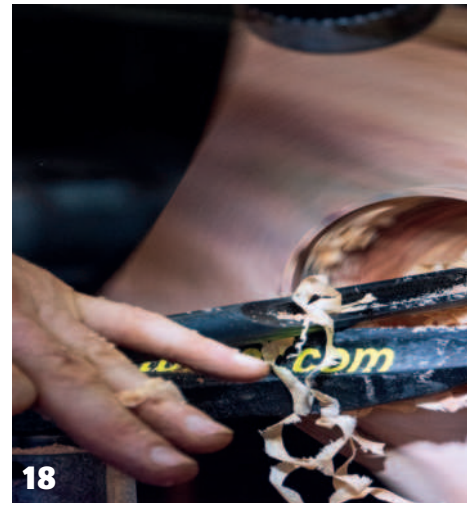
**19** From a scrap piece of wood, turn a jam chuck to fit snugly into the opening of the bowl so you can finish the bottom. Keep the tailstock for support and extra safety.

**20** Use a combination of a bowl gouge and an NRS to finish shaping the bowl and taking the tenon out.

**21** For safety reasons, when the time comes to move the tailstock away so you can finish the bottom, tape where the bowl and jam chuck meet.

**22** You have completed the bowl without tailstock support to allow access to the bottom. Take the small nub left by the live centre off, and clean up all tool marks with an NRS. Be careful when sanding the thin wings, you will have to do this gently where the wood is continuous, but where the wing becomes intermittent stop the lathe and abrade by hand.

**23** Various angles of the finished piece. •





# NEXT ISSUE

WT368 on sale 24th March 2022

## We welcome Pat Carroll as the Guest Editor of WT368



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commission in huon pine**



**Turn Cedric Boyns's fun  
chicken & egg box for Easter**



**Make perfectly matching bowls with James Duxbury**

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# Women in Woodturning: Julie Hagan

**Writer Janice Elizabeth Berte dedicates this look at woodturner Julie Hagan and her work to our former Editor, Mark Baker**

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Julie Hagan has only been woodturning since 2016 after taking a class, but since then she has turned her love for crafting wood into a business. After attending many art and craft shows with her family, Julie would always buy wooden bowls, but thought that she could make these bowls and lots more. She then found a woodturning class that excited her so much, which landed her a lathe from her husband and children on her birthday. When she received it, she said: 'Oh my gosh, this machine is so big and seems so dangerous.' But that did not deter her, and onward she went into the craft of woodturning.

## **Business name**

Many years ago, Julie lost her daughter when she was nine months pregnant, and that was extremely hard for her. She was going to name her child Grace, and also wanted to use the term 'turning' to indicate the type of woodworking, so she and her family thought Turning Grace would be the perfect name for the business.

## **Her pieces**

Her pieces include: wine stoppers, coffee scoops, ice cream scoops, ice scoops, pizza cutters and much more. Julie said: 'When making these functional and practical items, I put so much care and detail into these pieces.' One of her favourite types of wood came from a 180-year-old log cabin. This property was bought in 1804, was part of the Federal Homestead Act and was owned by her friend's family. As time went on, the home deteriorated and Julie took one of the 200-year-old logs and made a special memento for her friend's father.







PHOTOGRAPHS BY JANICE ELIZABETH BERTÉ



## Materials for woodturning

Julie uses a wide variety of hardwoods and she dabbled in deer antlers as well as copper inlays to make things pop. In addition to that, she uses acrylic with pine cones from her neighbourhood, and that combination can become quite striking. Many of the materials can be expensive, but she doesn't let that prevent her since Julie's goal is make beautiful products that everyone can enjoy.

## Making the items

As the creation process starts in making a one-of-a-kind piece, she does have, on occasion, help from her husband, who assists her in creating unique spalted wood and acrylic resin composites. 'Together we pour coloured resin with unique wood pieces. For example, when fishing in the Bahamas, we harvested pieces of mangrove and later made items that resembled the islands themselves. The wood represented the land, and aqua-blue mimicked the saltwater flats, and they will last forever.'

## Time involved

When a piece is being made, Julie cannot be specific as to the time involved due to the curing or utilising fungi to spalt wood, which can take up to a year. The wood has to be stabilised to keep it hard and durable, and that also can take weeks to months. There are too many steps and processes to truly give someone an exact time estimate.

## Women in woodturning

Woodturning as a general rule has been a male-dominated hobby, but there are some women who have been quite successful, and Julie is quite comfortable with a chop saw, drill press, bandsaw and a lathe, and she says: 'Hell hath no fury like a woman with power tools; women can do whatever men can do.'

## Her inspiration

Her artist friend, Ellen McHale of Nelley Kelley Designs, has pushed Julie into starting this business and keeps her motivated with new ideas and business connections.

[www.turninggrace.com](http://www.turninggrace.com)

## About the author

Janice Elizabeth Berte is a long-time writer and author based in Massachusetts. She asked: 'Please dedicate this piece to Mark Baker from me. I spoke to him many times when he was sick and wished he had come to Boston, Massachusetts, where there are some of the most world-renowned hospitals in the world. His health did not allow this to happen, but know that he is in my thoughts, and prayers to all of you and his family.'

**Website:** [janiceberte.com](http://janiceberte.com) **Email address:** [jberte@verizon.net](mailto:jberte@verizon.net)



# Interactive sculpture with multiple offsets

Nick Simpson uses turning to explore the relationship between a golden spiral and its background

**This interactive (or moveable) sculpture is composed of two sets of mirror-image panels which can be placed in any order or orientation. Although displayed on an easel, they could be placed on a frame to hang on a wall. The basic unit is a coloured sycamore panel which has a geometric pattern of 'mini-bowls' turned into its face.**



PHOTOGRAPHS BY NICK SIMPSON

The project developed while I was exploring the visual relationships between spiral forms and their backgrounds. This article applies that concept to a Fibonacci spiral delineated by several 'mini-bowls' against the background of a so-called 'golden rectangle'.

The Fibonacci, or 'golden', spiral has the special property such that for every  $\frac{1}{4}$  turn ( $90^\circ$  or  $\pi/2$  in radians), the distance from the centre of the spiral increases by the golden ratio  $\phi = 1.6180$ . I started with a golden spiral and explored several backgrounds, both rectangular and elliptical, and found that the most aesthetically pleasing was a background with the same mathematical proportions as the spiral ( $\phi$ ).

The template shown is the result of complex mathematics, for which I used a computer drawing programme (SketchUp). To define the spiral for this project, I drew a series of circles with their centres along the arc of the spiral. The size of the circles and their spacing almost follows a mathematical progression,

but basically the positions 'looked right'. The final element was to define the centre of the template at the intersection of lines drawn between the corners.

The template and its mirror image were printed on to A4 paper for gluing to the panel blanks.

The turning element of the project, which involved 11 offset turnings, was achieved by using an MDF backplate on to which the sycamore blanks were glued.





# Plans & equipment

## Materials

- Sycamore blank 226.5 x 140 x 28mm
- MDF board 304 x 304 x 18mm
- MDF board 150 x 80 x 12mm for counterbalance
- Faceplate ring positioning jig

## Tools & equipment

- PPE as appropriate
- Pillar drill
- Electric hand drill
- Faceplate ring
- Appropriate jaws to hold faceplate ring
- 3mm drill bit

## Hand tools

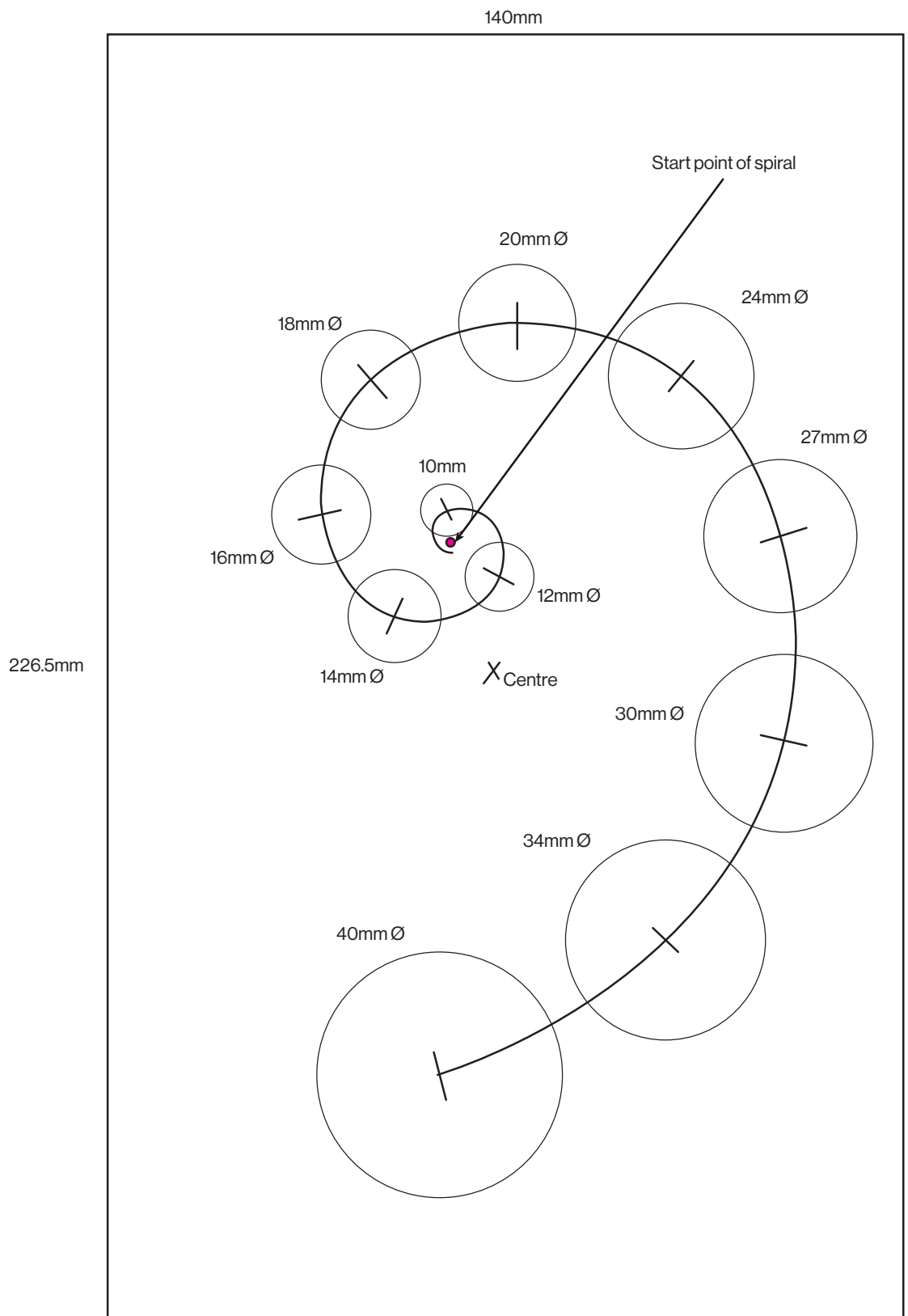
- Bowl gouge ¼in
- Round scraper ½in
- Sharp bradawl
- Sharp pointed divider

## Finishes

- Abrasives, 120-400 grit
- 0000 wirewool
- Acrylic spray sanding sealer
- Ebonising lacquer
- Automotive spray paint
- Acrylic satin spray

## Miscellaneous

- PVA glue
- Screws for faceplate
- Lead weights for counterbalance
- Hi-vis paint





**1** Prepare a backplate from 18mm MDF board and drill a 3mm hole through the board at the centre.

**2** Prepare a smooth-faced sycamore blank to size then drill a 3mm hole to 5mm depth at the centre of the underside. Place the template on top of the underside of the blank then align the centre of the template to the centre of the blank and pin in place with a 3mm drill bit or 3mm nail.

**3** Drill two more 3mm diameter holes to 5mm depth into the panel blank through the template. These will become your reference markers to determine the position of the panel blank on the backplate.

**4** Paste the template on to the MDF backplate and fix at the centre. Drill two 3mm holes through the backplate at the positions of the two holes made in Step 3. You will now have three holes through the backplate to enable precise location of the blank.

## Top tip

### A jig for centring a faceplate ring

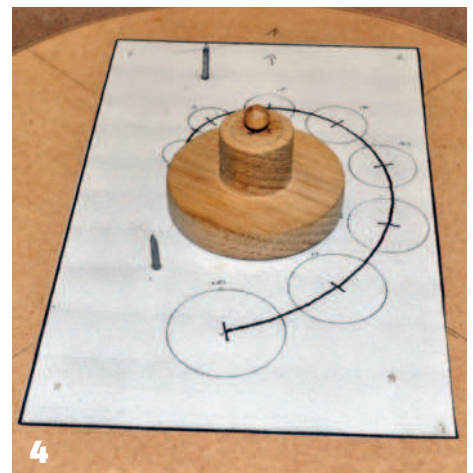
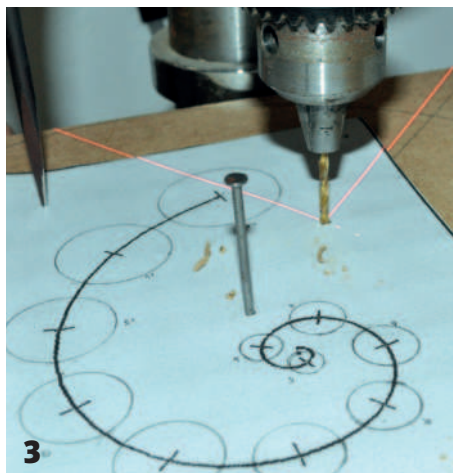
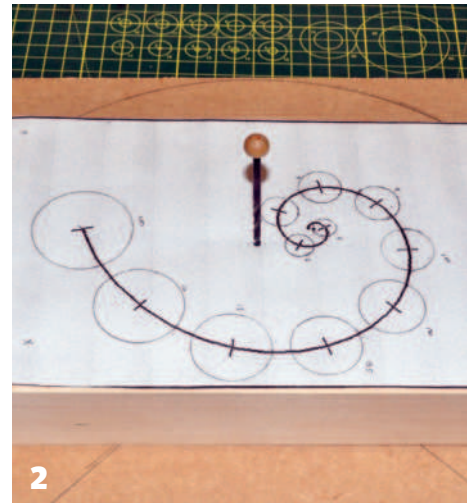


This wooden jig was turned from oak and has a 3mm hole drilled through the centre. The jig is a very close fit to the inside of the faceplate ring. The centring pin is a 3mm drill bit with a simple wooden handle for ease of use. To use this jig the locating pin is placed in a 3mm hole drilled in the workpiece.

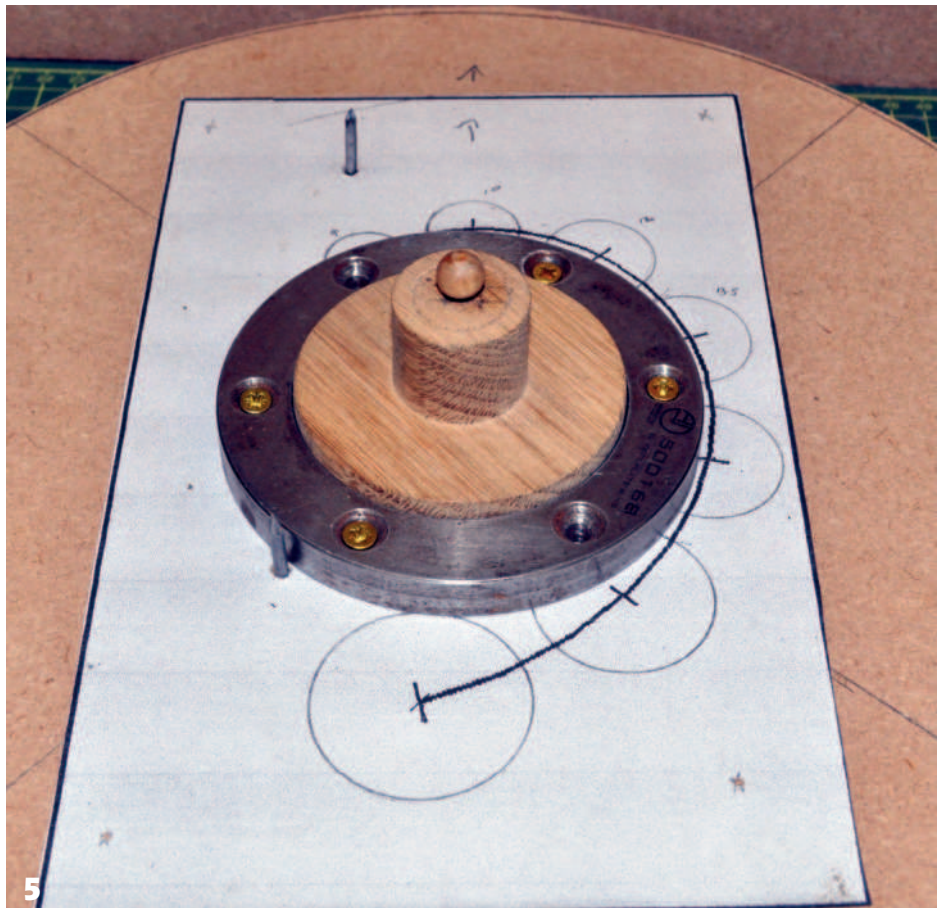


### A tip for accurate positioning of a faceplate or ring

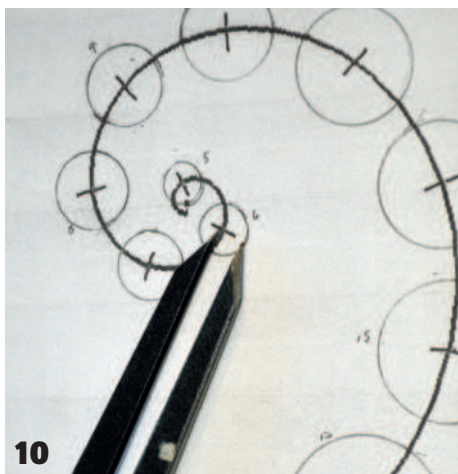
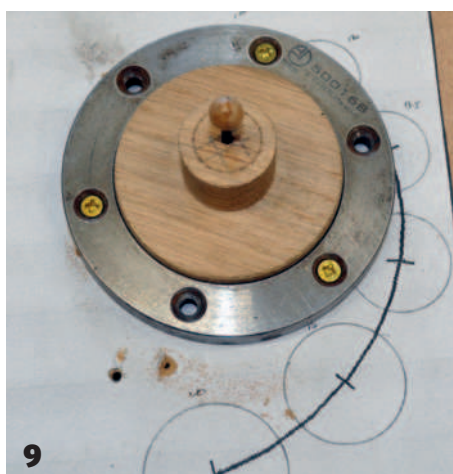
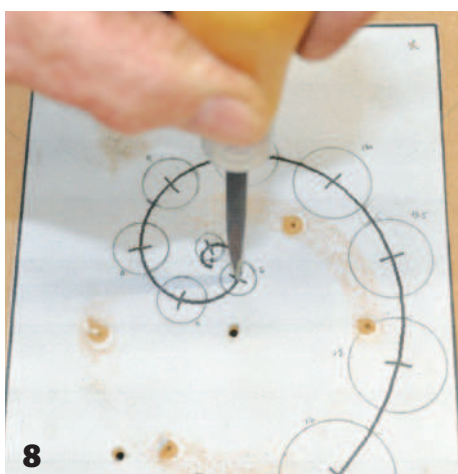
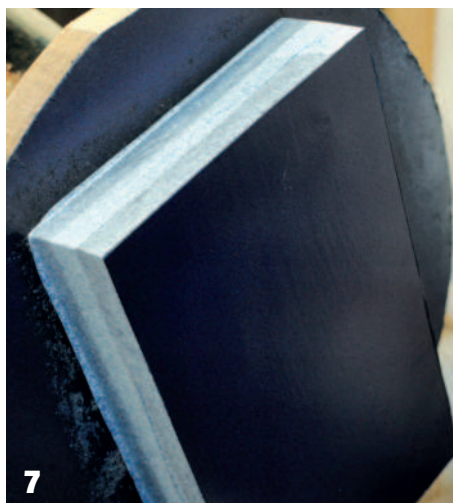
MDF, other fibreboards, and some natural close-grained hardwoods are prone to displace fibres upwards alongside the advancing screw when you attach a faceplate of either type. This has the effect of lifting the faceplate off the blank and preventing accurate attachment, but this can be negated by countersinking the holes on the underside of your faceplate. The resulting gap allows wood which is displaced by your screw to fill a void rather than raising the faceplate from the blank or other surface.



**5** Attach a faceplate ring which is accurately centred on the template. You can do this by using the small jig shown in the sidebar. Fit the central pin into the oak jig and locate it in the central hole of the template. Place the faceplate ring over the jig and secure to the backplate with four screws.







**6** You can now attach the blank to the backplate using the locating pins as guides. I have used the split paper method with PVA glue for attachment and clamped the two pieces together for 12 hours. This has the advantage over screw fixing because there will not be any tell-tale holes on the underside of the panel when removed from the backplate later.

**7** Abrade the front and sides of the blank with grits from 120 to 400, then seal with acrylic sanding sealer followed by spraying with grey undercoat paint and de-nib when dry. Follow this with two layers of ebonising lacquer and leave overnight. De-nib again and remove all the dust then mask the sides of the panel blank with painter's tape. The final stage is to spray the front face with three layers of the topcoat of choice. I used blue automotive paint. Allow the surface to harden overnight.

**8** Remove the whole piece from the lathe and place with the front face down on a padded surface. Unscrew the faceplate ring and precisely mark the intersection of the spiral and the centre of one of the circles using a sharp bradawl. Choose one which is near to the centre of the template. In this illustration I have chosen the second circle, which has a radius of 6mm.

**9** Drill a 3 mm diameter hole to a depth of about 5mm at your bradawl mark. You must remove any high points of MDF from the previous screw holes with a sharp chisel so that the faceplate ring and jig will lie flat on the backplate. Attach the faceplate ring by three screws in the new position using the jig shown in Step 5.

**10** Adjust your dividers, which must have sharp points, to the distance appropriate to the mini-bowl being created. In this instance 6mm.

**11** Re-attach your panel blank and backplate to the lathe using the faceplate ring. The piece will be slightly out of balance so start the lathe at a slow speed and increase gradually to that which is comfortable. With the lathe spinning and the toolrest at centre height, mark the centre of the mini-bowl to be turned with your sharp bradawl. Place your dividers on the toolrest and, keeping the right-hand point of the divider in the central hole, carefully advance the left-hand point until it scribes a crisp circle.

**12** With your 1/4 in bowl gouge, create a small bowl by working from the centre outward to the scribed line. Aim to form a reasonably hemispherical bowl.

**13** Finish the mini-bowl with a small, round scraper (if needed) and then use fine grade wirewool held in a surgical clamp. Make sure that you are satisfied with the finish because you will not be returning to this mini-bowl.



**14** Remove the piece from the lathe, place it face down, on your padded surface and remove the faceplate ring. Chisel away any high points and reset the jig and faceplate ring on the next mini-bowl centre as in Steps 8 and 9. In this illustration I have chosen the first bowl of the spiral, which has a radius of 5mm.

**15** You can now continue to turn new mini-bowls following Steps 11 to 13 until you finish the fourth mini-bowl.

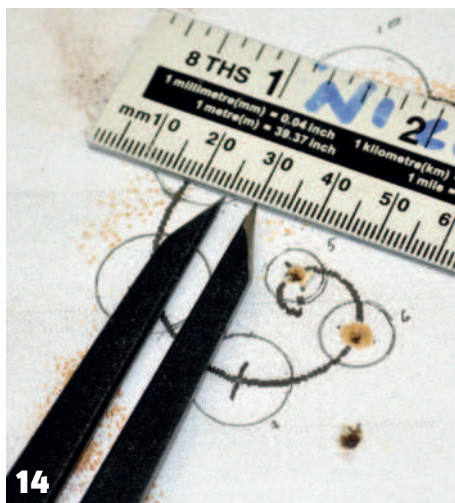
**16** For mini-bowl five and subsequent bowls the piece will be significantly out of balance. You can overcome this by reducing the lathe speed, but this will make a smooth, crisp finish more difficult to achieve. My solution is to create a counterbalance by attaching an arm cut from 12mm MDF, at the outer end of which I attach lead weights, in this case multiple pieces of lead flashing. Draw a line from the centre of the MDF backplate through the marker for the mini-bowl to be turned and attach the weighted arm as shown.

**17** Return to the lathe and progress through the remaining mini-bowls by repeating the above steps. Make sure that you move the counterbalance arm as appropriate. The counterbalance lead weights have been taped with masking tape and the painted white.

## HEALTH & SAFETY

When turning out-of-balance pieces on the lathe using a counterbalance arm it is essential to define the danger zones. I use a long toolrest, which helps to protect me from damage from the rotating arm. Even so, I prefer to highlight the counterbalance with white paint and to define the no-go areas by painting the toolrest. See picture in step 17.

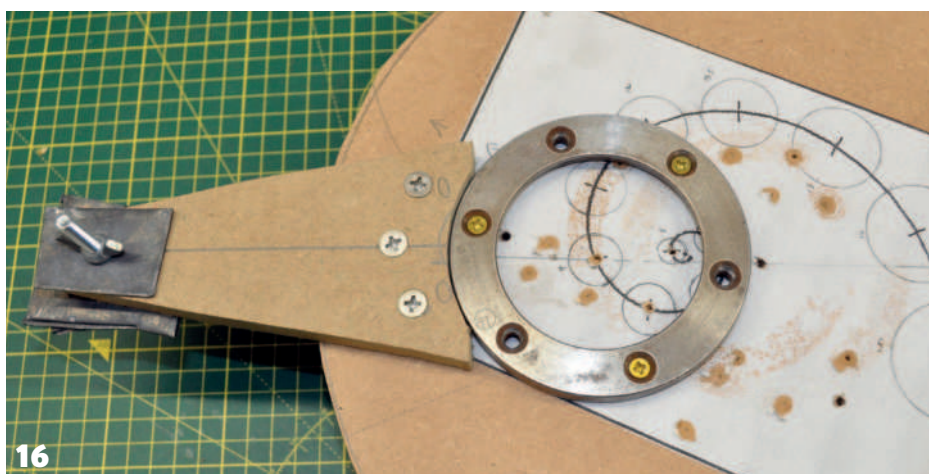
**18A & 18B** With all the mini-bowls completed, clean the surface of the panel and spray with three coats of satin acrylic lacquer with de-nibbing between the coats. After drying, split the panel from the MDF backplate using a flat chisel. Then clean up the back surface of the panel, which will have paper attached. You can reduce the thickness of the panel by cutting on a bandsaw. If you choose to do this then leave the masking tape on the sides until the back of the panel has been completed. By turning a second, or multiple panels, it is possible to pose the panels to create different synergies like this. ●



14



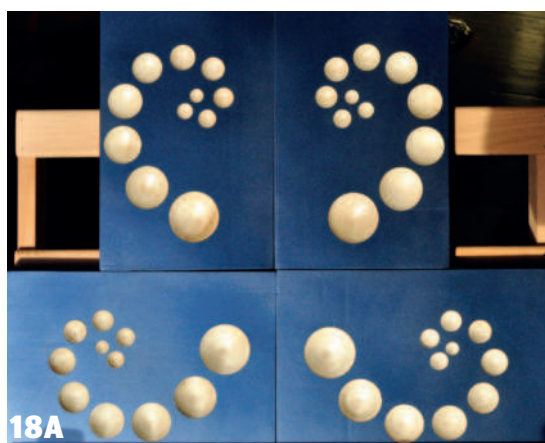
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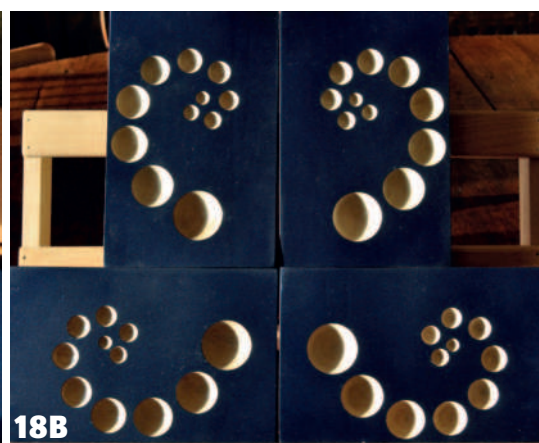
16



17



18A



18B



  
**CHESTNUT**  
P R O D U C T S  
**FINISHING SCHOOL**

*Hard Wax Oil*



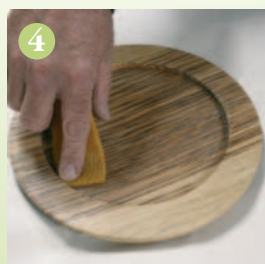
1 Hard Wax Oil is a blend of natural oils and solvents to give a high-build, quick drying finish to bare wood. It is extremely tough and hard wearing and dries to a clear finish which can be built to a high gloss after 3 coats. It is toy-safe and ideal for use on table tops, coasters, bowls and many other items.



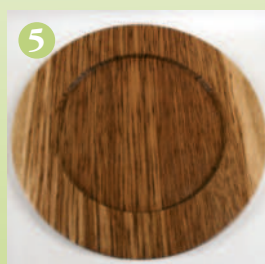
2 Before applying Hard Wax Oil ensure that the surface of the timber is clean and dry and sanded to a silky smooth finish.



3 Apply Hard Wax Oil with a cloth or brush, making sure to cover the whole area evenly and avoid any build up of oil in corners etc. The oil will flow out to remove minor brush marks and other blemishes.



4 Allow four hours for each coat to dry. Further coats can be applied after this time, lightly sand the surface to ensure a smooth foundation for the next application.



5 Three coats should be sufficient to achieve a hard wearing gloss finish, capable of resisting finger marks and water splashes etc.

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# Carving mallet

Cedric Boyns hits home with a self-carved mallet

I seem to have done most of my carving work up to now without the help of a mallet, but when it was needed, the only one I had was a very large, heavy and cumbersome old beech mallet that I inherited from my father.



Having been given some apple logs recently, I decided to make myself a couple of traditionally shaped carving mallets and found it a pretty straightforward process. I had read somewhere that apple was a good wood to use for mallets and that they would wear better

if the surface doing the striking was the end grain. The smaller mallet was about 8oz and the larger one about 18oz. This project follows the making of the smaller mallet, but the basic procedure used was the same for both.



# Plans & equipment

## Materials

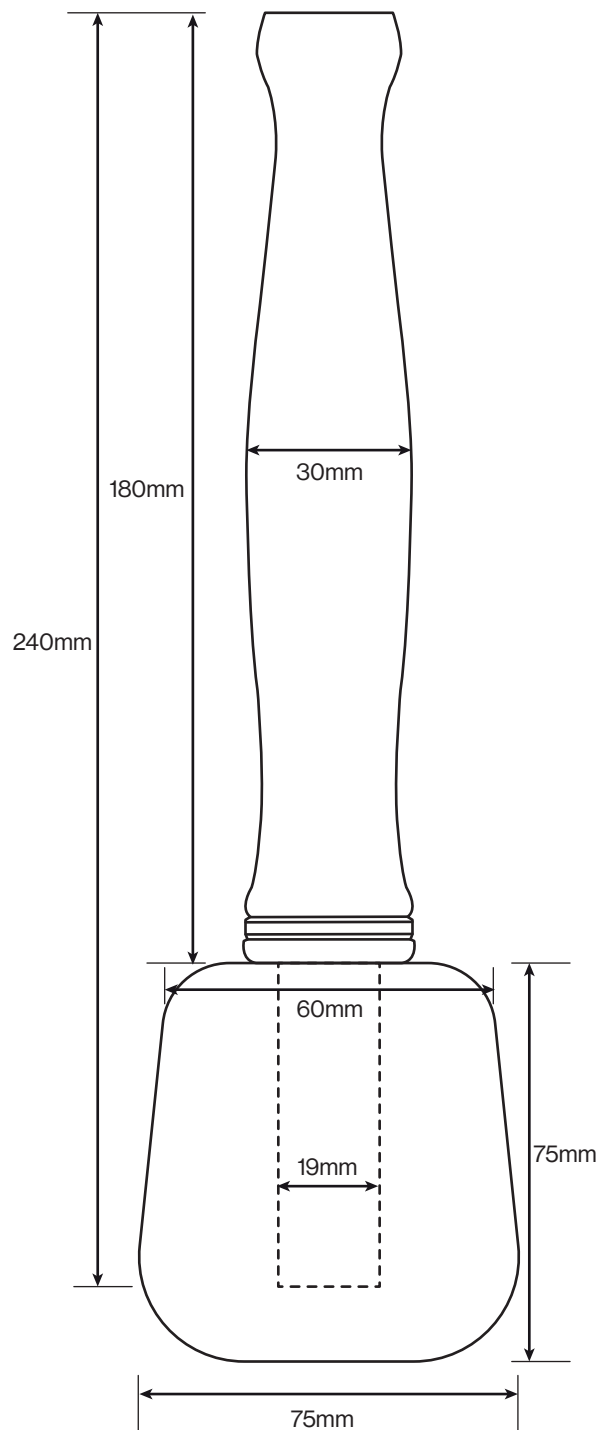
- Block of apple for the head from the centre of the log: 85 x 85 x 85mm
- Block of ash for the handle: 300 x 35 x 35mm

## Tools & equipment

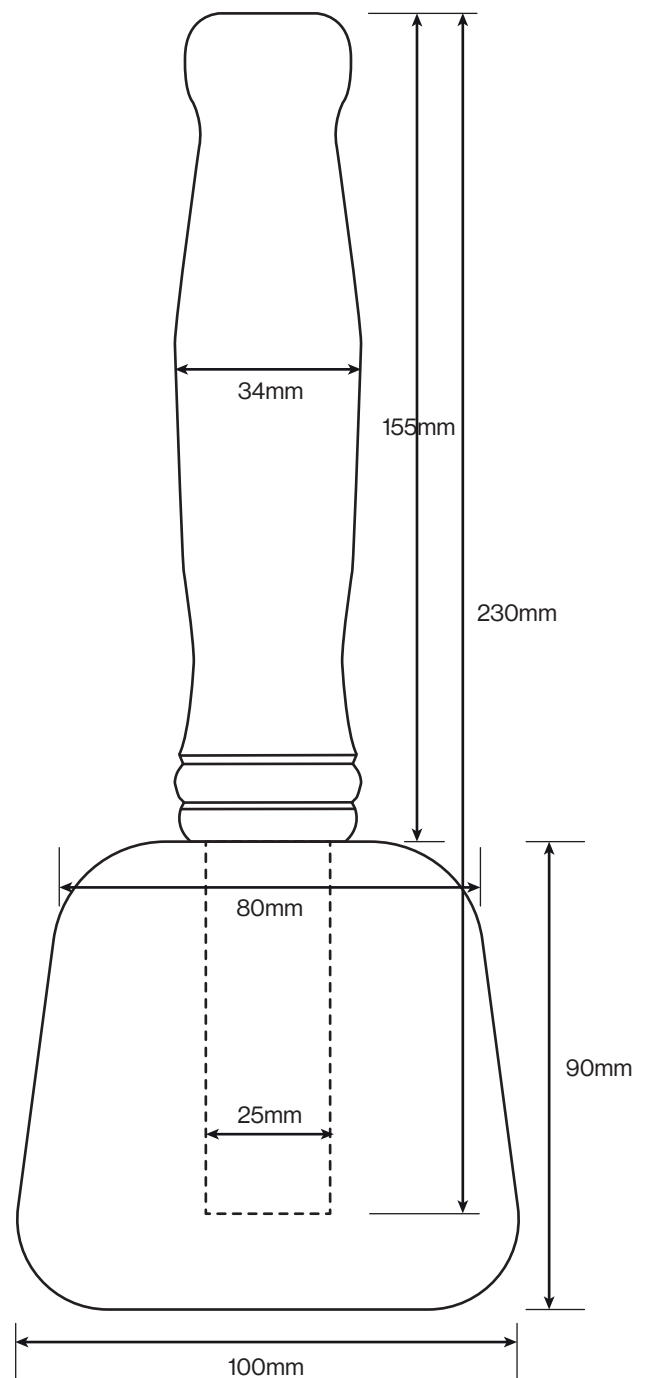
- 25mm spindle roughing gouge
- 12mm bowl gouge
- 2mm, 5mm and 12mm parting tools
- Bandsaw

- Range of twist drill and/or Forstner bits up to 19mm (25mm for larger mallet)
- Depth gauge
- Callipers for sizing
- Hot-melt glue gun and wood glue
- Glue chucks appropriate for the chuck of the lathe
- Suitable PPE and dust extraction
- Abrasives 100-240 grits
- Oil finish if desired

Small mallet



Large mallet





## ◀ Making the head

**1** Cut out the block of apple from the centre of the log using a bandsaw.

**2** Attach a previously made tenon centrally to one side of the block, with blobs of hot-melt glue to form a glue chuck as shown.

**3** When the glue has set, mount the glue chuck securely on the main chuck of the lathe and round to a cylinder with a bowl gouge (not a spindle roughing gouge because you are cutting end grain).

**4** Shape the narrow end of the mallet head by tapering it down to 60mm at the end where the handle will be inserted. Round over this end to achieve a pleasing shape as shown. Drill a hole 19mm-diameter hole for the handle in this narrow end of the mallet head to a depth of 60mm using a drill mounted in a Jacobs chuck in the tailstock. I find it easier to start the process with a small drill, then increase the size of drill bits up to the 19mm required. Once this is complete, this narrow end of the mallet head can be sanded down to 240 grit. Remove from the lathe chuck.

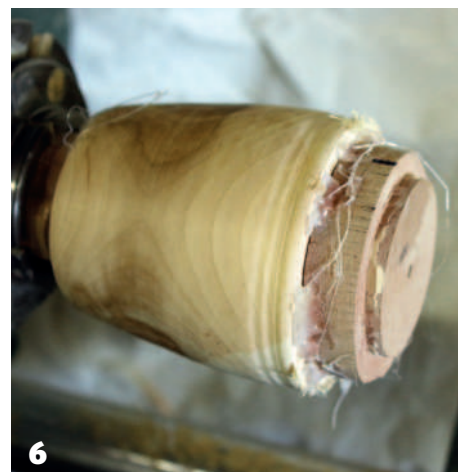
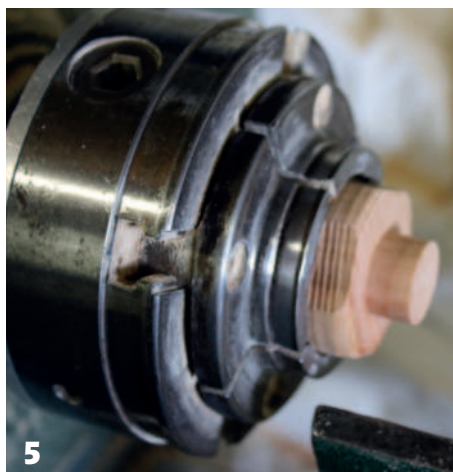
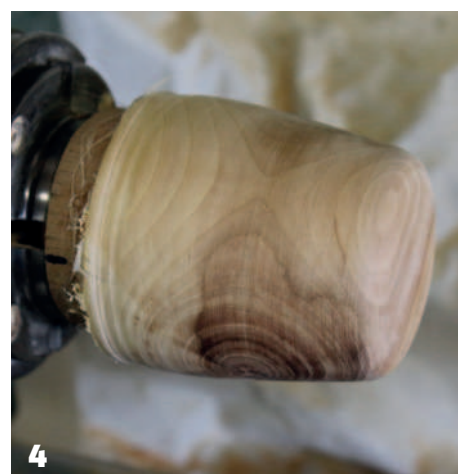
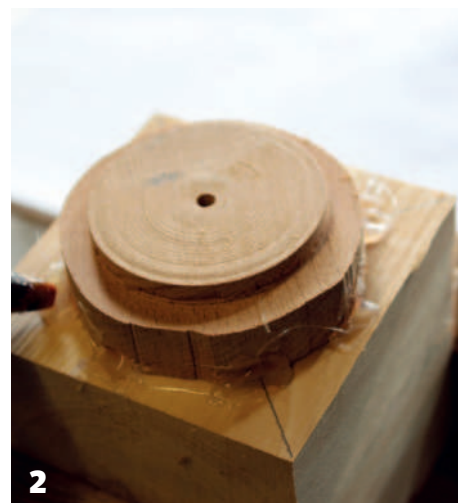
**5** Using a small bit of waste wood, form a new glue chuck with a tenon about 15mm long and 19mm in diameter, which will fit snugly into the hole you have drilled in the mallet head.

**6** Reverse the head on the lathe and secure it on the new glue chuck with blobs of hot-melt glue, after first checking that it will run true. Allow the glue to harden before proceeding.

**7** Remove the other glue chuck by prising it off the large end.

**8** Finish rounding the large end of the head and taper it with a bowl gouge to meet the small end. I found that a diameter of 75mm for the free end of the mallet head seemed to fit the bill.

**9** Sand the whole of the mallet head down through the grits to 240, before removing it from the glue chuck.







10



11



12



13



14

## Did you know?

The reason I used glue chucks in this project was because the amount of wood I had available in the logs was limited by its diameter, as I wanted the direction of the grain to run across the head of the mallet rather than down it.

## Making the handle

**10** Attach the ash blank to the lathe between centres and round to a cylinder with a spindle roughing gouge. Use the drawings to mark out the various areas of the handle, and start at one end by creating the tenon 60mm long that will fit into the head and leaving a 90° shoulder as shown. I did this with a 12mm parting tool, but other tools will do the job just as effectively. However, the diameter of the tenon is crucial and should be measured and formed very carefully. It needs to fit tightly into the hole in the mallet head.

**11** Shape the rest of the handle according to the photo and by taking the measurements from the drawing. It should be noted that, for this mallet, I left the length of the handle at 180mm, which seems long, but it felt comfortable in my very large hand!

**12** Once the desired shaping is achieved, sand the handle through the grits before parting off at both ends. I also added a bit of decoration.

**13** The handle can now be glued into the head using an appropriate wood glue. Before doing this, I put a few shallow grooves in the tenon to release excess glue.

**14** Tap the handle gently home with a lump hammer. I decided to leave my mallets without an external finish, but a coat of Danish oil or similar can, of course, be applied if desired.

**15** The finished mallets will look something like this. ●



15



# Traditional woodturning

Pete Moncrieff-Jury looks at the history of turned items in traditional crafts

If people are asked what a woodturner makes there is a fair chance that the average person would say bowls, pens, candlesticks, maybe some would add goblets and various parts for chairs etc. Traditionally, however, turning has long been associated with many other crafts and in particular the fabric crafts. The images I have here all show specific tools made for specific jobs, all relating to other crafts. Over the years the tools have evolved in different ways according to materials available and the job they do. It is sometimes hard to believe that some all actually do the same basic job, as in the picture of different types of spindles. Others have evolved to meet a particular need but also are designed in different ways and styles in different areas and countries.

Classic examples, perhaps, are drop spindles. When I started making them, I saw them as basically a round disc with long shafts going through the middle. How wrong was I. There are some that weigh only a few grams, some are nearly a metre long, some are used with a bowl, some used kneeling on the floor, some in the lap. Some look like clubs and some like nothing you have seen before. All are turned, though perhaps many in days gone by would have been whittled. In the past the shafts were made using turned or whittled wood and the whorl (the round part giving it weight) could have been a stone with a hole drilled, made of lead or some other metal. Some are left plain some have distinctive patterns and designs on them.

Just to show the huge variation, among the ones I have had to make over the years are Malacate, Natalie, Nordic, Navajo and Guatemalan spindles, all very different, and more unusual ones that don't look much like spindles at all, such as the Phang, the Dealgan, and the Txoatile.



Other tools, such as bobbins, also come in all shapes and sizes. Lace bobbins alone have a number of different designs and styles, some with spangles (beads on the end), some plain. Some were intricately carved and given by a young man as a love token to the girl of his dreams. Tapestry bobbins do the same basic job but on a larger scale.

Apart from the better-known tools mentioned, we also have niddy noddys and nostepinnes, marudai and kumihimo discs. Then we have the embroidery tools such as tekobaris, komas, broches as well as half cone sticks, trumpet sticks and couronne sticks.

So what is the point in all this? Basically, I for one find the tradition and history of woodturning as fascinating as the craft itself. The fact that it has never, perhaps until recently, been in isolation but always a major part of craft work on a much wider scale is something that I love investigating. Personally, the more I turn wood the more I want to know about its history and traditions. The fact that so much was done with so little technology surely points to incredible skills and also an awareness of other skills and crafts. Studying the traditions and the ways it has been a major part of other crafts makes me feel part of something much bigger than just a woodturning fraternity. As a craft it can be a very solitary experience in the workshop alone making something – for me it is something special to feel a part of that much wider family of crafters. Inspiration can come from many places and studying the history and traditions of other crafts can open up new ideas and horizons for us all.

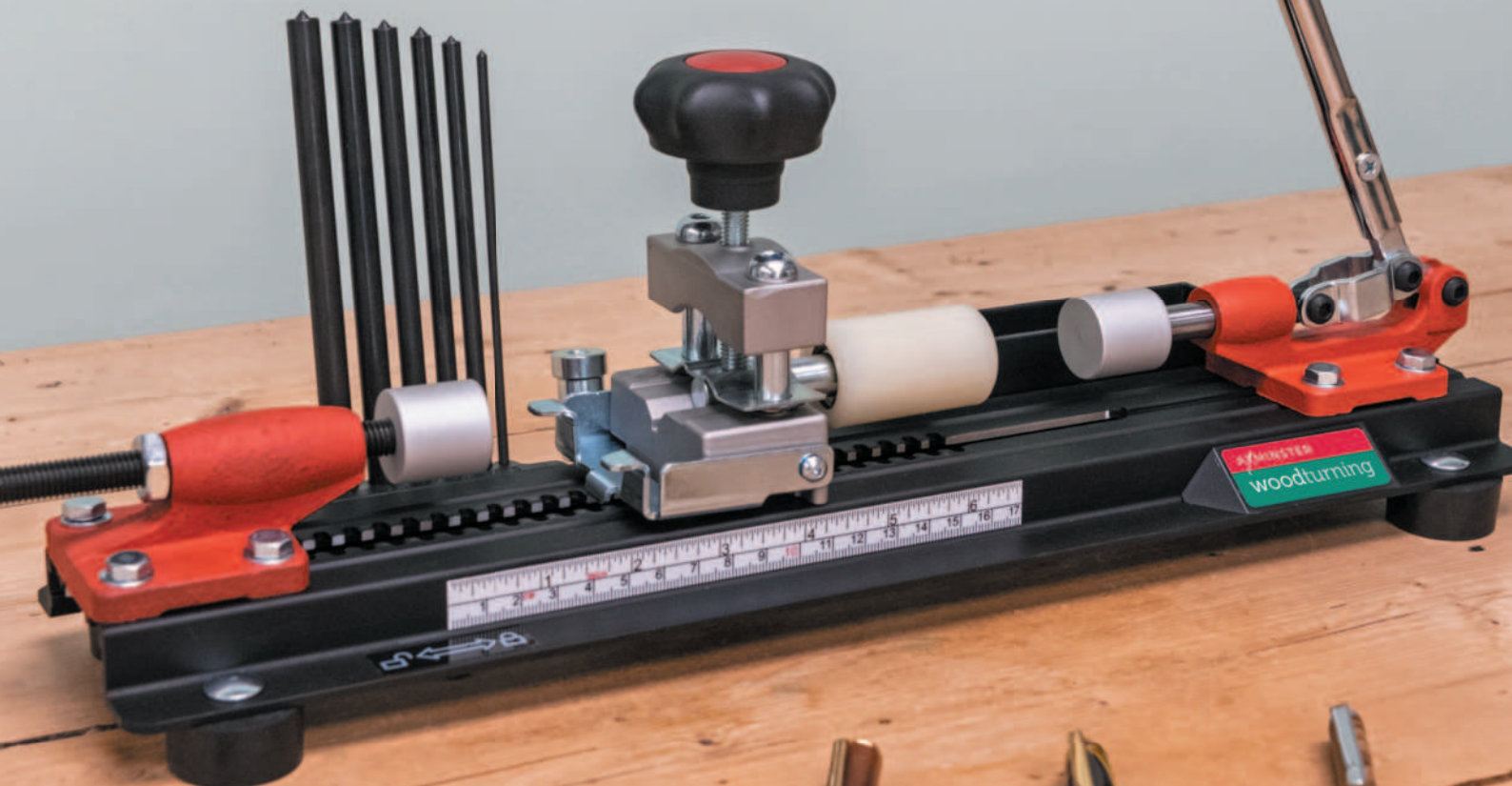


PHOTOGRAPHY BY PETE MONCRIEFF-JURY



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