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# WELCOME

## CREATIVITY IS THE TOUCHSTONE

The common linking theme between all the articles in this magazine strangely isn't wood – although of course it plays a key part, indeed the major element of each and every article. But then, these days who makes purely out of wood? Most pieces of furniture need hardware and finishes at the very least, but frequently much, much more is included in the work that is not wood. No, wood is not strictly speaking the linking theme – it is creativity. The lesson to imbibe from work untrammelled by conventional 'bench' thinking is that almost nothing is impossible. Working flexibly and not just as a slave to the machine allows creative free thinking to percolate the everyday headspace. Wood is beautiful, hand tools can be satisfying to work with, the sights, the sounds, the smells, the rich shavings on the floor. But all this is for nothing if we do not allow our creative thoughts to coalesce into unique concepts and positive actions.

Let your mind be free.

*'You can't use up creativity.*
*The more you use, the more you have.'*

MAYA ANGELOU

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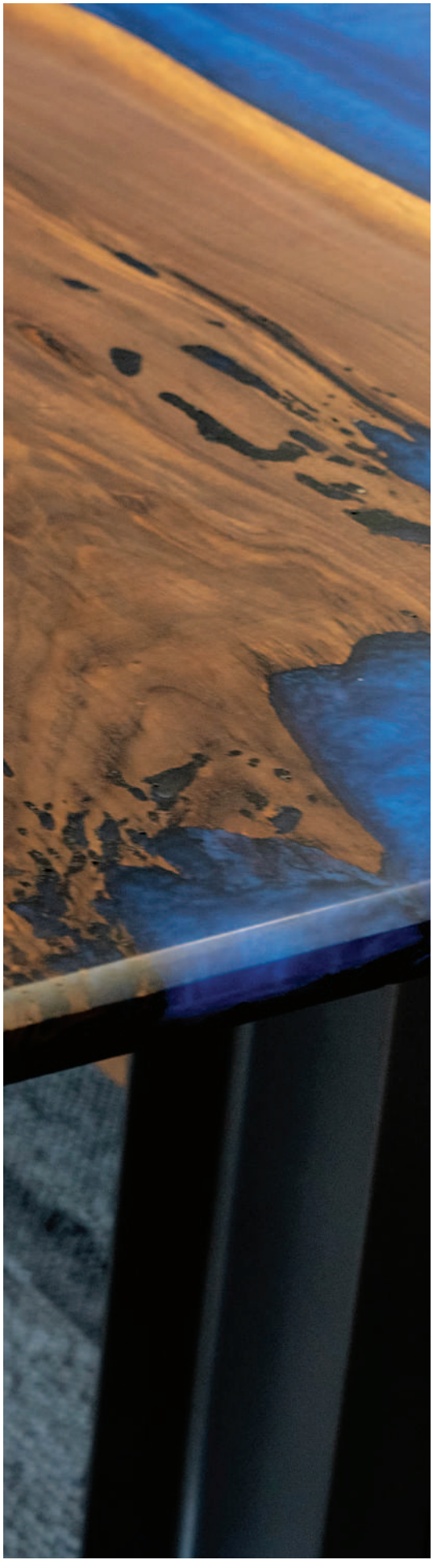
**COVER IMAGE** John Malecki, photographed by Sam Green




Woodworking 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, and all readers should observe current safety legislation.






# CARVING OUT A GAME PLAN

## FORMER FOOTBALL STAR **JOHN MALECKI** NOW FINDS FULFILMENT IN WOODWORKING, FURNITURE MAKING AND AS A YOUTUBER

As a child growing up in Pittsburgh, Pennsylvania, John Malecki dreamt of being a player in America's National Football League. 'I grew up playing football and, after a great high school football career, had the opportunity to play at the University of Pittsburgh, where I was a four-year letterman [which means representing the university in competitions, ed], team captain my senior year and first team all conference,' John recalls.

'I graduated with a degree in marketing in 2010 and signed a futures contract with the Tennessee Titans. After a short stint with them, I bounced around a bit to a few other NFL teams before ending up back home on the couch. This is the reality of the NFL, and chasing any dream.

'But after some dumb luck, and my agent hustling his ass off, I was picked up by the Pittsburgh Steelers where I played for two years or so, and got to live my lifelong dream. And that is where I finished my career after training camp in 2013, when I was released by the team in favour of another player available on waivers.'

His brilliant but brief career in football meant some months when he wasn't playing, and that is when he started working with wood. 'Woodworking was a hobby I sort of stumbled into during the off-season in my second year in the NFL,' he says. 'I needed a coffee table in the house I used to live in, so I bought a plan online, and started building.'

John had grown up in a blue collar family where the men were always working on wood and carpentry projects in their spare time, and as a child and teenager he was often called on to help out. He explains: 'I got into the world of construction at an early age, so when I started making my own stuff, I was already semi-familiar with woodworking and carpentry tools. It made it easy to get into the hobby.'

John enjoys carpentry so much that when his NFL career finished he took a year off, spent more time woodworking and eventually decided to make it his business. 'I got more and more into the craft,' he explains. 'I really developed a deep passion for building things, and my mind got turning. This new hobby was fun, fulfilling and challenging. I was hooked. I started acquiring tools and fortunately a buddy of mine let me work in his heated garage. Since then I have been chasing my next dream, as The Builder, and I haven't looked back.'


PHOTOGRAPHS: ELAN MIZRAHI

PHOTOGRAPH: SAM GREEN

He adds: 'After the NFL I was willing to take a risk on something, and I was starting to make a lot more random furniture items for my friends and family. When I started putting them on the internet, people began asking for commissions. So it basically evolved from there. I was doing other things as well, but I was always woodworking when I went out on my own.'

John's craft means much more to him than just an income source. 'I do love what I am able to do and feel very privileged,' he says. 'I think being able to create anything with your hands is a very fulfilling life. I am very lucky to be able to make things every day and to be able to inspire others to do the same.'

John's home of Pittsburgh is known as the Steel City for its more than 300 steel-related businesses, and is well known as a home for aluminium, glass, shipbuilding, petroleum, foods, sports, transportation, computing, motor and electronics organisations. John says: 'Growing up in Pittsburgh, you have a tendency to work with your hands. For me it has always been in my roots, and has become a way of life.'

He adds: 'To me what makes Pittsburgh special if you're in a craft or industry, is that for the most part, the community very much supports and appreciates handmade goods. Because of the foundation of what Pittsburgh is historically, the people here appreciate industry. It is also amazing that there are so many young professionals in this city. With a pool of young talent from the local universities and offices for Uber, Apple and Google, you can imagine the type of young professional living in this city. The coolest part is that mostly all of them are hugely appreciative and accepting of handmade craft and goods.'

John's first major project was to design and build a restaurant in Homestead, Philadelphia. 'It was quite an undertaking and turned out really nice,' he says. 'The restaurant itself is still crushing it today, which is a great sign, and it still looks damn good if you ask me!'

While John does work on commission and sells some downloadable plans and merchandise on his website, his main income comes from his work as a 'full-time YouTuber'. 'Social media takes up a ton of my time,' he says. 'It's my livelihood these days, so you can easily understand why it would take up so much time and effort. But it does pay off if you build a solid community in any type of business.'

So what does he enjoy more – working on projects or teaching others? 'I love both sides,' he says. 'I love pushing myself to learn new skills and build more elaborate and skilful furniture. But I also love the reaction I get when I show someone how to build their very first project. It's a hard choice, but I would have to say teaching.'

And when it comes to teaching and learning, he has lessons from his former career in sport to draw on. 'One big similarity between elite level football and being a good woodworker is that you can always go back to the basics and focus on fundamentals. Personally, if I know I'm lacking a skill, I put the time in like I used to when I was playing football, in order to get better at something in the trade.'

PHOTOGRAPH: SAM GREEN

PHOTOGRAPH: BEN PETCHEL

*'I think being able to create anything with your hands is a very fulfilling life. I am very lucky to be able to make things every day and to be able to inspire others to do the same.'*

PHOTOGRAPHS: SAM GREEN

Part of John's business is reviewing woodworking tools and accessories, something which he enjoys but which is taking up more and more space in his workshop. 'I wouldn't say I love new tools but I do love learning and using their capabilities,' he says. 'Ironically though, I am running out of space quickly and may be moving in the next year or so.'

The trickiest project John has ever worked on was a live-edge river table with a glass insert. 'Everything was super expensive – the Claro walnut slab and a big piece of glass. The whole project was a big nail biter,' he says.

His favourite piece has been a conference table he made for The Black Rifle, a small batch coffee company owned by military veterans and based in Nashville, Tennessee and Salt Lake City, Utah. 'It was a huge head scratcher with how I was going to build and join what were essentially three solid tables together and make it look seamless,' John says. 'I love that company and we got to do both metal and woodworking, along with some wild epoxy work. It really pushed my skill sets and was an awesome piece in the end.'

In his craft John is inspired by furniture maker Mike Pekovich, Texas-based custom maker Phil Morley and Jory Brigham, who has been described as 'the Steinbeck of modern woodworking'. John says: 'It's hard to select just a few since there are so many talented people out there in the world these days. There are probably hundreds I have yet to discover, which is why I love the internet!'

But his biggest inspiration is his wife. 'I have always been a self-driven person, and I have always loved my family and friends. They were always my rock and inspiration for my athletic and business journey. When I met my wife, I would say everything was taken up to another level. She inspires me to be a better man, husband, business person, woodworker, you name it. She has truly pushed me to take everything to a whole other level, and it's amazing to have someone so likeminded while I get to go on this incredible journey.'

John is currently building a timber frame wall for his workshop in order to teach himself how to build timber frames, his current big interest. After that he plans to model a new office space for himself. 'For the future I want to expand my content and business to be more in the incorporation of homes and the trades. I want to get more young people back into the trades and push my skills on a larger scale. I love timber frame homes and my goal is to get into doing a few of them.'

He adds: 'I have some tricks up my sleeve for this year though – you'll have to follow my channels to see those.'

**johnmalecki.com**

# LONDON PLANE DRESSING TABLE

**CHRISTOPHER BURLEY** TELLS *F&C* ABOUT HIS LONDON PLANE PROJECT AND HOW HE MADE A VANITY TABLE FROM THIS VERY SPECIAL TIMBER

The London Plane Project is a comprehensive exploration of one material – the timber of the London Plane tree. Restricting my palette to this one tree species, I have designed and made Drift, a collection of contemporary craft furniture.

In the past two years I have become fascinated by this ubiquitous London tree – dulling the city noise and sucking up the pollution – doing everything for us when it's alive, but as a furniture timber it remains under utilised. Between the commissioned furniture that accounts for the majority of my practice, I have taken the opportunity to comprehensively explore this specific tree species to discover its versatilities and possibilities and have had a lot of fun doing it.

My first major work using London Plane was a timber re-use commission for a large residential developer in 2016, making furniture pieces from timber felled on site. Since then I have explored the material, the young pale tones, the older orange-

PHOTOGRAPHS BY CHRISTOPHER BURLEY

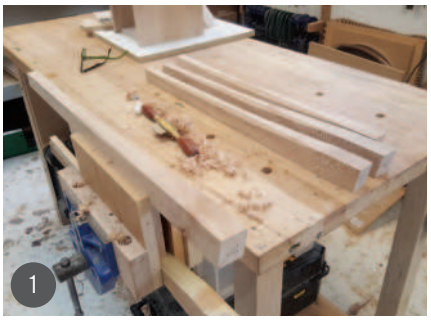
brown shades and everything in between, applying different techniques to produce a variety of tones, textures and forms. I have steam-bent it, laminated it, burnt it, ebonised it, bleached it, carved it, gouged it, scraped it, wire-brushed it, made dovetail joints, fox tenons, finger joints and lap joints and dowels. Along with an illustration of the processes and techniques, the final collection of tables, seating and objects was displayed at the London Design Fair 2019.

## THE TABLE CONCEPT

This vanity table or dressing table is a modern piece with clean lines and angular edges in which the wild carving could be contained. The challenge with this piece was trying to incorporate many of the experiments of the London Plane Project in a harmonious way. The table was also an opportunity for the lacewood cut of the tree to be celebrated in all its natural opulence. Wooden furniture made from paler tones can look like children's furniture and many of my customers prefer walnut or darker timbers, or like to supplement them with harder materials in order to make the pieces more 'adult'. Although I wanted to retain some playfulness I was interested in making furniture for adults, so a vanity table seemed appropriate.

## DETAILS

The table top is made from pale lacewood boards. The dressing table has been hand shaped with a block plane and spokeshave, creating a series of falling curves and facets that soften the rectangle of the top and create a curved invitation. The legs and table top edges have cupped facets. Hand planing with a spokeshave has pulled out various 'weights' of lacewood from mild feathering to wild tiger stripes.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## CONSTRUCTION

The table top is crowned with a large bronze mirror on the left, which is balanced with a suspended drawer box under the table top to the right. The drawer box is made from one continuous piece of lacewood sawn into three 1m long x 100mm boards, which were edge jointed into one large panel. That panel was then mitre cut at 45° in three places and jointed into a box form so the grain pattern of the lacewood flows all around it.

The drawer front was ebonised and gouged with a gouge chisel as in my previous two experiments in the Drift series, and this wild, dark rectangle is contained within the pale natural tones of the lacewood drawer box.

**heliconia-furniture.co.uk**







**1** The tapered legs shaped down even further by bevelling with a spokeshave **2** The leg mortises being chopped out using a block to keep the chisel perpendicular **3** The table underframes are steam bent and held tight until they have set rigid **4** Two cross-members are cut to slot neatly into the underframes **5** The two assembled underframes and legs are planed flush across the tops **6** Now the cross-members can be given a contrast wood dye for effect **7** The whole underframe assembled and ready to take the top **8** The board for the top has swept bevel edges done with a spokeshave **9** The rebate jointed drawer carcass has a mitred front corner to look correct **10** The drawer box is mitre jointed with matching keys to hold the joints together **11** The scallop effect on the drawer front is done using a narrow gouge

# FERNANDA NUNEZ

FROM THE 'ST TROPEZ OF SOUTH AMERICA' TO THE RAINSWEPT MOUNTAINS OF CUMBRIA, **FER NUNEZ** HAS ALREADY MADE A BIG LEARNING JOURNEY. SHE TELLS *F&C* ALL ABOUT IT

I grew up in a household where quality was valued. My first memories are of being in my dad's metal workshop where everything was 100% handmade to the tiniest detail. I recall cutting scraps of metals, using hammers and even welding! With much care and always supervised by my dad, of course. I suppose it is from those days that I got my making instinct.

Dad's workshop was on the top floor of a designer's studio which he managed in Punta del Este, Uruguay, a city known as the St Tropez of South America. Coming from a humble middle class family, the studio and workshop was an early insight into the most glamorous houses of Punta. There were beautifully hand-carved animals, exotic rugs, furniture and fabrics from around the world, hand-painted porcelain, my dad's works (a mix of metal and natural elements such as colourful stones and animal horns). It was a house full of tales and treasures.

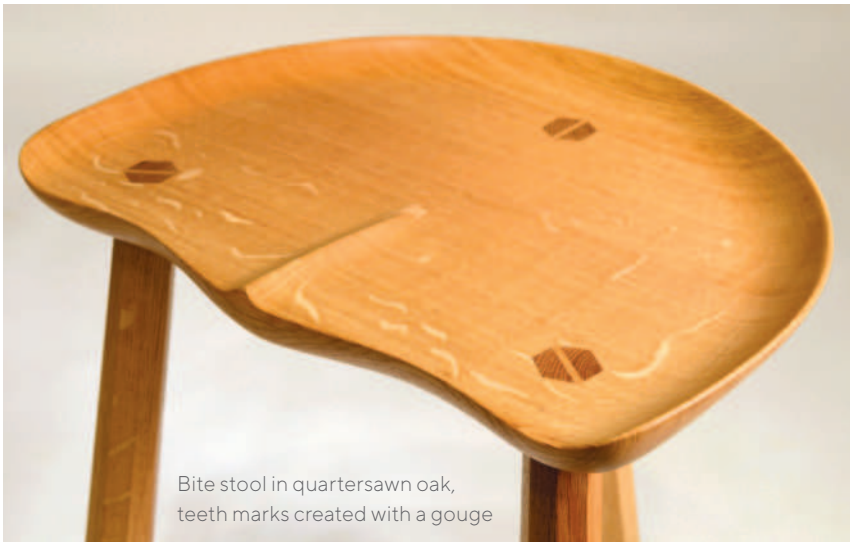
In my teens I joined my hometown's youth orchestra and studied cello for many years. I believe this classical music training taught me patience and perfectionism, which are rather useful traits for a cabinetmaker. I subsequently moved to London when I was in my twenties. Moving from Maldonado, a seaside town of 105,000 inhabitants, to a city of 8.9 million was exciting and daunting at the same time. In London I gained a Bachelor's degree in International Relations at the University of Westminster, made a lot of good friends, worked as a barista and completed a coffee roasting course. Five years ago my husband Tom and I decided to move to the Lake District to change our lives. He set up Red Bank Coffee Roasters and I was looking to convert an old horse box into a mobile coffee shop. I wanted to learn how to cut wood and use a drill to do the job, so I decided to enroll at a furniture school for a week-long course. Little did I know it would change my life.

## THE WATERS & ACLAND FURNITURE SCHOOL

I researched all the schools in the UK and realised that there was an award-winning fine furniture workshop and school only 30 minutes from my doorstep! I phoned Waters & Acland and when I visited the workshop for the first time I felt instantly at home.

I have always had a deep love for trees and could appreciate beautifully crafted furniture, but I had never even remotely imagined how much time, effort and skill is invested in this profession. I don't just see furniture any more, I see the grain, the figure, the joint, the tree, the forest, the whole process and the love and dedication to the craft.

ABOVE AND OPPOSITE: The Guilloche Bedside Tables were awarded The Furniture Makers' Company 2019 Design Award at the Celebration of Craftsmanship & Design



Bite stool in quartersawn oak, teeth marks created with a gouge

Wall-hanging cabinet in cherry wood with hand carved and ebonised panels

Zebra Wardrobe made using dyed black ash and bleached rippled sycamore marquetry. Brown oak was used for the stiles and the horn-shaped handles are made from sycamore

PHOTOGRAPHS COURTESY OF FERNANDA NUNEZ

I have learnt a huge amount in a very short period of time. What would have taken me years to learn by myself or as an apprentice, I have achieved in two years thanks to the school, the teachers and their teaching methodology. Ollie, Will, Graham and Tim make a perfect team and I have learnt a lot from each one of them. I went from having no experience at all to winning The Furniture Makers' Company Design Award at the Celebration of Craftsmanship 2019 for my Guilloche bedside tables.

I learnt the fundamentals of bespoke cabinetmaking, preparing drawings, sketching and using computer technology, selecting timber, marking, cutting, shaping, using hand tools and machines, traditional methods of cutting joints, marquetry and parquetry, and an array of finishing methods, but this was just a very small part of the whole experience. Beyond learning the techniques, precision and discipline, I have gained huge confidence in designing, visualising and problem-solving in a creative way.

I know I am extremely lucky to have started my life as a cabinetmaker under the guidance of Waters & Acland, a school that has such incredibly high standards and provides an enormous space for creativity. The workshop is a very inspiring place where we experiment, explore and learn from each other.

I truly believe that the word 'impossible' does not exist there.

## THE GUILLOCHE BEDSIDE TABLES

I applied a number of the techniques I had learnt at the school when making the Guilloche bedside tables, including drawing with SketchUp, CNC cutting (which required almost 100 hours of hand sanding), drawer fitting, cutting dovetails, spoke shaving legs and rails, hand carving legs and rail joints, ebonising and oiling.

I chose maple because the texture is generally uniform and the grain is fine, it has good cohesiveness when carving or using CNC technology. The Guilloche's undulating design meant I had to cut against the grain, and given so many fragile edges would end up exposed, it needed to be a type of wood with good density to minimise tear-out. There was also the aesthetic reason of creating a colour contrast between the sun and the dark bamboo scaffolding silhouettes represented by the legs.

## INSPIRED BY THE LAKES

I chose to live in the Lake District because it is a beautiful place. I am surrounded by nature and mountains where I can walk, and walking is how my inspiration and ideas bloom.

There is an immensely talented creative community here. Cumbria's breathtaking landscape has inspired generations of artists, designers and craftspeople. It's not by chance that the Arts & Crafts movement flourished here for a decade at the beginning of the 20th century. One can really notice the change of each season, unfolding through new colours, smells and textures, day by day. Therein lies its magic.

## OTHER INTERESTS

I like dancing tango, playing cello, listening to music, walking the mountains, fell running, surfing and drinking coffee. So if I wasn't making furniture you would find me making wooden surfboards, cellos or behind an espresso machine.

## THE NEXT STAGE OF THE JOURNEY

I have a lot to learn yet, so let's say I am looking for a good mentor who I can learn a lot from. At the moment I am contemplating some exciting work offers while also in the process of designing a few artistic pieces inspired by my travels to Spain and Portugal.

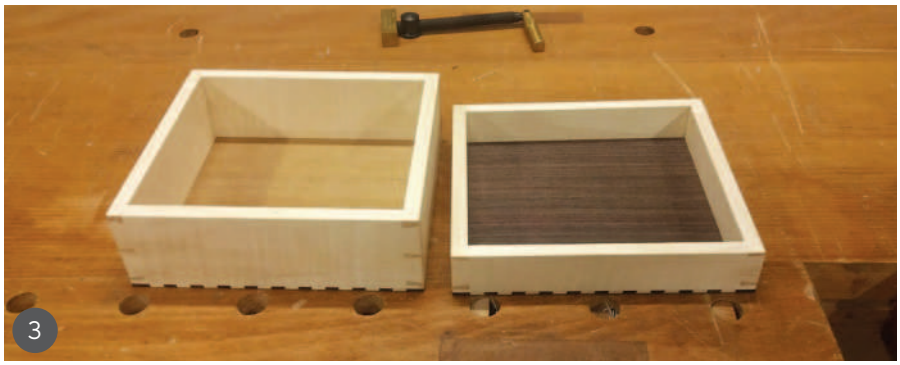
**woodchuckchick.com**

# GIMSON-STYLE JEWELLERY BOX

## **ISRAEL MARTIN** SHOWS HOW TO MAKE A SIMPLE BOX LOOK MORE ELEGANT WITH JUST A FEW DETAILS

I was commissioned to make a really simple box – the client wanted something minimalistic but special. For design inspiration I looked to the work of British architect and furniture designer, Ernest Gimson. I love almost all the pieces made by Gimson, so I decided to add one of the details I like most in his work – edge inlays. These are not very complicated to do but add a lot to a piece, making a simple box look much more elegant.

I wanted to add some contrast to the box so I used a lighter wood, quartersawn ripple sycamore for most of the box and a darker one for the lid panel, quartersawn Indian rosewood. The box has two inside trays for storing jewellery. They were made in quartersawn hard maple and I wanted to make different joinery for them, so the bigger one has walnut dovetail keys and the smaller one just thin oak splines.



PHOTOGRAPHS BY ISRAEL MARTIN

**1** Making the through dovetails **2** The box ready for the inlays **3** The carcass sawn in two **4** Gluing the inlays in the bottom **5** Gluing the inlays in the top **6** The inlays done and planed flush with the carcass

## THE CARCASS

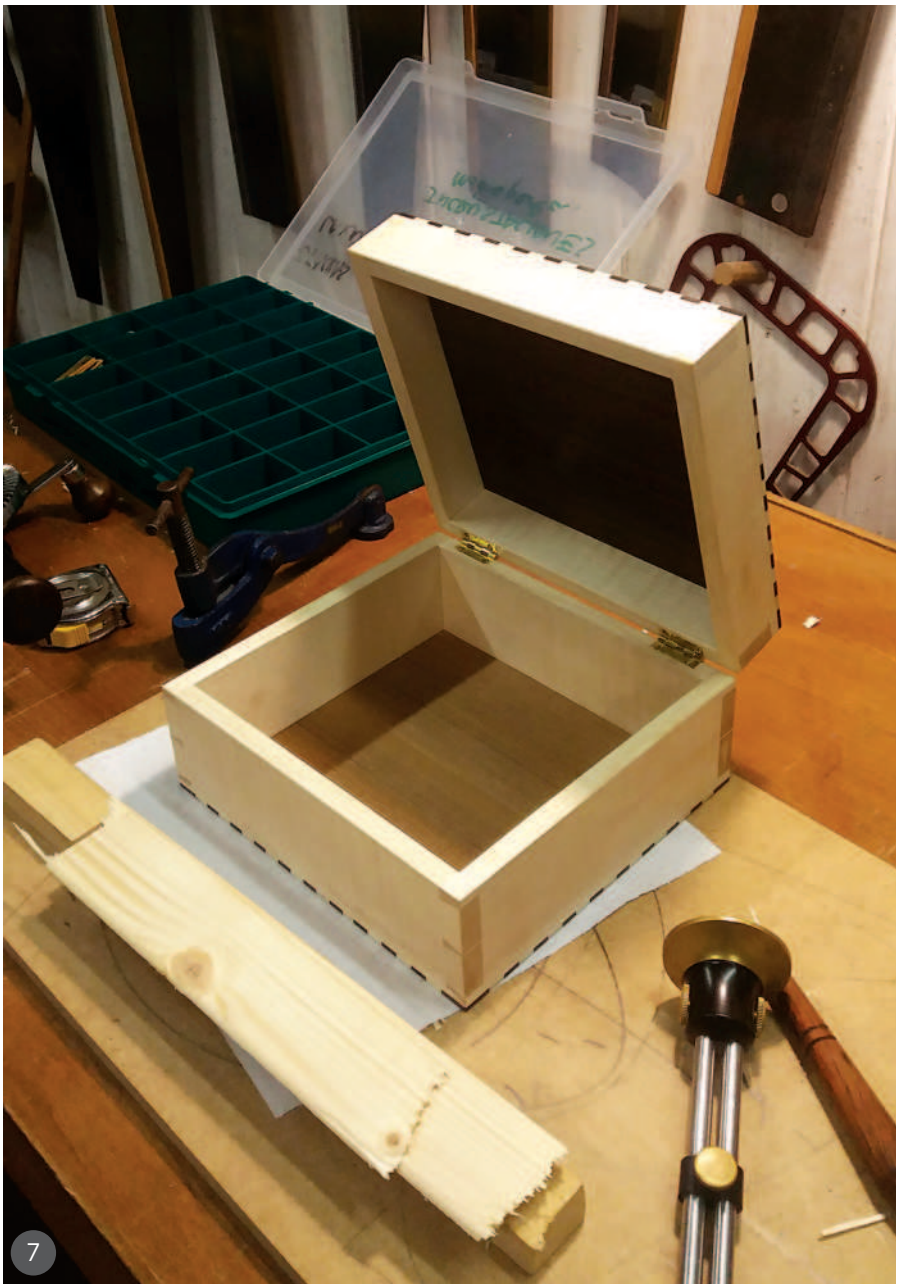
I used through dovetails with mitred half pins on the carcass to make the later work with the inlays, red cedar bottom and rosewood top panels much easier.

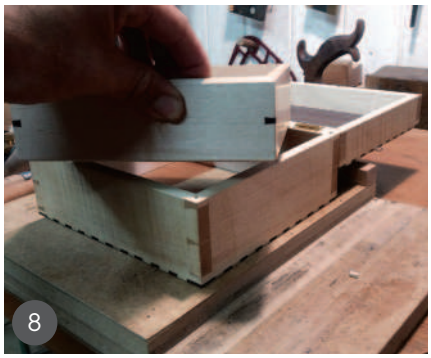
I made one cube with the two panels already inside and then sawed the box on the larger pin. Before gluing up the pieces I left a knife line on the inside of the pieces where I was going to saw the box – this would make it easier to plane later and there would be less chance of splitting on the inside while sawing.

After making all the joinery and fitting the panels, I glued up the carcass and added the inlays before sawing it in two. I then planed the two pieces and checked them with winding sticks to make sure the fit was perfect.

## THE EDGE INLAYS

When making inlays that will go on the upper part and also on the bottom, it's important to take into account how they will be looked at when the box is finished. The lower ones will only show one side but the upper ones will show the side and the top, which means they will look wider than the lower ones. In this case, I had to make the lower ones a bit wider on the side. Another thing that will change the look of the box is how you deal with the corners. For this box I wanted to leave the corner inlays larger than the middle inlays, so the ebony pieces on the corners were the same length as the other ones, but if you want to make them look the same length, they should be half the length of the middle ones.





## INNER TRAYS

In order to make a piston fit adjustment between the trays and the main box, I made all the pieces to fit each one's space and marked them so I wouldn't misplace them.

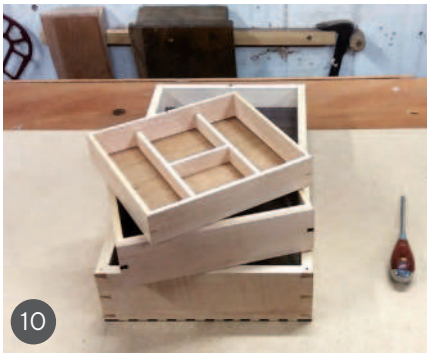
Making the dovetail key was just a matter of making the dovetail female first, then some trial and error was needed to make the small walnut key, until everything fitted perfectly. The last tray was made with splines. I made the kerf with the dovetail saw, about 0.55mm; I used 0.6mm oak veneer for this, so had to slightly reduce its thickness with the plane. The saw set the ends of the kerf with a small bump, so I used a card scraper without a burr to eliminate that bump. I also used small mother of pearl dots to keep track of the orientation when removing the trays from the box.

## PLANING THE INLAYS

Because of the small size of the inlays I couldn't mark each piece to keep track of the grain direction. So my approach when planing them until they were flush with the box sides was to use a high angle on my bevel-up smoothing plane. That way I could forget about tearing out the small pieces. Normally I use a 43° micro bevel for this.

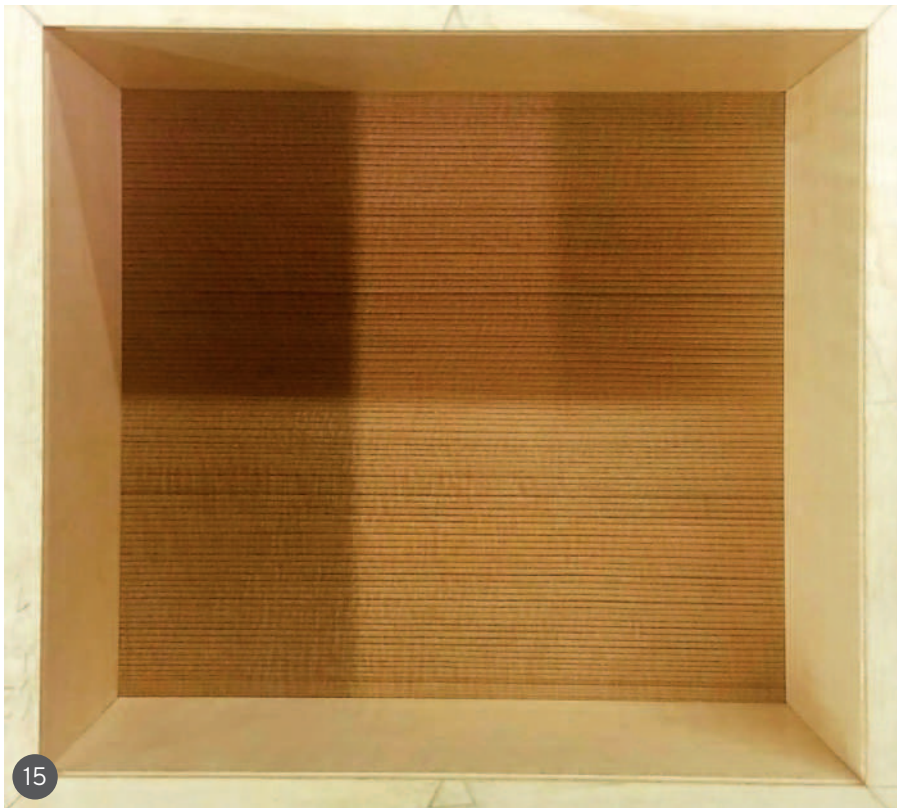
## MAKING THE REBATE FOR THE EDGE INLAYS

After making all the dovetails and dry-fitting the box, I marked the rebate with a marking gauge. If the rebate is not wider than 10mm I normally use the plough plane, which is easier to adjust, to make the rebate. That way I can deal better with any deviations while making the joinery and the meeting of the








rebate in the corners is much more accurate. After glueing up the box I fine-tuned that rebate with the shoulder plane.

## GRAIN ORIENTATION

In this box I wanted to keep the lines of the quartersawn woods as straight as possible. So I carefully planed all the pieces, sides, bottoms and top panel to get almost perfect parallel lines. Choosing the grain orientation and figure is one of the most important aspects when designing a piece.

**7** All the pieces ready to make the trays
**8** Tray with a walnut dovetail key
**9** Mother of pearl dots
**10** The two completed trays
**11** Planing inlays on cherry with a low-angle smoothing plane
**12** The dry fit, checking if the rebates match in the corners
**13** Checking the rebates after the glue-up
**14** All the wood for the box with its parallel quartersawn grain
**15** Detail of the bottom with its parallel line

# CUSTOM MADE WOODWORKING TOOLS

## **ISRAEL MARTIN**'S HANDMADE TOOLS ARE AS FINE AS HIS FURNITURE

PHOTOGRAPHS COURTESY OF ISRAEL MARTIN

As a furniture maker who only uses hand tools, I often need to make some of my own tools. I also make tools on commission for customers, and others are made just so I can learn a bit more about my own craft or simply for the pleasure of making them.

My marking gauges are mainly made with hard maple, with a wearing plate of another harder wood such as cocobolo, ebony, rosewood, etc. The beam orientation is based on a marking gauge I own which was made by another Spanish craftsman. That way you can see better where you are marking and the screw pressure is better distributed to hold the beam.

I only use marking gauges with a blade (cutting gauges) and I make the blades using Japanese marking knives, cut, adjusted and sharpened for that purpose.

My winding sticks are common winding sticks, made in different lengths and mainly made with quartersawn beech or cherry and ebony.

Most of the planes were made for my own use. I used quartersawn beech and the blades in most of them were made by Philip Edwards.

I've made several frame saws and kerfing planes, some of them with Bad Axe saw plates and hardware. The ones I own and use were made by me, even the saw plates with some 1095 steel blanks.

**lacabraenlaescalera.com**

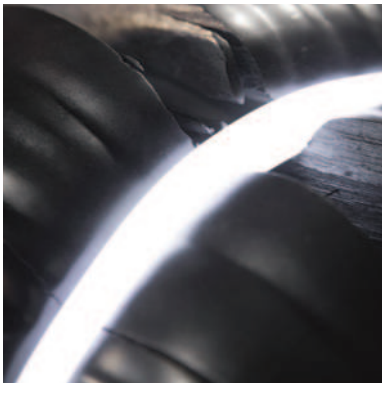













# TOUCHSTONE

## THOUGHTS ON **NUGE**'S LATEST SCULPTURE

My current body of work has been inspired by the soft, fluid nature of bedding. I have enjoyed working with wood, a traditional material that is stiff and rigid, and then manipulating the surface to resemble that of delicate, flowing fabric.

The handful of pieces that I carved in the beginning were finished in black. I made this decision because I wanted the attention to be solely on the form. Without any colour, the observer is forced to appreciate the pieces for the peaks, valleys and folds of the surface that are being highlighted by the reflecting light. Therefore, to fully appreciate these pieces, proper lighting is essential.

This sculpture, Touchstone, is a culmination of these two relationships that were present in my prior work: the juxtaposition of wood to fabric, and light to form. Instead of relying on exterior illumination, I integrated LEDs directly into the piece, which then created its own light source. The intricacies of the carving are emphasised by the placement of the LEDs inside the creases. I wanted to create an element where light becomes tangible and is literally able to embrace the sphere similar to the way one embraces a pillow.

Find out more at **nugeandwood.com**

*'Instead of relying on exterior illumination, I integrated LEDs directly into the piece, which then created its own light source.'*

PHOTOGRAPHS: KEVIN TAM

# THE WONDERS OF WOOD

## **BRENDAN DEVITT-SPOONER** DESCRIBES HIS APPRECIATION OF LIVE EDGE TIMBER IN FURNITURE

When appraising the timber used in most items of furniture, we usually consider the straightness of grain, consistency of colour and probably an absence of defects. When choosing timber to make drawers, door frames and other structural parts, the above considerations would all be important. However, there are many ways that those odd and awkward pieces that one finds lurking in most workshops can be imaginatively used.

### OLD STOCK REPURPOSED

Having a generous stock of timber that I have built up over the years has led to a supply of odd planks that are not suitable for 'normal' use but which are too nice to discard. Every so often when tidying up I come across a piece that fires up the creative juices. More often than not, they will be waney edged with another defect like a large open knot, a split or a discolouration. Looking through books, magazines and the internet, one can find an extensive list of these natural defects, which also include ingrowing bark, shakes, spalting and beetle attack, as well as man-made ones such as iron nails in oak.

### LIGHTBULB MOMENTS

The pieces featured here are all the result of 'lightbulb' moments. The tops in each case had been lying around for years but I could not cut them up and burn them. Rather than make a piece entirely from 'interesting' timber I like to have a mix of the natural and the engineered. I think it is also important to mention that using these pieces of timber does not mean you have to follow shoddy work practices. The timber with all its character does not deserve to be joined in rough and ready ways. It warrants as much attention as that given to a fine piece.

## SIDE TABLE

This side table is made from ilex oak and acacia (false robinia). Previously when I have used ilex oak, which in certain books is regarded as suitable for estate work, it has been a rather dull greyish colour but still displaying all the characteristics of oak such as medullary rays. This slab, which was part of a large tree I took down about 23 years ago, is a mixture of blood red with black streaks. I can only presume the colour was down to the soil conditions. The hole and the beginnings of rot on the left-hand side add interest along with the waney edge to the front. The underframe was conventionally assembled with through mortise and tenons joining the front legs to the single rear leg. Displaying the joint draws the eye to it, so care must be exercised in ensuring that it withstands scrutiny.

## SINGLE SLAB TABLE

The single slab table was another situation where the piece of timber was unsuitable for use in the commission I was working on. The black stain caused by the presence of iron nails and 'slots' caused by a chainsaw normally would not endear themselves. But again – why not? Black stain is quite common, although sawmills are not that keen to plank trees that have traces of black. Contact between the bandsaw blade and the nail can be expensive. The slot tends to be a talking point and young children find it intriguing. The underframe was formed by making up boxes of maple offcuts.

PHOTOGRAPHS BY ANTHONY BAILEY/GMC PUBLICATIONS

## ASH TABLES

These two pieces of ash had too many natural defects for the job I was working on, so I made them into a pair of tables. They are in effect bookmatched as they were consecutive planks of the log. The presence of encased branches leads to a wild look to the top, which is fascinating from whichever direction you look at it.

The underframes were made from some seriously black pieces of oak which had many nails in them. As they were rather narrow in cross section I joined them together to make up the ends and used pieces of ash as stretchers. These were through tenoned into each end – another situation where joint quality is important.

## TECHNIQUES

With all tables like these, consideration must be given to normal and expected timber movement. The tops, being quite wide, will need to be allowed to move with the prevailing moisture content. Buttons in slots can be used. In some cases a larger than normal clearance hole will suffice.

Using waney edged timber means that use of a plane is irrelevant along the edge. A drawknife, followed by a spokeshave and abrasive paper wrapped around a foam block allows you to remove all the loose dead wood, shape and remove sharp edges and smooth the undulating edge into a tactile experience. A wire brush is also useful in removing loose timber.

Because the timber you may use can be interesting, I have found a speed sander to be invaluable in preparing the surfaces. With the possibility of loose knots and wild grain, putting these pieces through a thicknesser can be hazardous.

## LOVE THE LOOK

Over the years that I have been making furniture it is surprising how many people love the appearance and feel of timber. Although a large blemish-free table top is magnificent there is a lot more interest in a top that looks like it came from a tree!

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First prize: Cradle to Cradle by María Ruiz de Elvira, Celia Martínez Otaduy and Daniel Romero Pérez – a cradle that can be turned into two chairs to adapt to its occupant

# INFINITE OBJECTS – THE TOCA MADERA FINALISTS

WE SHOWCASE THE WINNING WORK FROM THE SPANISH SUSTAINABLE DESIGN COMPETITION

PHOTOGRAPHS COURTESY OF AHEC/AIDI

**Second prize:** Dew by María Soriano Rementería – an anatomised structure that adapts to the configuration of each new home

The Toca Madera competition, organised by AIDI Industrial Design Engineering Association and the American Hardwood Export Council (AHEC), challenged its participants to design 'infinite objects' – pieces that will survive the test of time, all made using American red oak.

More than 40 young professional designers from all over Spain took part, and the work of eight finalists was chosen to be exhibited during the Madrid Design Festival 2020.

The projects were all manufactured using American red oak, donated by the importer and distributor AE Maderas, in the La Navarra workshop located in Torrejón de Ardoz, Madrid.

All participants attended a training session where they learned about the sustainability of American hardwoods. The eight finalists then took an active part in the manufacturing of their designs in the workshop and were taught how to calculate the environmental impact of their designs, taking into account the energy consumption needed for manufacturing and the volume of waste generated.

The Cradle to Cradle project won the judges' and the public vote, with Dew and Taburete Barlovento in second and third place.

**americanhardwood.org & aidi.es**

**Third prize:** Taburente Barlovento by Andrés Mariño Maza – a stool made using a bending technique traditionally used for building ships, in order to obtain a more efficient, aerodynamic shape

Bailarinas by Sergio Rodríguez Casado – a console table with spinning tops

Cooplay by Irena Ventsislávova Bózhkova – a game for children composed of six figurative worlds (modular tables) to explore through experimentation and imagination

Reinterpretar lo infinito by Jaume Molina López – a reinterpretation of the chair

Rojo Furoshiki by María Risueño Domínguez – a bag made from intertwined cubes of American red oak, which was made using a traditional Japanese technique

San by Fernando Hernández Castellón – a collection of objects for the preservation of manual coffee making techniques, inspired by Ethiopian architecture

# CLASSICAL ORDER

## WHAT MAKES SOME DESIGNS STAND THE TEST OF TIME BETTER THAN OTHERS?

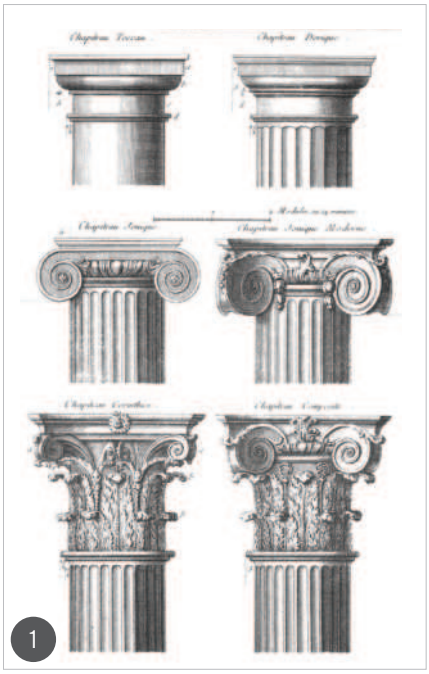
PHOTOGRAPH BY SHUTTERSTOCK

There are many examples of past influences – names, languages, laws, mathematics, philosophy, astronomy and astrology – which still affect or influence us today. One such example is ancient architecture – the Egyptians, Greeks, Romans and other civilisations have all affected the way we have designed and constructed buildings and furniture.

### COLUMNAR ARCHITECTURE – THE FIVE ORDERS OF COLUMN

The title 'classical order' refers to the early design of columns that held up great buildings such as the Parthenon in Greece. It wasn't just the columns and their decoration but also the other attributes of a typical grand building of the period. For example, the level above the columns under the roof line is referred to as the 'attic' – you can see where our use of the word comes from. There were five orders of supporting Greek column, which had different designs, and the apparently straight-sided columns were, in fact, bowed. This is referred to as 'entasis' and it appears on structures in other civilisations too. The proportions of a building with a formal function such as a temple were very carefully worked out. There was nothing haphazard about the architecture. It involved complex mathematics, surveying skills and the underlying philosophy and beliefs that sparked their elaborate and painstaking construction. Then, of course, there were the countless craftsmen and labourers who executed the skills we have largely lost.

IMAGE COURTESY OF WIKIPEDIA COMMONS



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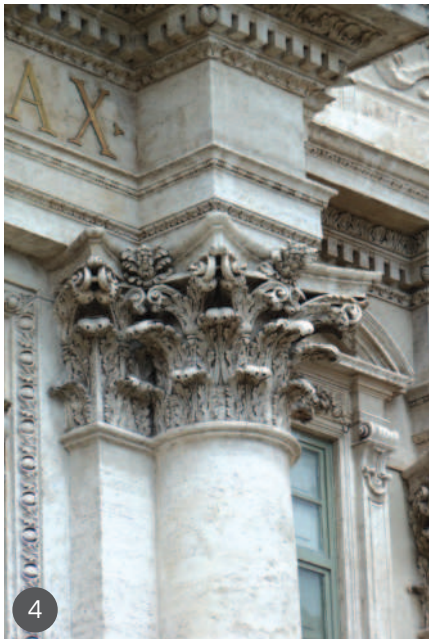


## THE GRAND TOUR (1660–1840S)

The Grand Tour was the term given to a period of foreign travel by rich young gentlemen as a way to finish their education, a kind of gap year for the elite. Visitors enjoying the Grand Tour were inspired by the rich tapestry of earlier civilisation at places such as Athens and Pompeii, they were keen to buy souvenirs and then recreate and reinvent what they had seen when they got back home. Great Britain is littered with examples of stately homes and other structures that bear testament to this fascination with a bygone era and its undeniable grandiosity.

**LEFT** The Parthenon is the most important surviving buildings of classical Greece and the finest example of the Doric order
**1** The five classical orders of column – from top left Tuscan, Doric, Ionic and Ionic Modern, Corinthian and Composite
**2** Surviving columns in Pompeii, Italy, showing more recent repairs
**3** The Basilica della Santissima Annunziata del Vastato, a Catholic cathedral in Genoa
**4** A Palladian-style building in Rome with ornate detail, such as acanthus leaves, egg and dart and dentil mouldings
**5** The dome of the Pantheon in Rome is the largest unreinforced concrete dome in the world thanks to unique Roman cement which incorporated volcanic ash

PHOTOGRAPH BY SHUTTERSTOCK

PHOTOGRAPH BY GMC PUBLICATIONS/ANTHONY BAILEY

PHOTOGRAPH COURTESY OF WIKIPEDIA COMMONS

**6** Finely rendered Roman arches and columns above a courtyard in Barcelona
**7** The Bank of England building in Threadneedle Street, City of London. Built in the Palladian style in 1734 by George Sampson
**8** A section of the long frontage of Petworth House, West Sussex, which dates from the late 17th century
**9** The now demolished Marco Polo House in Battersea, south London – an example of Postmodernist architecture
**10** Ionic order inspired scroll capital on top of a plain column outside the Gideon Mantell building in Lewes, East Sussex

## NEOCLASSICAL

It was one Andrea Palladio (1508–80), an Italian architect from the Republic of Venice, who came up with the 'modern formula' for how buildings should be created in the classic mode. You don't need to look far – your nearest stately home or the government buildings in Whitehall, London, or sightseeing in any European city – to see this gentleman got his sums and his proportions exactly right. But he translated down – not into open, breezy temples on high, rocky outcrops that were close to the home of the gods, but instead essentially into well-grounded, substantial enclosed boxes for living and working in that would be a grand residence or a seat of civil service or banking. It was a design style that continued until the dawn of the 20th century as empires began to fade and a brave new world of revolution and global wars did not accept such monuments to might.

## MODERNISM

Modernism, with its clean-cut square structures and use of mass construction techniques, took over early in the 20th century, although, on a domestic scale, suburban 'Tudor-bethan' was much more popular. The modernist approach lasted right up until the 1970s when it began to look tired and wrong – a socialist experiment that didn't favour ordinary people and was misappropriated by the gods of commerce in cities around the world, just as the earlier 19th-century classical style had become dated and inappropriate in its turn.

PHOTOGRAPHS BY GMC PUBLICATIONS/ANTHONY BAILEY






**11** A fine town house in Lewes, East Sussex, with a Roman-style arch and flat columns
**12** A Georgian frontage in Lewes, East Sussex: the columns, pediment and linings are made from wood and feature classical elements
**13 and 14** A broken pediment with cavetto and dentil mould details on top of a large mahogany bookcase designed and built by Paul Richardson

## POSTMODERNISM

In the 1980s the once-revered classical style reared a much uglier head in the form of Postmodernism, which sought to ditch the square box approach. But architects seemed unable to break the bonds properly and instead came up with a largely nonsensical, rather than intended, whimsical style, which appeared on examples such as the original QVC building, Marco Polo House in London, with its sad attempt at a 'broken pediment' atop the structure. This much-unloved building has been demolished in the past few years to make way for something more relevant. Thankfully, architecture now is much more flexible and imaginative in its approach, partly due to new construction methods and materials, and, for the time being at least, attempts to recreate past classical glories have been put aside.

## CLASSICAL FURNITURE DESIGN

The classical influence on furniture lingers on. Every time you see a cornice on top of a bookcase, every time fluted columns are added to furniture to make it more imposing, every time moulded architraves and skirting are fitted around a room, it is a nod to the ancients – particularly the Greeks and Romans whose descriptive names and designs are still present in cutter and moulding descriptions and in carved details – Grecian ogee, roman ogee, cyma recta, cyma reversa, 'classical' moulding, dentil, acanthus leaf, 'egg and dart' and more. Their powerful influence still echoes down the aeons.

## BRIEF HISTORICAL NOTES

Classical architecture was born out of a mixture of the nomadic invading Dorians' belief in male sky deities and the 'invaded' agrarian Ionians who saw the world in mysterious, emotional and sensual terms. Combined with the more pragmatic approach of the Dorians, in time various philosophies developed which enquired into the nature of the natural world. The Pythagoreans and other philosopher-mathematicians believed the soul's release depended on the knowledge of truth. This inevitably linked to the harmony of numbers, which translated into carefully calculated temple forms, where shapes and proportions were precisely calculated.

Early structures were made of wood, which inevitably degraded, but these were quickly replaced with larger, more long-lasting stone edifices. Their aim was not to keep changing design but to improve it to the point of perfection. One change in design that stuck was the introduction of clay tiles, which necessitated peaked roofs and much stronger supporting structures underneath. Today, most buildings have peaked or pitched roofs to carry weight and shed water.

Roman buildings relied heavily on Greek architecture while incorporating numerous improvements such as the arch, roof trusses and cement – all devices and materials still in use in modern construction.

# CARVING CAPITALS

## **JOHAN ROUDY** SHOWS YOU HOW TO CREATE THESE ELABORATE CAPITALS

Capitals are one of the most classical features of architectural carving. From the 13th century BC right up to today there have been an infinite variation and evolution of forms and styles. This example comes from a 19th-century model. The original, which formed part of a piece of church furniture, was quite small – about 120mm wide – which explains its simple shapes. It was obviously designed to enhance the furniture in a straightfoward way.

This particular capital is 330 × 330 x 245mm and has only three sides carved, as it will be fitted on a church organ. The prepared block of wood is a glue-up of 40mm-thick boards, with the grain running vertically. It could have been a plain cube, but in order to save some wood it was made at 280mm width and extra parts were added for the volutes to reach the 330mm needed at the top. Before starting to carve, the first steps will consist of roughing out the basic shapes on both sides and the angle view. The patterns are more a reference guide of sizes, shapes, guiding lines and depths than a whole design to decorate the wood. You can also use them to make cardboard templates where you need profiles or shapes.

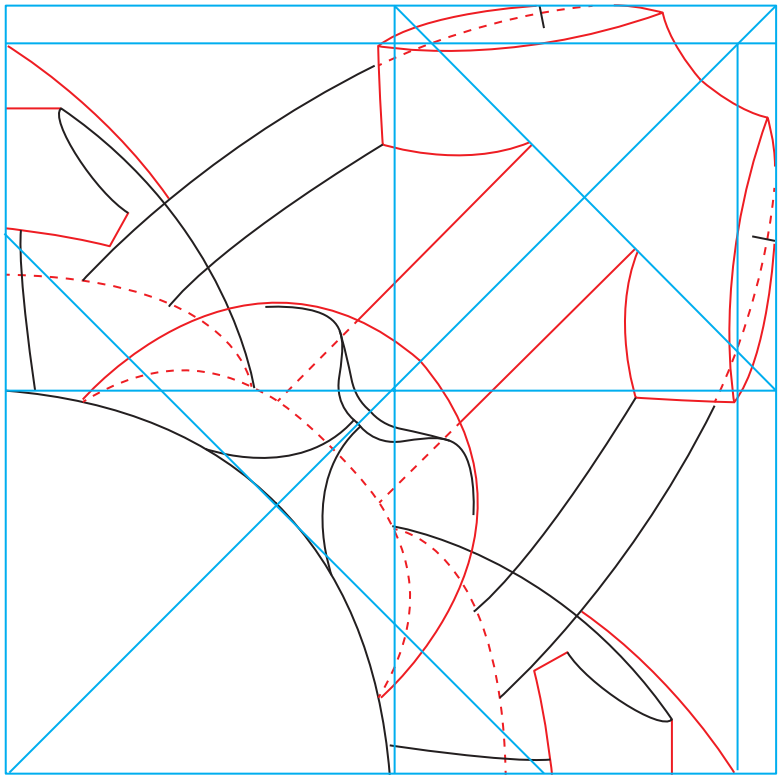
### YOU WILL NEED

**Gouges:**

- No.3, 30mm
- No.3, 40mm
- No.5, 16mm
- No.5, 30mm
- No.5, 35mm
- No.5, 40mm
- No.6, 16mm
- No.6, 25mm
- No.7, 25mm
- No.8, 25mm
- No.8, 35mm
- ‘V’-tool 60°, 10mm minimum
- 30mm straight chisel
- Saw

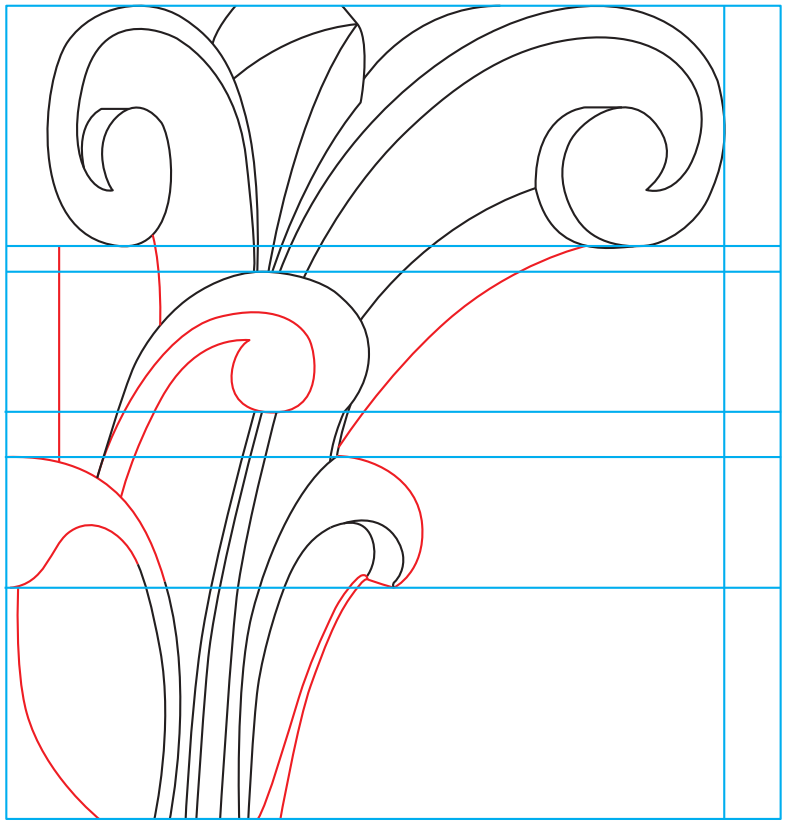
**Wood:**

- Laricio pine 330 × 330 × 245mm
- Many light coloured and straight grained woods, such as limewood, would also be suitable

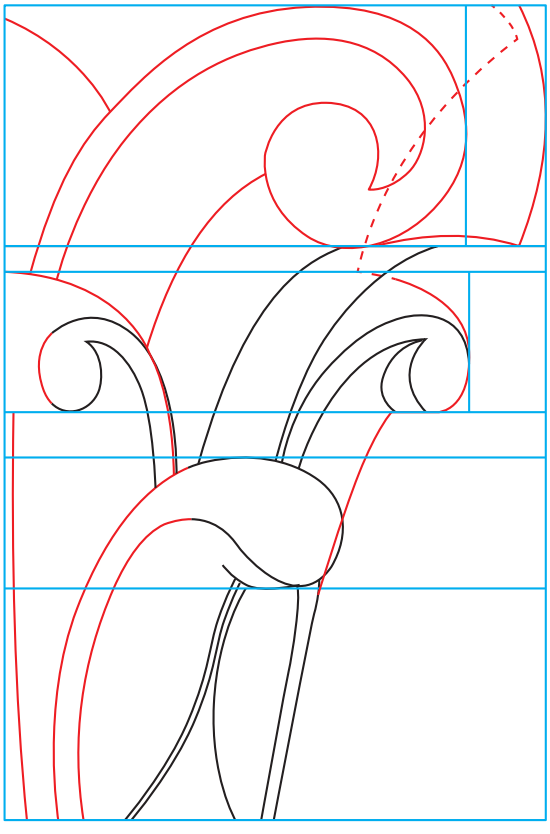


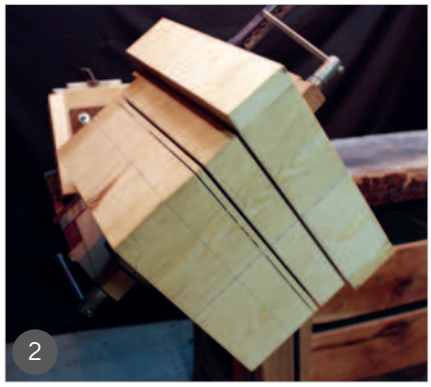
Top and bottom view

Angled view



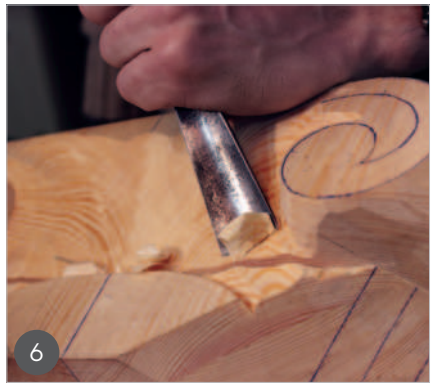
Front view










PHOTOGRAPHS BY JOHAN ROUDY

**1** Mark the height of the top and bottom of the leaves and volutes on the sides and draw vertical lines in the middle of each. On the top and bottom draw the centrelines and diagonals and a 165mm circle in the middle. Along the circle, draw a square parallel to the sides and a diamond so that you get an octagon. Note: each step should be made on each side of the capital before moving on to the next.

**2** Cut 25mm deep at the bottom of the volutes on each side and cut the bottom protruding part of the upper leaves at the depth of the tip of the leaf. Make a 45° cut on the angles at the top of the lower leaves and another small one just under the volutes. Draw a vertical centreline on the angles. Remember to mark the guiding lines again after each cut.

**3** Cut the bottom of the protruding part of the leaves and extend the cut at the top of the lower leaves to their definitive depth. Remove the waste under the leaves.

**4** On the angles, carve the curved profile under the volute. Start with a No.8, 25mm gouge across the grain to remove most of the wood, moving to flatter gouges to clean. Then use a No.3, 30mm across and down the grain. Use the first one as a reference to make the others. Under the upper leaves, lower the bottom until you reach the circle. Draw the volutes 24mm away from the edge. Use a straight chisel to remove the angle and cut the profile of the volute.

**5** Using the No.6, 25mm and the No.5, 30mm gouge, stab the inside of the volute up to the top of the 'eye'. Keep extra wood around the line for refining. On the corners, draw the vertical lines of the flat central 'stem' under the volute, then lower the area above the upper leaf. In the middle, use the No.8, 35mm to carve a straight groove from the top, where the central leaf will be set, and two grooves following the lines of the volute's fillets. Pare back to the depth of the grooves, evenly turning around the volute.

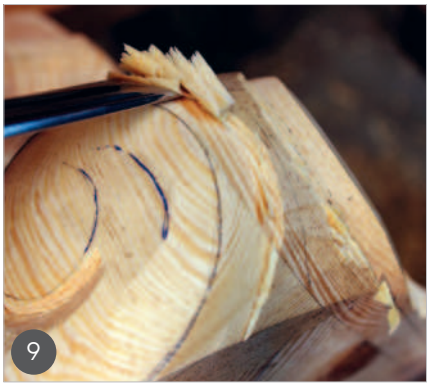
**6** Using the No.3, 40mm gouge, stab a curve on the top of the upper leaf to allow you to carve downward around the volute and up to the line of the central stem at the angle. Keep removing some wood above the upper leaf to get 35mm depth in the middle.

**7** On the protruding part of the leaves, draw a line where the most prominent point should be. Round the profile of all the leaves across the grain, starting from the sides toward the centre, progressively approaching the line. Use the No.3, 40mm then the No.5, 40mm gouge. Try to make the profile as close to the pattern as you can on the lower leaf, but just lightly round the upper leaf.

**8** Set in the shape of the volute closer to the drawing, almost to a square angle, and use the No.3, 40mm gouge or a flat chisel to round the eye, mostly at the bottom and the inside, taking care of the grain direction. Round the top and evenly connect the volute to its stem. The highest point of the spiral, just lightly rounded, should be located at the angle.

**9** Once rounded, redraw the spiral and tighten the angle between the volutes with the same gouge using slicing cuts.












**10** Clean the centre with a No.5, 35mm gouge until you match the previous cuts in a clean hollow. Switch to the No.3, 40mm for the top and the bottom and shape the upper leaves, then...

**11** ... using a flat gouge, remove some material on the sides of the leaf, aiming at the lower leaf cut. Dig the outside edge of the leaf with a 'V'-tool and remove the waste on the volute's stem. Use a cardboard template to draw the side of the leaf to see where more wood has to be cut off.

**12** Repeat the last step until the template fits on the sides of the leaf. Use the saw cut below as a mark to position the template.

**13** Carve the profile of the top of the leaf with the No.3, 40mm and No.5, 35mm gouges, following the pencil lines and flattening the top.

**14** Redraw the inside edge of the volute fillet. Starting from the spiral with the wing flat, run the 'V'-tool along and twist to reach the top of the leaf in a vertical position. Go deeper, paring the sides of the central leaf with a flat gouge, until you can draw the fillet at the same width as at the top of the volute. Remove 10mm at the top of the central leaf to reach the same depth as at the top of the spirals. Carve the light curve going from the tip of the leaf to the beginning of the fillets.

**15** Draw a line halfway between the central stem and the fillet. It should follow the curve of the whole stem and look almost vertical from the angle. Use a No.6, 25mm gouge to carve the first hollow of the stem, following the inner line of the fillet. Refine the curve of the central flat stem.







**16** Carve the second hollow downward, from the side, with the No.5, 30mm gouge. Carefully approach the line of the central stem and the edge of the first hollow. At the top, use slicing cuts on the wall of the volute to get the groove deep enough. Set in the outline of the upper leaf and clean its connection to the hollow.

**17** With several slicing cuts, use the No.5, 30mm gouge to set in the rest of the eye. In order to get an even increasing depth as it goes to the top use the No.6, 25mm or No.7, 25mm gouge to carve the recess of the spiral. Start from the bottom to the centre of the curve, then go back from the top to the centre.

**18** Draw the edges of the central leaf and remove some excess of wood with the No.3, 30mm gouge. Set in the outside of the fillets – they will be deeper at the top than at the bottom.

**19** Clean the sides of the leaf with the No.3, 30mm gouge to match the middle line and the stab cuts of the fillets. Set the definitive outline of the leaf with the same gouge at about a square angle from the surface of the leaf. Deepen the back of the fillets and the back of the leaf and carve a flat surface along the grain in the background.

**20** Back on the leaves, using a flat gouge, give a sweet curve to the sides, on the upper leaves and then on the lower leaves.

**21** Draw the outline of the lower leaf on the side and begin to round the angles on the protruding part using the No.3, 30mm gouge, approaching the outline on the side. Clean the connection between the upper and the lower leaf.

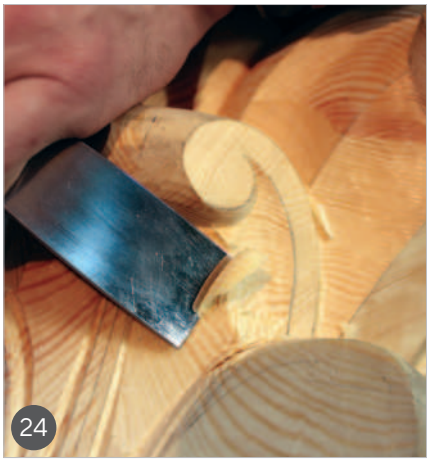
**22** Draw the stem of the upper leaf. Using the 'V'-tool, outline the stem and the lower leaf along the pencil lines. The top of the stem will be set in with a flat gouge, as the tip of the leaf doesn't allow the 'V'-tool to reach the corner.

**23** With a No.5, 16mm gouge, carefully set in the small volute of the leaf with slicing cuts, removing the waste downward from the side. Use a No.8 or 9 gouge to carve a groove along the inside line of the leaf fillet.

**24** With the No.3, 30mm gouge, begin to flatten on either side of the stem and round the leaf towards the groove.

**25** Round the tip and the top of the lower leaf using the No.3, 30mm gouge and No.5, 30mm gouge. Refine the profile if necessary and draw the curl.












**26** Carve a groove along the inside line of the fillet – as in step 25. Pare the bottom of the leaf to match the circle on the underside and the grooves. Carve the stem and round the inside as on the upper leaf.

**27** Deepen slightly under and around the curling part of the leaf, giving a bit of undercutting under the tip with a flat gouge.

**28** Carefully round the corners so that the fillet has an even width and melt in one surface at the top. Refine the outline of the leaf to its 'U' shape.

**29** Clean all the connections between the different elements. A moulding or 'abacus' should be made to cover the top. Its size should match the width of the top of the volutes.

**30** Your final piece should look something like this.

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Bird's-eye figure in hard maple

# FIGURE IN WOOD

## **TERRY PORTER** EXPLAINS EVERYTHING YOU NEED TO KNOW ABOUT THIS KEY ASPECT OF WOOD

The term 'figure' refers to characteristic, special or unusual markings that may be found on the surface of wood, typically on side-grain surfaces. Interesting figure comprises a combination of colour, grain, lustre and texture, and can be brought about by various features of that particular wood, from the peculiarities of its normal growth structure through to defects, abnormalities and extractives that may be present. Different types of figure may be revealed, depending on how the wood is cut. Quartersawn oak, for example, can reveal the beautiful ray figure known as 'silver grain', whereas if the same wood is flatsawn, the resulting surface is unlikely to have such interesting figure.

It is important not to confuse figure with grain. 'Grain' refers to the alignment of the wood elements in relation to the timber's longitudinal axis; the contrast in density and colour between early and late wood in timbers such as Douglas fir is a grain characteristic. Grain is only one of the features that contribute to figure.

Although each piece of wood is unique, there are recognised patterns of figure markings that have become accepted – many of them associated with particular woods, such as bird's-eye figure in maple. The names of these patterns often give a good clue to their appearance. I have listed some key terms here, but specialists in figured veneers will use more.

### angel step
A staircase-like curly figure caused by cutting across the stump or butt sections of a tree; frequently found in walnut, but can also occur in ash and maple.

### bee's wing
A small-scale, very tight mottle figure, found in East Indian satinwood, mahogany, bubinga and some eucalypts. Block mottle is similar, but larger in scale.

### bird's eye
A pattern of small, rounded, lustrous spots, found almost exclusively in hard maple.

### blister
A figure resembling billowing clouds, or on occasion bubble-like forms; the surface looks blistered, even when perfectly smooth. An uneven contour in the growth rings can create this effect when a log is rotary- or half-round-cut for veneer. It is similar to pommelé, but with sparser, larger figure.

### burr (burl)
A wart-like, deformed growth, normally on the root or trunk, but sometimes on the branches. These usually form as the result of some injury to or infection under the bark, or an unformed bud that does not grow properly. As the tree grows the burrs can grow with it, causing the surrounding growth wood to be twisted or wavy, which results in very beautiful figure. Burr figure is often found in European elm, ash, poplar, California redwood and walnut, among others.

### butt
A wavy, rippled pattern caused by grain distortion where the root joins the stump. American walnut can produce very interesting butt figure, which is exploited in stumpwood veneer.

### button
A pattern of buttons or flakes against a straight-grained background, revealed when wood with large medullary rays is quartersawn to expose the hard, shiny rays. Found particularly in American sycamore, white oak and lacewood. *See also flake.*

### cathedral
A series of stacked or inverted V-shapes; this can occur in plain-sliced veneer.

### cat's paw
A variety of pippy or burr wood which looks as though a cat has walked over it and left footprints; found particularly in oak and cherry.

### crossfire
Any marking that goes across the grain in a rolling curl, such as in fiddleback and mottle. It can look spectacular.

### crotch
A typically Y-shaped pattern formed where a branch joins the trunk of a tree. Burning bush, feather, flame, plume and rooster-tail are all varieties of crotch figure. Mahogany and walnut veneers are the best sources.

### curly
Contortions in grain direction that give the appearance of undulating waves as they reflect light differently. Curly figure is particularly common in maple and birch. A staircase-like curl is often referred to as angel step, and a rolling curl as a form of crossfire.

### fiddleback
A form of curly figure exposed by quartersawing, giving very straight grain with almost perpendicular curls from edge to edge. The name derives from the use of this figure for the backs of violins, which are traditionally made of European sycamore. It is not common but can be found in maple, African mahogany, makoré, blackbean and koa.

### flake, fleck or ray fleck
A lustrous effect found in lacewood (European plane), oak and sycamore, when the wood is cut parallel or nearly parallel to the medullary rays, exposing some parts of the rays.

### flame
*See crotch.*


Bowl in quilted soft maple

PHOTOGRAPHS BY GMC PUBLICATIONS

### flower grain
A diagonal ripple pattern, occurring in small, irregular patches, sometimes found in European spruce.

### mottle
Another type of cross-grain figure, where spiral interlocked grain combines with wavy grain to give a blotchy, wrinkled effect. The pattern can be random, or in something of a chessboard form (block mottle), and a finer, smaller form is known as bee's wing. Mottle figure can occur in mahoganies, sapele, bubinga and koa, amongst others.

### peanut shell
Some woods that are susceptible to quilted or blister figure can be rotary-cut to produce a peanut figure, which has some similarity to a quilted or pommelé figure. The wood surface appears bumpy and pitted, even when flat. Peanut-shell figure is found particularly in Japanese ash, but can occur in other woods.

### pippy
A random scattering of numerous little spots; typical in yew and sessile oak.

### pommelé
A pattern of small circles or ovals that sometimes overlap each other; it has been likened to a puddle surface during light rain. Resembling a finer form of blister figure, it is common in some African woods such as bubinga, African mahogany and sapele.

### quilted
A pillow-like, three-dimensional effect caused when an uneven or wavy interlocking pattern, forming a bumpy surface on the log, is rotary- or half-round-cut. It is a larger, more emphatic form of pommelé or blister figure.

### ribbon stripe
An effect resembling a slightly twisted ribbon, found in quartersawn mahogany and sapele.

### ripple
Any figure with a ripple-like appearance, such as fiddleback.

### roe or roey figure
Short, broken stripe or ribbon figure in certain quartersawn hardwoods, arising from interlocked grain.

### roll
A pattern of large rolls or twists that can run diagonally; if bookmatched, the resulting pattern is known as herringbone.

### silver grain
Another name for lustrous ray fleck on quartersawn timber, especially oak.

### swirl
A gentler type of crotch figure, where the grain swirls, meanders and sometimes appears to fold in on itself; common in cherry, mahogany, maple and walnut.


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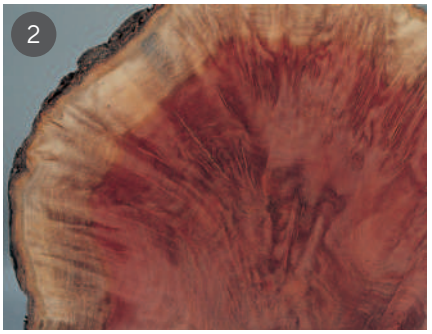
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**1** Burr (burl) on an elm trunk
**2** Burr (burl) of brown mallee
**3** Cutting through the centre of the crotch produces this classic crotch figure
**4** Cat's-paw figure on a chest of drawers in oak
**5** Sideboard with panels of pippy oak

# STACKING THE ODDS

A NEW YORK-BASED SCULPTOR IS TURNING THE WAY WE WORK WITH WOOD UPSIDE DOWN. *F&C* MEETS **RICHARD HAINING**

Building not carving, using pieces of wood others might see as waste or defective, Richard Haining creates unique sculptural forms and furniture that turn the whole art of woodworking on its head.

'Initially, I used scrap wood due to lack of financial resources,' he tells *F&C*. 'But very quickly I became engrossed in the challenge of using very small parts to create a larger whole. This material other people deemed waste was in my eye perfectly good, it just required a bit more time and patience to create the finished piece.

'Unlike segmented work, I have no pre-planned maths. And, since I hand-build using a single block of wood at a time, the result is an insanely beautiful random patterning. My choice of sculpting the exterior of each piece by hand – there is no lathe work on any of my work – results in a finished surface with subtle undulations similar to that of hand-built pottery.'

In fact it was experimenting with pottery that pushed Richard towards his current career. 'I have taken a rather circuitous path in my life, attending a couple of different schools and living in a couple of different regions of the US,' he explains. 'I fell back in love with art while I was living in Olympia, Washington, at which time I applied to the Rhode Island School of Design. I was accepted into their ceramics department and spent my first year playing with clay, alongside taking classes in glass blowing, fine metals and jewellery, as well as furniture.

'At the time, I was hand-building extremely large pots, but after some sage advice from a professor surrounding the amount of dust I was creating by sanding my pots before firing them, I transferred to the furniture design department.

'It was during my formal training in the furniture department that I fell madly in love with wood. Under the leadership of Rosanne Somerson (now

the president of RISD), and under the tutelage of my professors including Peter Walker, Lothar Windels, Jim and Mel Cole, Don Miller, John Dunnigan, Peter Dean and Dale Broholm I gained my respect for my materials, as well as my "waste", and learned to design and create with a sense of responsibility for the materials I choose to use.'

Part of the charm of Richard's stacked works is the patterns created by the contrasting blocks of wood sitting together. He says: 'The wood I work with is reclaimed and I find beauty in all of it. Water and mineral stains, contrasting heartwood and sapwood, knots, century-old nail holes, and other "defects" that are part of that lumber's history are a fingerprint of time since passed, a natural beauty to be celebrated, and only found through reclamation.'

Working in this way provides its own challenges. 'I work with salvaged material, all of which comes to me in varying states and sizes,' Richard explains. 'The random nature of these scraps requires me to first mill it into consistent usable stock. One of the amazing attributes of wood is the ability to work both additively as well as reductively. I love that there is no board, no burl, no figure, nor tree that will ever match the random mosaic quality my finished stacked works possess – it cannot be found in nature.'

One difference between his works and other furniture is that Richard leaves gaps in almost all his pieces – some small, some large. 'I don't attempt to close the spaces between each block,' he says. 'I build piece by individual piece, layer upon layer, additively sculpting my form, carefully controlling for both the wall thickness and the overall profile. I find that the voids add to the overall mosaic quality my stacked work possesses. My process is incredibly time-consuming and requires a lot of patience.'

PHOTOGRAPHS JOE KRAMM, DOUG YOUNG

## HAND-FINISHED

He adds: 'Much to the shock of some people, I do not turn nor use a lathe for any of my stacked work. The easiest way to describe my process is an analogue version of 3D printing. The desired profile, symmetrical or organic, is considered and created in the building process. Each piece is built, sculpted and finished entirely with my hands.

'I work out of a communal shop where the stationary tools are located in a larger common area, and then I have my private bench space off of that room. I use tablesaw, planer and chop saw in a series of steps to create my building blocks, but the tool I live by is my angle grinder. The grinder is to me what a knife is to a chef. That being said, I use a variety of other tools depending on the required task.

'Once constructed, my stacked objects have a rough, almost terraced quality. Using my grinder along with a variety of other hand-held tools – die grinders, rasps, files, sanders, etc – I gently sculpt the exterior of my work, resulting in a surface with subtle undulations very similar to that of my earlier hand-built ceramics.' The pieces are held together with standard yellow wood glue that can be found in most home improvement stores, and finished with a custom varnish made using a blend of poly and a couple of different oils based loosely on woodworker Sam Maloof's recipe. Richard says: 'It has the benefit of the oil penetration coupled with the sealing qualities of the poly, requiring a slow build process with multiple coats, but unlike straight poly, it never looks plasticky or overly shiny. I complete my finish process with a custom beeswax oil blend I also make.'

As well as his stacked forms, Richard carves forms from solid timber. 'I use a variety of tools to do all my shaping, both electric and manual. Different tools have different strengths. The only difference with these solid carved forms is the scale of the chunk of wood, being too large to justify cutting up into my building blocks,' he explains.

## EARLY WORKS

Richard's love of making dates back to early childhood. He recalls: 'I must have been seven or eight years old when I created a lamp for my mom. My dad took me to the hardware store and we purchased all of the basic lamp parts. With a scrap of construction timber for the base, I wired all of the parts myself, and then moulded the body of the lamp with homemade playdough.

'I chose to test the finished masterpiece within the privacy of my bedroom. I must have crossed some of the wiring, because when I first plugged it in, sparks shot out in all directions. The shrill, high-pitched, end-of-the-world scream my little lungs produced caused my mom to come running to my door and furiously try to get in the locked door. I yanked the cord from the wall and, with the danger removed, screamed back at my mom that nothing was wrong but she could not come in. She still has the lamp in all its aged, sun-bleached glory.

'With hindsight, I believe that was the moment I realised that I had the ability to not only design something, but I also had the capability to create it.'

Richard's favourite piece he has worked on so far was a stacked vessel based on an ancient Greek form which he made












on commission and which presented him with a new challenge. 'The desired form had a pair of handles, and those handles needed to be elegantly curved. Integrating the handles into the vessel body took some engineering and a different approach than I typically would have used, but the results opened my eyes to more possibilities. Without these types of challenges, it would be easy to get stuck,' he says.

His biggest challenge has been his recent asymmetric and organic stacked forms. He explains: 'Historically, I have worked very tightly with symmetry constantly being considered. I was so focused on the precise placement of each piece of wood to result in a finished object that was both equal and balanced. Challenging myself to forgo the symmetry and allow my hands to stack without that constraint has been far more liberating than I imagined, but also far harder than I anticipated. Practising in this manner has opened my eyes to new possibilities.'

Inspiration comes to Richard from philosophical ideas about the woods he is working with and from other brilliant craftspeople. '[Woodworker] George Nakashima's understanding of material's inherent soul, the stack laminating and subsequent hand carving of [American furniture artist] Wendell Castle and [British sculptor and photographer] Andrew Goldsworthy's premise of taking materials as you find them to create new work are all a constant source of inspiration,' he says.

## ORIGINAL IDEAS

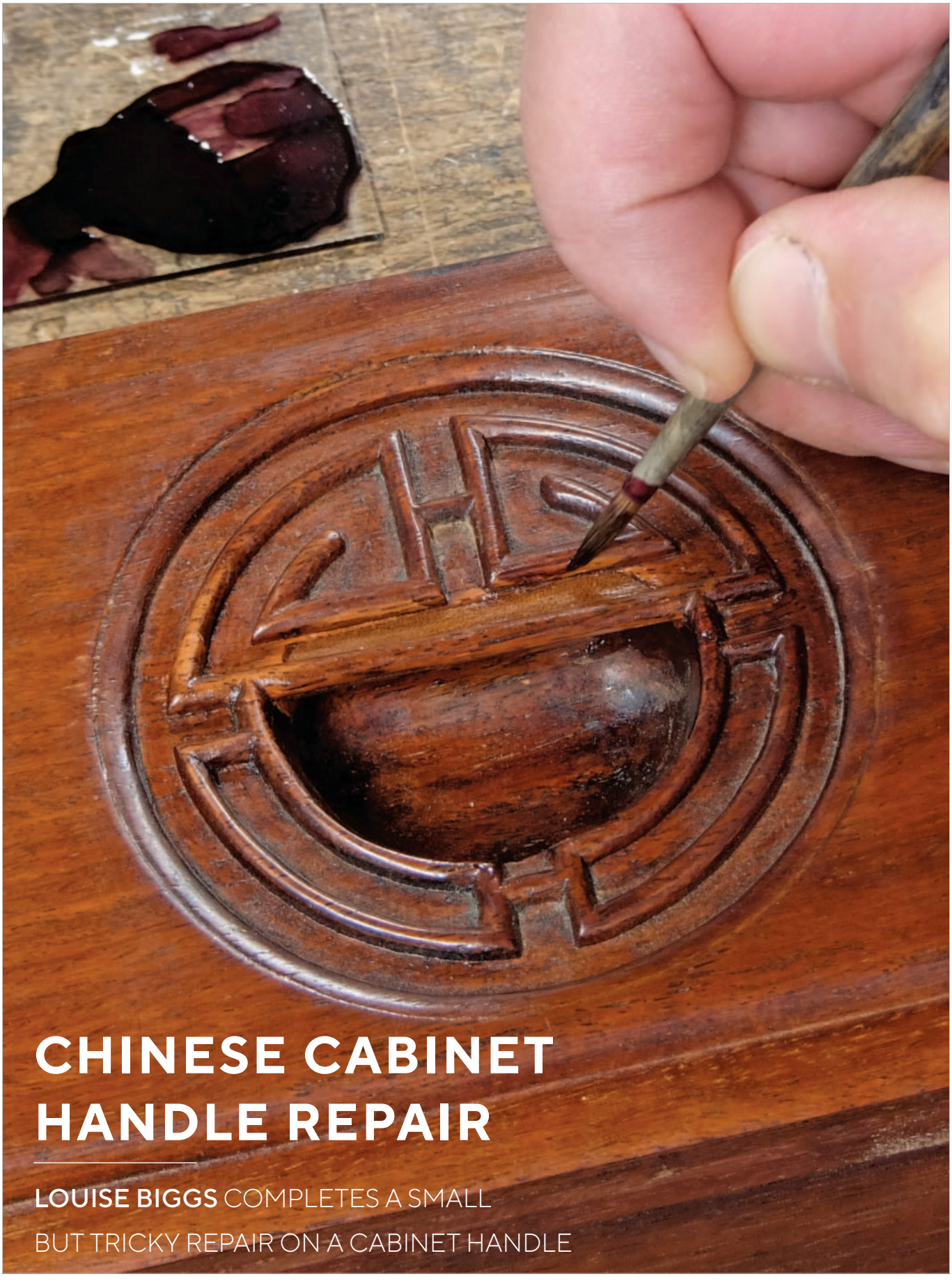
On the other hand, he has 'an aversion' to how-to tutorials. Richard explains: 'My process is built upon years of trial and error, schooling, the overall collected history of my experience. There's something that happens when you provide a viewer or reader with a step-by-step guide which includes all of the answers at the outset. I feel this diminishes the sense of wonder, inquiry and challenge involved in creating unique works of art. It is that wonder, enquiry and challenge that takes one idea and evolves it into something new.'

Over the years a few people have come to Richard and asked if it's OK for them to try a stacked work of their own. 'I tell them sure, as it does not bother me. In reality, I've never seen another one of these people get beyond a few layers following their realisation as to how much time and attention is required to create a stacked piece.

'The concept of a truly original idea is a bit of a misnomer. We're all influenced by the outside world, more so now in the age of the internet. My stacked process is something I've developed over my lifetime as a maker, finding inspiration, making mistakes, having successes, evolving ideas, building upon the lessons learned from my prior experiences. As long as a maker is not copying someone else's idea verbatim, but rather expanding upon an idea, or being inspired by an idea, they are developing it into their individual hand creation – versus a machine designed to mass-produce an object. These are the perfect imperfections that are unique to that individual.'

So what's next for Richard and his work? 'I am just getting back into the studio after being away for a couple of months while I restored an apartment my wife and I purchased. I am finalising a few designs for the upcoming Architectural Digest Design Show here in New York City in March. These new stacked pieces I am considering are going to further push my limitations beyond their comfort zone. I'm excited.'

**richardhaining.com**



# CHINESE CABINET HANDLE REPAIR

**LOUISE BIGGS** COMPLETES A SMALL BUT TRICKY REPAIR ON A CABINET HANDLE

PHOTOGRAPHS BY LOUISE BIGGS







**1** The drawer front with the broken section of handle **2** Positioning the broken section to assess what was missing **3** A template cut to shape for the back infill piece **4** Cutting the ends to form the joint on the drawer front **5** A block plane cutting the angled side of the infill piece **6** Using a chisel to shape the angled ends on the infill section of timber

This repair to a finger-pull handle of a Chinese cabinet was only a small job, but fiddly. My clients had the small decorative bar section and had attempted to re-glue the piece as it formed the pull handle, but it was not strong enough.

## STAGES OF RESTORATION

Having assessed the break and checked the other drawer handles I decided that the area above the bar should be filled and not open as shown; this supported the centre bar on solid timber and made the finger-pull stronger.

The old glue was carefully removed with a chisel from the broken section and the drawer front where it joined until the broken part was seated in the correct position. Holding the piece in place I had a clear indication as to how much back support was missing and I cut a small piece of paper as a template for the infill.

To increase the surface area of the joint for a larger gluing area the drawer front was trimmed at an angle, cutting in from both ends with the chisel and running the front edge up to the beaded decoration, which would help to hide the joint while cutting back as far as possible. The two ends were then trimmed at an angle supporting the chisel so as not to cut into the remaining decoration.

Having found what I thought was a suitable piece of timber with a similar grain, I wiped some methylated spirits over an area that had been abraded to get some idea of the timber's colour compared to the drawer front.

Satisfied that the colour would be lighter than required, I cut a large enough section with a dovetail saw and started to form the angled side using a small block plane.

Having lined the piece up on the drawer front, the ends were pared off to the required angles using a chisel. The timber section was held on a waste piece of board with double-sided tape to safely aid holding the piece.









**7** French chalk was used to highlight any high spots on the joint **8** Holding both pieces in place the width of the infill piece was marked **9** Shaping the curve on the back side of the infill with a carving gouge **10** With the infill glued in place the surface was levelled off **11** The decorative bar glued and held in place with masking tape **12** Final shaping of the repair **13** The repair being coloured and polished to match **14** The completed drawer front

## FITTING

The fit was almost right, but the piece appeared to be rocking on a couple of points. As it was small it was difficult to see the high spots, so I rubbed some French chalk on to the section and fitted it into place again; when the piece was removed the chalk had transferred on to the drawer front indicating the high spots. A smear of white glue will work the same as the chalk, but remember to remove it before it dries.

With the piece fitted tightly I carefully held both sections in place and marked the replacement piece for the correct width, finishing level with the decorative bar. By using a short pencil I also marked inside the finger pull as much as possible to give an indication of the internal shape.

Before gluing the infill section in place the back edge needed to be curved off in order to create the front shape of the finger pull. With the section held securely in a small vice, the curved shape was formed using a carving tool until it corresponded with the two lines marked. The piece was fitted several times to check the curved shape against the drawer front to allow the maximum room for fingers.

The section was glued and clamped in place. When dry, the front surface was trimmed back level with the surrounding timber using a chisel, before being finished with abrasives. Several thicknesses of low-tack masking tape were placed around the area to protect the surface finish during this process. The decorative bar was then glued in place over the infill and held in place with masking tape before being clamped.

Once dry, any final trimming was done to the lead edge using a chisel and excess glue was cleaned from the areas around the breaks. The repairs were given a coat of sealer before blending a small amount of red and black polish with a pale French polish to colour them out. With the colouring dry, a few more coats of polish were applied to finish the repair.

When dry, the repaired area was wired and waxed to tone in the polish repairs and the drawer front was completed and returned with a functioning handle.

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# A SENSE OF DISCONNECTION

## **DIEGO CARELLI** MAKES A BEDSIDE TABLE CONSISTING OF APPARENTLY FLOATING ELEMENTS

This project was made as a gift for a friend, we agreed that I would make a bedside table but other than that, the design and construction details were left entirely up to me.

I named it 'the disconnected bedside table' because the three main elements, top, legs and drawer, are visually disconnected from each other. The idea that I tried to achieve was an object similar to an exploded drawing, with the various components spaced apart from each other. The focal point of the project was to swap the roles between the drawer and the compartment that normally should contain it. In the disconnected bedside table, the drawer remains visible while the box slides inside. For the construction of the sliding system, I had to invent a sort of track inside the sides of the drawers.

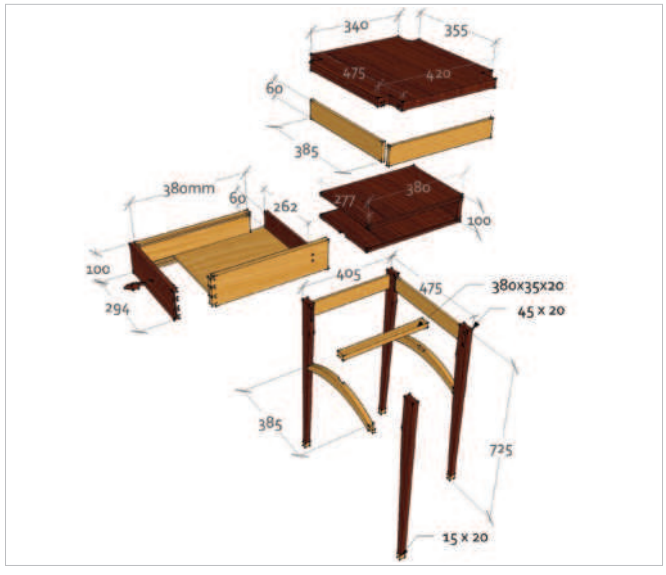
PHOTOGRAPHS BY DIEGO CARELLI

## THE DESIGN

My approach to design is not the most orthodox. I make lots of sketches, all freehand and often randomly trying to free my mind from technical and traditional influences; the shape and proportions are the important things at this point. Empathy with the design is the first characteristic I look for. After identifying the final shape, I begin to think about the processes necessary to make the various components and connect them together.

## THE BUILD

I started with some rough boards of American walnut, flattening them on the planer thicknesser. For the legs I looked for a straight piece with a uniform vein, but for the top I was fascinated by a knot that created some beautiful flame grain. A small crack started inside the knot, but this did not affect the stability and consistency of the piece in the least, and on the contrary gave it uniqueness and character.

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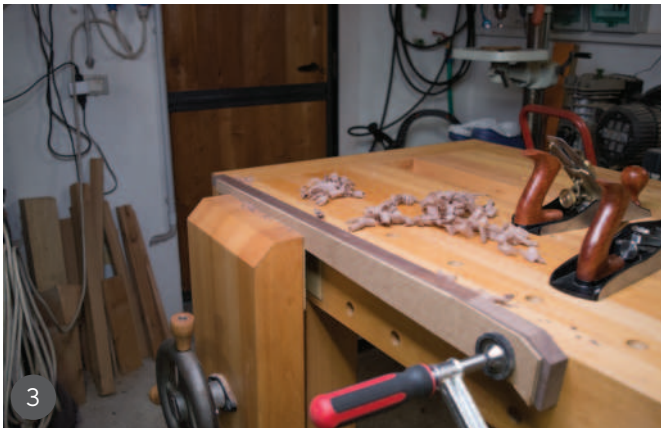
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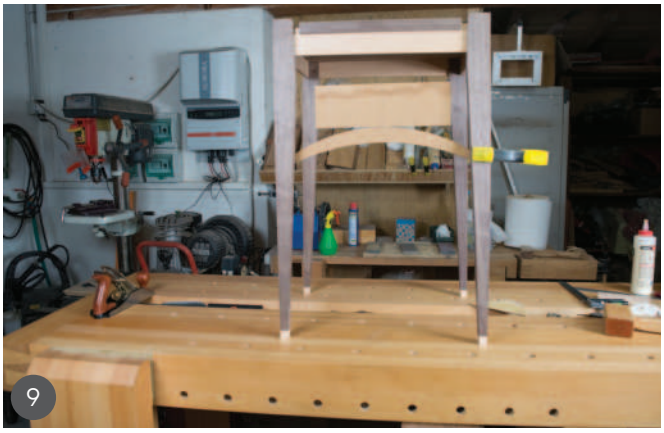
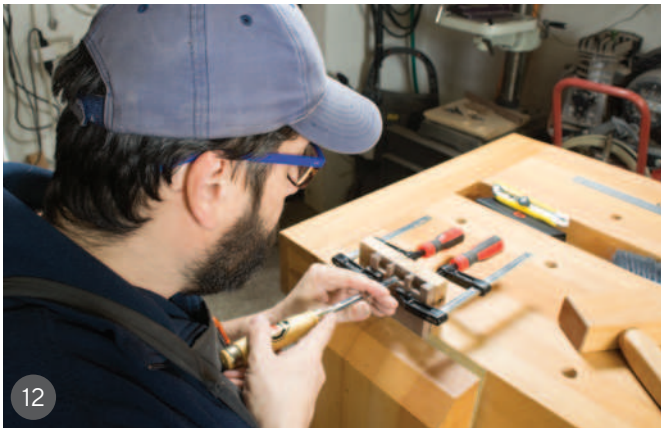
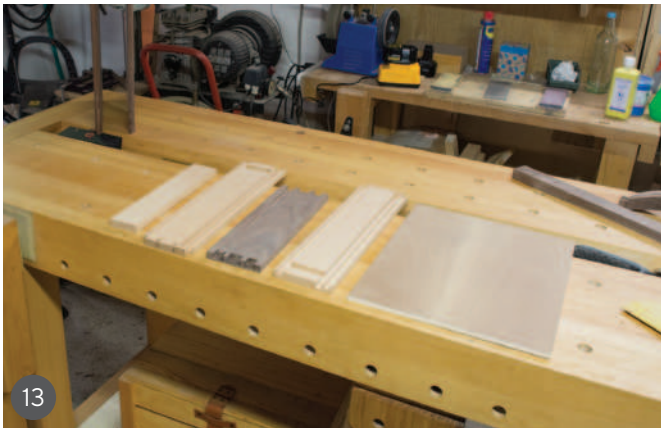




**1** All the walnut components marked out with minimum waste in between **2** The beautiful figure as the result of a knot was perfect for the top
**3** One of the legs after hand planing down to the template clamped on the side **4** Making a sharp chisel line ready for a saw cut
**5** Ripping down to the shoulder line with a Ryoba pullsaw **6** Marking a line for the slot to take the frieze rail
**7** The frieze rail or skirt, dry fitted before sanding the components **8** Marking out the arc for the rail template on thin MDF
**9** The template clamped in place to check size and position **10** The curved rails having the tenons trimmed for fit in the legs
**11** Cutting the notch-out to take a cross rail runner **12** The half-blind pins for the drawer dovetails being cut

Using a 6mm MDF template, I drew the shape of the legs on the table. I cut them roughly to shape and then, fixing the template, I could machine the final shape. I prefer to do this kind of work by hand – time is not an issue for me and it allows me the chance to work through any technical problems. The legs have a vaguely trapezoidal shape, so I worked the sides using a low-angle bevel-up block plane. It is a plane with the bevel of the blade facing upwards and a seat of the same equal to 12°. Depending on how the blade is sharpened, from 25° upwards, different results are obtained and even the most difficult woods can be planed without tearing.

I have paid a lot of attention to the legs because they are, in my opinion, the main element that defines the elegance of a piece of furniture and therefore it is extremely important not to make any mistakes in their thicknesses or angles. A few millimetres can make the difference between slender and stocky or between delicate and coarse. In this case the four supports have a 45 x 25mm rectangular section. Two sides are parallel and straight (front and rear facing, with respect to the furniture front) while the remaining two are tapered differently. The parts that face outwards taper downwards by approximately 2°. Those that face inwards run straight for about 130mm and then taper about 6° on the foot. The straight part was necessary to make the mortise that houses the perimeter band easier. All the legs have a 20mm-high beech foot. The bands that join the legs are 60mm high but are partially covered by the top. This is simply a rectangle to which the four corners have been cut in order to create voids that house the heads of the legs. Along the whole perimeter, on the lower part, I prepared channels. Its assembly takes place by lowering it from above so that the perimeter bands fit into the grooves. By making the joints so precisely I was able to avoid the use of adhesives. This will alleviate some of the problems that can be caused by seasonal wood movement.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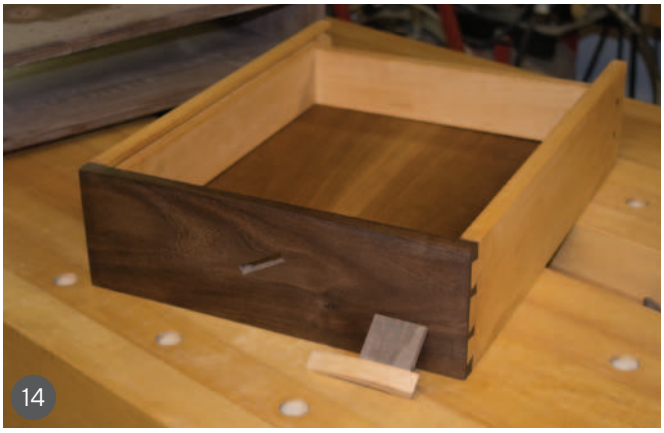
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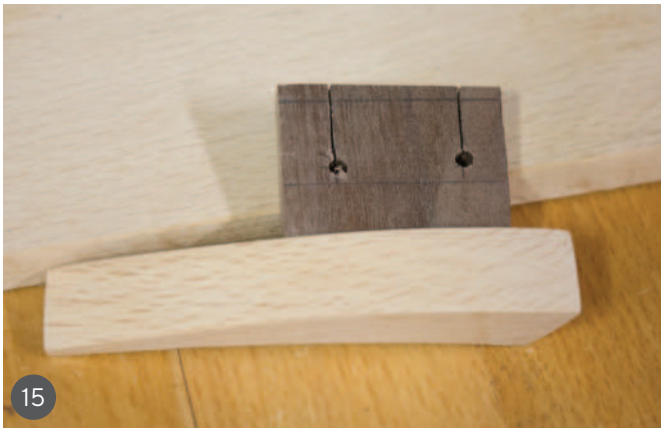
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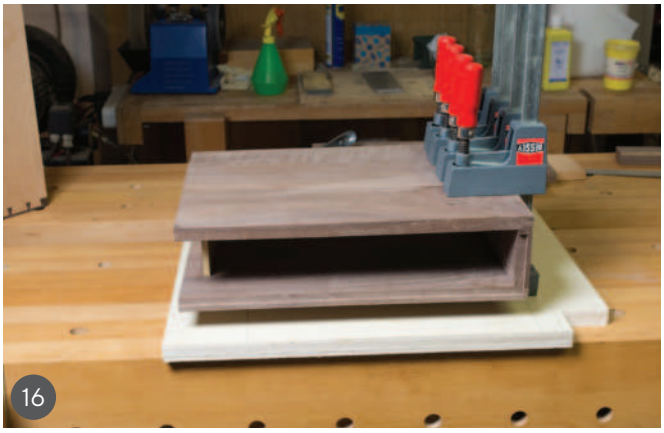
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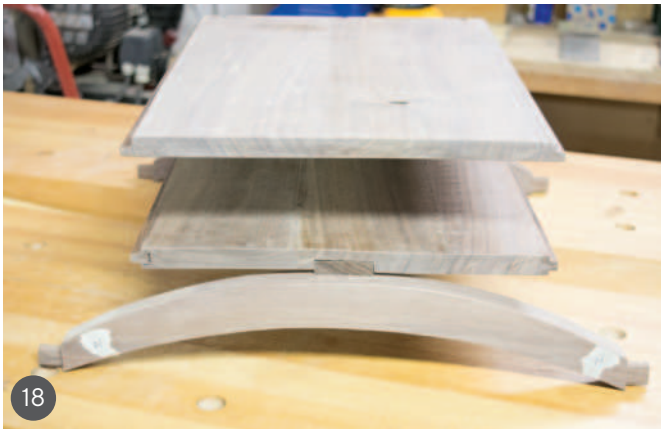
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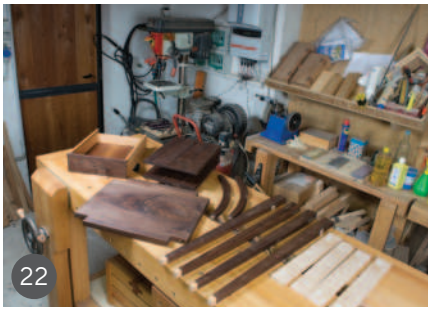







**13** The drawer components completed and ready for assembly **14** The completed drawer; note the comma-shaped handle which will fit in the slot
**15** The handle will have wedges inserted to lock it firmly into the drawer front **16** The outer box is made to fit the drawer which actually slides around it
**17** Machining the second tongue in more than one pass to final width **18** The outer drawer box is slotted to sit on the cross rail
**19** Testing the sliding fit of the drawer before final assembly **20** Detail of the sliding tongue and grooves and the drawer bottom groove
**21** Trimming the contrast tip of one of the legs working against a bench stop **22** All the components ready to assemble
**23** Leg frames with masking tape marked to show correct assembly positions
**24** Detail of the curved rails showing the completed notch-outs for the cross rail
**25** The skirt components, marked to show the correct assembly positions
**26** All glued up, clamped and checked for square, almost ready for a finish

The creation of the drawer was the most demanding part. I started by building a C-shaped container, basically a box with only the top, bottom and back sides. On the sides, which remained open, I made rails for sliding. I mounted the case so that it closed slightly towards the front. A ploy was to make sure that the drawer, once more than half of it was pulled out, remained straight without leaning down. The drawer is made with half-blind dovetails for the front and a channel joint strengthened by two wooden pins for the rear. The bottom is glued in a groove on the sides and on the front and is made by joining two slabs of walnut-faced plywood with a thickness of 4mm each. Inside the sides I made two pairs of grooves to accommodate the tracks of the internal structure. The container is placed on the top of two curved crosspieces, which, in addition to having the purpose of strengthening the structure, has a hidden crosspiece, to support it in the middle.

For the drawer handle, I thought of a shape that resembled a comma inserted on the front of the drawer by means of a tongue in turn inserted into a mortise and held with glue and two small wedges that give strength to the joint. This technique was used to create the idea of a suspended object and lighten the general appearance.

# MARQUETRY CHEST OF DRAWERS

## **PIER LUIGI MESSANA** EMPLOYS TRADITIONAL INLAY TECHNIQUES IN A CONTEMPORARY STYLE

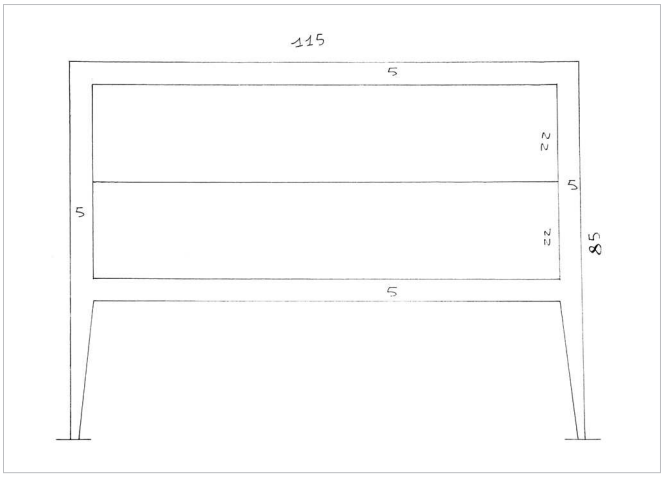
This project was born from the desire to try to create something a bit different using inlay techniques and traditional materials. The art of inlay seems to have largely fallen by the wayside, with most production now performed by CNC laser machines. The project in question deals with the construction of a chest of drawers in solid mahogany but without any mouldings or fancy design flourishes, except for the decorative inlay work designed to show off the beauty of the wood used. The drawers will be veneered with 3.5mm-thick inlays, just as used to be used, before machines for producing thinner veneers were invented. However, modern tools such as a bandsaw and planer are used in the carcass construction.

The keywords for this piece of furniture are simplicity and beauty of wood. The structure of the dresser, including the drawers, was made of 1960s mahogany door jambs. For the sawn veneers I used some zebrano boards found in an old warehouse and some dry olive tree trunks that I found in the roof space of a carpentry shop that had been closed for over 30 years. I also used cypress for the drawer bottoms and some maple offcuts. When working with recycled materials like these, it's important to make sure there are no nails or screws that could damage blades.

### THE CARCASS AND DRAWERS

After cutting all the wood on the bandsaw, it was allowed to rest for about 10 days because even old boards can still move after being newly cut. Before assembling the boards to form the carcass panels, they were arranged with alternating annual rings for stability.

I used a planer thicknesser to create four 830 x 5 x 50mm uprights, four 1,050 x 30 x 20mm crosspieces and 20mm-thick boards. Once glued together, these formed the panelling for the sides, measuring 520 x 430mm for the top and 1,150 x 500mm




PHOTOGRAPHS BY PIER LUIGI MESSANA

for the back and drawers. The dimensions of the finished drawers are therefore 1,050 x 850 x 500mm.

The edges of the boards intended for the various panels needed to be accurately planed to give strong glue joints. The carcass frame mortise and tenons were done using the Domino system to speed up the work, using ten 10mm-thick tenons. I carried out a dry test to make sure the joints would fit together correctly. On the corners of the uprights and on the four sides of the top it was necessary to make a 4 x 4mm groove where the 8 x 8mm decorative solid edges would be glued on.

To taper the legs a wooden jig was needed on the circular saw, I was able to find the right angle by experimenting with a sheet of plywood. The legs were trimmed on the internal faces for the last 310mm below the carcass, down from 50 x 50mm to 15 x 15mm at the bottom.


## PANEL GROOVES

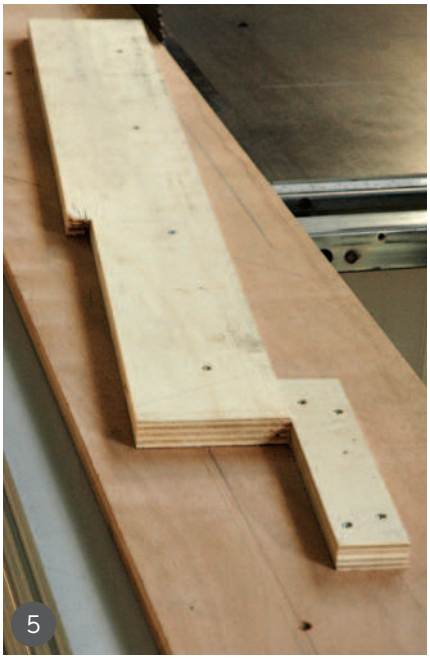
I flattened the panels that make up the carcass sides with a belt sander and then cut them to size. I then used the router to create a 10mm-wide and 15mm-deep groove in the frames with a matching tongue on the panels. The legs and panels were then glued together by tightening everything with the clamps. I left everything overnight and the next day I sanded the external sides, to make sure that everything was level and to remove any glue residue.

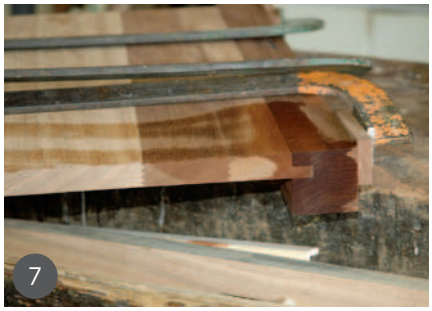
**1** The carcass timbers are all recycled, such as these mahogany door jambs. The olive boards were originally intended for parquet flooring

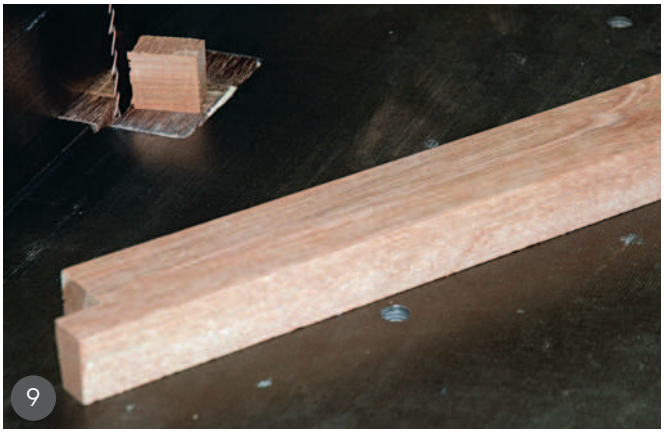
**2** After marking all the pieces the joints were made using the Domino system

**3** Before assembling the boards for the panels, these were arranged with the annual rings alternating to even out timber movement

**4** The glued-up carcass panels and the skeleton carcass framework







**5** This tapering jig was used on the tablesaw for shaping the bottom of the legs **6** The finished taper shape was very good, just requiring a few strokes of a hand plane **7** A carcass panel and leg glued up, note the wavy cut panel joints and the leg tongue and groove **8** An internal view of the carcass showing the drawer runners **9** The mid-height runners were notched out on the bandsaw **10** Rows of accurately jig-drilled dowels in place ready to receive the solid top board

## THE DRAWER GUIDES AND GLUING THE TOP

At this point the drawers began to take shape as I glued the rear and front crosspieces to the sides. As you can see in the photos, the upper crosspiece of the front is positioned differently from the others, that is, with the narrow edge in view. This is because adding its thickness of 30mm to that of the 20mm top gives the same measurement as the lower crosspiece. Subsequently, the 50 x 30mm crosspieces were added, butted to level out inside the sides; protruding 20mm from the internal face of the legs, they will act as a guide to the drawers and will constitute the closing stop for the lower part of the upper front and for the upper part of the lower one, making further drawer stops unnecessary.

Having already cut the top to size and machined its perimeter, I glued the zebrano wood to it and also glued it to the drawer front without it moving when tightening the clamps.

## DRAWER DOVETAILS

The two drawers were assembled using dovetails, cutting the joints by hand. During the joint cutting I used lateral clamping to avoid splits when cleaning out with a chisel. I cut the dovetails with an electric fretsaw. There are no fixed rules for setting out the spacing – it is up to you to distribute them evenly. I like tails that are close together on the front joints for purely aesthetic reasons. In this case, I spaced them so that the channel for the drawer bottom passes exactly in the centre of the first tail.

Since the cutting was done by hand, it was important to make sure that the assembled drawers were perfectly square and that their width at the front and back was the same for a good fit in the carcass.

To joint the rear of the drawer, only one wide tail was needed since it is not subjected to the same force as the front. I made a








**11** The top glued and clamped in place, almost ready for the marquetry inlay **12** Marked out and cut half-blind dovetails for the drawers **13** The chopped out dovetails using a batten as a vertical guide for the chisel **14** The first of the drawers complete. Note the long single dovetail at the rear of the drawer **15** The raw carcass and drawers ready to accept the marquetry work **16** First, the legs were rebated on the external corners for crossbanded inlay **17** The zebrano inlay strips were laid mirror-fashion on all faces

few small adjustments using a hand plane and sander to make sure that the drawers would slide well.

## EDGE INLAYS

To saw the small 8 x 8mm pieces of inlay for the edges, I used a self-built jig that prevents the strips from jumping off after cutting, as can happen with the mitre saw. To glue the inlay I used bone glue, whose origins date back centuries; it is excellent for this type of work as it can be reversed in case of incorrect gluing, and it also remains more elastic. Its response to climatic changes is compatible with that of wood, which is essential when covering solid wood furniture, and it does not need the strong pressing required by PVA glue. Using bone glue is more demanding, however, because it must be prepared first and must remain in a water bath all the time without ever exceeding a temperature of 60°C. It gels quickly, so you must have everything ready when gluing.

## GOUACHE TECHNIQUE

To glue the strips, I used the so-called gouache technique: I spread an abundant amount of glue on the surface, then held the pieces with my fingers for a few seconds to fix them in place. As you can see in the photos, the grain of the strips was arranged in a mirror image with respect to the middle of the top, all around the drawers.

## THE PERIMETER INLAY

Once the inlay on the edges was completed, I prepared the surfaces of the drawer to be veneered with the toothed plane, an essential preparation before using bone glue, to roughen the surface and give more grip to the glue.


**18** The thick inlay strips and animal glue in a pot sitting in hot water to prevent burning **19** Olive wood being cut at an angle to give a pattern when laid **20** Paper tape being used to assemble the pieces that will be pressed against the cross banding **21** The flamboyant veneer pattern beginning to take shape **22** Small blocks pinned in place to hold the thick veneer while laying out the design **23** Pressing the bands of wood in place using non-stick melamine faced chipboard **24** The outer marquetry frames will now define the fit of the inner detail

I began by laying out the periphery of the panels – the top, sides and drawers – since the newly glued zebrano strips would serve as a guide. My olive slabs were very damaged by age, so being a wood with a very coarse grain and therefore difficult to plane to thickness, careful selection of the inlays was necessary.

After an initial cut, the inlays were selected by combining them according to colour and grain to obtain a harmonious composition. The various pieces were then joined with adhesive tape, trimmed on one side with the circular saw and then cut out on the other side with a fretsaw, bringing the strip to 80mm wide. The pieces that make up the corners were cut with the fretsaw and then joined to the straight parts.

After spreading the glue on the surface, the pieces were positioned and the clamps applied. You have to be careful that the sheets do not move, you can hold them at the edges with adhesive tape or pin on plywood squares. The important thing is to have everything at hand because the glue cools quickly and thickens. You can slow down the cooling of the glue by heating the surface to be glued with an iron. After pressing, wait a few minutes for the exuded glue to thicken in order to remove it with the help of a spatula and wet sponge.

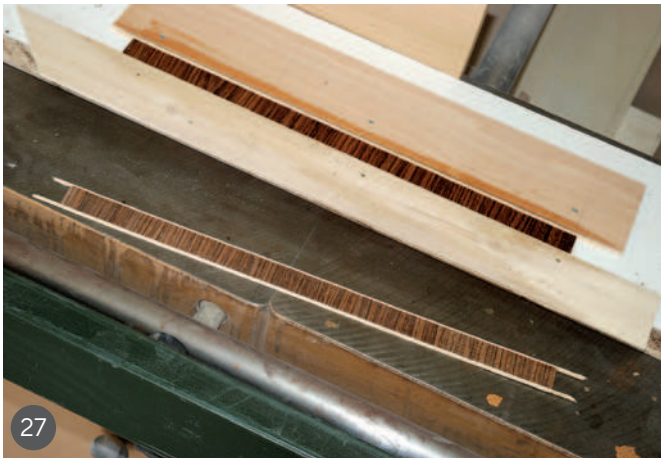
Unlike PVA glue, any residues will not create problems because the bone glue will soften when the new glue is applied. It is best to wait until the next day before sanding.

## CHEST FRONT VENEERS

The front olive veneer was worked in the same way, but before gluing, it was cut with the fretsaw to remove the part that will be glued on the drawer fronts, thus maintaining the grain pattern right across with a bandwidth of 80mm as for all other sides of the chest. I used a very thin No. 3 saw blade as this allows a finer air gap between the carcass and the drawers.

The inlay design on the sides of the panelling could be classified as a Louis XVI style, but I have tried to design something sober to make it more modern.

Making this section of the inlay starts from the round parts. Of the three zebrano boards at my disposal, one was much darker and I decided to use it to create geometric shapes while the other two lighter ones were used to make the background.



**25** The zebrano strips were cut for yet more crossband effect **26** Small segments of zebrano kept safely while cutting and laying out the circles **27** Straight zebrano banding with light coloured lines glued to each edge **28** One of the circles laboriously cut on an electric scrollsaw with great care **29** Creating part of the 'overlap' marquetry for the drawer fronts **30** The square shape before the 'overlap' circle is added. Note the contrast between aged and new zebrano

From the first cut of the veneer, strips measuring 90 x 35mm were obtained. After finding the right angle of the jig, these were divided along the marked line to obtain the pieces that form the inlay circles.

## VENEER STRIP CUTTING

With the same jig that was used to cut the strips for the edges, I cut the veneer into strips with a transverse veining on the long side. Each of the strips was now divided into two pieces with an inclination of the cuts along the vein of 7.5°, until reaching a total of 24 pieces for each circle to be made. Before cutting the material, I carried out a test using some scrap plywood to check that the angle of the cut was correct. A test like this is especially important if you have just enough material to complete the job and therefore have very little margin of error. At the end of the cuts the tiles were joined together to form the circle, using adhesive tape.

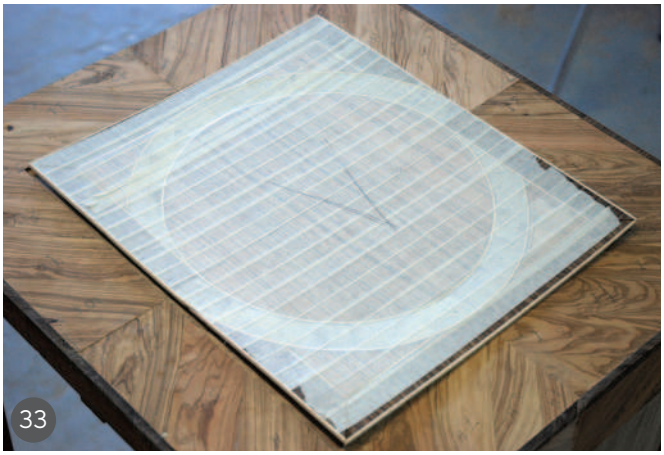
The ribbons that make up the straight parts of the inlay that do not flow into the circles were pre-assembled by gluing together 90 x 21mm strips of zebrano enclosed between two 2mm maple fillets. In this case I used PVA glue, which is more practical for this kind of work. I pressed the parts together for about half an hour between two strips of plywood screwed on to a non-stick surface. Once bonded it was easy to remove the strips with a nice sharp spatula. I cleaned the glue residue off the faces so that I could decide which was the best 'seen' face. The strips ended up measuring 25mm wide x 3.5mm thick.

The gluing to form the fillets was done with PVA glue. They were pressed for about half an hour between two strips of plywood, as before.

## CREATING CIRCLES

The 24 pieces that make up the circles were joined using paper tape. I traced the two internal and external circumferences with the compass to delineate the width of the inlay. I then sawed along the lines with the fretsaw to obtain a perfect ring, dividing the circles into two halves. At one of the ends of the semicircles, I glued a certain number of zebrano strips, those not used for making the ribbons, enough to get to the corner of the inlay, fitting the parts together with adhesive tape. At this point in the processes,







**31** Note how one half of a straight band becomes circular with the curve then cut into the opposite straight **32** Vital corner detail. It is imperative to have the design precisely drawn out before starting work **33** The whole piece taped over before gluing and pressing in place **34** This is it, held flat under pressure excluding any air pockets that could ruin the result when sanded

I inserted the circular and straight inlay between two maple fillets to match the design of the previously made ribbons. I put pieces of adhesive tape approximately every 50mm. I added glue on the maple fillet with a brush and added it to the inlay, keeping it tight with tape. I glued one side first and when the glue was dry, glued the other.

## CARCASS SIDE INLAY

I could now start work on the inlay on the sides of the carcass. I cut the ends of the strips at 45° and placed them on the panel to match the measurements of the central zebrano section; from the photos, they may seem like two completely different woods, but they are both zebrano. The veneer for the background was cut to size and repositioned, the circular pieces were placed on top and I traced and cut the corner lines on the straight section.

I overlapped the inlay again to bring the circular pattern back on to the background and cut along the overlap line with the fretsaw. The corner segments of the background were the last to be inserted. Once all the pieces were fitted, I taped the straight and circular parts of the inlay together, this operation also helped to facilitate the detachment of the bottom section. The rear face of the inlay to be glued to the drawer was roughened with the toothed blade.

I then glued the inlay after taping it together with the background, first doing a dry test to check the number and arrangement of the pieces and make sure that the parts fit together neatly, as I knew there would be very little working time as the glue thickens on cooling.

## DRAWER INLAY

The inlay for both drawers was made from a single veneer panel. The procedure was exactly the same as for the sides and top of the chest, the only difference being that once the composition was complete, the panel was divided into two halves with the fretsaw. To do this I inserted a thin strip of wood between the two drawers equivalent to the air gap all around the drawers in the carcass.

To keep the two semicircular parts centred with respect to the front, I nailed pieces of plywood for the edge of the olive inlay to press against. At the end of cutting out, I taped all the pieces together to form the panel before cutting apart with the fretsaw.

## THE HANDLES

To match the clean lines of the furniture, the handles also have a discreet profile. They were turned from a three layer block: a 30mm-thick zebrano base, a 2mm-thick maple layer





**35** The drawers were then clamped together with a spacer in between so the marquetry when cut apart still matches visually **36** Cutting out the circle for the drawer front on the electric scrollsaw **37** Laying out the drawer veneer circle, holding it in place with small blocks **38** Bare but beautiful, the carcass was now ready for the finish to be applied

perpendicular to the first piece for strength and a 3.5mm-thick zebrano layer on top also laid perpendicular, matching the base layer zebrano. The latter comes from the same batch used to cover the drawer in order to make the handle almost invisible when viewed from the front. For the circular opening for fixing it, a template and router with a guide bush were used. The handles needed to be a good fit when the glue is applied.

## THE FINISH

The finishing of the chest of drawers was done with 150-grit abrasive, then 180 and finally 240 grit. Once the dust was wiped off with a tack rag, a coat of shellac was applied to bring out the colour of the wood and help seal it before grain filling, otherwise it could leave cloudiness in the grain. I carefully filled the grain in the olivewood using a similar coloured filler. All the filling work was then smoothed with 240-grit paper. Next, I had to gently 'break all the edges' by hand, using the abrasive paper ready for the shellac polish. The shellac finish was applied with a mop brush and, once dry, was rubbed flat with 000 steel wool and then wax polished. The drawer interiors were left bare so the cypress drawer bottoms give off a pleasant scent, which also helps keep clothes moths away.

# STEP OUT OF YOUR COMFORT ZONE

## HOW BROADENING YOUR HORIZONS CAN BENEFIT YOUR FURNITURE MAKING

We live in a world obsessed with the new. New gadgets, new technology, new celebrities, new food trends, new ways of selling consumerism... New, new, new. And yet when it comes to ourselves and our work, most people find solace in the commonplace and the recognisable.

You might hanker to learn a new language, cultivate a fresh skill or revisit an old talent from younger days, but somehow you always manage to put it off, consoling yourself that you're too busy and that there are far more important things to achieve in your daily schedule than learn pottery or train for a marathon.

However, humans are inquisitive creatures – as that little voice inside urging you to try something new attests. Denying yourself fresh adventures is to stymie your true self, says therapist David James Lees.

'Aside from discovering and developing a useful skill and hopefully having some fun in the process, trying new things will always expand your confidence in your own creativity, adaptability and resourcefulness,' he believes.

So, if taking on fresh challenges is beneficial to self-esteem, why isn't everyone soaking up new experiences like a rapacious sponge? The main problem is the comfort zone. Psychotherapist Rebecca McCann from Click For Therapy explains: 'The mind is programmed through years of evolution to keep things as normal as possible. The reason is that the normal comfort zone is deemed safe by the subconscious mind.'

Setting yourself a new challenge and stepping out of your comfort zone can create eustress, the beneficial type of stress felt when you try something for the first time. By trying something new or setting yourself a challenge or goal – big or small – you are, in effect, affirming that your long-term self-worth is more important than short-term comfort.

David James Lees explains: 'Practised over a period of time, this form of goal setting helps hone a more proactive, can-do mindset and so you become fearless, not fearful, and more eager and excited by the prospect of trying new things.'

Moreover, trying something new has deeper and wider advantages over and above learning that new skill and enhancing self esteem and mental health. It can give a broader outlook on life, expand a friendship circle and give a newfound appreciation of culture.

### EXPAND YOUR CRAFT HORIZONS

So how can you apply this to your furniture making? Here are some ideas to get you started.

- Revisit an old technique or subject that you haven't practised since your college/early training days.
- Visit a museum or art gallery to study designs from the past or from another culture, then try recreating some aspects of the work when you get back to your workshop.
- Learn a new skill. Research courses and workshops at local furniture schools and art centres or, if you feel confident enough, look up new techniques online and give them a go.
- Experiment with unfamiliar materials. Try out different timbers to your usual choice or try incorporating metal, inlay or other materials in your furniture.
- Set yourself a challenge. If you usually use power tools, try to make one piece entirely by hand, for example.
- Time for something completely different! Take a course in an unrelated hand craft (pottery, illustration, metalwork, etc.), learn a new language or take up a new sport. The self confidence boost and sense of adventure could translate to your usual furniture craft.
- Remember, don't be too judgmental of any of your efforts. Give yourself the time and space to experiment.

WORDS: JIM BUTLER

PHOTOGRAPH: JIRSAK/SHUTTERSTOCK.COM

PHOTOGRAPHS BY RICHARD FINDLEY

# TURNED REPLACEMENT CHAIR LEGS

**RICHARD FINDLEY** RESTORES A HOWARD CHAIR TO ITS FORMER GLORY BY TURNING SOME REPLACEMENT LEGS

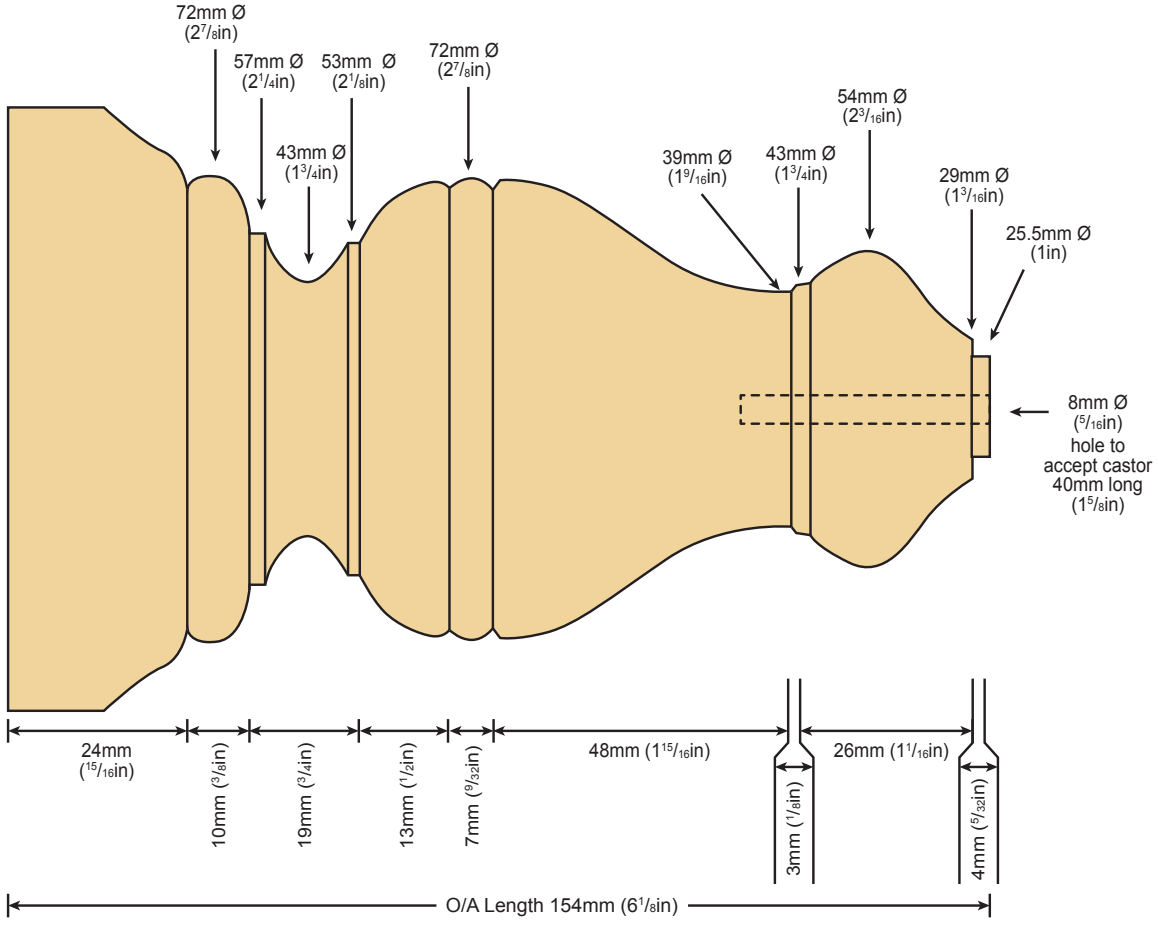
The London firm Howard & Sons is best known for its sofas and chairs, which are now something of a collector's item. Good examples of its furniture fetch some quite incredible prices at auction. One of the main features of its chairs – at least from a woodturner's point of view – is that they usually have intricately turned front legs, often with a castor, and luxuriously upholstered seats and arms. The style is a little dated but they remain popular today, although the legs do need replacing from time to time, depending on how the owner has treated them.

My client owned a pair of Howard chairs which had previously belonged to her father, who had 'altered' – the word butchered was also mentioned! – the legs on one of the chairs to make it a more suitable height for him. She was keen to restore both chairs to their former glory.

I worked on this project with an upholsterer, Craig, who has a workshop near mine. Craig collected the chairs, then stripped off the old legs and gave one to me as a sample for the copy turning. He would then fit my new legs on to the freshly re-upholstered chairs.

## YOU WILL NEED

- 32mm spindle roughing gouge
- 12mm spindle gouge
- 10mm & 6mm beading & parting tool
- Vernier callipers
- Drilling jig
- Belt sander
- PPE: facemask, respirator/dust mask and extraction
- Steamed beech blanks



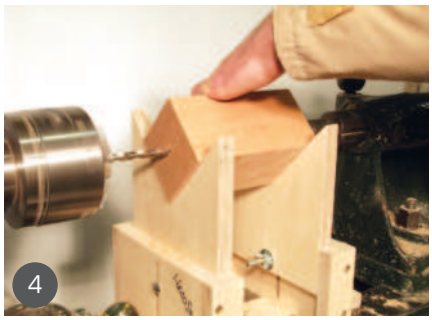



## GETTING THE DETAILS RIGHT

The most important thing when copy turning is to get all of the details in the correct position. Although diameters are important, you can get away with a couple of millimetres here and there on a leg like this, but if a detail is out of place, it just looks wrong.

**1** The beech blanks were planed up and then cut to the exact length of the original leg. The leg pictured was the best of the four legs from the two chairs.

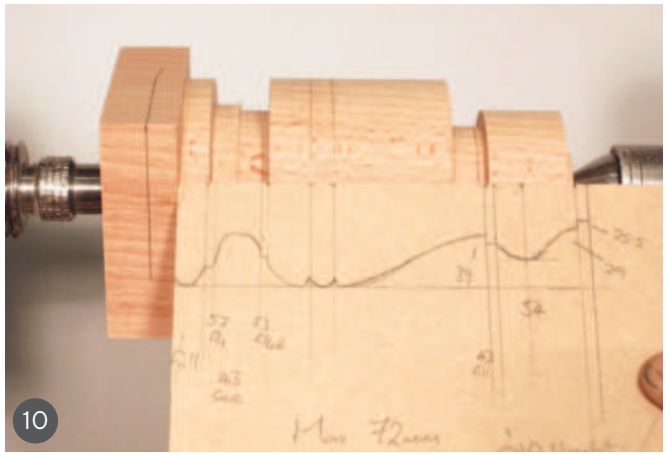
**2** So that I could see exactly what I was working with, I removed the old castor. This was screwed in to the base of the leg and had a long pin which was fitted into a drilled hole.










**3** I was then able to properly study the leg and make a copy template.

**4** The next job was to drill the hole for the pin on the castor. This could have been drilled at the end of the job, but by drilling it now, I could use the hole to locate the live centre and 'turn it from the hole', which means it can't help but be in the centre. Although I could have used the tailstock to wind the blank on to the drill, I decided it was safer to use my drilling jig to support the timber.

**5** I marked the positions of the square pommel and made an incision with the tip of my beading & parting tool, then formed a square shoulder.

**6** Using my 32mm spindle roughing gouge, I turned the leg to round...

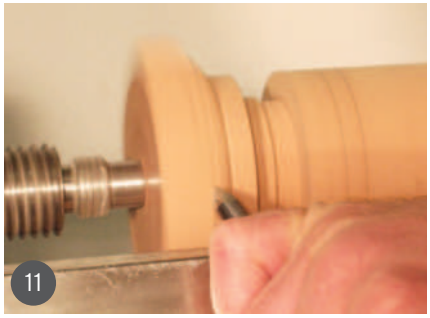
**7** ... and as it approached round, I used the forefinger of my front hand to lightly feel the point when it becomes fully round.

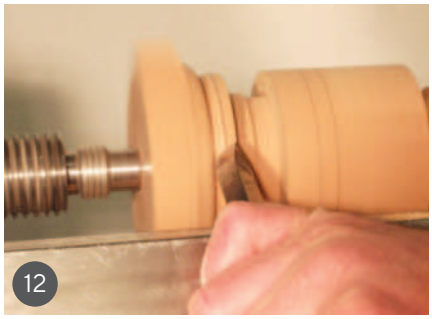
**8** Once round I brought up the copy template and marked the positions of the details. A small notch in the edge of the template allows my pencil to rest and consistently mark in the correct place.

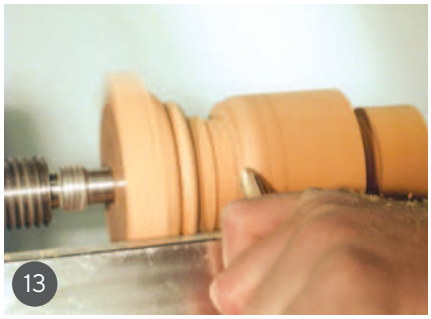
**9** I then used my Vernier callipers and beading & parting tool to block out the shape.

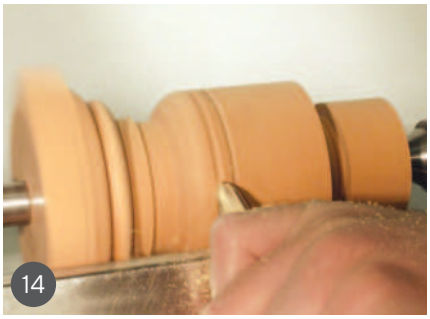
**10** With the leg blocked out it shows all of the major diameters, ready for shaping.

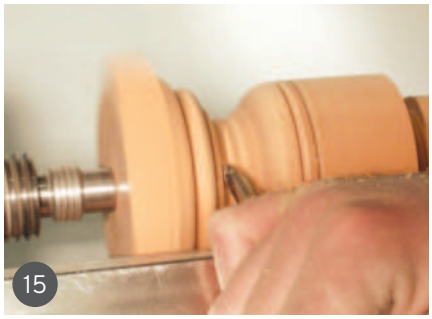
**11** I generally work from left to right along a spindle and shape as I go. The first detail to be formed is the pommel, which is an ogee shape, using my 12mm spindle gouge.







## OGEE SHAPES

An ogee is a classic 'S' shape often used in turning and mouldings. It is often seen when a square changes to round and on bases and plinths. It is a very versatile form that can be stretched tall or wide, or condensed into a more squat shape. The ogee is also common on bowls, platters and vase forms. Done well, it is a very elegant form which gives lift and lightness to an item.

**12** I then switched to the beading & parting tool to roll the bead next to the ogee. Using the tip of this tool or a skew chisel allows access to tight details such as here, where the ogee touches the bead. A gouge, even with very swept-back wings, would struggle to make this detail without resulting in a catch.

**13** I then used the gouge to roll the left side of the main vase shape of the leg...

**14**... and then the small bead detail at the crest of the base...

**15**... followed by the cove. All the time I had to be aware of the spinning corners at the left-hand end of the leg. It is sound advice to keep your fingers well away from these. Care needed to be taken while shaping this cove, as the tool has quite a large overhang from the toolrest here.

**16** I could then shape the long curve down towards the bottom of the chair leg. This was done in a series of smaller cuts, gradually working to form the curve until it looked just right.

**17** The bead at the base followed, again with the same spindle gouge.

**18** With most of the shaping done, the last job was to fit the collar above the castor, missing from the original sample, although you can see the step which it would have sat on.







**19** I did a test fit with the lathe stationary then, using my 6mm beading & parting tool, I took a series of light adjusting cuts, testing between each cut, until the collar fitted perfectly. This technique can also be used when fitting ferrules to tool handles.

**20** Before sanding, I brought up the original leg for comparison. I then made any tiny adjustments as necessary.

**21** The leg was then sanded with 180 and 240 grit abrasive. When sanding, great care needs to be taken to keep fingers away from those spinning corners on the pommel. You can see that I am sanding to the rear of the work with the toolrest in place. If you are uncomfortable with this technique, please do remove the toolrest.

**22** It is impossible to safely sand the curve of the ogee with the leg spinning, so I hand sanded these with the lathe stationary.

**23** The final job was to add the curve to the face of the pommel, which matched the curve on the front of the chair. I sketched the curve on the top face of the leg and, using my belt sander, which is designed to be able to sit on its side, I carefully shaped the curve. It is important to keep your fingers away from the belt during this step, shaping a little at a time, and keep checking against the original. The sander was remarkably stable like this, but a large G-cramp could be used to hold it more securely in place.

**24** The finished chair, reupholstered with the copy legs fitted. You can also see a close-up of the finished leg.

# WHAT YOUR LOGO SAYS ABOUT YOU

## HOW YOUR BUSINESS COULD BE AFFECTED BY YOUR DESIGN

Whether you've been running a company for years, are still trying to establish yourself or are just starting out, communication with the consumer is key to success – and the first point of communication is via your logo.

Through a logo, businesses try to convey several messages, ideas and values in the simplest form possible to potential customers, who are more likely to recall visual stimuli than anything else as people generally remember pictures rather than words.

Big companies can spend millions designing their logos, knowing the wrong design could affect the direction of their business. When clothes retailer GAP revamped its logo in the US in 2010, there was a huge backlash from consumers who felt the new design looked cheap, so much so that the company ditched it within a week. After trying to enlist the help of shoppers to create a better one, it reverted to the same design that had served it well for 20 years. So what makes the logo so important?

### WHY IS A LOGO'S DESIGN IMPORTANT?

A logo is a visual representation of a company's identity. Through it, a customer will be able to assess a business's values, services or products so it needs to be well planned, individual and engaging. Therefore, how it represents a brand should be the most important question companies face when designing a logo. Should it be traditional? Simple? Playful? Forward-thinking? How will it represent a company's values and does it show who it is, what it does and why it does it? How can it symbolise its ethos and inspire trust?

For such a small, simple design, a logo should involve a lot of thought and discussion. Colour, font, shapes, symbols and design have to work together. According to Gestalt Theory, people typically view different parts of something as a unified whole – just one wrong element could affect the credibility of your brand.

### FIVE QUALITIES OF A SUCCESSFUL LOGO

- **It has a purpose**
  The logo should capture what your company represents, but should also meet the needs of its target audience.
- **It should be simple**
  A successful logo will feature something unique without being complicated. It will be engaging, strong and the product or service will be easy to identify.
- **It should be memorable**
  A good logo will be distinctive, eye-catching and easy to recognise the next time it is seen. If a symbol used in a logo is relevant to the company's name, this helps the logo become more memorable. A combination of name and symbol is an even better design as it is instantly memorable.
- **It is timeless**
  Good logos will stand the test of time. Simple shapes, recognisable elements and colours or symbols for the business represented are important to a logo that will last for decades to come.
- **It is versatile**
  Whether it is on posters, the internet, badges or T-shirts, a great logo should be simple enough to be able to be scaled down or up and still look good.

### FACTORS THAT COULD AFFECT HOW A LOGO IS PERCEIVED

#### COLOUR

Colour psychology is the idea that certain shades make us think differently. Here are some of the most popular logo colours and the ideas they could represent:
**Red:** Powerful, Passionate, Strong, Energising
**Orange:** Fun, Rejuvenating, Bold, Comfort
**Yellow:** Happiness, Positivity, Friendliness, Optimism
**Green:** Growth, Balance, Wealth, Nature
**Blue:** Trust, Honesty, Dependability, Calm
**Purple:** Creativity, Royalty, Quality
**Black:** Sophisticated, Security, Elegance, Independence
**White:** Innocence, Cleanliness, Purity, New beginnings

#### SHAPES

Shapes can also have an impact on a logo design.
**Circles, ovals and ellipses:** Community, Friendship, Wholeness
**Squares and rectangles:** Stability, Balance, Reliability
**Triangles:** Intellect, Power, Energy
**Curves:** Happiness, Rhythm, Feminine
**Symmetry:** Organisation, Tradition, Hierarchy
**Organic:** Pleasure, Comfort, Nature
**Vertical lines:** Masculinity, Strength, Power
**Horizontal lines:** Tranquillity, Calm

#### FONTS

A typed word can be perceived in different ways depending on the font used to write it.
Here are some of the fonts regularly used in logos and the message they could convey.

- **Serif fonts** – Convey messages of tradition, class and reliability.
  Examples: Times New Roman, Georgia
- **Sans serif fonts** – Simple, clean, modern, engaging and shows a company is straightforward and honest.
  Examples: Arial, Century Gothic, Helvetica

PHOTOGRAPH: RAWPIXEL.COM/SHUTTERSTOCK.COM

- **Script fonts** – Feminine and flowing and because they mimic handwriting, can seem more personal, convey emotion or a sense of history.
  Examples: Lucida Script, Zapfino
- **Display and decorative fonts** – Big, fun, bold and to be noticed; could be used in many types of logo to add personality.
  Examples: Jokerman, Gigi, Bombing
- **Modern fonts** – Fashionable, futuristic and can convey intelligence, style and cutting edge design.
  Examples: Politica, Matchbook, Klavika

*'A logo is a visual representation of a company's identity. Through it, a customer will be able to assess a business's values, services or products so it needs to be well planned, individual and engaging.'*

# THE RADIANT DESK

## DESIGNED AS A FUTURE FAMILY HEIRLOOM, **EDWARD JOHNSON**'S RADIANT DESK WAS HONOURED WITH A PRESTIGIOUS BESPOKE GUILD MARK

PHOTOGRAPHS COURTESY OF EDWARD JOHNSON

The Bespoke Guild Mark, awarded by The Furniture Makers' Company, is the ultimate accolade for designer-makers, recognising excellence in design, materials, craftsmanship and function for exquisite pieces of furniture made as single items or a limited run of up to 12.

It is awarded to only the most meticulous, luxurious and highly crafted pieces of bespoke furniture and, since its launch in 1952, has been the apex of distinctions for UK designer-makers.

In order to be awarded a Bespoke Guild Mark, each design has to be stringently vetted and scrutinised by a panel of judges. One piece that was deemed worthy of the honour is the Radiant Desk by Edward Johnson, who tells *F&C* about it.

**Can you tell us the background of this project and your inspiration to make it?**
This was an interesting project from the outset as my brief was twofold. Firstly, my client wanted the desk to partially integrate into a fitted study space, and secondly, to be designed as a freestanding desk, enabling it to become a future heirloom piece. The asymmetrical shape took both functions into consideration, with the curved legs and tapered lines leading you into the study space while working aesthetically as a stand-alone piece.

**What materials did you use?**
The desk is made from two colour tones of fumed oak combined with brown oak. The room it was designed for is oak timber framed, so the oak variants were selected to complement the location alongside the fitted element of the project. The gradient of fumed oak to brown oak has been meticulously planned and adds a rich tonal vibrance to the study. The desk is finished with a durable two-part satin oil.

**What features – subtle or obvious – are you particularly proud of and make the design unique?**
The desk is made using our handcrafted Murano veneers that have been researched and developed in our workshop over the past few years. The radial veneer on the top of the desk is an interesting and tricky process to master. The surface pattern starts with a dark core and graduates through to the lighter coloured timbers, with the surface reminiscent of the growth rings of a tree.

**How long did it take to create, from initial design to completion?**
Having previously worked with the clients, I already had a good understanding of

their style and taste, so the design work took approximately one month to tweak and finalise and then the making aspect took over 250 hours to finesse.

**What modifications did you make along the way and why did you make them?**
We had already mastered the Murano veneer process on previous projects, so modification involved tweaking small details like chamfers and the edge detail on the legs. For its current partially integrated location we also had to finesse the adjustable feet housed into each leg.

**What was the most challenging aspect of the design?**
Working with two design briefs whereby trying to achieve a balance with the design as a partially integrated desk and a freestanding piece of furniture.

**What does the Bespoke Guild Mark mean to you?**
It's always a fantastic crescendo to a project and adds to the legacy of the piece, especially in this instance as it was specifically designed to be passed on through the family. I was particularly pleased to see Andy Norton, our cabinetmaker who worked on this piece, get his first Guild Mark, which is something many makers aspire to.

It is such a high bar to achieve, simply aspiring to enter a piece for a Bespoke Guild Mark undoubtedly improves your decisions and ability as both a designer and a maker, which can only be a good thing.

**edwardjohnsonstudio.co.uk**

For more information about the Bespoke Guild Mark, visit **furnituremakers.org.uk**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# NEXT ISSUE

ON SALE FROM

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PHOTOGRAPH: SHUTTERSTOCK.COM

# A BED WITH JAPANESE JOINTS

## **BRIAN HOLCOMBE**'S CONSTRUCTION IS ALL ABOUT THE FINELY CREATED JOINT WORK

I recently made a few pieces of furniture for my young son Henry's room, including a low-platform bed. I knew Henry would not need it for a number of years, but I had the feeling that my wife or myself would be spending many an evening beside his crib. I put together a design which was simple in outward appearance and would reveal details of its construction in subtle fashion. For the major connections I felt that joinery typical to Japanese carpentry would lend itself well to the design.

Recently I received a commission for Henry's bed design. Excited by the opportunity to improve upon an older design, I detailed a number of changes I wanted to make and presented them to the client. They were interested to see my ideas put to work and so I began moving forward. I wanted to use continuous chamfers on every surface. The original design had dovetailed legs, and I wanted to repeat that but in a fashion that appeared more congruous.

### DOUBLE MORTISE AND TENONS

**1** After material preparation, I began the joinery work with the outside corners of the bed. These corners, which help to complete the outer frame, are composed of double mortise and tenon joints, which are to be fitted with wedges. I cut these joints out using a combination approach of roughing the joint with a mortising machine, followed by trimming to knife lines with a chisel. The abutments of this joint flare to the outside to allow room for the wedges to expand the tenon, making the fit secure.

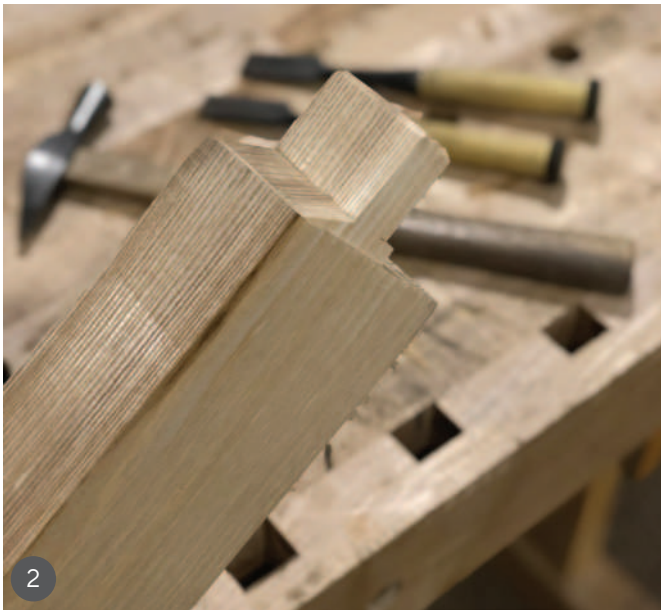
### TUSK TENON

**2** After the perimeter joints were complete I moved on to the centre stretcher. The centre stretcher joins the outer frame at the front and back of the bed. The ends of the stretcher are shaped into a tenon which features a sloped shoulder, known as a tusk tenon. This joint, commonly used in timber carpentry, is set to be draw-bored.

### DRAWBORED JOINTS

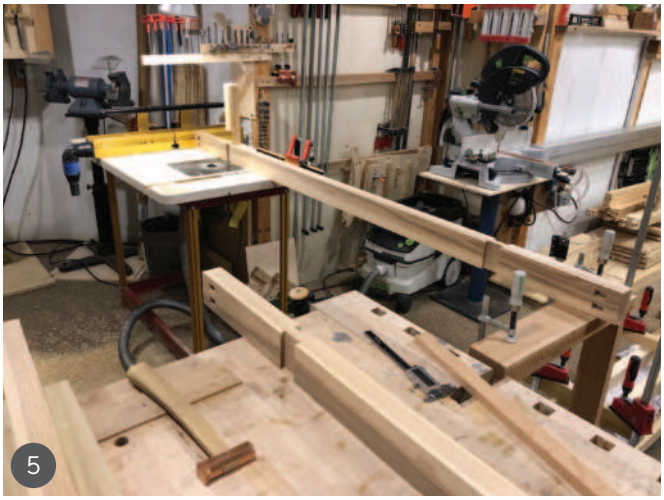
**3** Next I began making joinery for the supporting cross-members that connect the outside frame rails to the centre stretcher. They connect at the stretcher with a joint known as a rod tenon.

**4** The rod tenon passes through the stretcher joins into a mortise in the opposing cross-member and is drawbored tight.

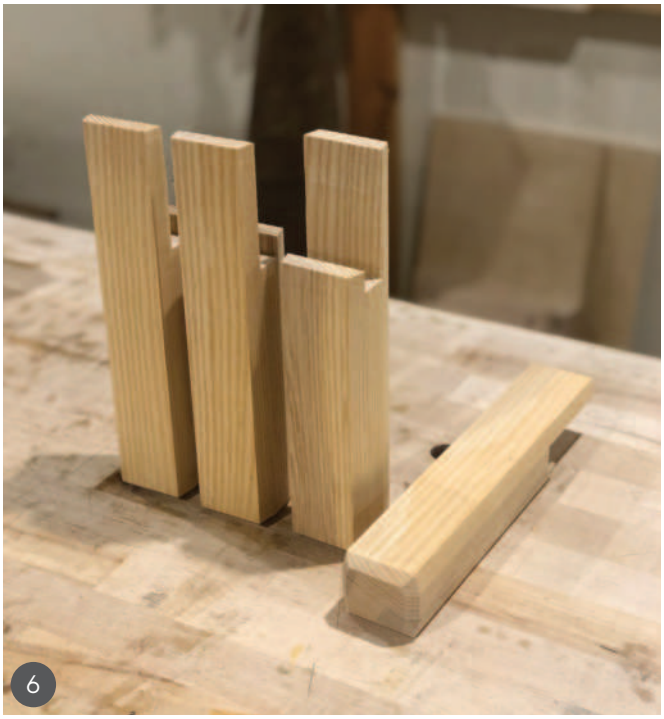



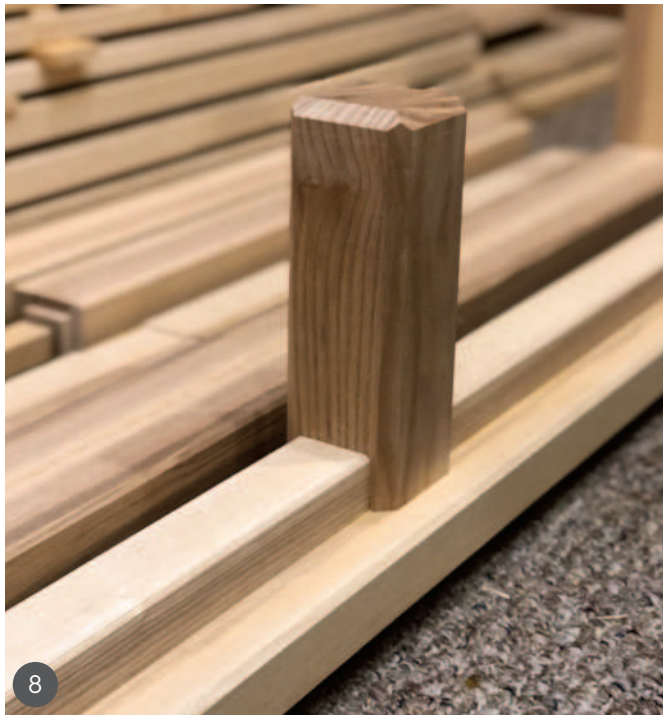

PHOTOGRAPHS BY BRIAN HOLCOMBE










## DOVETAIL HOUSINGS

**5** The cross-members connect at the outside rail using dovetailed housings which they will share with the legs. I cut the housings using a router table with a support table. The legs are profiled with a chamfering bit at the same angle as the dovetail bit and then joined into the assembly.

**6** The assembled joint also allows full chamfers on the frame rails.

## BRIDLE JOINTS

**7** I completed the major joinery for the bed with the centre support. This main support keeps the bed frame from flexing. Removing flex is critical to thin structures like this platform bed.

**8** The support is applied simply enough, using a bridle joint, but it is made additionally strong by an applied support flanking its sides. These supports prevent the bridle joint from splaying.

## FITTING THE SLATS

**9** The bed was assembled and slats were installed into mortises along the centre stretcher, completing the build.





**10** The process of assembly for a project like this is quite enjoyable, the joinery mainly used drawbore pegs and so the worries that come along with a glue-up are cast aside.

**11** Wedges were installed to complete the corner joints.

**12** Finally, the bed was finished in a type of hardwax oil which gave a nice subtle darkening to the white ash.

# CUTTING EDGE

## THE TEAM AT **ERGOKIWI** TELL US ABOUT HOW THEY'RE REINVENTING THE PEN KNIFE

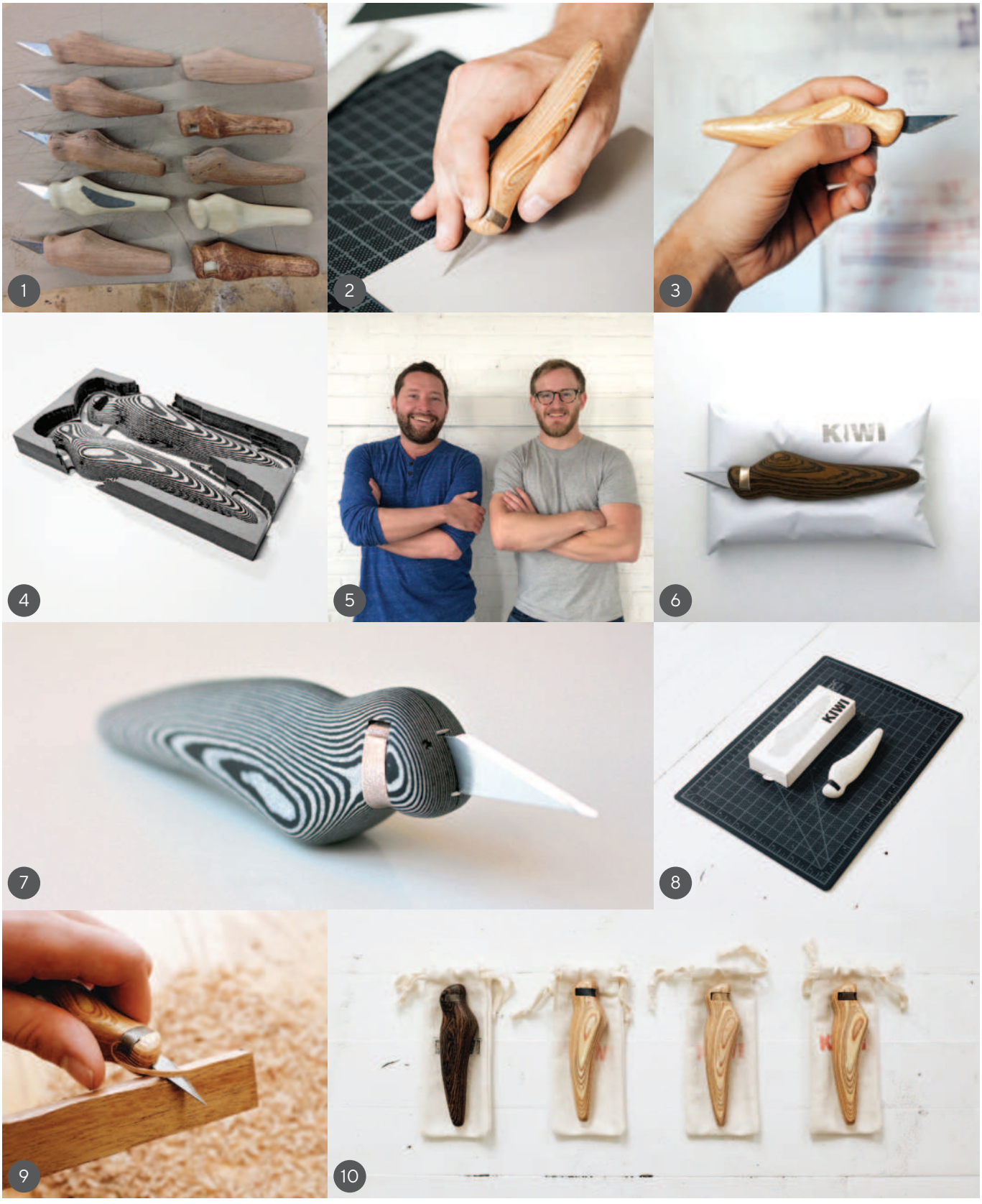
Cam Chateauneuf and Sean Riley share a love of tinkering and technologies. The pair met during their graduate studies at Boston Architectural College, where they earned some extra money by working as the school's CNC operators. In the windowless basement of the college they spent many evenings exploring fun new ideas, through software, 3D printing and laser cutting. At the same time, they were using traditional craft knives for their graduate work, which they found uncomfortable and painful to use. This experience, combined with their enthusiasm for experimenting, led to the development of the ErgoKiwi, the ergonomic craft knife.

### SIMPLE DESIGN, BETTER CUTTING

The designers realised the traditional knives they were using were so uncomfortable to work with because they cause hyper-extension in the first joint in the index finger. They began developing a new handle that would be more comfortable and easy to use. The ErgoKiwi's form eliminates the pain and discomfort experienced when force is applied to your index finger. By keeping that joint straight you can work for longer periods of time without interruption. The organic shape of the handle allows you to hold it in a way that's most natural for you. The shape also gives the knife its name, as it resembles the kiwi bird.

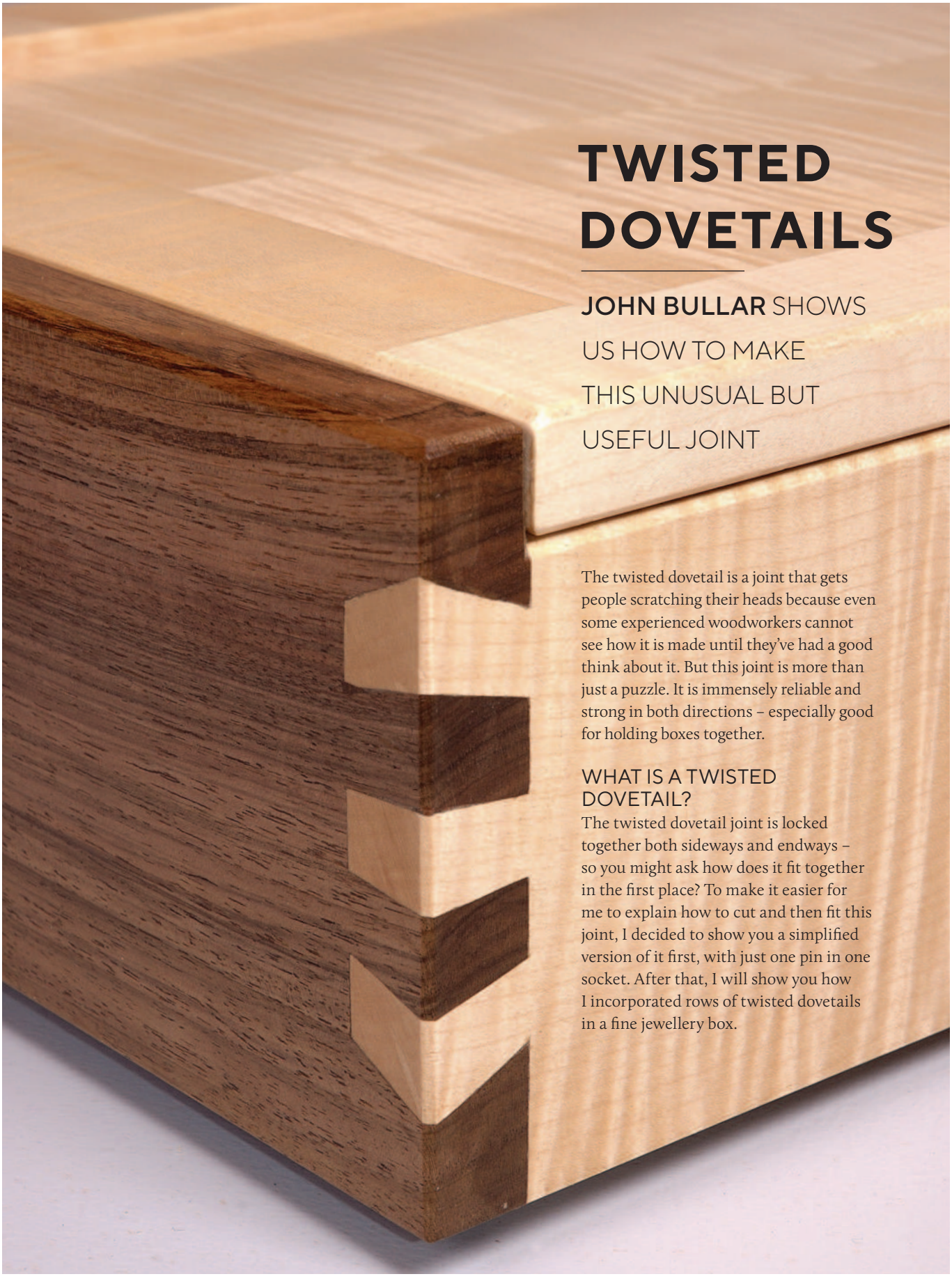
The knives are handcrafted in Cam and Sean's Boston workshop. They are currently available with acrylic, plywood, bocote and paperstone handles. Paperstone is a sustainable alternative to stone, it's made from compressed paper and is traditionally used as an architectural material, especially for counter tops. It has the genuine hand-feel of stone, yet the magic is that it's made from compressed, recycled paper and a non-petroleum resin. Each ErgoKiwi model is mounted with a stainless steel, 3D-printed latch to ensure a long, durable future. The team are constantly trying out new materials and innovations, such as incorporating Bluetooth to make sure your tool never gets lost. Check out the Test Kitchen section of their website to follow all the latest developments.

**ergokiwi.com**




PHOTOGRAPHS COURTESY OF ERGOKIWI

**1** Early prototypes **2** The ErgoKiwi causes less pain in the index finger **3** The Plywood is the most popular model in ErgoKiwi's range **4** Moulding the Paperstone version **5** Cam and Sean, the owners of ErgoKiwi **6** ErgoKiwi knife with bocote handle. Bocote is a hardwood native to Central America with a beautiful grain pattern **7** The Paperstone ErgoKiwi's handle is made from compressed paper, yet feels like stone **8** The ErgoKiwi 2.0 handle is made from injection-moulded acrylic **9** The ErgoKiwi is safe and easy to use **10** A selection of handles



# TWISTED DOVETAILS

**JOHN BULLAR** SHOWS US HOW TO MAKE THIS UNUSUAL BUT USEFUL JOINT

The twisted dovetail is a joint that gets people scratching their heads because even some experienced woodworkers cannot see how it is made until they've had a good think about it. But this joint is more than just a puzzle. It is immensely reliable and strong in both directions – especially good for holding boxes together.

## WHAT IS A TWISTED DOVETAIL?

The twisted dovetail joint is locked together both sideways and endways – so you might ask how does it fit together in the first place? To make it easier for me to explain how to cut and then fit this joint, I decided to show you a simplified version of it first, with just one pin in one socket. After that, I will show you how I incorporated rows of twisted dovetails in a fine jewellery box.





PHOTOGRAPHS BY JOHN BULLAR

## A ONE PIN JOINT

**1** For comparison, look at this normal dovetail joint – it is securely locked together endways, but without glue, you can easily pull it apart sideways. This is no problem for a drawer which slides in a chest, but bear in mind that a box made with ordinary dovetails is only held together sideways by friction and glue.

**2** Start the twisted dovetail by squaring the ends of the wood. For this joint to fit properly, both pieces must be the same thickness.

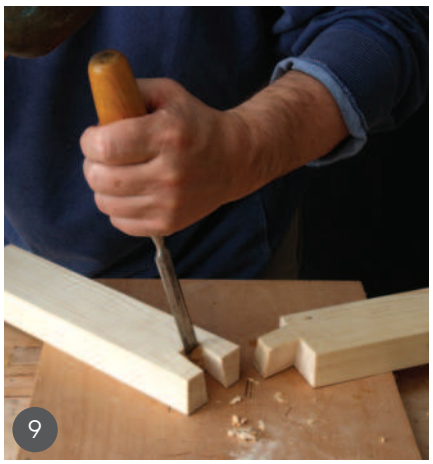
**3** Match up the position of each shoulder line to the thickness of the wood. Mark the shoulder line all around one piece of wood which will form the pin, and just on the two wide faces of the piece that will form the socket.

**4** Line the two pieces up end to end, then mark the outer corners of the pin and the socket together using a small pencil line.

**5** The easiest way to mark the sides of the pin and socket is to use an angled bevel gauge. Alternatively, you might use a dovetail gauge, or a ruler and a protractor. In any case, the angle across the sides and end of the tail must be identical to each other, and to the angle across the side and end of the socket.









## SAWING THE JOINT

**6** The best way to saw the sides of the pin is to clamp the wood at about 45° in a vice. That way, you can look down on both the end and the face of the wood at the same time and make sure the saw follows both lines at once. Use a dovetail saw or a small tenon saw.

**7** Clamp the wood sideways, then follow the shoulder lines as you saw away the waste from each side of the socket.

**8** Clamp the second piece of wood upright in a vice and then use a coping saw to saw out waste from the base of the socket.

**9** Use a sharp bevelled edge chisel to clean the socket down to the shoulder line.

## FITTING ONE PIN

**10** To fit the joint, both sides need to be pressed together at once. The pin slides into its socket at precisely 45° while the two pieces of wood must remain at right angles. Making a single joint with a single pin gives us a bit of leeway here, but it's good practice.





## ROW OF TWISTED DOVETAILS

**11** I started this box by preparing planed edged and dimensioned parts from rippled sycamore and walnut. For each joint, lay out the two pieces of wood end to end, and mark the outer corners of the pins and sockets.

**12** Use a fine marking gauge to mark the socket depths. The bases of the sockets are marked to the thickness of the wood in the same way as you would when making through dovetails.

## SUNRAY PATTERN

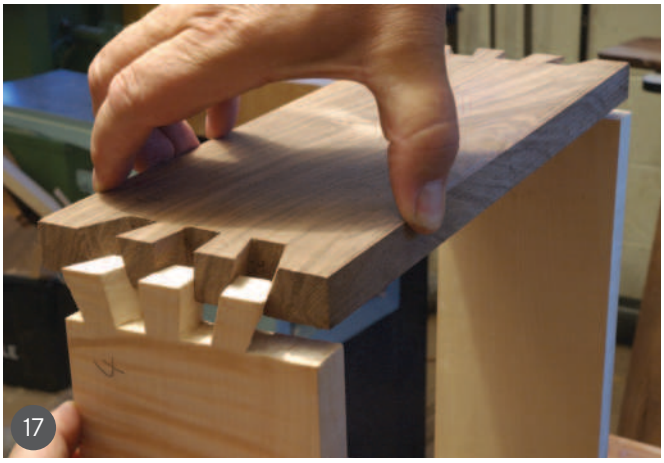
**13** You can use any angle for the side of a pin, so long as you copy the exact same angle on to the end grain of the pin and the side and end grain of the socket. Use a sliding bevel gauge to transfer the angles between face and end grain, making the same marks for both the pins and the sockets. The twisted dovetails I used on this box make a sunray pattern joint. To mark this pattern, vary the angles across the joint so all the lines meet at a single point.

**14** It's a good idea to mark the waste pieces with crosses before you saw any pins or sockets. Clamp the timber in a vice at 45° so you can see both faces at once. Saw the sides of the tails with a fine saw, being careful that the kerf just meets the line.

**15** Remove the socket waste with a coping saw or fretsaw. Shoulders are cleaned with a chisel in the same way as for through dovetails.

**16** Repeat the joint for all four corners of the box, copying the angles from the first joint each time.


15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18

## ASSEMBLING FOUR JOINTS

**17** The joints on each corner must slide together at 45° while the pieces of wood are held at 90°. This means that the four sides of the box need to be squeezed together in one operation, otherwise the last joint will not fit without distorting the others. Once twisted dovetails are closed up tight, even without glue they are extremely difficult to separate without causing damage. Engage the tips of the pins in their sockets, then sight across each joint at 45° to check the fit by eye.

**18** Once you are happy that the joints are aligned, use a fine brush to glue the pin and socket internals before squeezing all four joints together. When the glue is set, chamfer the edges before planing the joint flat and smooth. Chamfers are more than just decorative – they allow you to plane off the edge of a joint without splintering the end grain.

**19** After fine planing this twisted dovetail box, the walnut and rippled sycamore was sealed with shellac and then waxed.


19

# UNDER THE HAMMER

EXQUISITE PIECES OF ANTIQUE CHINESE ART AND SCULPTURE WERE SOLD AT BONHAMS' ASIAN DECORATIVE ART AUCTION IN LOS ANGELES. WE EXAMINE THE TOP-SELLING FURNITURE LOTS

**▼ LOT 635**
**US$956 (£737)**
Two hardwood stands made during the Republic period (1912–49) or later. The first (left) is a rectangular stand with cloud-shaped feet; the second (right) is an elegant circular stand with burl wood centre with a cutout waist over a pierced spiral apron joined to cabriole legs.

**▼ LOT 636**
**US$700 (£540)**
Two carved hardwood marble top tables made during the late Qing Dynasty or early Republic period. Each table top is a floral shape with a segmented jewel border inset with variegated pink marble. The taller table (left) has a high waist and pierced apron over a lower shelf joined to carved, flared legs; the shorter table (right) has a lappet and jewelled apron supported by four mask lion and ball clawed supports.

**▲ LOT 638**
**US$3,825 (£2,948)**
A pair of huali (fragrant rosewood) and burl wood side tables made during the late Qing Dynasty (1644–1912) or early Republic period. Both tables feature well-figured burl wood tops, which are set into mitred, mortise and tenon frames over beaded aprons, which are carved with cloud scrolls. This carving is repeated on the spandrels that bisect the flared legs joined to paired transverse stretchers.

**▲ LOT 625**
**US$535 (£408)**
Three hardwood stands made during the Republic period or later. The first stand (left) is a barrel form with open supports and shaped humpback stretchers; the second (centre) is a high circular stand with 'twisted rope' supports and a burlwood centre; and the third (right) is a rectangular hongmu (rosewood) miniature side table-form stand.

**◀ LOT 659**
**US$3,187 (£2,456)**
A pair of open-shelf hardwood cabinets made in the 20th century. Each is composed of a square post frame originally housing glazed fronts and sides with staggered glazed shelves over paired doors. The doors are decorated with carved medallions of leafy swags and carved key fret aprons.

**▶ LOT 643**
**US$700 (£540)**
An elmwood three-piece desk made during the Republic period. The top cabinet is composed of four horizontal drawers and recessed panelled sides over paired separate sections with matching single drawers over horizontal slatted foot rests.

**◀ LOT 634**
**US$892 (£687)**
A miniature curio cabinet made during the late Qing Dynasty or early Republic period. The piece is made from hongmu, a type of rosewood commonly used in Qing-period furniture. The cabinet has a delicate but sturdy frame supporting five staggered shelves and two drawers over a shaped, beaded apron.

PHOTOGRAPHS COURTESY OF BONHAMS


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# A PASSION FOR PERFECTION

BRITAIN'S **CLIVE CHRISTIAN FURNITURE CO** USES HERITAGE WORKMANSHIP AND TRADITIONAL TECHNIQUES TO REINVENT LUXURY LIVING SPACES

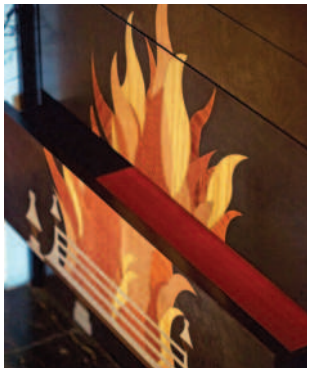
Clive Christian's painstaking restoration of a 19th-century manor house in Cheshire to its former glory is at the very beginning of the eponymously named company's success story. News of his superb attention to detail – including the reintroduction of handcrafted panelling – quickly spread and Clive was soon creating personal designs for other homes. To meet rising demand, he opened an artisan workshop in the north of England in 1978.

But it was Clive's fresh and visionary approach to kitchen construction that firmly established the company as a market leader. The release of his first official design, the Victorian Kitchen, encompassed his vision of the room as a place to hang out, rather than merely a functional space. This saw him removing walls and adding chandeliers.

'When Clive designed what is now regarded as the statement luxury kitchen, he really did change how we entertain and socialise in our homes forever,' explains Steve Dale, the company's workshop manager. 'To this day you will see spaces opened up to encourage quality time spent together.'

## LUXURY INTERIORS

Since those early days, the company has expanded and diversified, with 18 design partners and showrooms around the globe, including New York and London. It now offers a luxury furniture-making service 'wholly bespoke to a client's idea', where the finest materials and traditional artisanal craftsmanship are combined to create the 'best in British luxury interiors'. Clive is no longer involved with the business, but his visionary approach earned him an OBE in 2012 for services to the luxury goods industry, and the company – which celebrated its 40th anniversary in 2018 (with a visit to its Lancashire factory by HRH Princess Anne) – remains true to his exacting standards.



PHOTOGRAPHS COURTESY OF CLIVE CHRISTIAN FURNITURE

*'Our "Made in England" tag is something that is both respected and desired across the globe and regardless of where in the world the furniture will reside, every single piece is crafted in our workshops in north England.'*

'Our "Made in England" tag is something that is both respected and desired across the globe, and regardless of where in the world the furniture will reside, every single piece is crafted in our workshops in north England,' explains Steve, who joined as a CNC machine operator 22 years ago, attracted by the 'no compromise on quality' ethos of the company. Today, he strives to instil that same approach into the work of the 50 craftsmen he oversees in his role as workshop manager. This includes a team of dedicated hand-sanders, who painstakingly sand every curve, nook and cranny to create a peerless finish.

Clive Christian Furniture Co's diverse portfolio of projects includes bespoke studies, penthouses, wine stores, staircases and a sleek exhibition kitchen inside Saint Joseph's Church in San Francisco (part of a modern art, retail and performance space). A unique speciality is its modern twist on the centuries-old artisanal skill of marquetry, inlaying intricate designs in wood.

Steve compares the marquetry process to 'fitting a big jigsaw together'. After sketching out a design, the craftsman will select the veneers, place them on a backing board and then fill in the remaining spaces. An average piece can take around five days to complete. In keeping with the company's British-made ethos, the marquetry veneers – which can also be found in the interiors of those other symbols of luxury, Bentley and Rolls Royce cars – are normally supplied from a business in nearby Nantwich.

'We use the world's finest core materials from precious timbers and rare veneers like classic walnuts, rosewood and oaks, to American tulipwood and lustrous lemon satinwood, but if a client wants to use a specific material we will do our best to source it,' says Steve. 'The team take great pride in choosing – and using – only the finest materials from managed resources.'

As a business that relies on the natural environment, Clive Christian Furniture Co is acutely aware of its ethical and environmental impact. To this end, timber is sustainably sourced from carefully managed resources and a biomass converter utilises all offcuts and sawdust, simultaneously providing an ecologically sound heat source for the workshops. 'Other materials are sourced from businesses, predominantly in the UK, who specialise in the finest quality veneers, leather and iron work,' says Steve. 'We are keen to support small independent suppliers and have long-standing relationships with many.'

## REALISING A CLIENT'S DREAM

The bespoke nature of Clive Christian Furniture's offering also means that a consultant can collaborate with a client to combine aesthetics with practicality. A perfect example of this is Mr Mitchell's Mayfair Townhouse, one of the stand-out projects to be found on their website. Featuring freestanding wardrobes, hat storage and a deep drawer 'dry bar', all made from American black walnut wood, it's a set of drawers cleverly tucked into a Victorian-era fireplace and featuring inlaid marquetry flames that is the real talking point. It's also a prime example of the 'individuality, eclecticism and whimsy' on which the business prides itself.

And when the company states that it is committed to helping you realise your dream – by 'fusing your desires, tastes and needs with modern design innovation and a traditional craftsman's passion for perfection' – it means it. A case in point is the 10-metre-long dining table (around three times the length of an average table) it was commissioned to make for a US-based client. Made from walnut wood and big enough to accommodate 26 diners, it was a 10-week project that demanded the highest levels of craftsmanship to complete.

While client confidentiality is a given, when pressed, Steve will admit the company has provided bespoke pieces for 'celebrities, sporting heroes and royal households across the world'. But one thing he can talk openly – and enthusiastically – about is the company's future plans: 'We have been quietly exploring ways in which to empower our clients to customise their homes and enjoy the Clive Christian Furniture Company experience in new and different ways,' he says. 'Our products are evolving and we're drawing on our heritage craft in order to satisfy customer demand for a highly crafted and beautiful range of freestanding furniture, as well as introducing new designs, materials and finishes to our celebrated core cabinetry. We're also exploring the potential to marry ongoing advances in technology with fine furniture, offering our customers the convenience of modern engineering within the luxurious surroundings of our cabinetry.'

Clive Christian Furniture Co is a Member of The Guild of Master Craftsmen
**guildmc.com / findacraftsman.com**
**clivechristianfurniture.com**

WORDS: RACHEL ROBERTS

PHOTOGRAPHS BY AMBER BAILEY, UNLESS OTHERWISE STATED

# VICTORIAN-STYLE MARQUETRY PANEL

## **AMBER BAILEY** REPRODUCES A 19TH-CENTURY MASTERPIECE USING TRADITIONAL MATERIALS AND TECHNIQUES

Today craftsmen are blessed with an infinite selection of materials and tools to get the job done. There are even machines we can programme, then sit back and watch them do the work. Getting to this point in the evolution of technology has been down to the hard slog of our ancestors. But their lack of materials and bare minimum of tools didn't stop them creating beautifully adorned objects made with intricate precision.

Among the Victoria & Albert Museum archives in Blythe House is an impressive 19th-century marquetry panel that I have fallen in love with. I'm no stranger to modern knife cut, but what about traditional marquetry – exactly how different is it?

As I will show in this article, I decided to set myself the little, or as it turned out, rather big, challenge of reproducing this panel using authentic materials and techniques, to see how I would fare against the original craftsman.

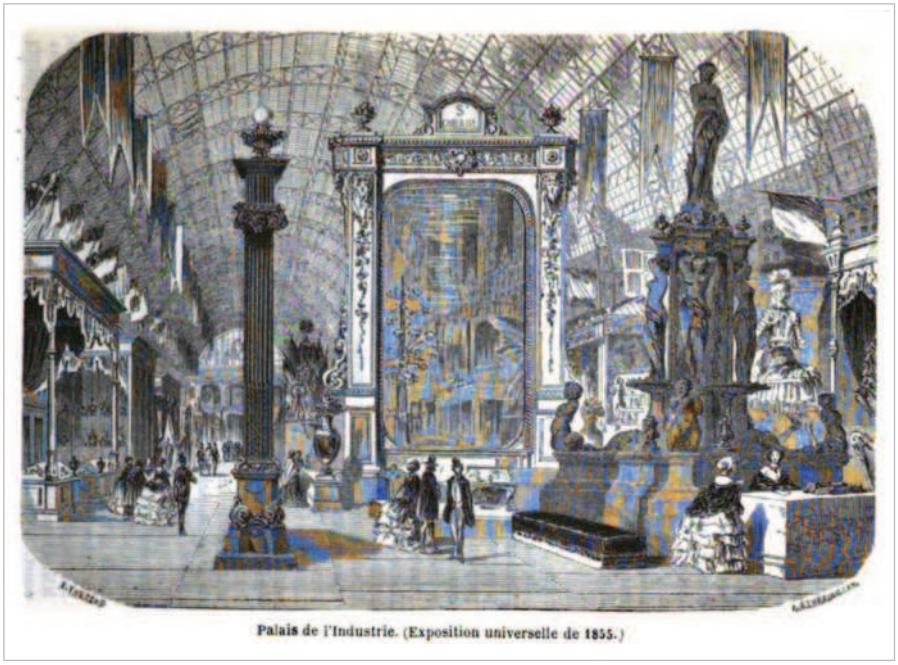
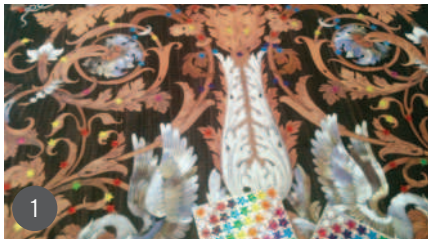



IMAGE COURTESY OF WIKIPEDIA COMMONS

Artist's view of the Palais de l'Industrie at the Exposition Universelle, Paris, 1855




A sticker system made it easier to identify the number of veneer variations in the design


The holly veneer was placed in a sealed container under a layer of copper wire wool with distilled vinegar poured on top

## THE ORIGINAL PANEL

The 16th-century marquetry style panel is of Italian origin by an unknown maker. Dated between 1850–55, it has been under the ownership of the Victoria & Albert Museum all its working life. It was bought by museum staff directly from the Exposition Universelle held in Paris in 1855. Costing £10, it was chosen as a fine example of marquetry in the hope that it would set a high quality standard for British furniture makers to aspire to.

## INITIAL RESEARCH

The V&A has a brilliant online archive (collections.vam.ac.uk) that allowed me to access the original panel's file and a high-resolution photograph. Knowing the panel measured 635mm square, I printed out the photograph in full scale. Mounted on a piece of board, this acted as a master copy of the design to trace or use as reference.

Identifying the unspecified 'various veneers' was a task easier said than done. Examination from numerous furniture industry members proved inconclusive. A whirlwind visit to the workshop of John and Louise Cropper resulted in me confidently deciding that the veneers consisted of birch, sycamore, pear, walnut, mahogany, cherry and dyed holly. They also gave me one of the most important pieces of advice, which I still follow when working with marquetry: if you begin with a long list of veneer species, narrow it down to fewer than 10, then treat them to create a greater array of colours and give the design more depth. The panel consists of various veneers, mother-of-pearl and ivory surrounded by a background of macassar ebony veneer, adhered to a handmade mahogany plywood groundwork.

### VISITING THE ORIGINAL PANEL

On close inspection of the original panel I realised, to my horror, that despite the marquetry being extremely skilful and tight fitting, it had also been cut and incised in large sections rather than as individual pieces. It felt slightly like being punched in the stomach. I had wanted the marquetry to be cut as intricately as it appeared, using every ounce of skill that the craftsman had possessed, but even in the 1800s time was an overhead that couldn't be unnecessarily squandered.

## TESTING – NO ROOM FOR MISTAKES!

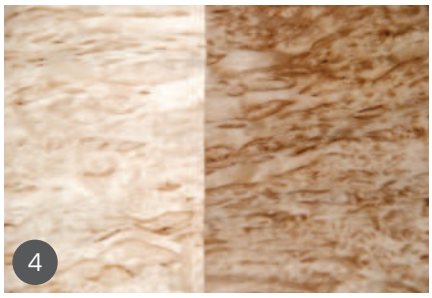
Taking on such a mammoth project meant I wasn't going to leave anything to chance. I completed a series of tests to decide on my best options:

- Cutting methods
- Protein glues
- Gluing with bulking agents
- Cleaning with oxalic acid
- Making and incising an artificial ivory substitute
- Fuming veneers
- Making plywood

## PREPARING THE MATERIALS

To create a wider variety of veneer shades than my initial selection allowed, some of the veneers were fumed with ammonia for 12 and 24-hour periods to provide extra tones. Dyeing the holly veneer green involved soaking it for several days in a mixture of copper wire wool and distilled vinegar. Traditionally, green was a popular colour to use in marquetry, often found to retain its colour after other natural dyes have faded.

To protect the veneers from damage during the cutting process, all were backed with newspaper then packeted between two pieces of constructional beech veneer overlaid with a design tracing.



**3** The mixture gave a very muted green colour
**4** Fuming masur birch can give the wood a much darker appearance
**5** Tracing sections of the design from the master copy
**6** The artificial ivory substitute (right) took a number of changes to its composition
**7** A finished packet ready for cutting
**8** The plywood groundwork ready and waiting
**9** Almost ready for the background

The original panel included ivory, but CITES regulations stipulate that today only pre-1947 worked ivory may be used. I could not justify the genuine article for a reproduction so set about making my own from West Systems Epoxy Resin and Microlight, colour matched via the aid of pigments.

## HANDMADE PLYWOOD

Not everyone will agree that plywood is a particularly desirable product but there is no denying that it is the perfect groundwork for marquetry. Traditional craftsmen recognised its stable structure could combat wood shrinkage. For them the process required each layer to be cut by hand.

I got as far as producing a small sample before I realised that it would quite possibly take me forever to make a whole groundwork, so a vast quantity of thick mahogany veneers became the ideal solution.

The width of the plywood was too large for a single sheet of veneer per layer, four strips were taken together and the layers were stacked alternately until the groundwork reached the required 10mm thickness, adhered with fish glue.

## CUTTING THE MARQUETRY

Traditionally, marquetry was cut using a fretsaw supported on a fretsaw table. As successful as this was, it didn't take long before I felt I had earned an upgrade,

**10** Fitting the marquetry into the first strip of the background **11** The incise markings are sketched out with a pencil before carving to avoid mistakes **12** A diamond coated sander was the only way to ensure the sander did not wear out before the mother-of-pearl! **13** Delicately cleaning between the marquetry

splashing out on a Knew Concepts titanium birdcage fretsaw along with the gift of a purpose-built jeweller's table.

The background proved somewhat trickier. Locating a single sheet of macassar ebony at the width of 635mm was always going to be a no-goer. Instead, the background was made up of a series of thin strips placed alongside one another. No matter how many access holes were drilled, the veneer was impossibly long for turning the blade at the correct angle. A chance visit to Wycombe Museum had me stumble on their displayed treadle fretsaw; its long length saw arm gave a generous turn angle. A few short days of searching and a treadle fretsaw was soon on its way to me, proving just the tool for the job.

## CREATING THE PANEL

With the marquetry and plywood ready to be glued up but the mother-of-pearl yet to be flattened smooth, a solid veneer press would be redundant here. A vacuum press allowed for all the air to be removed around any undulations in the marquetry, distributing even pressure.

Smoothing down the mother-of-pearl took a diamond-coated sanding attachment on a rotary tool, the rest of the panel being scraped flat with a piece of scored and broken glass – far less hard work than a cabinet scraper!

A quick once over with oxalic acid cleaned sawdust and dirt from the wood grain, leaving a clear surface ready for polishing.

With the artificial ivory substitute firmly stuck in place, the panel could now be incised, carved with modelling tools and in-filled with black ink.

Polishing the panel took several layers of super fine white shellac, first to seal the wood and then to build up a slight sheen. Just as the original had been waxed, microcrystalline wax provided the silky finish I had hoped for.

Completed, and in record time! It only took over 700 hours ... but was definitely worth the blood, sweat and tears.

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# ASSEMBLING AN 18TH-CENTURY-STYLE WORKBENCH

## **KIERAN BINNIE** STARTS TO PUT TOGETHER HIS ROUBO-INSPIRED BENCH

I've been building a workbench based on a design described by 18th-century cabinetmaker André Jacob Roubo in *L'art du Menuisier* (reprinted as *With all the Precision Possible* by Lost Art Press). I am now ready to assemble the bench, and am very keen to press it into use. Gluing up any project can feel a little tense, and that sense of high-stakes risk is all the more intense on a project when disassembling the work and having a second attempt at the glue-up is simply not an option. Fortunately, with some forward planning and the help of a few assistants, it can go quite smoothly. Assembling the bench does not mean that the bench is complete, although it is a major step to finishing the project, and in this article I will discuss a strategy for gluing up the bench as well as some of the critical stages following assembly.

### ASSEMBLING THE BENCH

As with any successful glue-up, the key is to have all of the components and equipment laid out logically so that you are not searching for an essential tool at an inopportune moment. For the Roubo bench, this meant having the stretchers, legs, drawbore pegs and plenty of narrow oak wedges to hand, as well as a lump hammer, a bucket of hot water for clean-up and to keep the hide glue at a workable temperature, and rags and toothbrushes for cleaning up squeeze-out. The sequence in which you assemble the bench is critical, but once together this is an assembly that will not require clamps.

Before starting the glue-up I checked the fit of the stretcher tenons in the leg mortises, as these had been cut several months previously and I didn't want any over-tight joints to impede the

PHOTOGRAPHS BY KIERAN BINNIE

**OPPOSITE** The assembled bench, ready for flattening **1** Paring the drawbore pegs flush **2** A 610mm rule helps to identify where the highpoints are **3** Traversing the benchtop removes material quickly and flattens it across the width **4** Here you can see how the high points are removed, and where the low spots remain

glue-up. It might seem counterintuitive, but some slop in the undercarriage joinery is a good thing, as it allows the legs and stretchers to flex and conform to the geometry of the slab top.

I use hide glue for most of my work, and the Roubo bench is no exception. Hide glue lubricates the joints, which makes it easier to assemble joinery – very useful for this build! It is also very easy to clean up, needing only warm water. To start, insert the short stretchers into the legs, creating two sub-assemblies. Next, insert the long stretchers into the leg mortises, but do not clamp anything together. Apply glue to the mortises in the slab top, and also the double tenon at the top of each leg. The moment of truth is placing the slab on to the legs. The weight of the slab should help seat it on the leg tenons – my slab top slid two-thirds of the way on to the tenons purely under its own weight. To drive the slab the rest of the way home, lift one end of the bench 150mm off the floor, and then drop it. The impact will seat the slab deeper on to the tenons. Do the same at the other end of the bench, and keep alternating ends until the slab is fully seated. Now is a good time to insert the drawbore pegs in the undercarriage: coat each peg in hide glue and then knock it home with a lump hammer. This locks the stretchers in place, and the tension inherent in the assembled bench will hold the components together without the need for clamps.

The final step before cleaning any squeeze-out is to inspect the joints in the slab top, and to wedge any significant gaps. I used oak wedges 25mm wide and cut with a 6° angle at the tip. Coat both sides of the wedges in glue and then hammer them into any gaps around the tenons. Some joints may not need wedging, but you'll be glad you cut wedges in advance if any joints do need closing up. Finally, clean up glue squeeze-out with warm water and rags. I left my bench for several days for the glue to cure, and then trimmed the drawbore pegs and wedges flush.

## FLATTENING THE BENCHTOP

Flattening the benchtop is just like processing any workpiece with hand planes, only on a much bigger scale. Start by placing winding sticks at each end of the benchtop and look for twist. Work the opposing corners to remove any twist, and then check the benchtop to identify whether the high spots are in the middle or at the sides. If like me you followed Roubo's direction to orientate the slab heartside up, the high spots will be at the edges. Plane a chamfer along the far side to reduce spelching, and then traverse the top from side to side with a jack plane fitted with a cambered iron. Working across the grain like this exploits the structural weakness of the timber and allows you to take a






heavier cut. Traverse the benchtop over the full length, until the top is flat across the width – this might take several passes. Then work at a 45° angle down the benchtop and back again, changing direction for each pass. Working on a skewed angle will remove the scalloping from the traversing cuts and evens out any lumps over the length of the benchtop. Again, this may take several passes. Check your progress with a straightedge. Once the bench is flat on the 45° skew, it is time to joint along the length. For this I used a No.8 jointer plane. Work along the length, and with the direction of the grain, being careful not to introduce any hollows or low spots when planing along the grain.

How flat is flat? I checked my progress with a straightedge and feeler gauge, and stopped once the benchtop was flat to 0.1mm over a 610mm length. You can smooth the benchtop with a smoothing plane if you wish, but some prefer to keep the surface a little rougher as it provides extra grip when in use.

It is a good idea to apply any finish before boring the holdfast holes, as finish can lubricate the holdfasts, which will reduce their holding strength. While there are many options for workbench finish, I used boiled linseed oil: it will not leave a slick surface, provides protection from glue, and is easy to both apply and repair.

## BORING THE HOLDFAST HOLES

The key workholding strategies for a Roubo-style bench are holdfasts and a planing stop, and with the benchtop flattened and finished, now is the perfect time to bore the holes for these.



**5** After traversing, work the benchtop at a 45° skew with a jack or jointer plane **6** Testing the flatness of the top with a 0.1mm feeler gauge and straightedge **7** Hatching across the top with a lumber crayon helps to identify the areas you have planed, keeping the top flat and avoiding creating any hollows **8** Boring the holdfast holes with a brace and bit guided by a simple jig **9** The completed holdfast hole layout, and the planing stop mortises laid out **10** Boring the planing stop mortise removes most of the waste before pairing square **11** The fitted planing stop

I made a simple jig consisting of a piece of hardwood 63mm square and 200mm wide, mounted on a 20mm-thick plywood base which measured 560mm long by 115mm wide. The front edge of the hardwood should be flush to the edge of the plywood, and perpendicular to the base of the jig. Bore a hole which matches the shank diameter of the holdfasts through the jig, ensuring that the hole is perfectly at 90° to the base of the jig.

I laid out two rows of holdfast holes for my bench, based on the Plate 11 engraving in *With all the Precision Possible*. The precise spacing will depend on the reach of the holdfasts you use, but once you understand the system for laying out the holes then you can adapt the spacing to match your holdfasts. The rear row of holdfasts are 3½ pouce from the back edge of the bench (the pouce is, in effect, an 18th-century French version of the inch, with 1 pouce equating to 1.066 modern inches). The left-most hole is 9 pouce from the end of the bench, and is used to secure a long batten across the bench to the planing stop, to facilitate working wide angles. With this hole laid out, I then spaced the remaining holes down the length of the bench so that they were twice the reach of my holdfast apart. The second row are then placed equidistant between the rear set, and 10 pouce from the rear edge of the bench.

To bore the holes, I clamped the jig in place, and used a 25mm diameter WoodOwl ship's auger bit in my 1920s era North Bros brace to drill through the guide hole in the jig. The holes must be perfectly perpendicular to the benchtop if the holdfasts are to function properly, and the jig helps to guide the auger bit.

## PLANING STOP

Roubo calls for a planing stop that is at least 1 foot long, and 3 pouce square, made from very dry stock so that it will not suffer from seasonal shrinkage and become too loose. The stop should be friction fit into the mortise so that it moves up and down with a sharp tap from a mallet, but not so tight that it seizes up or splits the benchtop. A toothed metal stop is fitted into the top of the wooden post and holds the workpiece in place.

Lay out the location of the planing stop so that it falls a little behind the reach of the left-most holdfast hole, and 75mm or so from the front edge of the workbench. A large mortise such as this is a lot of work to cut entirely with a chisel, so I bored out the waste using the same jig and auger bit as for the holdfast holes. Eight holes round the perimeter of the mortise removed most of the waste, and the centre block lifted cleanly out. Pare the mortise walls so that they are plumb and square for the full thickness of the benchtop – because the planing stop relies on being friction fit you want as much surface area to make contact as possible, which means no undercutting. This is where the perpendicular face of the jig is useful, as you can use it as a chisel guide to ensure a clean and perpendicular mortise wall. I used a timber framing chisel to remove most of the material, and a paring chisel to fine-tune the surface. Pay particular attention to the corners, where material can remain and foul the fit.

Fitting the loose tenon to the mortise is fussy work, as a couple of shavings can be the difference between an over-tight fit and one which is too loose. Measure the dimensions from the mortise and check the fit frequently as you make fine adjustments. A smoothing plane set to a fine cut is very helpful for adjusting the fit of the tenon, as is knowing what the right fit looks like – I aimed for movement of 3mm with each tap of a lump hammer. Once the tenon is fitted, knock it down to the surface of the bench and flush up the end grain with a low angle block plane. Then bore the hole to accept the toothed stop.

## SEVERAL STEPS CLOSER TO COMPLETION

By this stage in the build, the bench is functional and can be used to make the remaining components. Slab tops will show some movement for the first year or so, and will require periodic flattening as a result. Once they have reached moisture equilibrium with your workshop however, they become very stable as the sheer mass prevents much further movement. That first flattening is key as it establishes the plane for boring the holdfast holes, and is worth spending the time to get it right.

# KEEPING IT REAL

## NEW YORK-BASED **STEVEN BENNETT** OF KEEP FURNITURE CROSSES THE DIVIDE BETWEEN ART AND FUNCTIONALITY IN HIS INTRICATE JOINED AND STEAM-BENT CREATIONS

***How did you get where you are today?***
Like most people, there were a lot of intentional choices and circumstances out of my control that got me to where I am today. My parents had both died by the time I was eight years old, and so I grew up with a lot of monsters. When I was growing up I literally drew those monsters on paper and I grew to love them. I've always been interested in biomorphic forms that go outside the normal boundaries.

I chose to study at the Pratt Institute partially to get to New York City. I began as a photography major, but quickly switched to painting. By the time I graduated I knew sculpture was more my medium. Working at the Pratt woodshop helped me see furniture as an option, which felt like the best of both worlds to me. It's sort of the ultimate challenge – making structurally sound and functional work that also satisfies my desire to create an abstraction.

***You came to art after your parents died. Did it help?***
It helped to have an escape in the beginning for sure. Soon though, the escape became what I did, it became my thing. This was especially true in a family without any other artists. I knew I wanted to be an artist when I was seven years old. I started with drawing but expanded as the years went on to painting, photography and sculpture.

***What made you choose wood as your main medium?***
My sculpture professor at Pratt Institute in Brooklyn, New York, where I got my BFA, got me a job as a woodshop technician in the Fine Arts Woodshop at Pratt in 2004. I got paid jobs right away in that shop, which was definitely not the norm I was used to coming from painting. Woodworking was a way to use my hands every day, be creative and also pay rent. I was sold!

***How did you learn woodworking and furniture making?***
I took classes at Pratt Institute and learned on the job while working for furniture makers. I later worked in a few high-end frame shops in New York City. I did lots of reading and continued to teach myself something new with every commission I got. I also learned a lot while being a member at Makeville, a community woodshop and woodworking school in Brooklyn.

***What was your first major project?***
While I was a student at Pratt, I carved a reading chair in a big tree crotch 36in all around. It looks kind of like a baseball

PHOTOGRAPHS: DAVID STEINVURZEL, NICHOLAS S PILTOFF, STEVEN BENNETT

catcher's mitt. It's very comfortable and I still have it today in my living room. It was my first time doing so many things, carving with a chainsaw and angle grinder. I had to cut six butterflies because I carved out so much material so fast that the wood started splitting everywhere. I thought I had ruined it at one point. When it was done, the Pratt woodshop manager, who was very hard to impress, fell asleep in my chair. Soon after he hired me to work in his furniture shop.

***There are many 'short grain' sections in your Octopus Tables. How do you prevent breakages?***
These tables are like a puzzle where I designed each S-shaped leg to be sectioned off in six and seven long grain parts. This way I can mostly avoid short grain issues that come from simply cutting one shape from one large board. Also, the joinery connecting the sectioned-off S-shape gets either hidden double tenons or through butterflies, building the necessary strength. It's a fun way to show off precision.

***Furniture has to be practical, however beautiful it may be. How do you manage to integrate both requirements successfully?***
I agree and think of myself as a practical artist. However, recently I've decided to have some fun with the interplay of functionality and the uselessness of art within the framework of furniture. I believe some types of furniture, like bookcases, lend themselves to being functional more easily than others. A dining chair on the other hand requires so much structure in a finite place, that practicality needs to be the focus of the design.

***What would you say are the main differences between your sculpture and your furniture?***
I am hoping to blur these lines actually. The main differences right now are my intentions and the design requirements of the commission. But I always try to make each piece more daring than the last if possible. I'm always pushing my comfort level, almost trying to create or amplify my fear that the piece might fail in some epic way. Explosions and the like!

***What sort of jigs or methods do you use to create asymmetrically curled wooden structures?***
For the curled and steam-bent sculptures, I made a steam box to steam or plasticise the wood using an electric wallpaper steamer as the heat source. I often use ready-mades like PVC pipes as steam-bending forms. In general I love making jigs and almost always make everything custom myself.

***What timber species do you prefer working with?***
I always love working with new wood species naturally. Maple burl is just so stunning. But my normal go-to is African sapele. Cuts great, looks great, and it's affordable and accessible.

***What kind of shaping tools do you use for surface detailing?***
Routers, angle grinders, die grinders, sanders, various hand tools, etc. It really depends on what the piece calls for.

***How has your work evolved since you first started?***
I'd like to think my work is more cultured now after all these years. I've always been interested in diversity within my portfolio. Now, I'm looking for diversity within each object.

***What projects do you have in the pipeline?***
I'm currently designing my first art furniture series. I'm leaning more towards sculpture these days, but have a need for utility as well. Hopefully I'll show them within the next year. That being said you can probably get previews on my Instagram account, @KeepFurniture.






***Really good quality art or furniture isn't accessible to everyone. Do you think there may be a way that more people could enjoy and use it?***
Yes and no. Yes, I make affordable designs and know other makers that do the same. It will still cost more than manufactured furniture but it's handmade one at a time by a designer-maker, and therefore it tends to be better quality and last much longer. So more money up front but ultimately less money over time. No, because the majority of people are often too financially strapped to shell out the cash necessary to buy something of heirloom quality.

***What was the most difficult project you've worked on and why?***
The Max sculpture project comes to mind here mostly because it is permanent, large scale art. I wanted it to look as seamless as possible but as a furniture maker I needed it to be very strong as well. It's a giant bent lamination using hand-cut hard maple and zebrawood veneer. The project was difficult because of me – I designed an object nearly impossible to make. Also, never count the hours, it can be demoralising!

***What is your favourite project you've done so far and why?***
Definitely Break Through. It's my favourite because it's uncharted territory for me and, like The Max sculpture, I wasn't 100% sure my plan was going to work. I relied on my experience and perseverance to help me get through the hard parts, all the while thinking it might all crash and burn! In the end I figured it out and have plans for a new series of work based on that piece.

***Who are your main influences from the worlds of art and design?***
Michelangelo's sculpture always comes to mind of course. I love nearly all of Wendell Castle's work and the same for Joseph Walsh.

***What inspires you?***
My drive comes from wanting to be a part of the conversation. So artists like Wendell Castle and Joseph Walsh, even though they may have never seen my portfolio, I'm inspired by them and working towards being in dialogue with them through our work. I get very excited when I see a piece of wood furniture that I can't actually figure out how they made it.

I'm also inspired by the wood itself and by nature. My friends and family get frustrated with me pretty quickly walking in a park or the woods – I pause at any tree or plant that catches my eye and want to really dig into the form, the age, the condition, the possibilities. I would be perfectly happy to be lost in a forest by myself for longer than most could tolerate.

***What are your plans for the future?***
My wife is pregnant with our first child! So naturally I am preparing to be the best parent and partner I can be. I'm so scared and excited but I've decided to love and embrace life's challenges for better or worse. I am currently designing our future baby's first dresser and changing table, and have plans to build a crib as well.

**keepfurniture.com**

# ASYMMETRIC DOVETAIL JOINT

## **JOSEPH LA MACCHIA** EXPLAINS HOW HE MADE THIS UNUSUAL JOINT

Like all things in life and craft there are many different approaches that can lead to a desired result. There is no 'right way' to cut this joint, so feel free to explore what works best for you.

First I created several different paper shaped cutouts and placed them on the piece to determine which was most pleasing. After selecting the ideal shape I further refined the angles to best fit the piece for production.

I knew I wanted material that was either quarter or rift sawn in grain orientation. After finding stock that was long enough to produce multiple keys, in case of a mistake, I milled it and ripped the determined angles at the tablesaw. Both a digital angle finder and a traditional angle protractor aided significantly in this process.

I cleaned up the machined dovetail key stock with a hand plane and hardwood sanding block faced with 320 grit. From there I carefully placed the key on top of my work surface using double-sided tape and traced it using a marking knife. I transferred the lines down the vertical surface with a saddle square and lined up the key and marked it on the alternate side. I placed the piece in my pattern maker's vice and made the first two vertical cuts using a dozuki dovetail saw. The remaining waste was removed with a fretsaw and everything was refined using a router plane and chisels.

Before test fitting the dovetail key, I tapered it slightly using the hardwood sanding block until the desired fit was achieved. I had to be very careful with the fit due to the grain orientation of my workpiece. I didn't want the key to create too much compression, which could have potentially blown apart or weakened the area I was attempting to mend. For the final installation I applied a thin amount of epoxy to the three faces of the pin socket and initially fit the key with firm hand pressure. Final set was achieved with a few taps from a mallet.

After curing overnight both sides of the key were cut using a flush trim handsaw with a sandpaper standoff, the remaining waste was removed with a low angle block plane and final surfacing was done with a random orbital sander. The remaining detail was achieved by carefully working my way around both sides of the joint line using a chisel to create a very shallow groove. Final clean up of the groove was done with 1,000 grit sandpaper adhered to and wrapped around a piece of plastic card-stock. The piece was finished using polymerised linseed oil and, after properly curing, top-coated with OSIS WoodWax.

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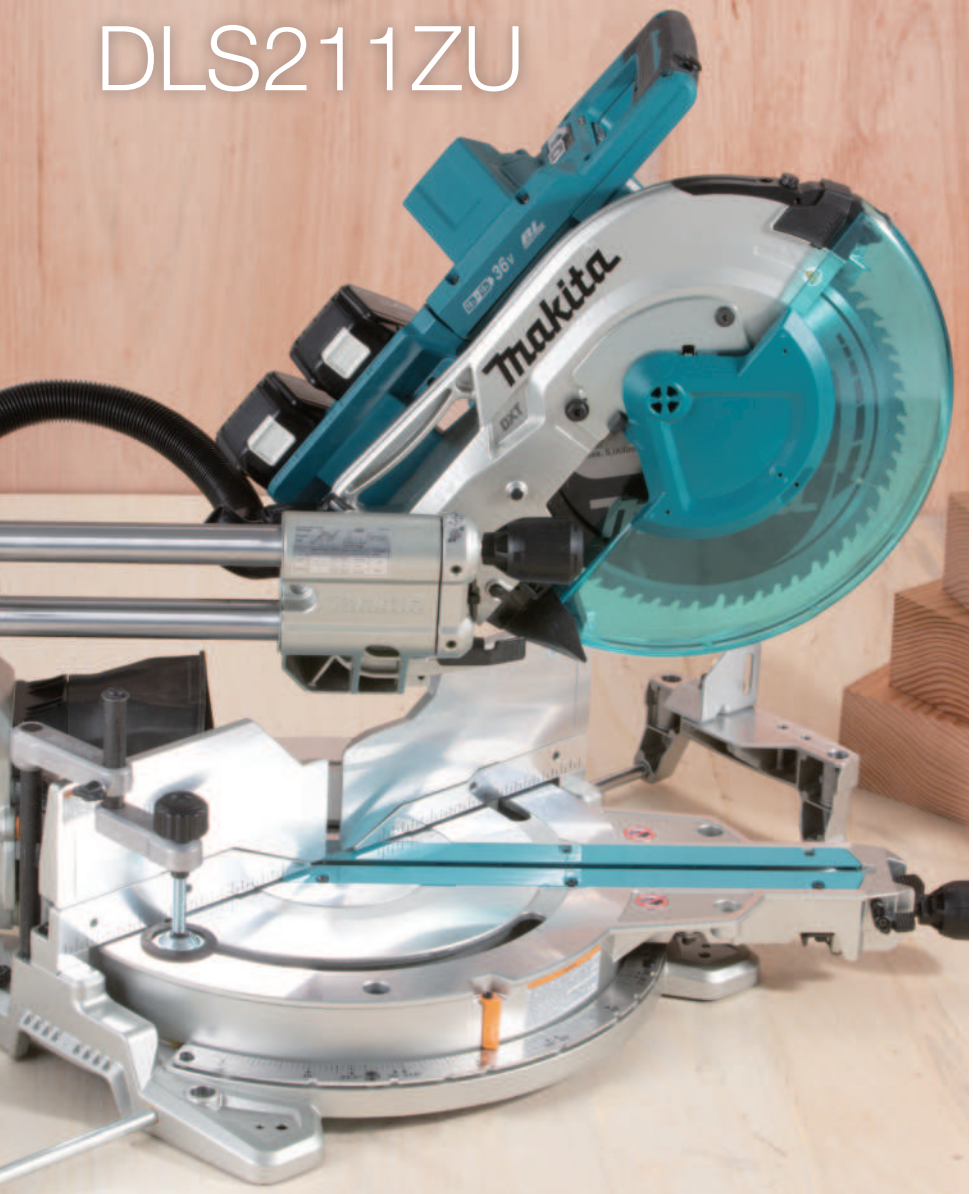


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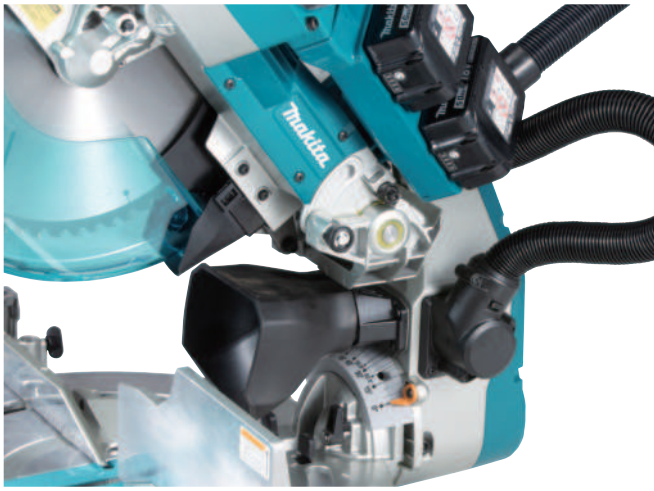


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