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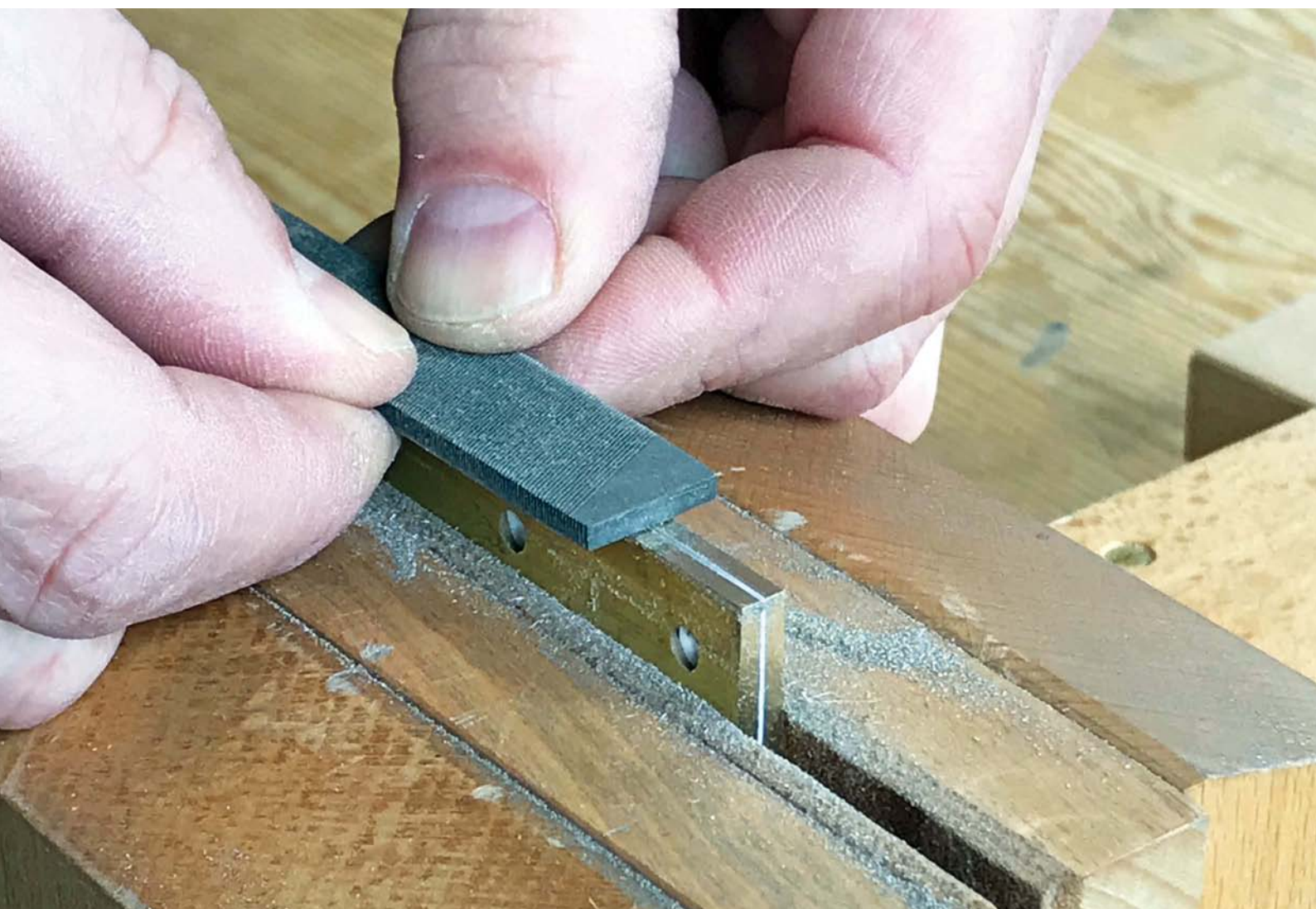


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Welcome to...

...variety



The most frequent observation from new readers of *F&C* is that we have such a diverse mixture of content compared to other titles occupying the same space on the woodworking newsstand. Does it surprise me? No, not really. For a publication that could quite easily find itself hamstrung by its title I often find the complete opposite to be the case. Such is the variety of materials and techniques used to produce furniture, not to mention the characters that continue to shape our craft, I wonder if we're ever going to be capable of telling the whole story. True to type, this issue is another minestrone of machine and hand tool techniques carefully chosen to inspire, educate and entertain. We've got one eye firmly fixed in the past as we report on Bonhams' sales of Chippendale furniture (page 50) while the

other is contemplating how the future will look as Bluetooth technology integrates with our power tools (page 69). In the right hands there's no reason why the latest technology cannot be a force for good for woodworkers.

If traditional methods are more your thing, then you'll enjoy the last episode of Matt Estlea's 'how to' series on constructing a frame with a different joint in each corner (page 37). Power tool woodworkers should jump straight to our Tricks of the Trade feature on page 62 to see how Ramon Valdez has transformed his trim router.

There's no two ways about it, you either like finishing or you don't and for those readers leaning towards the 'don't' side of the fence, this month we're taking a look at what you need to get set up for spraying (page 30). Mastering a spray gun will open up all sorts

of possibilities and not just for volume work. Custom finishes such as blending tones and building up a lacquer that you can almost dive into are just some of the effects possible that are hard to achieve by hand. Another area of the build process that's often left to the last minute is that of hardware and on page 14 we've got a few tips that will help you identify good hardware from bad and how to make the best even better.

If variety is indeed the spice of life, then the June issue is definitely one of our hottest so far.

Derek Jones

Derek Jones

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Don't forget there are plenty more articles and discussions to be found on the Woodworkers Institute & Forums
www.woodworkersinstitute.com



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.

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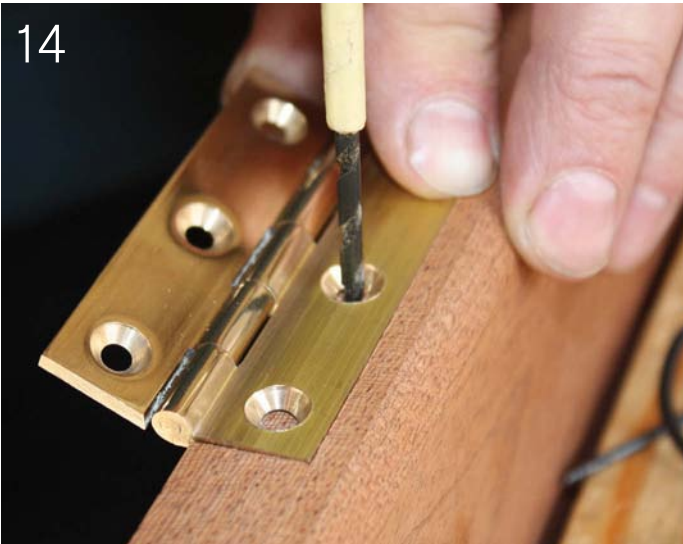
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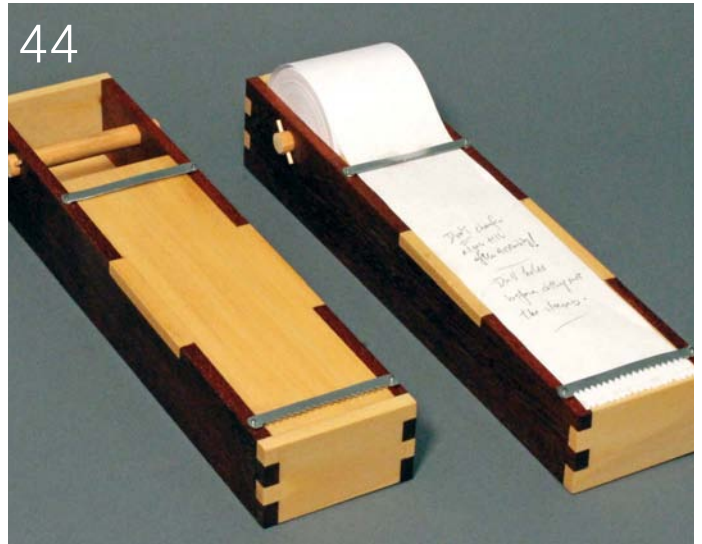
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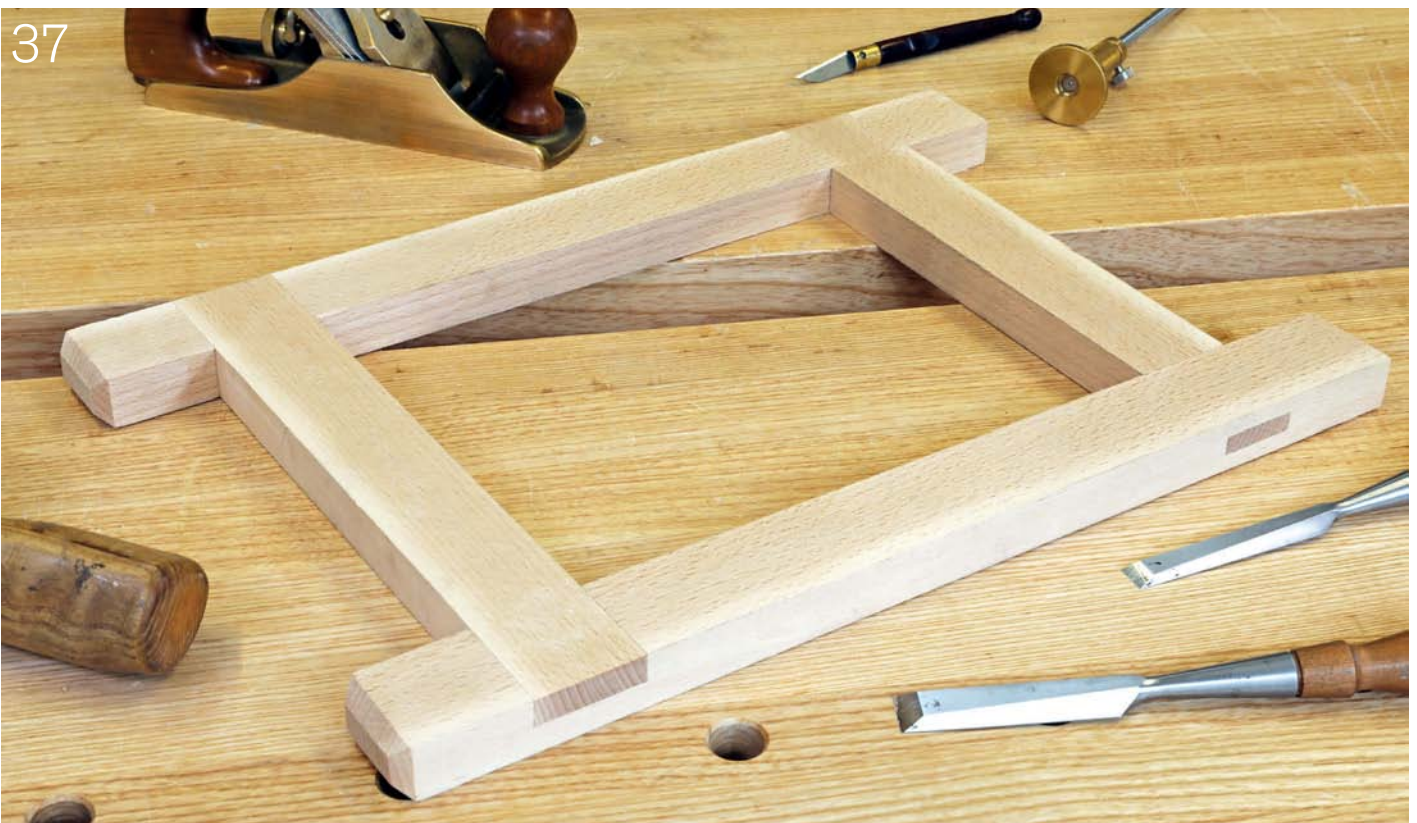
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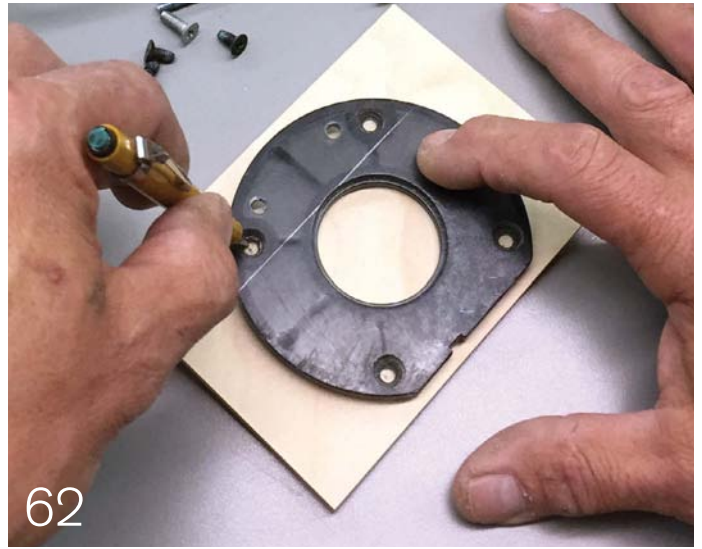
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Meet the contributors



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David was involved in scientific research for over 20 years prior to enrolling on a one-year designer/maker course at Waters and Acland. In 2017 he decided to create the luxury hand-crafted furniture business Four Limes Design. Its remit is to create bespoke fine furniture that will last for generations.

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The Parnham joint

Steve Coonick reviews an unsung hero of furniture making

Designers and makers are constantly faced with decisions about 'function and form'. The phrase, used in 20th-century modernist architecture and industrial design, means that the shape of an object should primarily relate to its intended function or purpose.

Many new makers tend to prioritise form over function; makers wishing to demonstrate their skill may 'throw' a complicated joint into a highly visible part of the design. I have seen multiple joints crammed onto one piece of furniture in the hope that this demonstration of 'skill' will add value to a piece. But is this approach correct and what is the alternative?

A pragmatic approach to furniture design is an ethos often overlooked. This approach can yield furniture that outperforms more 'complex' pieces, with respect to mechanical integrity and, with thoughtful design, can produce elegant pieces that will charm clients. I have always thought that there is something appealing about stripping down a piece to its core shape and essential elements.

I believe that discreet design details make a piece of furniture interesting and beautiful. Yes, it's important to delight a client, but for me, it's important to do so without detracting from the beauty of the materials used. To achieve this, I believe design is all about the 'edit'. Traditional joints are things of beauty and exhibiting them can add real value – but proceed with caution. 'Take away the extraneous and leave what is beautiful', is something I am mindful of when designing furniture.

With this design ethos in mind the following article describes one of the numerous unsung heroes of projects – the 'Parnham' joint. This deceptively simple joint, when used correctly, is strong and predictable. It allows designers and makers to 'stretch' designs beyond what is possible when only using wood. The potential for elegance is derived when form follows function.

The basic joint

A Parnham joint incorporates a threaded metal bar, in much the same way a wooden dowel is used, but with greater resistance to shearing. The bars are anchored into oversized holes using resin, the thread providing a larger gluing surface area. Under pressure, the resin is forced into the fibres of the wood surrounding the bar strengthening the joint.

This method is credited as being developed at Parnham Workshops; run by John Makepeace in the 1980s. Typically the joint is used as a replacement for a wooden dowel, where corresponding holes must be positioned, dimensionally, very accurately and drilled at 90° with a drill bit that matches the diameter of the dowel. The Parnham joint eliminates the requirement for accurate drilling, often a 'wet slack fit' is used to describe the engineering of these types of joints, as they provide 'float' that allows the metal bar to 'find the fit'.

Materials

The materials required for the joint are easily sourced. Threaded bar is available at most builder's merchants in a range of diameters

(typically from 5–25mm) and usually in 500mm lengths.

A slow-cure resin should be used. The slow-cure time allows a longer set-up and open time, providing an opportunity to adjust clamps and get everything spot on. A low-viscosity resin is designed to wet out, seep and bond to wood fibre and metals and is ideal for this application. The resin

should also be able to cure in a wide range of temperatures to form solid high-strength bonds, which have a high resistance to moisture. A high-density filler is required to 'thicken' the resin and to maximise bond strength for high cyclic loads. The desired viscosity can be achieved by mixing approximately 40% filler with 60% resin/hardener.



Swap wooden dowels for steel bar for extra strength



Ingredients for a strong bond

Preparation

Cut the metal bar to the desired length. This can be done by hand using a hacksaw. Hacksaw blades are inexpensive, so always work with a sharp blade, and protect the jaws of your vice by using an offcut of hardwood to hold the bar. Alternatively, an angle grinder or chop saw can be used with an appropriate metal cutting disc.

It is important to 'flute' the metal bar by cutting a groove into the rod perpendicular to the threads, allowing air to escape. If the air cannot escape, the bar will not engage into the joint effectively, limiting the bonding area and weakening the bond. Air may also prevent full engagement leading to gaps between the wooden surfaces.

The success of any bond depends on the strength of the resin and how well the resin adheres and mechanically 'keys' into the surface. The following steps of surface preparation are critical to the bonding operation.

Clean all surfaces. Carefully de-grease the metal bar with a chemical solvent (thinners). I have seen hot soapy water used,

however, this method produces an inferior bond as the soap remains on the surface and introducing water to a metal surface is never a good idea. For an improved bond, abrade the surface of the bar with 80-grit paper.

Abrade and clean all wooden surfaces inside the oversized hole and on any secondary surfaces that will form part of the gluing surface. Bonding to wood requires a mechanical, as well as chemical linking. The adhesive must 'key' into pores of scratches in the surface – think of a microscopic version of a dovetail joint. Good preparation provides a surface texture that will help link the cured resin to the surface.

Primary bonding of resin relies on the chemical linking of adhesive layers. All the layers of adhesive must cure together to form a single fused layer. The ability to chemically link layers diminishes as the previous layer cures. Bonding stages must be completed in good time to ensure a good bond, don't rush the glue-up but also don't go and make yourself a tea halfway through.



Prepare a block to hold the bar and protect the vice jaws



Make a cradle to hold the bar for fluting



Cut a flute across the threads



Drilling can burnish the inside of the hole so key it up with some coarse abrasive

Method

Referring to your design drawings, establish where the bars will be inserted and mark their exact location on your work. If I am using two or more fixings in the same area, I prefer not to rely solely on these marks to drill the oversized holes. Alternatively, I recommend making a simple double-sided jig which guarantees that the holes line up on all faces. Remember to mark the jig so you can identify which way it should be placed on each surface. Typically, this joint provides a good amount of 'wiggle' room, however, this is finite, so accuracy is still important.

As a rule of thumb, the oversized hole should be drilled giving a 30% clearance around the metal bar. For example, for a 10mm bar a 13mm hole is required. A drill press will give a straight hole, making it easier to glue up. If drilling into an end grain on a long section of wood, ensure the wood is square to the bed of your drill press, using a set square and the bed as your datum.

The strength of the joint relies on the ability to transfer loads from one part to another. Three factors will influence how successful your joints are.

1. Careful measuring, and thorough mixing of the two-part resin ensure full cure strength – digital scales are a must.
2. Correct surface preparation, for the best adhesion and load transfer. The bonding area must be adequate for the load on the joint. Reinforcing additives can be used to increase bond strength.
3. Drilling oversized holes provides greater strength and stability to the final joint.

I prefer to glue-up the joint in two parts. First, I set the bar into one of the faces and let this cure completely. I have found that one oversized hole on the second face gives me more than enough flexibility.

You can do the glue-up in one step if it's a simple design, however, if the piece has multiple parts which need to be fixed



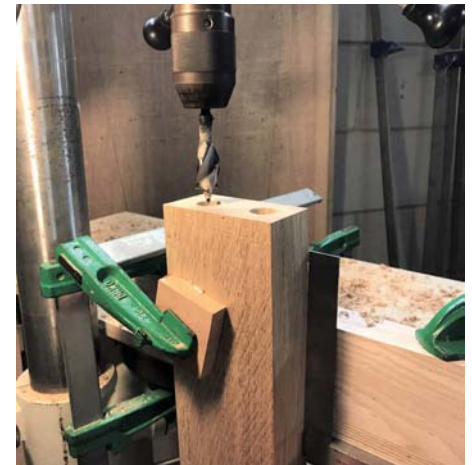
Threaded bar is not always exactly the size it's supposed to be

at the same time, why make life harder?

If you are going to 'pre-set' one face it is important that surfaces surrounding the hole are kept clean. You can achieve this by covering sections of the timber with tape. Once the bar is inserted use a jig to centre the bar(s) ensuring that they are set straight.

Alternatively, drill a pilot hole in the bottom of the oversized hole. The pilot hole serves to hold/clamp the rod in position until the resin cures.

Wet-out hole(s) with a basic resin/hardener mix. Allow the resin to thoroughly soak into the exposed grain of the wood. Thicken the remaining basic mix using a high-density filler to a moderate consistency (similar to mayonnaise). The correct level of viscosity will cling to vertical surfaces but has peaks that will fall over. Blend in small quantities of filler until the desired consistency is reached. Spread resin onto all surfaces of the hole, evenly cover half of the rod with resin and insert it into the hole. Ensure all air is expelled by pressing down onto top of bar. Clean any resin overspill and hold the joint in place with the jig and allow to set. Once set remember to remove the



Use a fence attached to the drill table to square the component up for drilling

tape before the final stage of the glue-up!

Before this final stage of the glue-up, prepare your clamps and dry fit all components. Make sure all surfaces are abraded and are cleaned to ensure they are free from contaminants. As before, wet-out the hole(s) with basic resin/hardener mix and allow it to briefly soak into the timber. Wet any other surfaces that will form part on the joint around the hole.

Thicken the remaining mix and apply into the hole and onto the rod. The resin should be thick enough that it does not drip from the rod. Apply enough pressure via clamps to hold the joint in place, it is normal for a small amount of resin to squeeze out and this should be removed while wet. Do not overtighten, as resin can be expelled from the joint under excessive force. Allow the resin to cure thoroughly before applying a load.

The only potential issue with this versatile joint is positive location of parts. I have therefore adapted the original method to include Dominoes to overcome this problem. My 'improved Parnham' makes use of Dominoes, which helps to locate and align the joint.



A simple jig may also be a viable option for accurate drilling



Protect the surrounding area of the first stage in a two-stage glue-up



A cut-away section showing the pilot hole to support the bar



Use a basic resin to completely wet out the hole



Carry out the same procedure on the corresponding part of a single-stage glue-up



Add filler to the resin to bulk it out and strengthen the joint



Apply directly onto the basic resin before it cures



Apply the thicker resin mixture to the bar



Press the bar home firmly to expel any air from the joint



Ensure sufficient resin is applied to fill any voids



For a single-stage glue-up and easier alignment use a Domino

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Installing hardware and hinges

Derek Jones shares a few tips to make sure your hinges are always sitting comfortably



PHOTOGRAPHS BY DEREK JONES/AMC PUBLICATIONS

Lurking away behind or beneath every example of metamorphic furniture there's a mechanism that enables the piece to transform from one useful item to another. Invariably that mechanism is a piece of metal hardware, sometimes beautifully crafted, sometimes not. Regardless of how well made these components are, they nearly always fail and usually long before the rest of the piece is ready to give up. It's fair to say then that for this reason I'm not a fan of gadgets, gizmos and unnecessary mechanical paraphernalia when it comes to furniture.

Let me explain. First of all, I'm not averse to metal components being used in furniture per se; hinges, locks and handles are and have been for centuries, if you'll excuse the pun, part of the furniture of furniture. Part of the problem, and it's the same with objects old and new, is that they require a certain amount of maintenance to keep them in tip-top condition. Examine almost any piece of period furniture closely and you will notice that generally they haven't received this level of care. Just as your car or bike needs regular attention to keep it on the road, so does hardware. Of course that's easy for

us to say, we're hardware nerds and love tinkering around with mechanisms to get them running sweetly but the poor owners, we should call them custodians really, aren't so afflicted.

In this article I'm going to offer a few tips that I hope will make sure your hardware is still operating smoothly long after you've installed it and perhaps even breathed your last. Before that though, I've got a few suggestions that will help make sure you get the parts in the right place in the first place. Let's start with perhaps the crudest hinge of all, the strap hinge.

Strap hinges

Hinges take on many forms, the most basic being used on old coffers made from bent nails and hooks. This crude mechanism appears on the earliest chests or coffers from the 12th century but is by no means exclusive to that period. Original examples are few and far between although you can often find traces of where they have been used; a series of rusty holes usually accompanied by splits in the back or lid being a good indication. Although unsightly at first, they do hint towards the item being of a certain age. The next incarnation of metal hinge came in the form of a strap hinge with sections of each leaf bent around a pin to form what we refer to as either the spine or knuckle. Early examples don't exactly scream precision and finesse, at least by today's standards, and for some reason despite the capability to do otherwise, they are being churned out by the thousand with a similar sloppy fit. Modern mass-produced hinges in this style however, lack the charm of genuine blacksmith-made ones, which I strongly advise you to consider next time you need them.

I use two makes of strap hinge when I'm building six-board chests.

They are both made from parts stamped from a sheet of mild steel. The material ranges from just under 2mm thick to 2.5mm. The thicker ones aren't a very pretty pattern but are more robust and always better made to the point that they are almost too neat. The other features a penny round at the tip of both the long and short leaf and feel somewhat flimsy in comparison, but as they are less refined their appearance feels more authentic. When sourcing cranked hinges, aside from the overall length of the leaves, there is the amount of crank on the lower leaf to consider. This is the distance from the fold to the knuckle. A typical chest will have carcass sides made from material somewhere in the region of 17mm to 22mm thick (we can call it ¾in) if you start out with 25mm (1in) thick boards. The crank therefore needs to match this dimension for the hinge to work. Guess what? The thicker and more robust of my two preferred hinges has a shorter crank while the thinner and less robust version has a larger crank and is suited for thicker stock. Ideally it would be the other way round but there's a simple fix for both.



A mahogany chest with original hook-and-loop style hinges



Waxed cranked hinge with penny rounds detail at the ends of the leaves
INSET: Don't look for precision in strap hinges, you won't find it



ABOVE: This bright steel version is better quality but lacks style
RIGHT: Thin straps could buckle under weight
FAR RIGHT TOP: Different hinges, different cranks
FAR RIGHT BOTTOM: Choose your hinge to match the thickness of the chest back



Beefing up the back

For the thicker gauge hinges it's just a case of letting in the short leaf into the back of the carcass to allow the spine of the hinge to project sufficiently beyond the back of the chest. On the top of the crank you will find a hole, which needs to be located a safe distance from the edges of the board

to avoid the screw or nail from splitting the board when driven home.

For hinges with a wide crank you can add a strip of material along the back of the inside of the chest. Decorate the lower edge with a chamfer or bead and it doesn't look out of place.



You can accommodate a shorter crank by letting the short leaf into the back of the chest



Never count on these parts being square

Don't blow it

By driving a series of fixings into a piece of wood in a straight line you are effectively creating a fault line in the timber. Some hinges, especially those used on heavy doors, have their fixing holes offset for this very reason, but in the case of furniture where the hardware is generally smaller, you might be better off with an extra hinge than using longer screws.



Fitting like a glove

There are two good reasons why recessed hardware needs to be installed without gaps around the edge and with the screws pulling in one direction. Obviously it will look much neater but what's not always considered is that it will also perform a lot better. It pays to seek out the best quality items you can afford, and for hinges that generally means drawn or milled versions and not ones that have been stamped out of a sheet of material. Good qualities to look for in a hinge are crisp, straight edges and countersunk holes that are drilled and not pressed. If you're not familiar with these details there's a great way to tell if your hardware is up to the job. Open the hinge and lay it onto a reliably flat surface such as the side of a straight edge or a machine table. If the leaves lie flat all the way round without gaps then you have the makings of a good set of hinges. If they don't you can try making a few adjustments, but ultimately you're still dealing with second-rate goods and should prepare for the worst. In the same way we like to bring wooden components together without any hidden stresses, hardware benefits from

the same degree of attention. Hinge leaves that are being forced to lie flat in a recess or mortise will transfer stress to the spine and pin and perhaps even cause your lid or door to be pulled out of alignment. In addition, if the screws are fighting to bend the hardware into shape they're working overtime to hold your cabinet together.

You can lay out the immediate boundary for your hinges by capturing the width with a small indent made with a marking knife followed by a square and then a marking gauge to set the depth and projection. An easier way and seemingly more obvious method is to lay the hardware on the surface and use a knife to mark directly off the side of the hinge. However, beware the seemingly obvious – cutting out to these lines will result in a loose-fitting hinge. Instead, mark one end then move the hinge slightly to sit directly on top of the knife line and then mark the other end. What you're doing is compensating for the thickness of your marking knife x two, which could be as much as a whole millimetre or a hair's breadth depending on your style of knife and angle

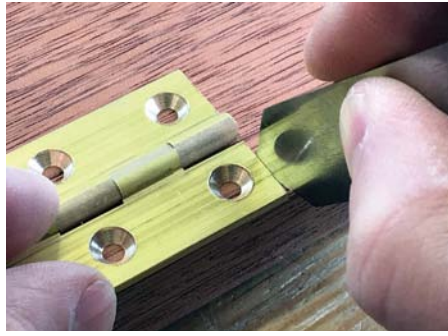
of the bevel it has. A scalpel will require very little offset if you angle the blade while making your mark while my flat-sided Hock blade, for example, requires a bit more. I find this method a lot quicker to set the first leaf of the hinge and quite often find the recess is smaller than the leaf making it easy to sneak up to a precise fit with a sharp chisel.



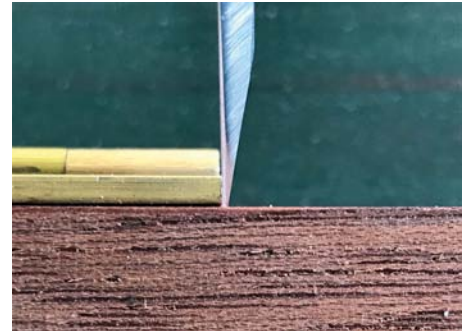
Good quality solid drawn brass hinge with drilled countersunk screw holes



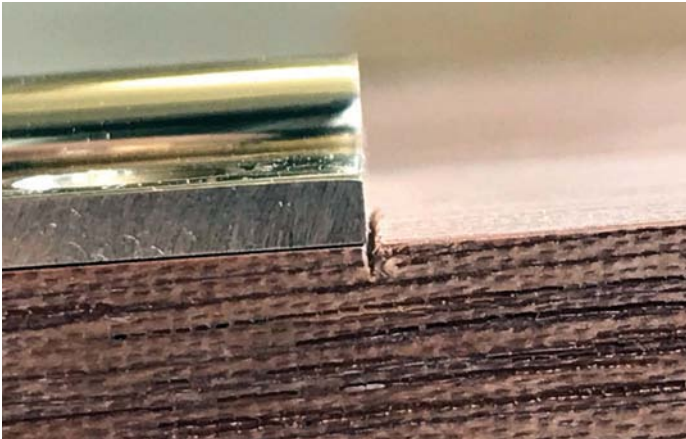
Not so good quality drawn hinge. Note the leaves don't sit flat



Mark along the edge of the hardware...



...and use it to guide your knife



Remember to move the hinge to compensate for the width of your knife cut



The second mark can be made directly off a square and requires no offset

Awkward grain

You'll need to excavate a good flat seat for your hinge leaf to sit on, and on awkward grain that can be tricky when using hand tools. Breaking up the area into small sections will stop your chisel from following the direction of the grain. Just make a series of closely bunched incisions with your chisel. When it comes to paring away the waste the small chips will break off quite easily. Use this technique if you find a knot in your way.

Break down the fibres if the grain is causing you problems

Location, location, location?

When it comes to positioning hinges I very rarely know the exact measurement from the top and bottom of the door preferring instead to take a lead from the joinery. The top of the top hinge will line up with the bottom edge of the top stile and the bottom hinge similarly placed in relation to the bottom rail. If these dimensions are not equal it's not a problem as the same logic has been applied. For doors that don't have stiles and rails I'll invariably use the wide part of the nearest square I have to hand and be done with it, unless there are some other features such as cross banding or inlay that suggest otherwise. A multi square is also handy to have on standby. If this sounds a bit vague it's meant to be; it's incredibly easy to get overwhelmed by the numbers when all that's required is a standard measurement.

Polishing up your act

Most hardware catalogues, online or otherwise, have an eye-watering number of options to choose from, which is bizarre considering how often you can't find the part you need in the size you want and in the finish you like. There are however some simple steps you can take to deal with at least two of these inconveniences. First, consider your hardware needs before you make the furniture. This will ensure you have enough meat in the wooden components to contain things like a mortise lock and enough thickness in the material to take a suitable hinge. Don't be too worried about the finishes on offer. The antique finish will most likely be a disappointment and not that difficult to achieve in-house. Suppliers often refer to unfinished brassware as self-colour, the techniques

of which we'll be looking at next month.

Somewhat time consuming but well worth the effort is to polish your own hardware. Start with a fine file to remove any machine marks and level off the knuckles along the spine. Occasionally even good quality hinges need a little extra work to square off the back edge of the leaves. Place a thin piece of card between the leaves and put the hinge in a vice to avoid creating a steep bevel on the edge. A slight bevel will work in your favour as long as it goes from the face side of the leaf to the back. With the filing done, work through your finer grits of abrasive and finish with some metal polish and a piece of leather. When you've done a few, those boutique hinges at three times the price suddenly feel like quite good value. Here's a tip – they are.



File the tops of the leaves to remove the machine marks



Place a piece of card between the leaves to limit the bevel on the back edge



Filing along the edge and not across it will help to keep the leaves square



After working through the grits, finish with some metal polish and a leather pad

Dead centre

So that all your hard work doesn't go to waste, the final stage in installing your hinges, or any hardware come to think of it, will be making sure the screws are centred within their countersinks. This should be easy but once again it's amazing how quickly things can go wrong if you're not paying attention. So here's a couple of tips that are easy to do and don't require you to pay that much attention!

Forget about eyeballing the centre and marking it with a bradawl, it's too hit and miss for my liking in anything other than the finest grain. Soft woods, southern yellow pine for example, will almost certainly guide your drill bit towards the path of least resistance and that's invariably off centre. Reject your standard twist drills for the same reason. Their tip is not round and not nearly pointy enough to make a clean hole on the first couple of revolutions. Most multi-purpose drills are ground with either a 118° or 135° angle tip for metal and hard materials like laminate

and plastics. Wood prefers a lower angle, somewhere around 90°. If freehand drilling is your only option, I put lip and spur bits in the same category as the bradawl, risky below 5mm dia. but more reliable as you go bigger. My secret weapon when it comes to putting holes in the right places is a centre drill. Yes, it's that simple. Centre drills for wood have the drill bit contained within a collar that's designed to engage with the countersink before you apply any pressure and therefore drill your hole in the centre. You are limited in size, 3.5mm being the most common but you only need to plunge a couple of millimetres to establish centre and you're good to follow on with the right size for your screw. If you're wondering how woodworkers managed without these fancy gadgets you need look no further than the gimlet (see *F&C* 265 for the Collector's Guide to these remarkable tools).

Success from using any of the above techniques depends on your ability to drill a straight hole. More screws have lost



Screw you

I have found no exception to this rule – immediately discard the screws that come with any pre-packed hardware especially those that look like brass. Don't question me on this and don't even try to make them work. They won't. If you take just one piece of advice from this article please make it this so I can say that my work here is done. There is no substitute for and perhaps no greater pleasure known to man, than a well stocked screw cupboard.



File past the rounded edge on the back of the leaves before setting the projection



Before and after

their heads being forced to centre in the countersink while their shank is veering off at 3°. If you have access to a drill press you can make a jig to fit your mortise with the holes in place and use the thickness to hold your drill upright. If you have a lot of hinges to set you'll need to check that the holes on each leaf are the same on both sides and on every hinge. The best way to ensure consistency is to buy a box of hinges.



The drill bit tip on a centre should be ground to 90° and therefore more suited to drilling wood

An alternative to the centre drill is the centre punch. This example is available from Dictum for €45.90. A sharp hardened steel tip is contained within a sleeve designed to centre on the countersink. A hammer blow to the sprung loaded strike button will deliver the point into the wood where you need it.



More pointy than a drill bit and more accurate than a bradawl



A light tap is all it takes to put a centre point in the middle



The sleeve centres the drill off the countersink



For just a couple of holes you can't beat a gimlet for speed and accuracy



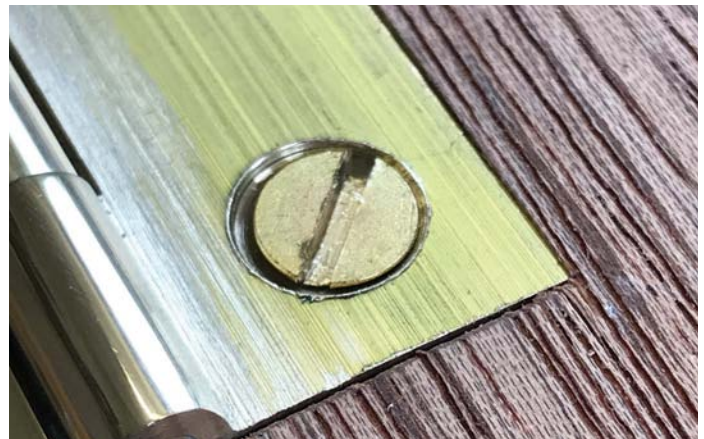
Too close to the spine and...



...your screw will pull the hinge out of the mortise

Last turn of the screw

The final act of installing hardware is screwing the parts into place and once again that sounds like it should be quite straightforward, and it is as long as you've followed the steps above. It's generally regarded that the core of the screw will determine the size of hole you need to drill, the core being that part between threads. It's certainly a good indication but you will need to consider the length of the screw and the material you are screwing into. Hard wood will offer more resistance than soft wood as will a long screw. It's never wise to make sweeping statements but steel screws are generally stronger than brass ones, providing of course they are steel. It's a fact that you will only discover how strong your screw is when you've



Too close to the back of the leaf and the screw won't seat in the countersink. Overtightening now could snap the head off the screw

snapped the head off it. There's really no substitute for testing the waters first and perhaps considering two bores; a narrow drill at full depth and a wider one to accommodate the full width and depth of the shank. Running a steel screw into the hole first will help to cut a thread before a brass one goes in, if brass is your preferred option. It's worth noting that more period brass hardware is held in place with steel screws rather than brass – brass being reserved for either exterior work or hardware that's on display and sometimes (in latter years) into oak. Candle wax (white petroleum and not beeswax) is an excellent lubricant that will not only help you put the screw in but will also help your successor in a hundred years' time, take it out. *F&C*

Next month we'll take a look at some options for colouring your hardware



SM255T SPINDLE MOULDER

Powerful, innovative, and efficient: our flagship Spindle Moulder includes a range of features designed to maximize performance, and minimize set-up times.



▷ **Reverse Tilt (overall adjustment plus 5 degrees to minus 45 degrees)**

Unlike the majority of manufacturers, the SM255t is designed with a backward tilting spindle. Working from underneath the stock makes for safer working, without restriction on the size of stock being machined, and without obstruction to the pressure guards or power feed. Wood chips are directed into the exhaust outlet in the machine base.

▷ **'True Vertical' Rise and Fall**

The SM255t's unique 'true vertical' rise and fall system allows for vertical adjustment of the spindle independent of the tilting mechanism. The angled tool when adjusted up or down thereby retains its position relative to the fence assembly.

▷ **Digital Position Indicators to both movements**

▷ **Cast iron fence assembly** with independently adjustable precision-ground fence plates and movement indicators.

▷ **Interchangeable Loose Top Spindle**

▷ **4.0Kw High-Efficiency Braked Motor**

For further details of this & our complete range of woodworking machinery please visit www.sedgwick-machinery.co.uk, or contact us at:

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E: admin@sedgwick-machinery.co.uk

Tel. 0113 257 0637

Fax. 0113 239 3412

News & Events

Contribute to these pages by telling us about matters of interest to furniture makers.

Call Derek Jones on 01273 402 843 or email derekj@thegmcgroup.com

Please accompany information with relevant, hi-res images wherever it is possible

Furniture Makers launches Supported Schools initiative



From left to right: Student Maciej Dynos; headteacher Tracey Hartley; Furniture Makers' Master Dr Tony Smart; Mayor of High Wycombe, Cllr. Brian Pearce; and Charles Vernon at the launch of the Supported Schools initiative at John Hampden Grammar School

The Furniture Makers' Company has announced a new initiative that will see it provide a wealth of support to schools that teach design and technology. The Supported Schools initiative has been launched in response to research that shows the number of schools able to teach design and technology is dropping due to funding issues.

The Furniture Makers' Company is piloting the new scheme in High Wycombe, Buckinghamshire – a hub of UK furnishing manufacture – at John Hampden Grammar School. The collaboration aims to demonstrate to students the importance of design, manufacturing and the many aspects of the furniture and furnishing industry and promote the available pathways into the sector.

Charles Vernon, education chairman at The Furniture Makers' Company, said: 'The

teaching of design and technology at GCSE is critical to the long term prosperity of the UK furnishing industry, which produces more than £11 billion of product per year and employs 327,000 people across 50,000 registered companies in the wider furniture and furnishings sector, including specialist retail but excluding general retail. The government's focus on growing the economy and raising productivity by increasing the number of people studying Science, Technology, Engineering and Mathematics (STEM) has meant a reduction in funding for the arts. As a result, the number of schools able to offer design and technology is dropping at an alarming rate. This new initiative will see the Company support selected schools that teach design and technology by providing financial aid, the opportunity to build links with industry,

offer factory tours and work experience, and the option to participate in our annual Young Furniture Makers exhibition.'

Tracey Hartley, Headteacher at John Hampden Grammar School, said: 'We are tremendously excited to work in partnership with The Furniture Makers' Company. John Hampden began its life as a school passing on High Wycombe's traditional crafts of cabinetmaking, carving and polishing. This partnership brings that proud history right up to date. Modernised facilities for design and technology will enable our boys to develop the pioneering skills needed in today's manufacturing. We also look forward to sharing these benefits by hosting workshops for other local schools.'

Contact: The Furniture Makers' Company
Web: www.furnituremakers.org.uk

RCA student wins inaugural Furniture Design Competition prize

After a nationwide search, the Gordon Russell Design Museum has awarded their inaugural Furniture Design Competition prize to Arash Shahbaz, MA Vehicle Design student at the Royal College of Art.

Inspired by Gordon Russell's design philosophy, the competition called for innovative designs for a machine-made chair and was open to students aged 16 or over in full- or part-time education. The museum received an array of stimulating and creative submissions from students across a range of disciplines. Despite stiff competition, the judging panel was unanimous in awarding Arash Shahbaz the £1000 prize for his design, the BZI Chair.

With lounge chair proportions, Arash's design is suitable for manufacture in a variety of materials – including acrylic, wood and carbon fibre – and for use in different settings. The distinctive shape was inspired by Karl Blossfeldt's black-and-white photographs of geometry in plants.

The winning design will go on display at the Gordon Russell Design Museum this summer, and the museum will continue to work with Arash to support the development and possible manufacture of the design.

Verity Elson, Museum Curator adds: 'The prize is part of the museum's ongoing commitment to inspire the next generation of furniture designers and is a wonderful



Chair by Arash Shahbaz



PHOTOGRAPH BY ODERICK JONES

opportunity for us to build on Gordon Russell's legacy as a champion of design and education. We are delighted to award the prize to Arash Shahbaz, and would like to take the opportunity to thank all those who submitted designs for the competition.'

The next Gordon Russell Design Museum competition will be launched in 2019.

Contact:

The Gordon Russell Design Museum

Web: www.gordonrusselldesignmuseum.org

Arash Shahbaz receiving his award from Ray Leigh, MBE, Gordon Russell Design Museum Trustee and former Chairman of Gordon Russell Ltd

Portuguese cork oak wins Tree of the Year

The 200-year-old Whistler cork oak tree in Alentejo, Portugal has won the title of European Tree of the Year 2018. The tree is named after the sound of the countless birds that perch on its branches. Planted in 1783, the cork oak has been stripped more than 20 times. It is classified as a 'Tree of Public Interest' and is registered in the *Guinness Book of Records* as the largest cork oak in the world.

The European Tree of the Year contest highlights the significance of trees in the natural and cultural heritage of Europe and the importance of the ecosystem services trees provide. The contest is not looking for the most beautiful tree, but for a tree with a story, a tree rooted in the lives and work of the people and the community that surrounds it.

Contact: European Tree of the Year Web: www.treeoftheyear.org



The Whistler tree in Portugal is the Tree of the Year

PHOTOGRAPH COURTESY OF INAC

Starrett celebrates 60 years of UK manufacturing

Starrett is celebrating six decades of UK manufacturing. The company, which was founded in the US, opened its UK factory in Jedburgh, Scotland, in 1958 and has since grown to become one of the global business' main manufacturing sites.

Laroy S. Starrett invented and patented the combination square in 1878 and founded the L.S. Starrett Company two years later. By 1882 he had secured sales representatives across America and in London and Paris. Since its ambitious beginnings in 1880, the company has grown exponentially and has been responsible for

introducing many of the tools, equipment and machines that many contractors, engineers and manufacturers rely on today.

Donald Miller, General Sales Manager of Starrett's UK factory, said: 'At Starrett, we're proud to have such a long history of UK manufacturing. We've had 60 years to contribute to the nation's manufacturing excellence, and we consider it a real honour to be part of such a powerful legacy.'

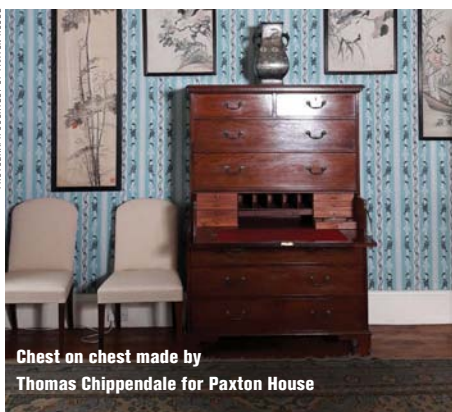
Contact: Starrett Web: www.starrett.co.uk

Events

Information correct at time of publication, check websites before planning your visit

**EVENT
OF THE
MONTH**

PHOTOGRAPH COURTESY OF PAXTON HOUSE



Chest on chest made by
Thomas Chippendale for Paxton House

The Paxton Style: Neat & Substantially Good

Paxton House holds a nationally significant collection of Thomas Chippendale furniture. This exhibition displays key pieces from the house's collection alongside outstanding and rarely seen pieces that are on loan from private and public collections, including the V&A Museum and the National Museums of Scotland. This exhibition defines the Paxton Style:

a significant, and under-explored, element of the master cabinetmaker's late oeuvre.

Find out more about Paxton House in Out & About on page 70.

When: 5 June–28 August
Where: Paxton House, Paxton, Berwick-upon-Tweed TD15 1SZ
Web: paxtonhouse.co.uk

West Dean Arts and Craft Festival

Visitors to this annual festival will be able to buy high-quality crafts and prints, watch demonstrations, get hands-on in workshops and view installations from emerging artists. They can also explore inside historic West Dean House and view material from its extensive art collection.

When: 1–3 June
Where: West Dean College, West Dean, Nr Chichester, West Sussex PO18 0QZ
Web: www.westdean.org.uk

Marquetry Society Exhibition

As part of Chippendale 300, Weston Park in Shropshire will be hosting an exhibition of work by members of the Marquetry Society. The exhibition showcases a contemporary craft that still employs many of the skills that would have been known to Thomas Chippendale and his workshop in the 18th century.

When: 12–28 June
Where: Granary Art Gallery, Weston Park, Weston-under-Lizard Shifnal TF11 8LE
Web: www.weston-park.com

New Designers: Part 1 & Part 2

New Designers gathers more than 3000 of the brightest and most creative graduates under one roof to launch the next generation of makers onto the UK design scene. The exhibition is a two-week celebration of visionary design that sees students from over 200 creative courses unveiling never-before-seen work to thousands of industry professionals and design lovers. Furniture design graduates will feature in Part 2.

When: 27–30 June & 4–7 July
Where: Business Design Centre 52 Upper Street London N1 0QH
Web: www.newdesigners.com

Timber: The International Forest Festival

Timber is a brand-new camping festival

exploring the transformative impact of forests and celebrating woodland culture in all its forms. The event will be held at Feanedock, a 70-acre woodland site on the Leicestershire/Derbyshire border.

When: 6–8 July
Where: Rawdon Road, Moira, Swadlincote DE12 6DQ
Web: timberfestival.org.uk

Record Power Road Show & Sale

Yandles is hosting a Record Power Road Show where there will be exclusive show deals, demonstrations, expert advice on Record Power and Startrite machines and 15% off timber and turning blanks.

When: 13–14 July
Where: Yandles, Hurst Works, Hurst, Martock, Somerset TA12 6JU
Web: www.yandles.co.uk

Interior Worlds: Thomas Chippendale at Nostell

This exhibition explores how Chippendale helped create bespoke interiors and objects for his ambitious client Rowland Winn (Nostell's owner) in the opulent state rooms. The exhibition explains how individual pieces of furniture were created, sourced and transported, opening up a vibrant 18th-century world of social ambition, entrepreneurship and global trade.

When: 13 July–28 October
Where: Nostell Priory and Parkland, Doncaster Road, Nostell, Wakefield WF4 1QE
Web: www.nationaltrust.org.uk/nostell-priory-and-parkland

Manchester Furniture Show

Hundreds of exhibitors and thousands of buyers will be attending the Manchester Furniture Show where the newest trends in upholstery, cabinet and dining, beds and bedroom furniture, occasional, mirrors, art and decorative accessories will be on display.

When: 15–17 July

Where: Manchester Central, Windmill Street, Manchester M2 3GX
Web: manchesterfurnitureshow.com

Home & Gift Harrogate

Home & Gift showcases thousands of new brands and products, including designed homeware and interior accessories, jewellery, fashion products and more.

When: 15–18 July
Where: Harrogate Convention Centre, King's Road, Harrogate, North Yorkshire HG1 5LA
Web: www.homeandgift.co.uk

Woodfest Country Show

Woodfest showcases a variety of wood-related activities, crafts and forest industries. Timber professionals and competitors from around the world come together to compete in a range of skilled competitions. There will be demonstrations of pole climbing, chainsaw carving, axe racing, wood chopping and logging skills, plus the WoodFest Rocks music festival, an arts and crafts market, food stalls and much more.

When: 28–29 July
Where: Pen-y-cefn, Caerwys, Pen-y-cefn CH7 5BP
Web: www.woodfestcountryshow.co.uk

Chatsworth Renewed

This exhibition marks the 10-year programme of restoration and conservation at Chatsworth. It highlights the work of the skilled men and women who restore and maintain the house, park and garden. Visitors will be able to get up close and personal with the fabric of the house and see things from a new angle. Discover what's under the floor in the Chapel Corridor, appreciate the newly restored tapestries while settled on a cosy sheepskin fleece in the State Drawing Room, and see rare plans and drawings.

When: until 21 October
Where: Chatsworth, Bakewell, Derbyshire DE45 1PP
Web: www.chatsworth.org

Social media dashboard

Bringing you a round-up of the best from the online world, this month focusing on the tercentenary of Thomas Chippendale

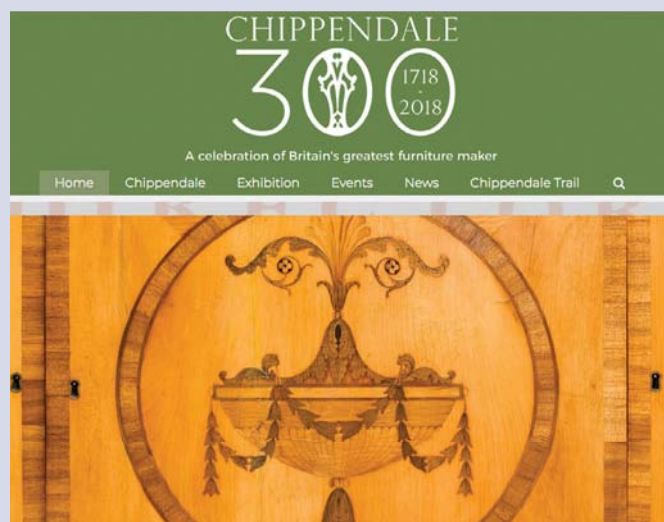
In this section of the magazine we bring together the best furniture and woodworking related content from social media. Here we'll recommend who to follow, where to comment and which online communities to join. We also feature projects we love, readers' letters, comments from the Woodworkers Institute forum and pictures of readers' work. If you'd like to see your furniture on these pages, email derekj@thegmcgroup.com

Website: Chippendale 300

To celebrate the 300th anniversary of Thomas Chippendale's birth, several historic houses, museums and institutions across Britain have joined together to form Chippendale 300. The website is a great starting point if you are looking to find an

event near you; the interactive Chippendale Trail map is particularly useful. You'll also find a short biography of Chippendale and photographs of some of his finest work.

Address: chippendale300.co.uk



Thomas Chippendale (1718-1779) was the most famous and influential furniture-maker Britain has ever produced. He rose from humble origins in the town of Otley, Yorkshire to become furniture-maker to some of the most powerful and influential people of his day – aristocrats, politicians, businessmen, actors and royalty. His revolutionary book of designs, first published in 1754, made him famous throughout Europe and North America, and in the 19th and 20th centuries the name 'Chippendale' became a byword for fine quality furniture-making all over the world.

Thomas Chippendale senior (he went on to call his eldest son Thomas) was baptised in Otley parish church on 5th June 1718. His family had long been involved in the wood-working and timber trades and he probably received a practical apprenticeship from his father. He may well have had further training with Richard Wood, the leading furniture maker in York, before moving to London. In 1748, he married a Catherine Redshaw and in due course they had nine children.

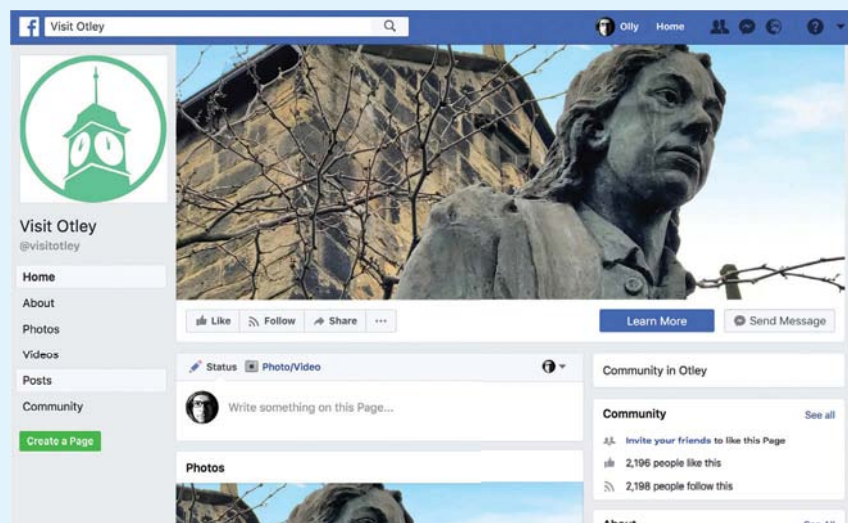


Facebook: Visit Otley

Thomas Chippendale's birthplace, Otley in West Yorkshire, is of course playing a full role in marking the tercentenary. The town's official tourist information Facebook page has all the details of the events it's hosting to celebrate its most famous son. There will

be lectures, exhibitions, walking tours and even a specially brewed beer, Chippend'Ale beer, made by Otley-based micro-brewer Paul Briscoe and Harrogate's Daleside Brewer.

Address: www.facebook.com/visitotley



Twitter: Burton Constable Hall & Grounds



BurtonConstableHall @BurtonConstable · Feb 9
#DidYouKnow Thomas Chippendale was born in Yorkshire in 1718. Discover this & more at the new exhibition @LeedsCityMuseum starting today & featuring this splendid chair from @BurtonConstable amongst many other pieces of fine #Chippendale furniture #Chippendale300



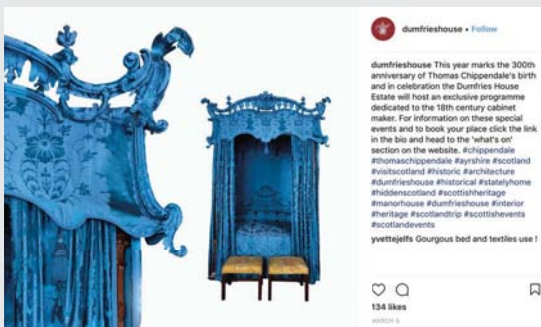
Burton Constable Hall in East Yorkshire is one of the stately homes taking part in the Chippendale 300 celebrations, hosting an exhibition on 'Chippendale and the Yorkshire Craftsmen'. The Hall is an Elizabethan country house but with 18th- and 19th-century interiors. Its furniture collection includes several works by Constable.

Address: @BurtonConstable

Instagram:

Dumfries House in Ayrshire has an outstanding collection of 18th-century furniture, including many pieces by Thomas Chippendale. You can find out more about the house and its 2000 acre estate on Instagram, which features photographs of the Chippendale collection along with fascinating information about its restoration and conservation. You can also keep up to date with the latest events and activities.

Address: dumfrieshouse



Projects we love



Here we highlight the latest furniture and woodworking projects from around the world that we think deserve to be shared with our readers. If you're a member of a collective or a student group and would like to see your work here, then submit a story to: derekj@thegmcgroup.com



Reception table

As we're celebrating all things Thomas Chippendale this month, we had to share a project linked to the school named in his honour, The Chippendale International School of Furniture. However, this project takes us out of the 18th century as it involves distinctly 21st-century technology.

Andrew Cockerill runs Northern Woodwright Furniture from incubation space at The Chippendale International School of Furniture in central Scotland, from which he graduated in 2017. The incubation units allow graduating students to set up in business on campus, making use of the school's equipment and machinery.

Northern Woodwright Furniture was started in order to further Andrew's passion for design and making, and to help others bring their visions into reality. As part of that design-led approach, Andrew has invested in a 3D printer to complement the computer visuals

more commonly used by furniture designers. This means that he can easily create a scale model of any piece of furniture, giving the client a tangible sense of what the finished piece will look like. The 3D printer uses rolls of plastic fibres to create the model, although Andrew also uses a wood fibre that can be sanded and stained for additional realism. That realism can be seen in both the model and finished reception table that Andrew has recently completed for a video production company in London.

'Clients love the way that a 3D model brings the design to life. It's tactile, they can look at it from all angles, and it gives them an added confidence in what the finished piece of furniture will look like,' says Andrew.

For more information, visit: www.northernwoodwrightfurniture.com & www.chippendaleschool.com



Finding inspiration

Anselm Fraser, principal of The Chippendale International School of Furniture, explains why seeking new ideas is so important for furniture makers



The HMS Victory in Portsmouth's historic dockyard: inspiration can be found in many places

Inspiration is a fickle thing, in woodworking as in anything. Some days we search for it; other days it comes to us. For me, inspiration takes me back to my childhood when I would watch joiners and carpenters working on a house my father had bought. That started me on woodworking as a hobby and I can still remember making a balsa model of a tall ship. I suppose that, as a child, you are sensitive to the adult world around you, and influenced by what you see and hear. Maybe it's no coincidence that both my sons, Jamie and Tom, are now woodworkers. Tom, indeed, works at our school and will take over from me when I retire.

However inspiration finds you, it's a very important part of the woodworker's craft – that little piece of magic that turns a mundane piece of furniture into something special. For a lucky few, inspiration seems to breathe into them all the time but, for most of us, inspiration is something that we have to find. It can be found in nature, walking through quiet woodland and looking at the trees around us. Or it can be found in the ingenuity of woodworkers from long ago. If you can, visit the *Cutty Sark* or HMS *Victory*. In an age before steel, these mighty wooden ships ruled the waves. Or to

appreciate how the design of fine furniture has evolved, visit London's Wallace Collection or the Chippendale Collection at Dumfries House in southern Scotland.

The key, I believe, is to boldly go and seek out new ideas. Visit galleries or museums and make use of your local library to read design books you've never read before. When on holiday abroad, take your business cards and visit local woodworking businesses to see how they make a living.

Of course, inspiration can also be found on the internet – and the digital world is somewhere you should also scour because, the more you search for ideas, the more ideas will come to you. And when you do have an idea, write it down. Simply, an idea forgotten is an idea lost.

But it's a process of inquisitive search that should also be fun. As we constantly say to our students, anything learned with pleasure is likely to last a lifetime. Inspiration is also about making use of the other talents that you have. For example, we regularly have students with architectural qualifications. They are able to use their professional training to make furniture that employs both architectural and woodworking skills – wonderfully complex

pieces that benefit from their previous experience. So what else are you good at? It needn't be something acquired at college or university, just skills that you naturally have. For example, an aptitude for woodturning or other interests entirely – one of our students last year also had a passion for watches and watch-making. One of the pieces he made was a 'time-table' – a simple coffee table with pieces of old watches embedded in resin on the top. A quirky and inspired idea that turned a mundane piece of furniture into a talking point.

The fact is that inspiration can come in all shapes and sizes and often the best ideas are the simplest. One of our students this year is also making a coffee table and, being Singaporean, was worried about transporting it back home after graduation. His solution has been to construct his table using glue-less wooden joints – a simple way to ensure ease of disassembly and transportation. Again, simple but utterly practical – and a good business idea.

However you find inspiration, the lesson is straightforward: keep looking for it, and keep looking in both usual and unusual places. The more you look, the easier it is to find.

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Jamie Smith. Test Report. Good Woodworking. February 2018.

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Get started spraying

Learn to achieve a perfect spray finish with this extract from *Finishing Wood*

As a professional finisher, I enjoy my work. But let's be honest. Not all woodworkers embrace finishing. That's because the job of brushing or wiping on a finish is both time consuming and labor intensive. A faster path to a great-looking finish is to spray it. But the high price of equipment once limited the use of sprayers to commercial shops. Not anymore.

Recently, manufacturers have been rolling out quality high-volume, low-pressure (HVLP) systems with a price that puts spraying within budget for many home shops. These turbine-powered systems do a superb job. Most come in a kit with everything you need to get going and don't require much setup.

The biggest learning curve is mastering the gun—but don't worry. I'll tell you everything you need to know to get great results. We'll start with the gun's controls and how to adjust them, then move on to proper spraying technique. With practice, you'll soon be able to get a professional-quality finish, and get it done fast.

Once you've mastered your sprayer, you may enjoy finishing as much as I do.

What to spray and where

For a home shop in the garage or basement, water-based finishes are the only safe option to spray. Solvent-based finishes like lacquer and shellac are highly combustible and require a spray booth equipped with an explosion-proof fan. Water-based finishes aren't nontoxic, just nonflammable, so wear a respirator mask and eye protection while spraying, and wear gloves when pouring finish and cleaning the gun.

You don't need a large space for spraying, but it should be clean, well lit, and have a way of removing the overspray. You can create a simple exhaust system by placing a normal box fan in a window or door to blow air out, with a furnace filter on it to catch the overspray. This will replenish your shop with fresh air and keep those overspray particles from landing on everything in the shop, including your freshly sprayed surface. For instructions on constructing your own spray booth, check out "Make a Simple Spray Booth" by Jeff Jewitt (www.FineWoodworking.com/extras).

Learn the controls

If you've just pulled your new sprayer out of the box and are a little intimidated by all the shiny knobs, don't worry. It's not as complicated as it seems. There are three main controls on the spray gun: fluid volume, fan width, and fan orientation.

Use the fan-width control to match the

fan to the work, and adjust it in tandem with the fluid volume—the wider the fan, the more fluid you'll need. You can change the spray pattern's orientation, too. For tabletops or wide upright parts, use a vertical pattern, and for tall surfaces such as bookcase sides, a horizontal pattern is best. Some systems have an air valve in line on the hose to limit the air pressure to the gun. But limiting the air causes excess wear on most turbines, and most jobs require full-strength air pressure, so it's best to keep the valve open.

Practice makes perfect

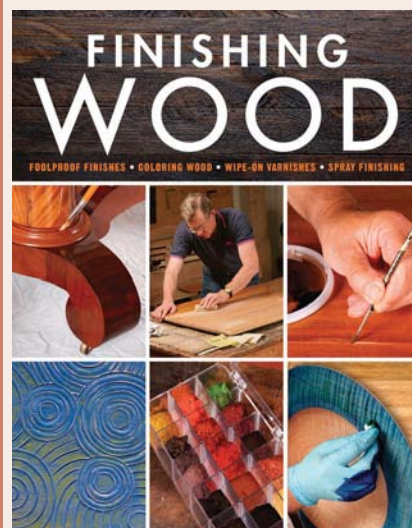
Spraying is a learned skill, so get used to the gun and its controls before jumping into a project. You can practice by spraying dyed water on cardboard, placed upright.

Load the gun with the water and connect the air hose to the gun. With the fluid turned off, set the gun to the smallest fan width. Press the trigger and slowly dial up the fluid knob until you get a wet, even spray on the cardboard without drips. Now increase the spray-pattern width to 4in or 5in wide and dial up the fluid, too, keeping the two adjustments balanced to produce a fine, wet mist. The fan pattern shape



Finishing Wood

By the Editors of *Fine Woodworking*, published by Taunton, £18.99
Available from: www.thegmcgroup.com





PRACTICE WITH THE GUN. Before spraying a real finish, get to know the gun and its controls. A low-risk way to do that is with a practice run using dyed water on cardboard. A few drops of dye in the water is all it takes. Pour it into the gun's cup through a paper filter, available from finish suppliers. Filtering your materials will keep the gun free of debris and spraying nicely.



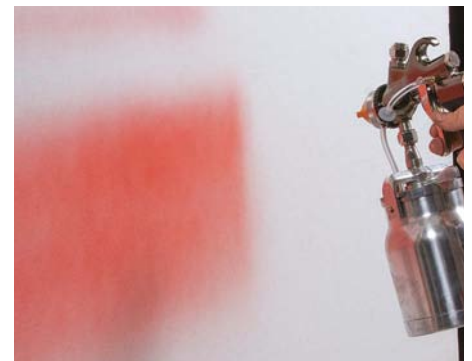
START SPRAYING. Turn the fluid knob to a low setting and gradually dial up the fluid until you get an even finish that's smooth and flat.



LOOKS A LITTLE DRY. Spray that's too dry will cause dry spots and an "orange peel" texture. The remedy is to either increase the fluid or move the gun more slowly.



TOO WET. If you're seeing drips, turn down the fluid or move the gun faster.



JUST RIGHT. When you see uniform, wet coverage on the cardboard, with no dry spots or drips, you're on the right track.

should look like a straight line or an oval that's a little fatter in the middle. Next, play with the settings to get more familiar with the gun—change the fan width, and try spraying vertical and horizontal strokes, too.

Once you have a handle on how the gun works, focus on using the right technique. In terms of finish quality, technique is just as important as properly setting up the gun's controls. Hold the gun at a right angle to the surface you're spraying and about 6in to 8in away: too close and you risk forming drips on the surface, too far and the finish will be too dry and cause a rough "orange peel" texture. The finish wetness is also a function of the rate you move the gun—faster makes it drier, and slower makes it thicker and wetter. Work at a speed that's comfortable for you and keep it consistent as you're spraying, then use the fluid knob to dial in the wetness. To get seamless beginnings and ends to your strokes, start and stop spraying several inches beyond the edges of the workpiece. To blend stroke lines together so they don't show up in the finish, overlap each stroke halfway over the previous.

Next, try the gun with a water-based

coating on some scraps of wood. You'll need to readjust the gun a little when you start—the settings for the finish will be different.

Spraying furniture

Now I'll walk you through spraying a piece of furniture, using the parts of a Shaker table—the broad horizontal top and vertical legs and aprons—as examples. When spraying a tabletop, remove it from the base if possible to avoid getting overspray on the base. Lay it flat at waist height with the top side down, resting on a nail board or painter's pyramids.

Start with a coat of water-based universal sanding sealer (I use a product from Target Coatings). The sealer coat is important; it fills and seals the wood grain, preventing the later coats from soaking into the wood and leaving it dry looking, letting you build up a finish with an even sheen in fewer coats. Spray the faces with a wide fan using a cross-hatch pattern (see the drawings on p. 32)—first with overlapping strokes across the grain, then with the grain—to create a more uniform finish. After it has dried for 45 minutes, flip the top over and use a narrow fan to spray the edges, then widen the fan and spray the top.

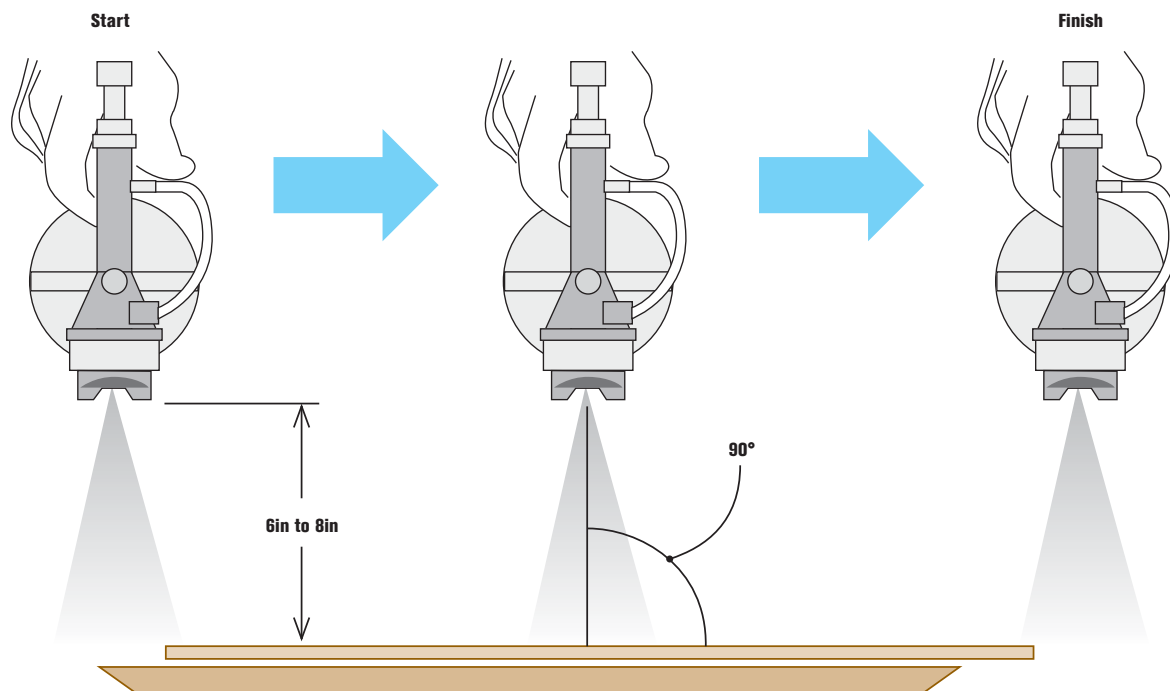
Let the sealer coat dry, then scuff-sand it

by hand with P320-grit paper. Scuffing should produce fine, dry powder. If clumps of finish stick to the sandpaper, let the finish dry longer. Remove the sanding dust by wiping it down with a damp cloth, then spray on two coats of a water-based clear topcoat (I use water-based acrylic lacquer from Target Coatings), scuff-sanding between each coat. If the last coat doesn't come out smooth or has dry spots, let it dry, scuff it and wipe off the dust again, and spray one last coat across the whole surface.

The table base gets the same number of coats, one sealer and two or three clear topcoats. For the legs and aprons on this small table, I used a vertical fan; on a larger job with vertical parts like a tall bookcase, it's easier to use a horizontal fan and move the gun up and down. To avoid drips on the legs, dial back the fluid a little. Spray the base one side at a time, first spraying the inner surfaces, then the outer face. Start spraying at the bottom and move up the leg, turn and spray across the apron, then down the other leg in one continuous motion. After spraying all four sides, let the finish dry and hand-scuff any bumps or drips smooth with P320-grit paper or very-fine grit non-woven abrasive pad between each coat.

Practice your technique

Consistently using the right technique can have a big impact on finish quality, so a little effort here to build good habits and muscle memory will improve your finish in the long run.



START YOUR STROKE EARLY. For the smoothest finish possible, Masaschi pulls the trigger to start spraying several inches before the gun reaches the workpiece.



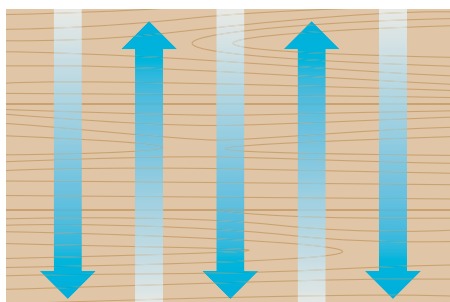
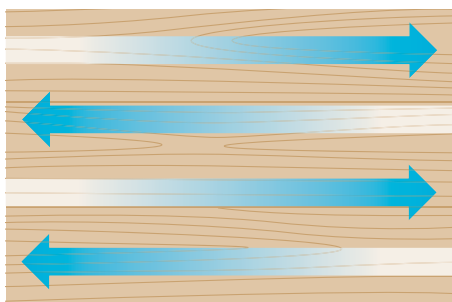
CONSISTENCY IS KEY. Keep the gun at a right angle and 6in to 8in from the workpiece, and move it at a constant speed.



DON'T FORGET THE FOLLOW-THROUGH. Just like the beginning of the stroke, keep spraying several inches beyond the edge of the piece.

Cross-hatch pattern ensures uniformity

To keep stroke lines from each pass of the gun from showing up on broad surfaces, coat the surface with light, even strokes with the grain, then while the finish is still wet, turn 90° and coat the entire surface again, working across the grain.



SPRAYING TOPS. You'll have to learn to spray horizontal and vertical surfaces, plus wide and narrow areas. A tabletop and base are perfect for teaching the technique. Remove the top from the base and spray them separately so that the overspray from one doesn't get on the other. Spray the bottom of the tabletop first. Coat the underside of the tabletop, using a cross-hatch pattern (left) for even coverage. Use a wide spray pattern and overlap each stroke halfway over the last.



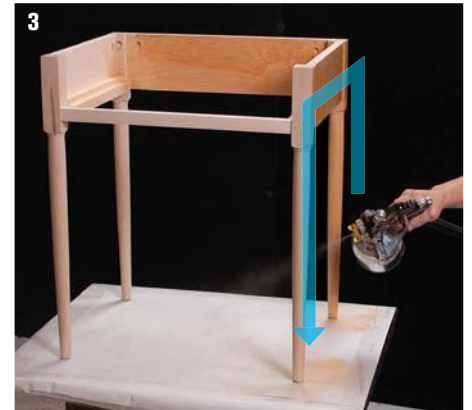
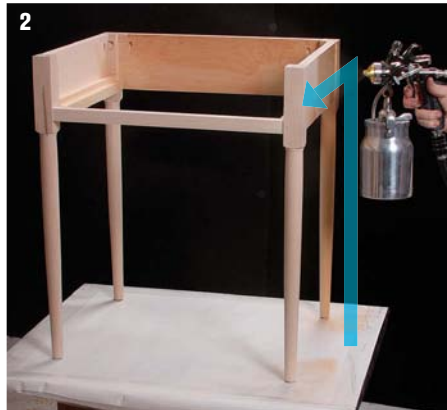
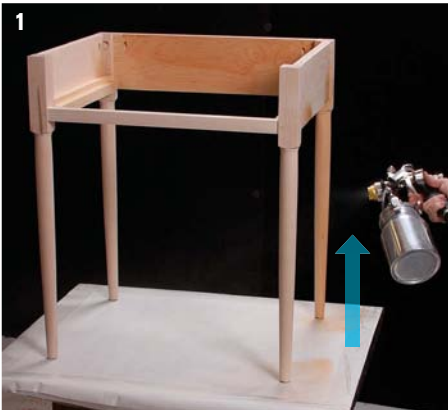
ONCE DRY, FLIP IT OVER AND DO THE EDGES. Masaschi dials in a narrow fan pattern for the edges to save material and limit overspray—rogue, partially dried spray particles that can land on other parts of the top, leaving a rough surface on the finish.



NOW SPRAY THE TOP. Because the top is the most visible part of the table, Masaschi does it last to eliminate the chance of getting overspray on it. A smooth finish is most important here, so use the cross-hatch pattern again. Let the top dry before doing the next coat.



NARROW PARTS. Work one side at a time. Spray the inner surfaces of the legs, using a medium-width spray pattern a little wider than the legs.



1–3: SPRAY THE OUTER FACE IN ONE PASS. Masaschi starts at the bottom of a leg, goes up and across the apron, then down the other leg with a continuous, smooth motion. Then she returns to the apron to spray any remaining dry spots.



CASEWORK. Getting a good finish inside a cabinet isn't always easy, but planning ahead and following a few simple guidelines can really simplify the job. For tall surfaces, use a horizontal fan. Rotate the air cap to spray tall pieces like this bookcase. Make long, overlapping up-and-down strokes to cover the sides.



REMOVE OBSTRUCTIONS. Taking the shelves out of the cabinet before you spray the interior gives you more space to maneuver the gun inside the cabinet, making the whole job easier.



SPRAY THE SHELVES FLAT. Laying the shelves and other loose parts flat for finishing is much easier, and you'll end up with a better-quality finish.



SECRET WEAPON. If you give it your best and still get overspray, let it dry, then rub it away with brown kraft paper. If that's not enough, try 0000 steel wool and wool-lube solution.

Get to know the gun

High-quality HVLP systems are compact and more affordable than ever. It takes a little practice getting familiar with the controls, but soon you'll be spraying furniture like a pro.



FLUID VOLUME. This little knob controls how much fluid you spray. Located behind the trigger, it also serves as the needle's retaining cap.



POWER SOURCE. The turbine serves as the spray gun's motor, delivering clean, dry air to the gun.



FAN WIDTH. Twist the fan-width knob to customize the spray pattern to the job—wide for broad, flat surfaces and narrow for thin parts.



FAN ORIENTATION. Switch between vertical and horizontal by rotating the air cap 90°. A threaded ring locks and unlocks the cap.



NEEDLES AND TIPS. The needle and fluid tip control the fluid. You have to match them and the air cap to the finish. The gun should come with a set for spraying lacquer-type finishes, and most manufacturers offer more sizes, allowing you to spray a variety of products.



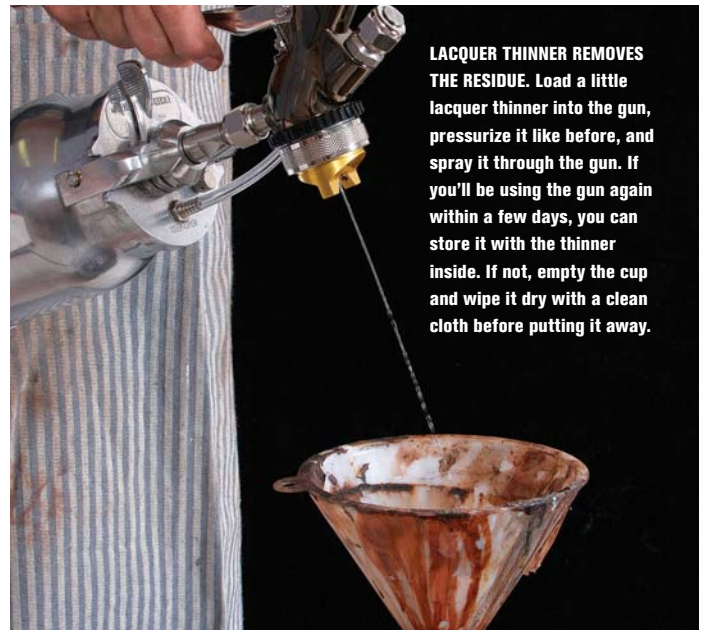
VISCOSITY CUP. You must determine the viscosity of the finish before setting up the gun. Dip the viscosity cup into the finish and time how long it takes for the finish to run through. Stop timing when the stream breaks into drips. Then use a viscosity chart to choose the right air cap, needle, and tip.

Keep it clean

Cleaning your gun properly after each use is the best thing you can do to ensure stress-free spraying and will make your sprayer last a very long time. To clean the gun, use a solution of 1 part ammonia and 2 parts water, a clean cotton rag, and a small nylon-bristle brush. Load the gun with the cleaning solution and spray it through the gun. Next, take apart the gun, remove the cup, then the air cap, needle, and fluid nozzle, and place them in a small container of the cleaning solution. Wash the cup and gun body by swabbing them with the ammonia cleaning solution, but never submerge the gun body in cleaner. For stubborn dried-on finish, swab the gun with lacquer thinner. Once clean, wipe them dry with a clean cloth. Scrub the air cap, needle, and fluid tip, then reassemble the gun and lubricate the needle, air cap threads, and the cup rim with petroleum jelly.

To remove any water and finish residue from the gun, load it with a small amount of lacquer thinner and spray it through the gun for 1 or 2 seconds. Leave the thinner in the cup if you'll be spraying again in the next few days. If it's going to be longer than that, empty the cup, dry it out, and put it away—it will be clean and ready to use next time.

The turbine's intake filter can get clogged with dust and cause overheating, so clean or replace dirty filters. Keep the turbine upwind from the gun and off the floor while it's running—it will pick up less dust that way.



LACQUER THINNER REMOVES THE RESIDUE. Load a little lacquer thinner into the gun, pressurize it like before, and spray it through the gun. If you'll be using the gun again within a few days, you can store it with the thinner inside. If not, empty the cup and wipe it dry with a clean cloth before putting it away.



LOAD THE GUN WITH CLEANER. Use a solution of 1 part ammonia and 2 parts water to clean the gun after spraying water-based finish.



GIVE IT A RINSE. Hook up the hose and turn on the turbine for a moment to pressurize the gun, then turn it off and spray cleaner through the gun to rinse it out.



BREAK IT DOWN AND WASH EACH PART. Remove the air cap, fluid knob and needle, and fluid tip and wash them in the ammonia solution. Wash the gun body, too. Wearing nitrile gloves protects your hands from harsh solvents and keeps them clean.



REASSEMBLE AND GREASE THE MOVING PARTS. Put the gun back together and apply a little petroleum jelly to the needle just in front of the trigger and to the threads of the air cap.

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Spindle Moulder Shaft	30 mm
Spindle Moulder Max Diameter	160 mm

Multi-joint frame exercise – part 3

Matt Estlea completes the final joints on his practice frame



PHOTOGRAPHS BY MATT ESTLEA

In last month's issue (*F&C* 270), I explained how to cut two variations of a lap joint to ensure a strong, perfect fit. In this article, I'll show you how to cut the remaining two joints on the practice frame as well as chamfering end-grain and planing the frame flush.

Firstly, we're going to get the bridge joint fitted. This is very much the same process as the lap joints we covered last month, except with an extra face to clean up. Therefore I won't dwell on the details too much! We'll then work on the mortise and tenon joint.

The bridle joint

To start with, we're going to cut the bridle joint on the end of the short components. Before doing anything, it's worth noting that when we remove the waste in the middle it's going to be difficult to clean the inside faces because the gap may be too small to fit a chisel in to. For this reason, you will need to cut as close to the marking gauge line as possible while still staying in the waste in order to make the gap as wide as possible. Alternatively, a dedicated paring chisel would work beautifully for this.

This is going to be sawn out in exactly the same way as the lap joint. Tilt it at 45° in the vice, saw down one of the faces and the end grain, flip it around and saw down the remaining third face at 45°. Then clamp it upright and remove the pyramid that is left over at the end. This means you only have to focus on two of the marking gauge lines at a time, as opposed to all three if you were to cut it with the component upright. Remove the waste with a coping saw or

chisel and then start establishing the marking gauge lines with a chisel. You can do this by chopping down about 3mm or so on all three faces while being careful not to damage the outer edges because they will be on show once the joint is assembled. Finally, chop into the baseline of the bridle joint to remove the leftover end grain and check it with a ruler. As always, you want the ruler to be able to touch both outer corners without rocking on a high spot in the middle.

For the corresponding bridle joint component, the process is very similar to the halving joint (see *F&C* 269). Crosscut the waste material roughly 1mm from the knife lines and also saw directly in the centre of the waste. This will weaken the material enough for you to split it away with a chisel. To prevent it splitting in the wrong direction, I would recommend chiselling away half the waste, then half of that, then half of that until you get to within 0.5mm of the marking gauge line. Then the chisel can safely go into

the gauge line and you can chop through from both sides into the centre. Grab yourself a ruler, check for any high spots and remove them with a shoulder plane or chisel.



Tilting the material to 45° in the vice to help with sawing



Removing the pyramid of material left over after sawing at 45°



Splitting the waste material out of the bridle joint



Chiselling down to the shoulder line



Removing the square lump in the bridle left over after establishing the edges

Mortise and tenon joint

When cutting this joint by hand, in most cases you should cut the mortise first. The reason for this is because the mortise walls can be very easily bruised while being chopped out, consequently making the mortise wider than the gauge lines. Therefore if your tenon had already been cut, by the time you go and fit in the mortise, the tenon would be too small.

Because this is a through tenon, one side of the mortise is going to be hidden by the tenon shoulders and one is going to be on show. I used a 8mm mortise chisel, exactly the same width as the mortise walls, to start removing material on the hidden side of the mortise. That way if the walls got bruised it wouldn't matter. I did a

series of small chops starting from the centre and working towards the outside, but left about 5mm of material before hitting the end of the mortise. The leftover material acts as a cushion for the chisel as you can use the mortise walls to lever out the waste. In order to prevent blowing out the other side of the component, I used a strip of masking tape around my chisel to act as a depth stop, which I set 5mm shy of the opposite face. Once I had reached a consistent depth along the entire mortise, I flipped the component round to work in from the other face. I decided to use a 6mm bevel edge chisel to do this as I only had 5mm of material to remove before uncovering the other mortise. Using a narrower chisel meant I was unlikely to

damage the walls on the exposed part of the mortise, thus creating a gap. I could then use a wider bevel edge chisel to accurately work back to the gauge lines as well as clean up the remaining material inside the mortise.

Now for the tenon. I cut about 0.5mm away from the marking gauge lines on all four cheeks and crosscut off the waste. Check the fit often when cutting this joint as it's very easy to go too far. I scribbled some pencil marks on the tenon before pressing it into the mortise to allow me to see where it was rubbing, which I could then remove with a shoulder plane or chisel. You can get away with a few small errors here and there with this joint as it is mostly hidden, however keep an eye on those marking gauge lines on the end grain of the tenon. They need to be spot on to produce a gap-free joint after assembly. As you're approaching the final fit, clean up those shoulder lines as we have done before and whack it together!

It's easier to add the decorative chamfers before gluing up. I used a block plane to do this as it gave me the most control on a small surface area. I tilted the plane to 45° and also skewed it upwards to shear the fibres off the back end of the component. This reduces

the risk of breakout as the blade gently removes the material on the back edge, rather than punch it off.

To glue the frame together, I used four F-clamps to seat each of the joints in their sockets and two bar clamps to press the shoulders together. Notice how I clamped these to the inside of the short components, instead of in line with them. The reason for this is because if the end grain of the short components was protruding beyond the long components, you're simply applying pressure to the short component along its length, rather than pressing the long component into the shorter component. In hindsight, I would use four clamps to do this. Two in the positions as shown in the image, and another two on the outside edges of the joints. Obviously this will apply more even pressure along those shoulder lines and give a tighter fit. Why didn't I do this in the first place? No idea. I was either being lazy or thick! Most likely a combination of both.

Wipe off the excess glue, plane those joints flush and there we go, your joint practice frame is complete. It may not serve you much in terms of functionality but I do hope you have learnt a thing or two along the way. Thank you to Jamie Ward at Warwickshire College for supplying the plans for this frame.



Leaving 5mm of material at the ends of the mortise to use as a cushion



Using a narrower chisel to cut the exposed side of the mortise



Check the fit frequently



The through tenon before planing flush



Adding the decorative chamfers



Clamping the frame together

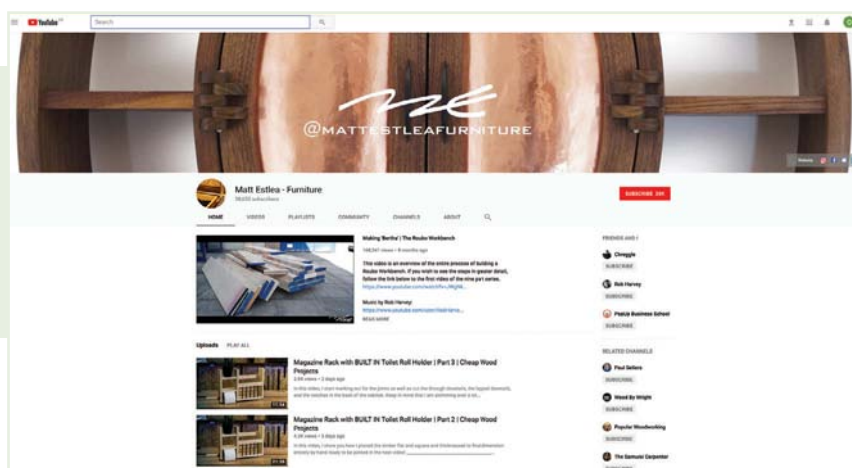


Seating the joints into their sockets

Watch online

If you want to watch a four-part series of me making this frame, it is available to view on my YouTube channel:

<https://www.youtube.com/channel/UCxWzA3ZIYEOlr1JkKH0ZMyg/featured>



Finished joints



Bridle joint



Dovetail halving joint



Halving joint



Mortise and tenon joint

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For the endless list: finger-joint notepaper roll dispensers

Charles Mak's handmade paper roll holders transform note-jotting chores into delightful acts of efficiency marked with sophistication



You can vary the look of the holder by changing the finger pattern

When I work on projects for a seminar or magazine article, I like to take notes to remind me of tips that are to be shared in the class or manuscript. The truth is that I am always making lists, but can rarely find my notepad! In a hurry – to jot thoughts that flash across my mind – I would

my wife brought home more than a decade ago when her division was relocated. The rolls provided a good steady supply of paper, but, as I quickly found out, were inconvenient to use, both in tearing off and keeping the paper rolled. I needed a better notepad solution in the shop: a better dispenser, that is.

simply use any piece of paper in sight, often to then lose that paper along with whatever good ideas that might have been on it.

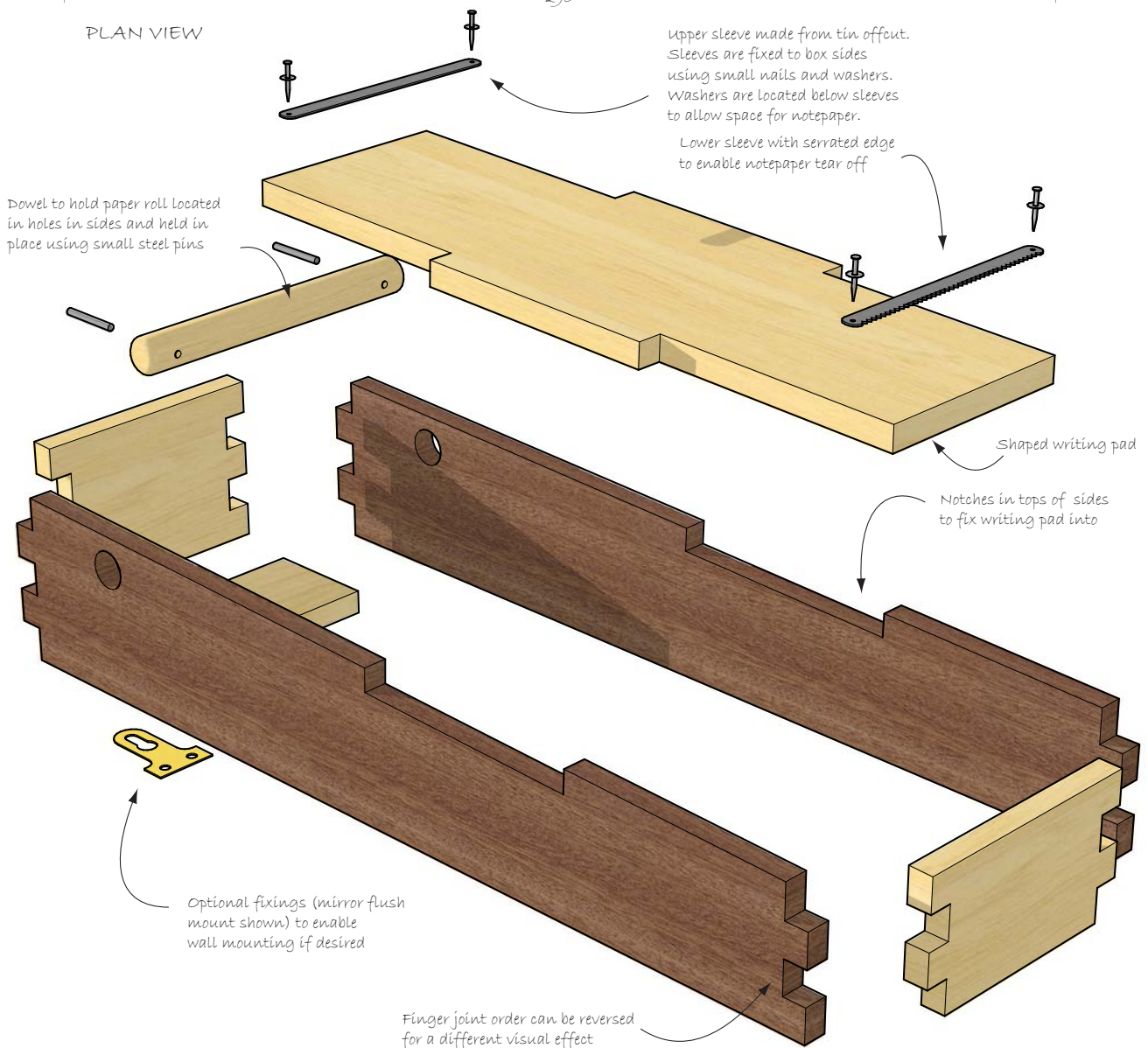
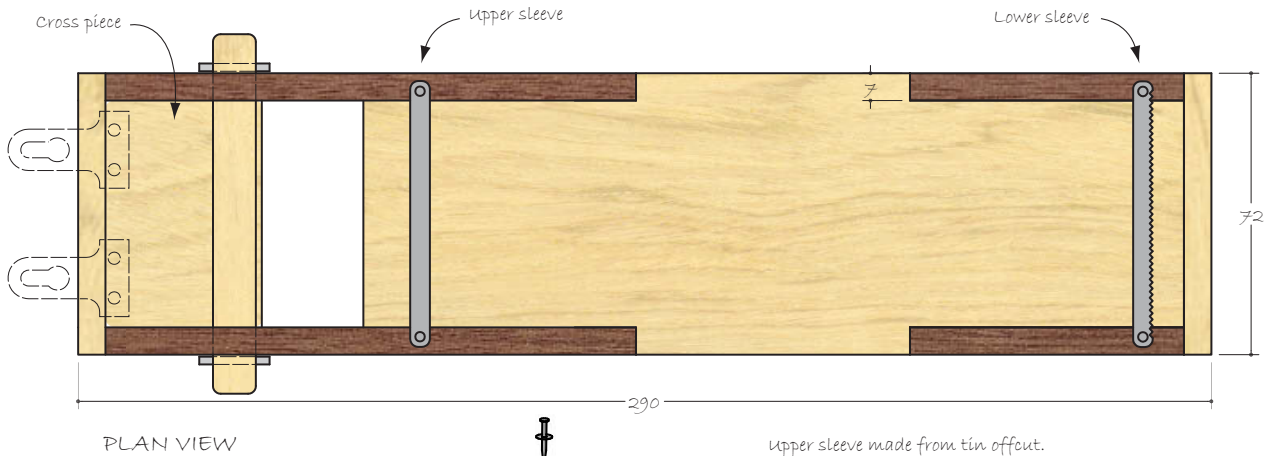
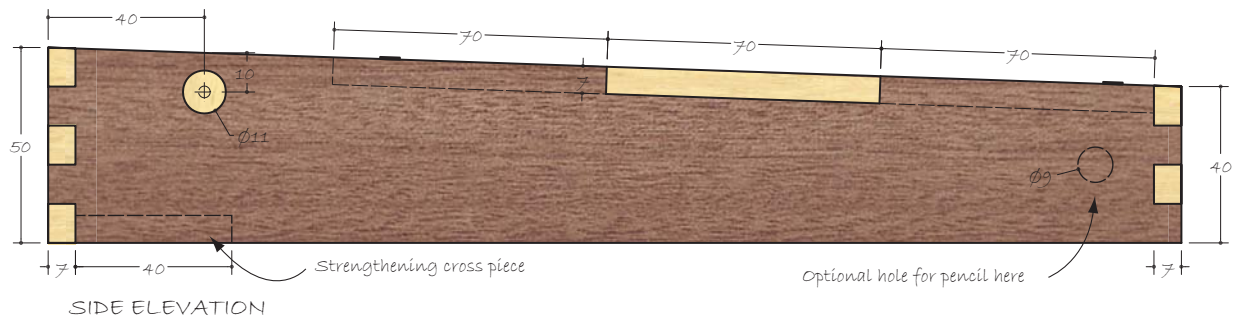
I retrieved from storage a box of calculator rolls that

Designing the dispenser

After some thoughts, I came up with a few core features for the holder, and decided on a minimalist and functional design:

- The roll of paper feeds out evenly
- The paper roll tears off at the end
- The holder can be used for table or wall mounting.

I included a joinery exercise in the build, by using hand-cut finger joints and notches. I made the box (inside) a hair wider than the roll and designed a slanted writing surface (see the drawing opposite for the suggested measurements).



Marking out the sides

It would be a little uninspiring for the holder to be made from one single species of wood, so I picked sapele and poplar from the scrap bin. I checked against a wood movement guide to ensure that the notch design for housing the pad would not be an issue due to seasonal climate change. As I planned to also have one dispenser in the house, I prepared two sets of materials. After removing all the machine marks, I laid out the finger joints with a pair of marking

gauges. The marking procedures are similar to laying out the dovetails. First, set one gauge to the thickness of the stock and scribe the baselines on all the boards. Then, determine the desired number of fingers for the joint and set the second gauge.

I chose to scribe the fingers on the sides first. The fingers for the top and bottom are marked after the sides are cut. Before sawing, also layout the cutline on the sides for the slanted surface.



Two marking gauges are used to keep the resetting to a minimum



Layout cutline for the slope on the side pieces for gang cutting

Cutting the sides

If you haven't tried it, gang cutting is a more efficient way of sawing two identical pieces and the held-together members give a longer reference cutline on the top edges, too. After sawing and removing the waste off between the fingers, crosscut off the shoulders.

Guided by the gauge knife lines, clean up all the fingers and shoulders by chopping and paring. If you saw to the line,

you should have little to chop or pare away. Whether you choose to chop or pare, always work from both sides of the workpiece to prevent going beyond the baselines. Careful chisel work here will be rewarded with a great-looking finger joint. To finish the sides, gang cut the slopes and plane the sides to identical width.



Mark out the wastes clearly and saw to the knife line so you have only a little to pare away



For shoulder cuts, I switched to a crosscut saw



I used cramps to reduce vibrations when gang sawing the slope



Plane the slope in pairs, which also gives more registration surface for the plane

Marking and cutting the top and bottom

Like transferring the tails to the pins, mark the fingers on the top and bottom pieces from the sides. For precise matches, saw the pieces individually this time. After cutting out the fingers, dry fit the joint. If pared well, you should be able to press the joint tight together with your bare hands, without resorting to clamps or hammer persuasion.



The finger transfer is made simple and easy by using a dovetail alignment jig



For thin stock, I use a saw of less aggressive cut, 20 tpi in this case



If you struggle with sawing perpendicularly, try starting with your workpiece held plumb

Marking and cutting the writing pad

The last component to fit into the holder is the notched writing pad. You can choose a rectangular design and simply glue the pad to the case, but a notched pad design adds a slight complexity and challenge to the project. First, divide the pad into three sections

in length and mark out the waste to be removed from the top and bottom sections. Then gang saw the pads to the scribed lines. Chop or pare the notch from both faces and check the work for squareness. Again, aim for precision and faultless fit.



Notching out of the pad starts with gang sawing, followed by careful chisel work



To prevent splitting, finish the cross-grain cut on the notch before working on the long edge



Check and remove any high spot on the notch, taking care to keep the edge square

Marking and notching out the sides

To mark the cutouts on the sides, dry-assemble the holder and scribe the notches on the edges of the sides from the pad. Pencil mark the waste sides clearly to avoid sawing on the wrong side of the scribed lines. Scribe the depth of the notch and cut out the notches



Hold the pad in position on the holder and scribe the knife lines on the edge

individually with a saw and chisel. Dry-fit the assembly to make sure the joints are faultless. Finally, get the glue ready for assembly. I chose liquid hide glue for its low-setting characteristic, giving me enough time to work on squaring the holder.



Use the wheel gauge like a depth gauge to set the depth of cut to the stock's thickness – with ease and precision

Assembling the holder

The assembly is done in two stages. First, complete the glue-up of the case, carefully checking its squareness. The pad is then glued in place, followed by the cross piece, which adds rigidity to the case as well as a base for any mounting hardware. Finally, plane or sand everything flush and smooth, and break the edges slightly. The holder is now ready for the finishing room.



During gluing up, I used the notched pad (no glue) to help draw the assembly square

Installing the sleeves

I made the sleeves out of tin scrap, using a file to cut teeth to produce the serrated sleeves (like sharpening a saw). After the finish was cured, I placed a small washer under each hole and nailed down the sleeves. The paper pulls through the upper sleeve and tears off under the lower sleeve. To replace the roll, simply unlock and slide the dowel out.

These functional dispensers make an interesting conversation piece in the shop or office. So, do you make endless lists and – are your notepads always handy? Mine now are! *F&C*



Drill the mounting holes before snipping the sleeves to size



I used a discarded saw plate as a template when serrating the lower sleeves

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UNDER THE HAMMER:

Chippendale furniture

**This month we look at Chippendale furniture
sold at Bonhams auctions**

Three hundred years after his birth, Thomas Chippendale's furniture – and pieces inspired by his designs – is still in demand. Here, we take a closer look at Chippendale furniture sold at various Bonhams auctions in the UK and USA over the last year.

Thomas Chippendale

Thomas Chippendale was born in Otley, Yorkshire on 5 June 1718. Little is known about his early life except that his family were involved with woodworking and timber trades and it's likely that he served an apprenticeship with his father. In 1748, at the age of 30, he moved to London where

he began working as a cabinetmaker. His great breakthrough came in 1754 when he published *The Gentleman and Cabinet-Maker's Director*, which featured 161 engraved plates of 'Elegant and Useful Designs of Household Furniture in the Gothic, Chinese and Modern Taste'. It was an instant success and cemented Chippendale's reputation as the leading furniture designer of his day. By 1755 his workshop employed around 40–50 artisans, including cabinetmakers, upholsterers and carvers. However, cash flow was a constant problem as many of the firm's high-profile clients preferred to take their time settling their accounts.

Chippendale retired in 1776 and died in London in 1779, leaving his eldest son, Thomas, in charge of the business. Chippendale the younger continued to work for many of his father's former clients, maintaining a high standard of workmanship. He died in 1822, leaving no surviving children to continue the family business.

Around 600 pieces of furniture can be attributed to Chippendale's workshop on the basis of documentation or stylistic affinities. The term 'Chippendale' is also applied to pieces that follow designs from the *Director*; the designs were particularly popular among cabinetmakers in the USA.



£1750

A George III satinwood kneehole writing desk. The frieze drawer encloses compartments flanking a hinged ratcheted writing slide inset with leather, above six short drawers, an apron drawer and a recessed door. The blocking to the bracket feet is a notable feature in the construction of furniture by Thomas Chippendale, or at least those pieces made in his workshop during the third quarter of the 18th century.



£1375

A George III carved mahogany blanket chest-on-stand, made ca. 1760. It has blind fretwork ornamentation, the stand has one long drawer and is set on square-section legs. When the chest was insured during the 1920s, it was described as being by Thomas Chippendale although sadly no documentation exists now to prove this with any real degree of certainty.



£2375

A George III mahogany serpentine Pembroke table, made ca. 1770. The shaped top is placed above one frieze drawer. The cabriole legs are scroll-carved with shell and volute designs. A related Pembroke table to this example is illustrated in C.C. Stevens and S. Whittington's *18th Century English Furniture, The Norman Adams Collection*. Similar characteristics between both of these examples are the slender channelled cabriole legs, stylised shell and volute scroll carving and comparable serpentine shape of the tops. The handles on the Pembroke table shown here conform to a design often used by Thomas Chippendale in the period ca. 1770–75. Also, evidence of an elevated level of construction along with the beautiful quality of the timber suggests that this model was possibly the work of Chippendale during this period.



£1875

A George III mahogany blanket chest on stand, made in the manner of Thomas Chippendale. It has applied scroll, acanthus, husk, patera and Vitruvian scroll carving. The hinged top is placed above two short drawers, on a blind fretwork stand.





£2500

A George III mahogany and crossbanded linen press made ca. 1770, probably by Thomas Chippendale. The ogee and Greek key moulded cornice sits above a pointed arched frieze, over a pair of oval inlaid doors, enclosing three slides, with two short and two long drawers below. This linen press was part of the contents of Spains Hall an Elizabethan country house in Finchingfield, Essex. Among the various elements of construction which suggest that Thomas Chippendale was the probable maker of this linen press are the distinctive concave quarter fillets used inside the drawers, the pervasive use of a thin red wash and the excellent quality of the timber.



£4250

An early 19th-century carved giltwood mirror made in the Chippendale *Director* style. The rectangular plate is set within a scrolled acanthus, floral, rocaille, C- and S-scroll carved surround, surmounted by an opposing C-scroll and acanthus spray cresting.

£6875

A set of seven George III mahogany side chairs attributed to Thomas Chippendale, made ca. 1775. Each chair has a curved oval back and splat comprising eight radiating pierced spindles centred by a patera carved medallion, above a fluted seat frame interspersed with oval paterae, on volute scroll and stiff-leaf carved channelled cabriole legs, with a floral needlework upholstered seat. These chairs also came from the collection at Spains Hall, Essex. A hall chair of similar design, dated ca. 1775, is illustrated in C. Gilbert's *The Life and Work of Thomas Chippendale*. Several of these chairs have V-shaped notches and holes in their seat rails, which are distinctive aspects of numerous chairs either attributed to, or known to be produced by, Thomas Chippendale. According to Gilbert, cross battens in the packing case were screwed into these holes so that such chairs would be safe and secure when in transit, while the V-shaped notches received the glue cramps which were useful during the assembly of the various constituent elements of these chairs.



£621

A Chippendale-style walnut tilt-top tea table. This table was made in the mid-Atlantic states in the second half of the 18th century.



£665

A Chippendale-style carved walnut side chair. This chair was made in Philadelphia in the late 18th century.

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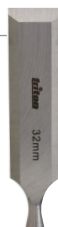


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A first commission

David Waite returns to tell *F&C* about his first professional project



PHOTOGRAPHS BY DAVID WAITE

Gustav Stickley

Gustav Stickley (1858–1942) was an American furniture manufacturer, design leader, publisher and the chief proselytiser for the American Craftsman style, an extension of the British Arts & Crafts movement. Stickley's furniture reflected his ideals of simplicity, honesty in construction and truth to materials. Unadorned, plain surfaces were enlivened by the careful application of colourants so as not to obscure the grain of the wood, and mortise and tenon joinery was exposed to emphasise the structural qualities of the works. His firm's work was popularly referred to as being in the Mission style, though Stickley despised the term, considering it to be misleading.

Land-
anding my first commission was an exciting, if somewhat unexpected event. While enjoying my summer family holiday in France, I received an email via my website from a potential client who had seen my business logo on the side of my Land Rover. The email requested a meeting to discuss a potential project, but gave no clues as to what this might be. An initial consultation was arranged promptly on my return to the UK and I was delighted to find my client had a real love for the work of Gustav Stickley of the American Arts & Crafts movement and wanted to commission a large chest of drawers sympathetic to his style.

The client's input

Our first meeting took place at the client's home, which gave me valuable insights into his taste in furniture. As we chatted, I was able to develop the brief further. My client articulated his love of American cherry in fine furniture and its use with appropriately contrasting timbers such as maple. He also liked bold chunky designs and show joinery that demonstrated the handmade nature of a piece. He had a couple of specific requirements: firstly, he wanted four fully extendable drawers; secondly, he wanted abalone shell inlays to be incorporated into the piece. With these requirements understood, we agreed to meet in a couple of weeks' time for me to present my initial design sketches.

I was excited at the possibility of being commissioned to make this fairly substantial piece but keenly aware that nothing had – at this stage – been agreed and no real commitment had been made. Happily, this changed during our follow-up meeting. I presented five different pencil sketch designs and was pleased to find he liked what I had done. One idea in particular met with his approval and he was prepared to pay the design fee I ask for in order to work up a fully costed, fully resolved design in CAD.

Money makes the world go around

Once details of the design were established, I tackled the critical question of pricing. As mentioned in a previous article on setting up my business, I had already calculated my hourly making rate, so I simply needed to estimate the number of hours it would take me to make the piece and add the cost of all materials needed in order to arrive at the price.

Cost of materials was relatively straightforward to achieve, as I was easily able to generate an accurate cutting list from my CAD drawings and, after adding in a 20% overage for timber wastage, I called several timber suppliers to ascertain their best prices. I added to this cost the price of the drawer runners, the abalone string inlay and a couple of curved templates I would commission from a CNC specialist.

Estimating the number of hours it would take to make the piece was a more challenging calculation. I have read on numerous occasions that this is where many makers are hopelessly optimistic and as a result destroy any chance of making a viable living. I spent time writing a detailed process list for all parts of the construction and then assigned my time estimate to the nearest half hour for each activity. Adding these times together and adding a 10% contingency then gave me an overall making time for the piece which equated to 12 weeks, worth of work. I am fortunate to have the continued support of the Waters and Acland Furniture School to call on since completing my training with them and I took the opportunity of running my time estimate by them for a reality check. Will and Oli both thought it was realistic and were also very helpful in offering me a critique of the design.



When back panels are this smart it's only right that they should get the same finish as the rest of the piece



Exposed joinery and raised motifs capture the essence of Stickley

With costs and timelines calculated, all that was left to do was prepare finalised drawings, including a nice watercolour sketch, and make the pitch to my client. I must confess to feeling a little nervous as the day of the meeting arrived, but I felt confident that my design was good and the price was fair. As I walked my client through the finalised design and cost proposal, he seemed very pleased and happily agreed to move forward, transferring one third the overall fee to my bank account to allow timber to be bought and making to begin.

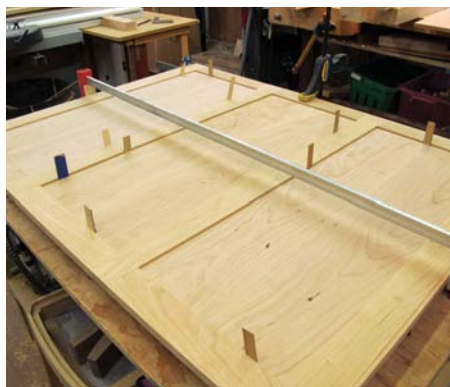
Delivering the brief

Whitmore's Timber provided the cherry and maple for the project, which I self-selected along with the rosewood from Timberline in Kent. The final design was quite traditional and in keeping with Stickley's work. Substantial tapered legs were a key feature

that gave weight and solidity to the piece as well as providing visual interest. Book-matched panels were housed in a traditional fashion between the legs and cross rails to form the sides and the back was also of a frame and panel construction. Rosewood wedged through mortise and tenon joinery provided further interest and squares of rosewood were added as an inlay detail on the drawer fronts behind the square pyramidal drawer pulls as well as on the top of the piece. I opted for a string line of abalone shell set into each of the rosewood squares found on the drawer fronts and top, anticipating a beautiful sparkling contrast between the dark rich rosewood and shell. Given the requirement for the drawers to open fully, traditionally constructed drawer boxes in maple were proposed, sitting on soft-close, fully extendable, under-mounted runners with a cherry false front fitted to each.



Leg mortises being cut



Frame and back panel being glued up; 1mm spacer shims positioning the panels and creating the even shadow gap



Dominoes being cut in the legs for the dust panels

Construction

Carcass construction began with preparation of the tapered legs and curved lower rails at the spindle moulder using a bearing and spiral head cutter block and the template jigs I had had prepared. Mortises were then cut in the legs on my mortiser and a 3° taper created from front to back on each of the through mortises using a simple wedge shim. Tenons were then cut on the rails using the bandsaw and at the router table to achieve snug push fit. The lower side and front rail tenons intersect so a notch had to be cut in the lower side rail tenons to enable the front tenons to pass through to allow the joints to come together. Finally, appropriate length slots were cut in each through tenon at the bandsaw for the rosewood wedges.

With the leg and rail joinery complete, grooves were created in the legs, cross rails and central mutins to accept two

book-matched side panels. Each panel was carefully dimensioned so that when fitted into the end frames, a 1mm shadow gap was left showing around each panel edge. A rebate was also cut into the bottom back rail to house the frame and panel back of the chest. This was constructed from solid cherry using Dominoes to joint the frame and with the same 1mm shadow gap around each of the three book-matched rear panels.

Next, four internal dust panel frames were made, in solid cherry, jointed using Dominoes and grooved at the router table to accept 6mm cherry veneered MDF panels. The top frame was left without any panels and instead buttons were machined on the router table to fit the 6mm grooves in this frame so that the chest top could be securely attached, yet able to cope with any seasonal movement across its width. The chest's top

was constructed from three 30mm thick cherry boards carefully butt jointed together. The top had a 2° chamfer cut using the tablesaw on each of its edges to match the tapered angle of the legs.

The final stage before carcass glue-up was to machine Domino slots at the appropriate heights in the internal faces of the legs and central mutins. All four legs were carefully clamped together ensuring they were flush in length and a simple straightedge jig laid across them to register the Domino jointer from, thereby ensuring the slots in each leg were at exactly the same height. Corresponding slots were then cut in the ends of each of the dust panels and finally in the central mutin. Adding Domino joints along this central mutin was important to avoid any flexing of the dust panels when the heavy drawers and runners were added at a later stage.

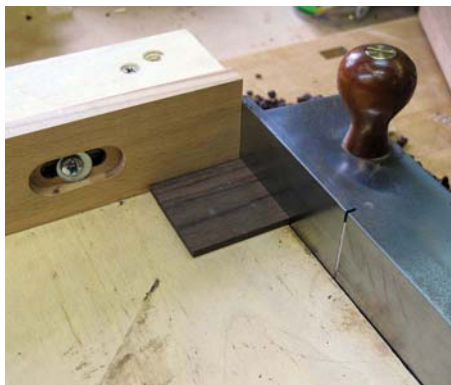
Inlays and handles

An important detail of the piece was the Arts & Crafts-style pyramidal drawer pulls set onto square rosewood inlays which had the abalone shell string line inset. The 4mm inlays were first cut oversize on the bandsaw and then accurately dimensioned square on a shooting board. Once prepared, each rosewood blank had the 1.5mm-wide string line routed into it, 3mm from its edge and to a depth that ensured the shell string line would lie just a fraction above the rosewood. Corners of the groove were then made square using a scapel and fine chisel. The shell stringing, bought from a luthier supplier, was carefully mitred with a sharp chisel and fitted into the grooves. Once all four pieces were cut and dry fitted, a thin cyanoacrylate glue was flooded over the surface of the string lines. Once dried the excess glue and shell were sanded away leaving the string line perfectly flush with the rosewood. The position of the

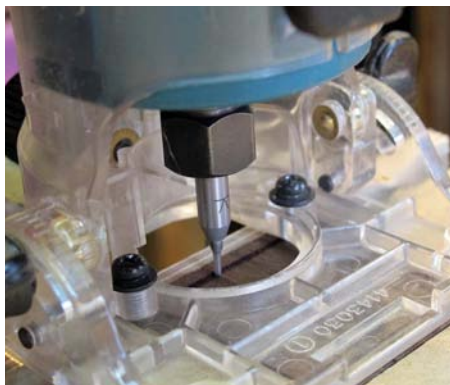
rosewood squares were then marked onto the drawer fronts with a sharp scalpel and then let into the drawer fronts using a router to remove most of the waste and a sharp chisel to square each corner. The squares were glued into the drawer fronts and sanded flush before an 8mm dowel hole was drilled at the centre of each.

The pulls were created from 50mm-square rosewood blanks using the drill press to form the dowel holes and shape the handles' curves, followed by the tablesaw to bevel each top. A detailed description of this method can be found in an article by Michael Perchov in *Fine Woodworking Magazine* (Issue 222). The finished pulls were then attached to the drawer fronts using glue and a short length of walnut dowel.

The drawer pull detailing was echoed on the chest top with four of the same square inlays set into the chest top and a raised pyramidal cap detail added to match the drawer pulls.



Rosewood inlays being accurately dimensioned on a shooting board



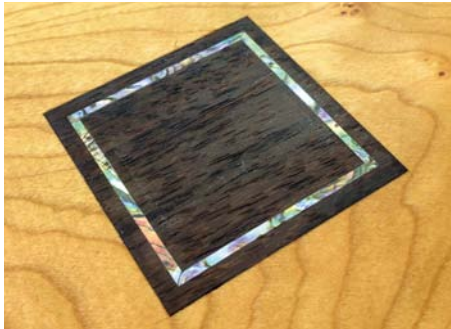
Routing the groove for the abalone string inlays



The shell inlay glued in place

Getting across the goal line

I delivered the piece to my client 13 weeks after the making process began (one week more than estimated) and I am pleased to say he was delighted with it. The commission allowed me to test many elements of my new business model and I took a lot of confidence from being able to manage the whole process to the satisfaction of my customer. I learned several valuable lessons during this commission (see box below) that will hopefully ensure my new business continues to flourish.



The finished inlay inset into the drawer fronts and top and sanded smooth

Key lessons from my first commission

- Keep a real-time log during the making process. I have been able to pinpoint exactly where I had underestimated my time on this project. In this case, it was in the fitting of drawers to get perfect closure, and in prototyping the process for making the drawer pulls. These are valuable insights and I will add 5% more contingency to my time/cost estimate for future jobs of this type.
- Ask the client upfront where the piece will be finally located. Failing to do this was a rookie error, which I was fortunate to get away with, as the client directed us to his downstairs living room on delivery. There is no way the piece would have been able to get up the tight narrow staircase to a bedroom!
- It's worth scheduling a photoshoot to coincide with the delivery of the finished piece. Co-ordinating the help needed to move the furniture with the availability of a photographer, hire of a studio and delivery to the client turned out to be surprisingly tricky to synchronise, but meant I only had to move the furniture once and yielded fabulous images for future publicity.
- Always ensure you have general spare parts for critical machinery. When the £20 capacitor on the starter motor of my dust extraction equipment shorted, the machines in my workshop were taken out of action for four days while I sourced a replacement. Fortunately, this occurred just as the project completed, and had minimal impact on achieving the 'due date'. *F&C*



Complex through mortises



The raised motifs include abalone inlay



Handles mimic the raised motif design



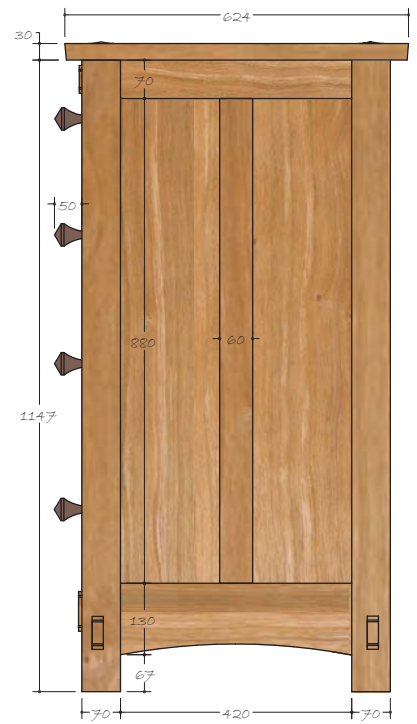
Traditional dovetail joinery



Solid drawer bottoms add to the quality of the piece



FRONT ELEVATION



SIDE ELEVATION

Arts and Crafts style pyramidal drawer pulls set on square rosewood inlays with abalone string line

Top rails grooved and top drawer frame left open without panels to take buttons fixed to top, stiffening the structure below

Traditionally jointed drawer box with through dovetails in maple, with false cherry front, all mounted on soft close runners

Frame and panel back

Legs, muntins and rails grooved for side panels

Lower side rail tenon notched to allow offset front rail tenon through

Drawer frames domino jointed to carcass, including central muntin on side frame, to minimise flexing under load

Traditional Arts and Crafts style through wedged mortice and tenon joints, with the tenons expressed beyond the face of the legs

Rosewood wedges

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Cutting Stroke

Forsa 8.0

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2600 mm
Cutting Stroke

Forsa 9.0

1300mm **107mm**
3200 mm
Cutting Stroke

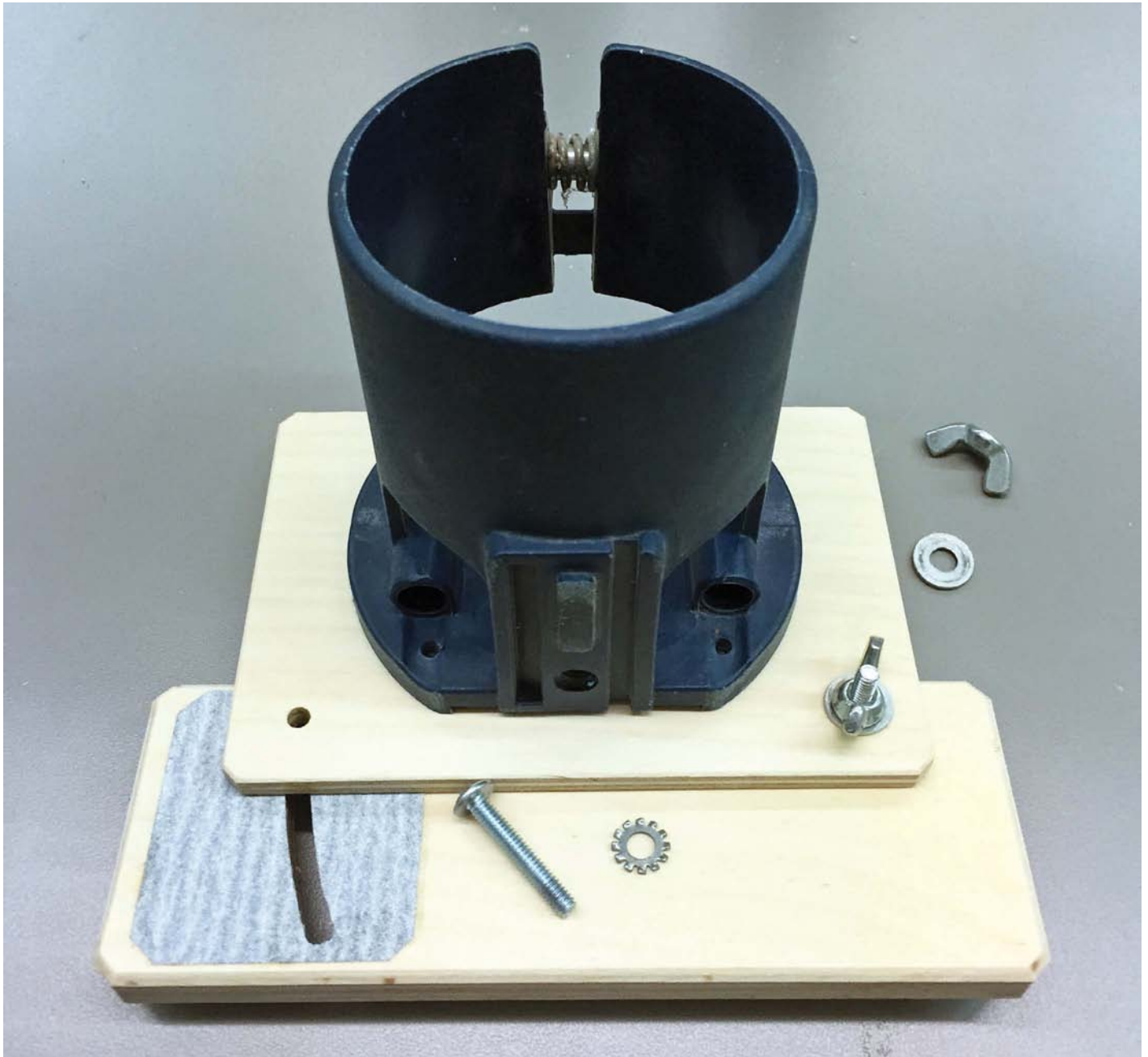
Model	Specification includes (as per quoted price)	HP (input) 240V / 415V	Depth of cut & Length of stroke	Price Exc VAT Plus Carriage	Price Inc VAT Plus Carriage
Precisa 6.0-P2	Inc 2m STC + TWE + TLE (as illustrated - excluding pre-scoring)	4.0 / 6.5	110 mm x 1400 mm	£2,995.00	£3,594.00
Precisa 6.0VR-P1	Inc 2m STC + TWE + TLE + pre-scoring (as illustrated)	4.0 / 6.5 + 1.0	110 mm x 1400 mm	£3,450.00	£4,140.00
Forsa 8.0-P3	Inc Pro STC + TWE + TLE + rear support table + clamp + scorer	NA / 6.5 + 1.0	107 mm x 2600 mm	£5,420.00	£6,504.00
Forsa 9.0-P3	Inc Pro STC + TWE + TLE + rear support table + clamp + scorer (as illustrated)	NA / 6.5 + 1.0	107 mm x 3200 mm	£5,575.00	£6,690.00

STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension.

Tricks of the trade...

Simple router fences

Ramon Valdez builds a custom adjustable fence



PHOTOGRAPHS BY RAMON VALDEZ

The router is undoubtedly one of the most versatile tools in any wood shop. OK... maybe I should just be speaking about my own shop! For me, there are many times when I need a simple fence that is adjustable on the fly. I want it to be quick, accurate and able to lock into place easily with no chance of movement. I'm not a fan of fences clamped to a router base; to me, they're cumbersome and awkward to use. So, I recently made another (and better than my original prototype) adjustable fence for

my small Ryobi laminate trim router. There are many ways to create a fence for a router, here is my solution.

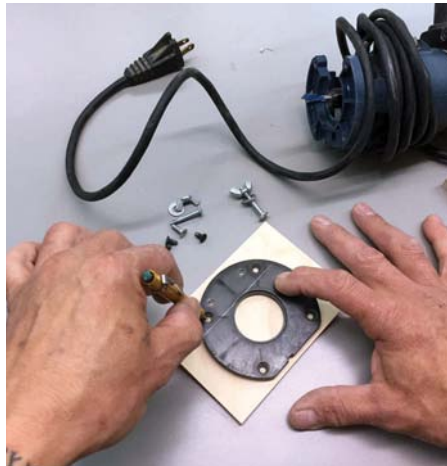
Making the router fence

I started with some scrap of Baltic birch plywood in a 6mm (1/4in) and 14mm (1/2in) thickness. I used 6mm for the base and some 14mm ply for the adjustable fence. After removing the original base plate, I marked the screw locations. From those

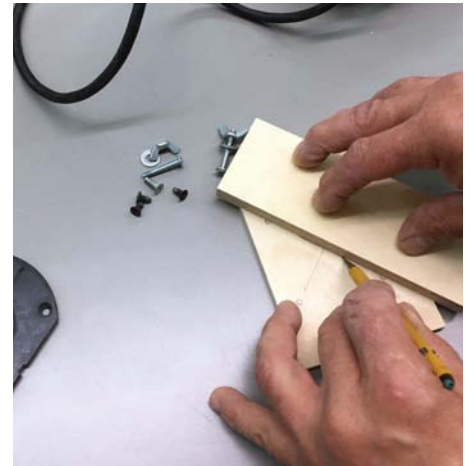
marks, I simply marked diagonals to find the centre. I wanted the fence to be able to adjust from being over the router bit at times, to a bit of space between the fence and whatever router bit I have installed. (I didn't notch the fence yet, I'll do that as needed.) After determining these parameters, I used a scribe to pencil in location marks and drill holes for the pivot and the length of the arc. I found some short machine screws with wing nuts or thumb screws. After attaching the pivot end with these screws and wing



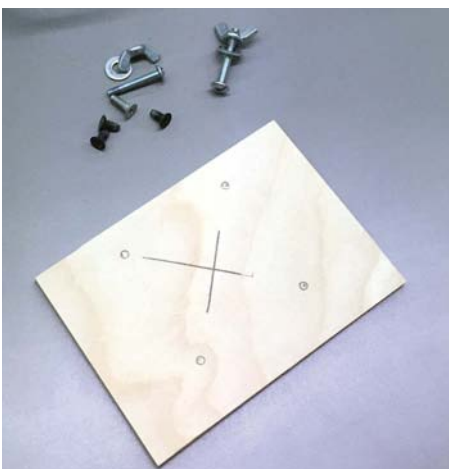
The only hardware you'll need is a couple of machine screws with wing nuts and washers



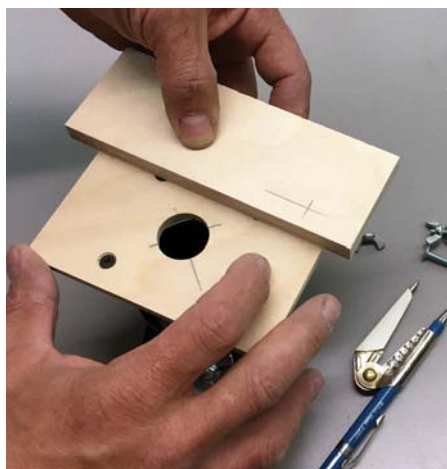
Use the existing base to locate the fixing holes



Use the screw locations to find the centre



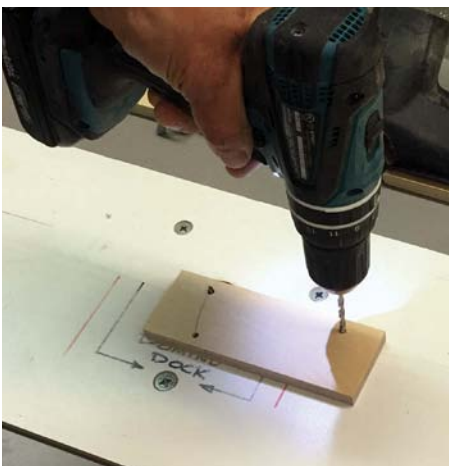
Mark, drill and countersink the holes to accommodate the original baseplate screws



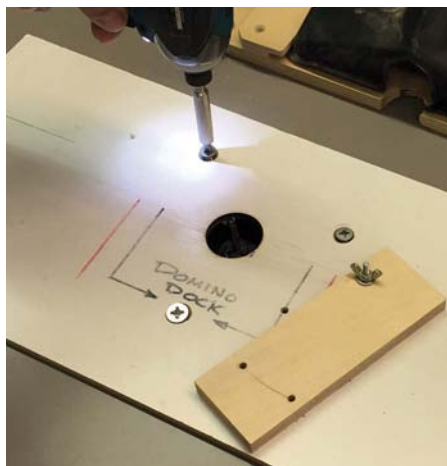
Decide where you want the fence to be when it's at its maximum distance from the cutter



Attach the fence to the base and mark the arc through the pivot lock hole



Once the arc is laid out, slip the router bit into a start point and drill a pivot point



Anchor the pivot point with the machine screw and wing nut



Take several light passes for a clean, smooth cut

nuts, I marked through the hole in the base plate, the location for the arc, including the start and end points.

At the router table, I used another similar fixture (this one attaches to my router table base with machine screws) to anchor the pivot point, still enabling the new fence to pivot to make the arced cut. I took several light passes for safe, clean cuts. In addition, I clamped a sandpaper block and used my tablesaw fence to act as stops, creating finite points and a smooth, clean arced slot.

I then attached it back onto the base, just to double-check the function. I disassembled the fence from the base once more and add some sandpaper between the two for better grip. I also added two 'star' washers underneath the base plate. These two additions help tremendously to provide easy torque when making adjustments.

Using the router fence

The uses for a fence on a small trim router

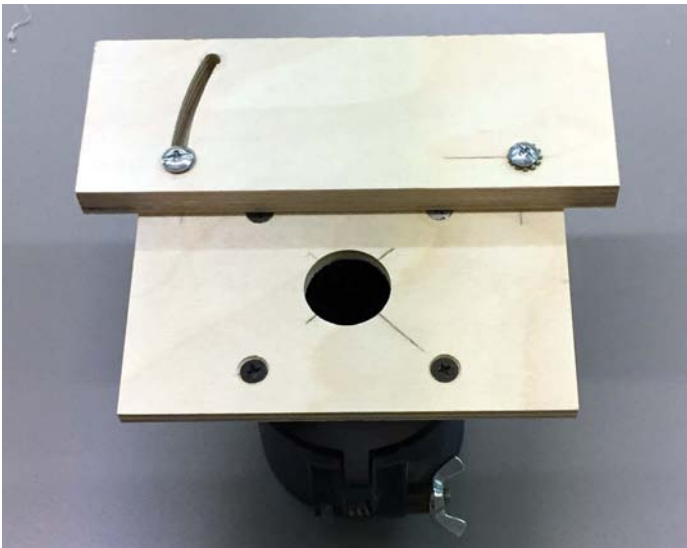
(or any router for that matter) are many. Not all router bits have bearings, so a built-in and adjustable fence makes a fantastic edge guide. Plunge cuts to make small slots are quick and easy. Another use for a fence on a small router would be for inlay of banding around the perimeter of a box lid, for instance. I leave mine set up on this little router so it's always ready to go, although switching base plates would only take a few seconds to change.



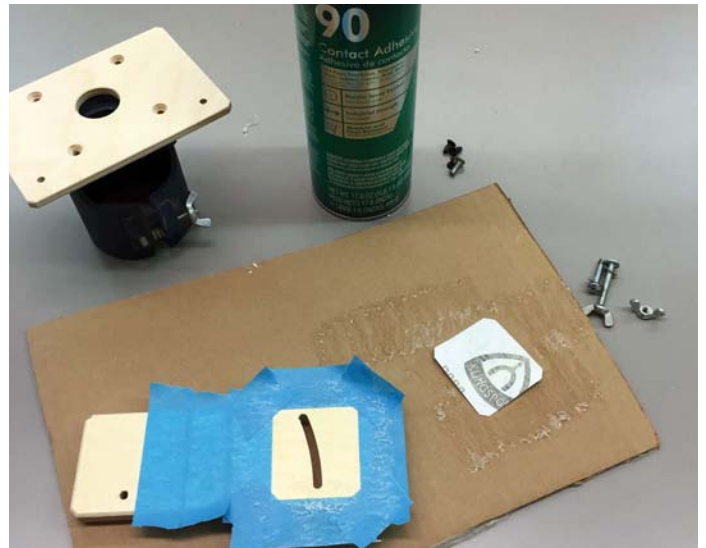
Attach the fence to your router table and fix stops either side of the cutter ...



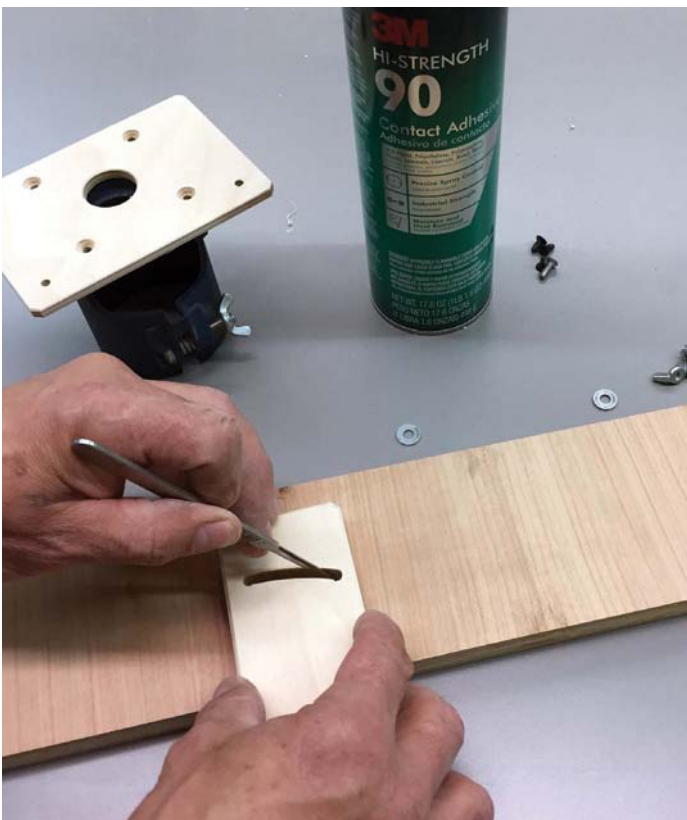
... and plunge up into the fence to cut the arced slot



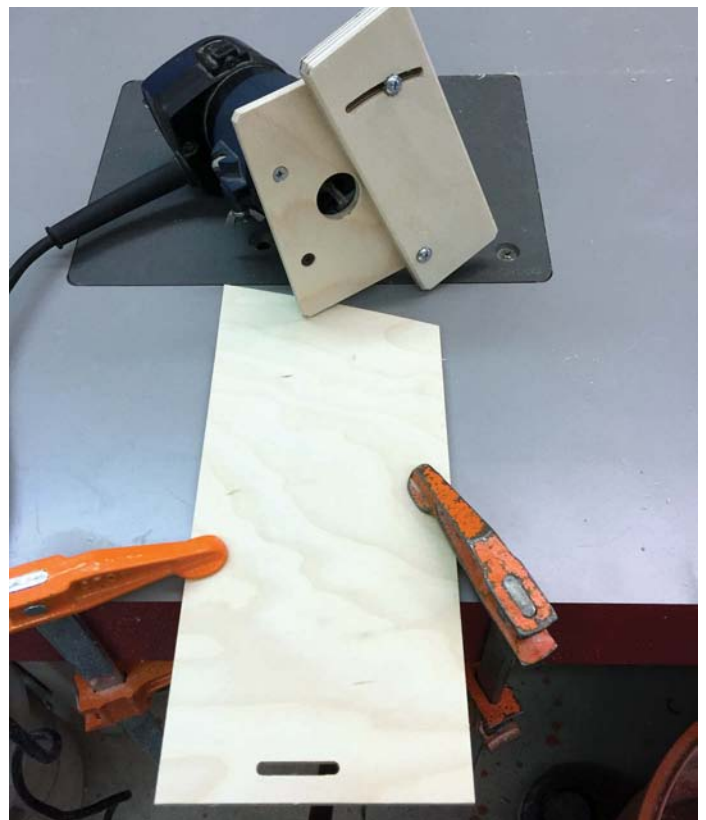
Check for a smooth action and fit star washers to the under side of the machine screw heads



Disassemble and apply a piece of abrasive paper over the arced slot with spray mount adhesive



Use a scalpel to trim the unwanted abrasive paper from the slot



You're now ready for some precision small-scale routing



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Kit & tools

Having trouble sourcing the right tool for the job? Here's a selection of new and essential equipment for the workshop

All sterling prices include VAT, correct at time of going to press

MINI TEST

Micro-Adjust Wheel Marking Gauge from Veritas

I stopped using wheel-style marking gauges a long time ago after I ran one of the razor-sharp blades off the edge of a board and straight into my thumb, I've been either passing over or passing on different versions of this tool ever since. Thankfully there's a right tool for the job out there for everyone so they've always been gratefully received. But, as persistence is my middle name I've decided to let go of the past and give them



The micro adjustment screw has approximately 6.5mm of travel



The main locking screw is larger than those found on some other makes and better for it

a second go in the shape of the new Micro-Adjust Wheel Marking Gauge from Veritas. I purchased this one from Classic Hand Tools just recently. Interestingly some of the features that put me off this style of gauge the first time are still there; sticky brass face and a gauge line that on occasion is almost indistinguishable from the natural features present on the material it's marking. The purpose of any gauge line is to identify the boundary between what's wanted and what's not and in some instances and for sheer convenience a thicker mark is much easier to work with. The counter argument, of course, is that thinner lines are more accurate but as we never really saw precisely on the line what's a couple of thou between friends? When it comes to sawing, accuracy comes from knowing where you can place your saw to hit the line you're following and not necessarily the line itself. It may be half a millimetre to one side or more and in truth it doesn't matter as long as you know what that distance is likely to be. In short, get to know the kerf of every saw you have. Fine gauge lines do of course offer greater precision for chisel work and for extending marks around a piece of stock material, for example when transferring a shoulder line from a face to a face edge, and this is where the wheel gauge excels, including this version.

The micro-adjust on the Veritas version is operated via a screw at the opposite end of the shaft. One full rotation equates to around 1mm with a range of 6.5mm and there's a small indent that acts as a visual guide. To set the gauge you can extend the shaft through the body of the tool to register close to your desired projection and then lock the main set screw. With the micro-adjust lock screw backed off slightly you can now creep up to the precise measurement, forwards or backwards with greater accuracy. The mechanism does have some backlash, similar to that found on a plane adjustment screw, so you'll need to compensate for this when making a setting before finally locking the shaft. After a few times you won't even know you're doing it.

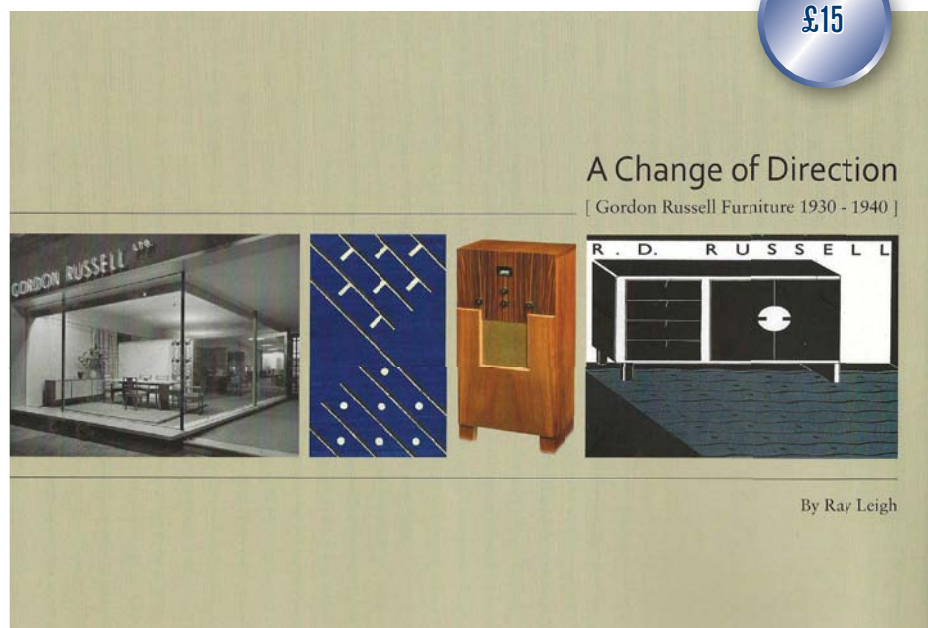
There are some versions of wheel gauge where the main locking screw is too small, these make me nervous as I'm never actually sure if I've managed to tighten them sufficiently. The Veritas Micro-Adjust is not one of those. In use this style of gauge greatly improves your chances of capturing measurements from a rule and transferring them to the workpiece which can only be a good thing. However, brass, as we know, tarnishes easily and the process makes it slightly sticky causing it to drag on the wood. Keep a small piece of petroleum candle wax with you to rub over the face of the stock and I think you'll get along fine, as long as you remember to keep your thumbs out of the way of that razor-sharp wheel.

From: www.veritastools.com &
www.classichandtools.com

A Change of Direction: Gordon Russell Furniture 1930-1940

By Ray Leigh

£15



A Change of Direction is the fourth of Ray Leigh's books telling the story of Gordon Russell Furniture. As the title suggests, the period covered in this one will be of particular interest and importance to students of furniture design and the social history spanning that decade. There's perhaps no one better placed to recount the history of Britain's premier furniture manufacturer during the mid century years, as Ray was present as a designer and board member at the company for several decades. The book is full of facts and dates as you might expect, but also some fascinating behind the scenes details that put things that might otherwise be overlooked, into perspective. Ray sets the scene by introducing all the major designers of the period – Walter

Gropius, Peter Behrens, Marcel Breuer, Ludwig Mies van der Rohe, Alvar Aalto and Arne Jacobsen – by acknowledging their influence on the modern style and their effect on British design. *A Change of Direction* records the transition in British furniture design from Arts & Crafts to a contemporary style more suited to its time. This 80-page hardback features some glorious images of furniture, interior landscapes and reproductions of printed material from the period that capture the mood of the time. Along with Ray's easy yet authoritative style it represents the best account of this most interesting period in our history. An absolute must.

To order contact:
info@gordonrusselldesignmuseum.org

SterlingOSB StrongFix panel

Price on request

The new SterlingOSB StrongFix panel has been designed to strengthen and provide secure anchorage areas in metal C-stud dry lining applications, for fixtures and fittings up to 400kg, such as cabinets, radiators, wash basins and railings. Simple to fit, StrongFix is precision-engineered to fit metal C-stud walls with 600mm centres. A continuous recess down one side allows quick installation and ensures a seamless finish, ready for hanging plasterboard without adding extra thickness to the stud wall. The pre-prepared panels boast the same inherent qualities as SterlingOSB3, which, unlike ply, has no knots or voids and a consistent density throughout that allows fixings to hold securely at any point across the board.



From: norbord.co.uk

Liberon Home ColourCare



From
£10.73



Liberon has recently launched the innovative Home ColourCare range. In a market first, this exciting new collection combines traditional woodcare properties with a choice of contemporary colours to provide a uniquely decorative solution to conventional woodcare. Comprising a durable Floor Varnish, multi-surface Furniture Varnish and a Decorative Furniture Wax, the Home ColourCare range offers the same level of protection and nourishment as Liberon's neutrally coloured wax and varnish products.

Available in a selection of bright shades, as well as contemporary metallic and pearlescent finishes, this cutting-edge range provides a two-in-one approach to protection and colour. Requiring minimal surface preparation, the range can be used across most bare and treated wood surfaces alike, making it an obvious choice for professional tradespeople, as well as an accessible woodcare option for novice users.

From: www.liberon.co.uk

Flexcut sloyd knives

Made in the USA, the Flexcut sloyd knives come razor-sharp and ready for use. These knives are tough, well constructed tools, similar to the sloyd tools of traditional Swedish design. They are perfect for whittling, chip carving, spoon carving, general woodworking and handicrafts. The blades are forged from high-carbon steel, giving them superior edge quality and retention. For added strength, the tang of each knife extends completely through the handle. The handle is beautifully made of conditioned cherry hardwood and comfortable to hold.

From: www.brimarc.com



Note. The effects of a constantly evolving global market in raw materials and other resources mean that prices can change. Be patient with your supplier and please understand that the prices quoted here are correct at the time of going to press.

Tool News

Trend voucher offer



Trend are offering a £100 gift voucher with all purchases of their Workshop Router Table (WRT) or WRT Kit Deals. The WRT is an 800 x 600mm floor-standing laminated MDF table. It has a high-back fence with fully adjustable guard assembly, fully adjustable side finger pressure, and front and side adjustable feather pressure guards. It comes with a 240v No-Volt Release switch. The retail price for the table only is £478.80.

See Trend's website for details of the voucher promotion.

From: www.trend-uk.com

Norbord achieves Structural Timber Assure Gold status

Norbord's position in the timber frame industry, as manufacturer of key product, SterlingOSB, has been acknowledged by reaching the Structural Timber Association's (STA) Assure Gold status. STA Assure is a newly launched scheme by the STA, of which Norbord is a member, which defines levels of accreditation to provide customer assurance.

The STA has established three levels of membership accreditation; Gold, Silver and Bronze. The relevant accreditation highlights the differing levels of in-house quality procedures, management systems and product performance as well as external accreditations held by STA members, offering clients complete transparency.

Festool Bluetooth Extractor Control Ct-Fl/M-Set

Geoffrey Laycock tests Festool's latest Bluetooth application



When Bluetooth started to appear on several major manufacturers' power tools it left me rather cold. Being able to change torque characteristics on a drill/driver via a phone app seems to be using Bluetooth as a gadget rather than a step forward, mine has a couple of levers! Bluetooth battery monitoring has a value; being able to check charge level and performance before work starts, for example, and allowing better management of use. Recently Festool introduced the most useful Bluetooth application yet: being able to control an extractor when using a battery tool, thus allowing extraction to be started and stopped with the tool use rather than having to switch the extractor on/off manually.

Not long ago Festool introduced the AIRSTREAM battery-charging system which reduces charge times and, having just bought a new tool with these batteries,

it was slightly annoying to then find another battery version introduced with Bluetooth, which signals when the tool is on and so activates the extractor. Fortunately, Festool have thought of users with older battery types by introducing a push-button control system to use with the control module that can be retrofitted to any of the CTL and CTM extractor range, not the smaller ones.

To use the battery or remote control a Bluetooth module must be fitted into the spare slot on the extractor. Remove two Allen-headed screws, remove blank plate, insert module and refit screws – as simple as that. Now according to the supplied manual, buying this kit should mean the control and module are already 'paired' but mine didn't work. The instructions on pairing didn't help as they refer to using an app that was not available at the time of writing (it's due for release mid 2018). After playing with every combination of

buttons, they did pair and after that it worked effortlessly every time.

The remote control comes with a short and long rubber strap to allow fitting on different size hose and mine is fitted to my CTL26E hose. Using is a press of a button and the extractor is on, press again to switch off. You get a further benefit compared with using the machine switch as there is a short run on period similar to the auto function. No more repeated bending to operate the extractor and more convenience if using with a brush head for a clean-up. Worth every penny!

Specifications

Available from:
Axminster Tool Centre Ltd

Festool CT-FL/M-SET: £73.87
Festool remote control: £39.96
Festool Li-ion AIRSTREAM 18V (5.2Ah) Bluetooth battery: £121.76
Non-Bluetooth equivalent: £92.96

www.axminster.co.uk





PHOTOGRAPH BY FUS MURRELL

Out & about:

Paxton House

This month we visit the Scottish Borders to see a remarkable collection of Chippendale furniture

Paxton House is a beautiful Neo-Palladian-style stately home set in 80 acres of gardens and woodland. Its many attractions include one of the world's largest documented collections of Chippendale furniture, which has been recognised by the National Heritage Memorial Fund as being of national importance. Thus Paxton House is an ideal place to visit during Chippendale's tercentenary year.

History

In 1756, Patrick Home commissioned the architects John and James Adam to build Paxton House; it was completed in 1763. Ten years later, it was purchased by Patrick Home's nephew, Ninian. Between 1774 and 1791 Ninian and his wife Penelope furnished the house with work by Thomas Chippendale. They commissioned several outstanding examples of mahogany furniture, many of which remain on display in the original rooms

they were designed for. Chippendale also provided wallpaper, soft furnishings and wall decorations. His furniture at Paxton encompasses simple furniture for bedrooms and servants' spaces as well as the highest quality exquisitely worked pieces for the reception rooms.

After Ninian's death, the ownership of Paxton House passed to his brother George, who added a Greek-revival-style extension to contain a library and picture gallery. He also commissioned Scotland's most outstanding master cabinetmaker, William Trotter, to furnish the extension with exquisite Greek-revival rosewood furniture most of which remains in the collection to this day.

After George's death in 1820, the house passed down through the family until its most recent owner, John Home Robertson, gave Paxton and much of its collection to the Paxton Trust. After an extensive restoration, the House was opened to the public in June 1992.



The principal bedroom, furnished by Chippendale from 1777-76



PHOTOGRAPHS COURTESY OF PAXTON HOUSE



ABOVE: Bergere chair by Chippendale, made ca. 1776. **RIGHT, TOP & BOTTOM:** Chest on chest by Chippendale, made in 1774



PHOTOGRAPH BY JOHN HAMMOND



What to see

Paxton House's collection of Chippendale furniture shows the full range of work his firm produced, including chairs, cabinets, desks, beds, tables, soft furnishings, carved and moulded decorations, wallpaper and even mirrors. As well as these objects, Paxton's extensive archive includes Chippendale's invoice and the correspondence covering the years when the work was commissioned.

The William Trotter collection comprises 30 of the pieces that were designed for the library and gallery. Furniture by other makers is also on display, including works collected by Patrick Home during his European Grand Tours, as well as several examples of 18th- and 19th-century Scottish and British furniture. Paxton House is also noted for its collections of fine art, decorative arts and costume.



Clothes press by Chippendale, made in 1774



PHOTOGRAPH BY JOHN HAMMOND

The drawing room

Information for visiting

Address: Paxton House, Paxton, Berwick-upon-Tweed TD15 1SZ

Website: paxtonhouse.co.uk

Opening: House and grounds open March–November; check the website for exact dates and times of house tours

Charges: House and grounds tickets: £10 adults; £9 students, seniors & people with disabilities; £4 children age 4–16; £25 family ticket. See the website for grounds-only passes and boat trips.

Information correct at time of publication, check the house's website before making your visit



Sideboard, urns and pedestals made for the dining room by Chippendale ca. 1776



Pier table made by Thomas Chippendale the Younger, ca. 1789–91

Where else to see... Chippendale furniture

Burton Constable Hall
East Yorkshire, UK
www.burtonconstable.com

Dumfries House
Ayrshire, UK
dumfries-house.org.uk

Firle Place
East Sussex, UK
firle.com

Harewood House
West Yorkshire, UK
harewood.org

Newby Hall
North Yorkshire, UK
www.newbyhall.com

Nostell Priory
West Yorkshire, UK
www.nationaltrust.org.uk/nostell-priory-and-parkland

Weston Park
Shropshire, UK
www.weston-park.com

Chippendale 300 celebrations

This year Paxton House is hosting several events as part of Chippendale 300, a celebration of the 300th anniversary of Thomas Chippendale's birth. There will be themed lectures and masterclasses, plus the exhibition on the Paxton Style running until August (see Events on page 23 for more details).

Visit the Chippendale 300 website for more information:
chippendale300.co.uk

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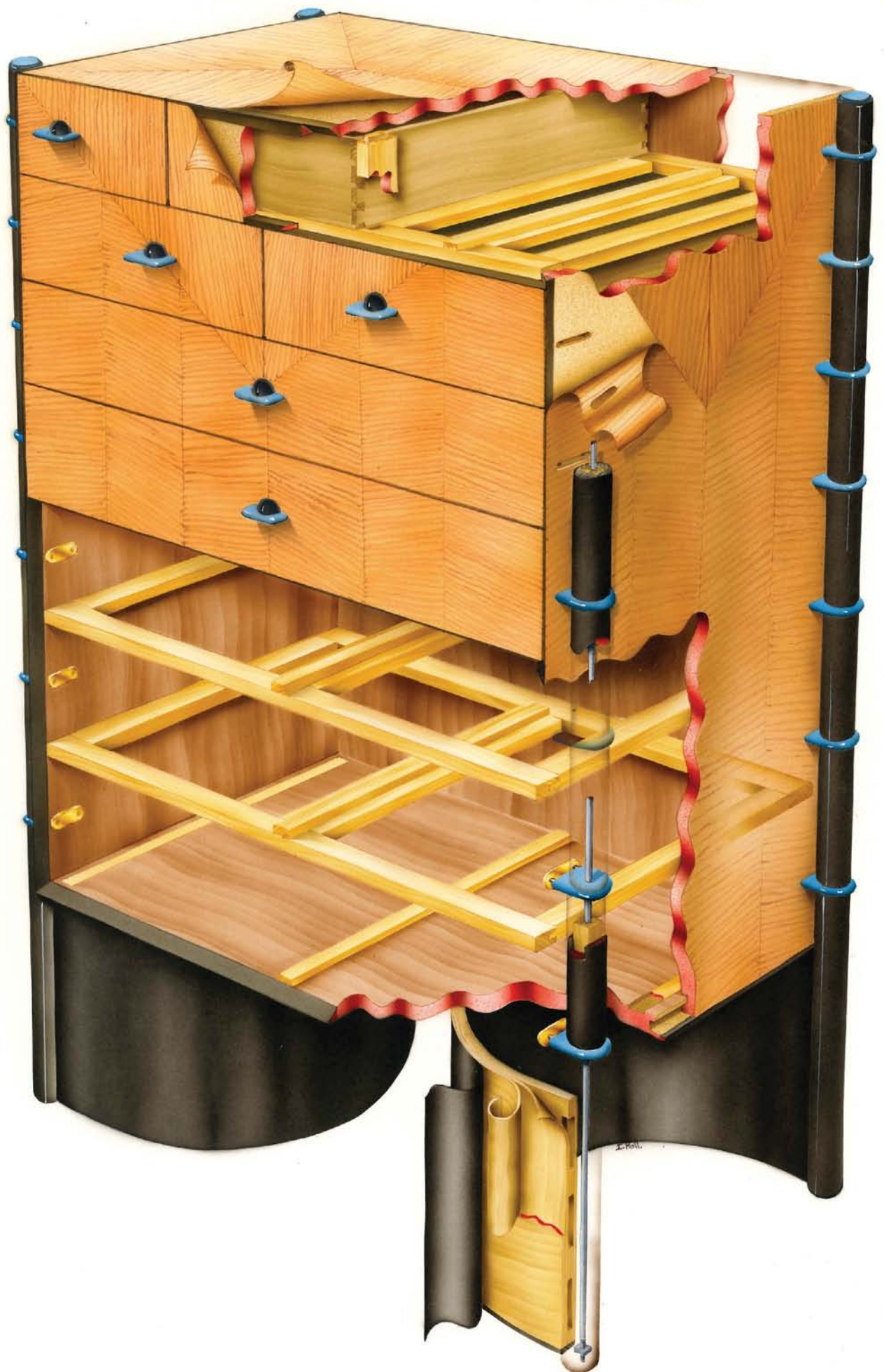
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An airbrush with the past

Derek Jones dips into *F&C*'s archives to showcase the work of Robert Ingham

We're going back to March 2004 and issue 86 for this month's Airbrush with the Past to showcase, once again, the work of Robert Ingham. As speculative pieces go this is quite extreme in that Robert chose to explore a number of design ideas that had been lying dormant for years. In his own words: 'Its design is inspired by the architectural concept of supports featuring on the outside of buildings and details of mechanisms being expressed both structurally and visibly. Hence the block that contains the drawers appears to hang between four cylindrical uprights that are connected to it by what seem to be flimsy metal outriggers.' Robert goes on to explain that 'this visual contradiction becomes part of the structural challenge to make the connections strong enough to support the weight'.

It's not obvious from Ian Hall's excellent drawing that the main carcass is made from MDF, veneered with khaya on the inside and rippled sycamore on the outside. The debate of solid timber versus veneered boards for case furniture has been raging for decades and is largely argued from a personal point of view. However, a big factor in the outcome and appropriateness of construction will have as much to do with the methods the maker has at their disposal for laying veneer as the environment in which the piece will reside. Aware that much of the furniture made then, and today of course, will go into overheated houses that will affect the stability of solid wood, Robert installed a veneer press in his workshop to complete the project.

The drawers are suspended on individual four-sided maple frames that are fixed to the inside walls of the carcass with splines. The frames provide rigidity to the structure and a hard-wearing surface for the drawers to run on. The underneath of the top and the top face of the bottom have strips of maple inserted to give their respective drawers the same degree of support. In between each frame Robert has located an outrigger to

connect the case with the pillars. These are a two-part component with each part rebated into either the inside or outside of the cabinet with bolts running between the two. The exposed parts are patinated a blue/green colour. A length of bar, threaded top and bottom, runs through the middle of the column to link all the parts together. You can't imagine making a piece like this without the use of jigs and Robert developed several along the way to provide the level of accuracy and consistency required for this build including those used to fabricate the metal components in-house. The half-round shape on the ends of the outriggers was first cut on the band saw then shaped on a disk sander before adding the round-over with a table mounted router. Such versatility and competency in using materials other than timber is something I feel we should all explore.

Next month

Next month we'll be going back to January 1999 and issue 24 for a closer look at Roswitha Lentge and Jeff Smith's display cabinet.



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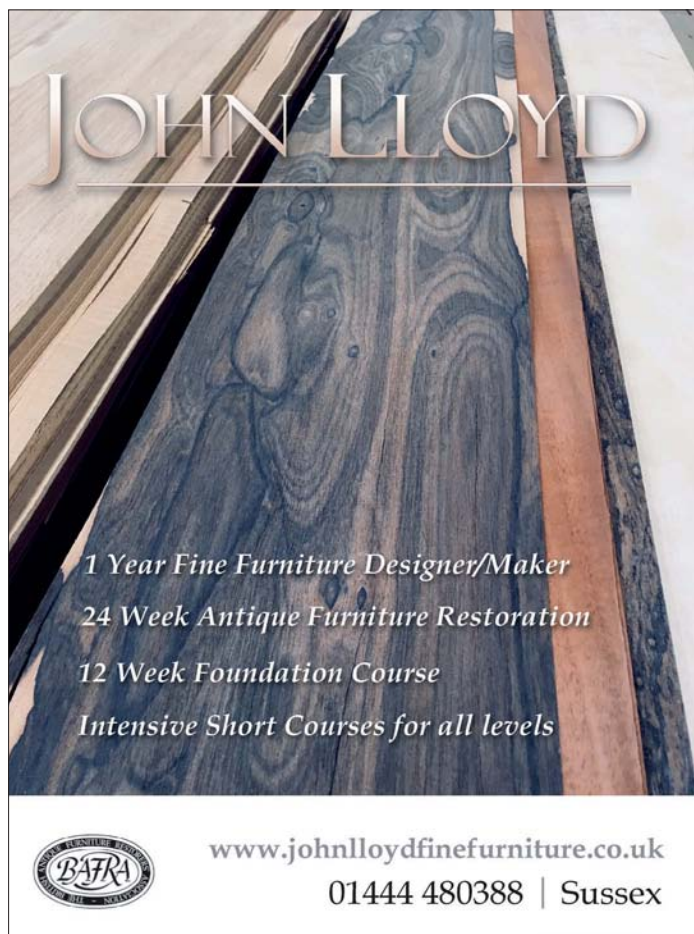
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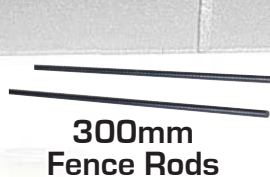
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Maximum swing over bed:	355 mm
Spindle speeds:	96-5040 rpm
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Motor output P2:	750 W
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Taper:	2 Morse taper
Weight:	48 kg
Size:	W870 x D290 x H252 mm



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