WOODWORKING CRAFTS

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Kitchen trivets **Bathroom storage chest** Pyrography **Table from offcuts**
Box-making jigs **Sash window repairs** Valentine's Day gift **Domino Joiner tips**

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WOODWORKING
CRAFTS

Issue 72

Woodworking Crafts covers a broad church of woodworking topics, and this issue is no exception. We have something for everyone, no matter what their skill set, or level is. The more experienced will enjoy our advanced projects and techniques but if you think an article is beyond your level, simply save the magazine and the article will become relevant to you in the future. This forward thinking is what makes our magazine so valuable, and we often get comments from readers who have a whole library of magazines they have saved for future reference purposes.

With the price of wood having increased so much in recent times we find that offcuts and scraps take on a new value. Our projects that use waste wood are a trio of trivets and a table, both of which will make an attractive and practical addition to the home. More home projects that you will love to make either now or in the future are an iconic recreated Contour chair, an umbrella stand, kitchen cabinets, a fire surround and a shelving unit. Obviously, nobody is going to make all of these things at one time, but I'm sure they will no doubt get to them when the right time arises; they just need to reference their library. This is a lot of planning ahead and woodworking is a subject that needs that. I find that when I decide to make something I initially do all the work procedures in my head, so I know exactly what to do when the making begins. That way I can avoid some of the potential pitfalls before committing cuts to expensive wood.

Something you should definitely be planning ahead for is Valentine's Day, and that is just round the corner. We feature a beautiful, romantic project made with a scroll saw, that will warm the heart of your loved one, who will treasure your gift forever.

Learning new techniques is invaluable to progressing your woodworking skills and we have a raft of them in this issue: we show how to make Domino joiner reveals, useful jigs for making boxes, how to convert logs into timber and, on the tool side, we explain how to get the most from your drill press and how to tune up your hand plane. Repairing is also something we woodworkers are called upon to do for our friends and often for ourselves, so it is useful to know how to re-finish damaged furniture and we show you how. Older homes may well have sash windows and by this time they will likely be in a sad and decayed state and will need repairing. We show you this useful skill which will help to maintain the period correctness of a house and also learn how fascinating sash windows are. On a light-hearted side, we have a beginner's project on how to draw sheep using pyrography and a carved mouse letter opener.

No matter if you decide to make or learn all that is in this issue at one time, or over a period of time, you can rest assured that the information is right here in your magazine – and you might want to get some binders or magazine boxes to store them in and keep them safe!

Happy woodworking! *Alan Goodsell*

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WOODWORKING CRAFTS

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TRIO OF TRIVETS

Use up some offcuts and put your hand woodworking skills to the test with Kevin Alviti's countertop protectors

I took great pride in building our kitchen completely from scratch, the units were made with solid pine and the doors with painted tulip and plywood. When it came to the worktops we thought the natural choice, with me being a carpenter, was to have oak worktops. Well, I say the natural choice, it was after we saw how expensive the granite would be …

Finishing off the oak worktops and the large kitchen table I'd made involved great care, building up about six coats of oil over a number of days. I was determined not to have it darken or mark through water damage and the like.

We had gone from our old kitchen – with about 1m of countertop – to one with over 3.5m, but I hadn't realised how often I needed to place down hot pans when dishing up. We needed some trivets to keep them from burning the beautiful worktops.

With timber prices currently rising through the roof, I thought this might be a good project as it uses very small amounts of wood and, as the joints are all cut by hand, it is also a good way to build your skills with both chisels and saws. The joints on the trivets are simple bridle joints, but made complicated due to the compound angles used. In fact, I'd go so far as to say that this project is super tricky and although it looks deceptively simple when finished, it's one that is a real test of woodworking skills.

I used a piece of oak furniture board I had left over from another job – too big to throw away but too small to be useful. I'm sure most people have wood in their scrap bin that would fulfil these criteria, as the longest length is only about 280mm a few offcuts could be used to make up the roughly 1.5m needed (but allow a few extra bits for mistakes – I'm saying this from possible experience here).

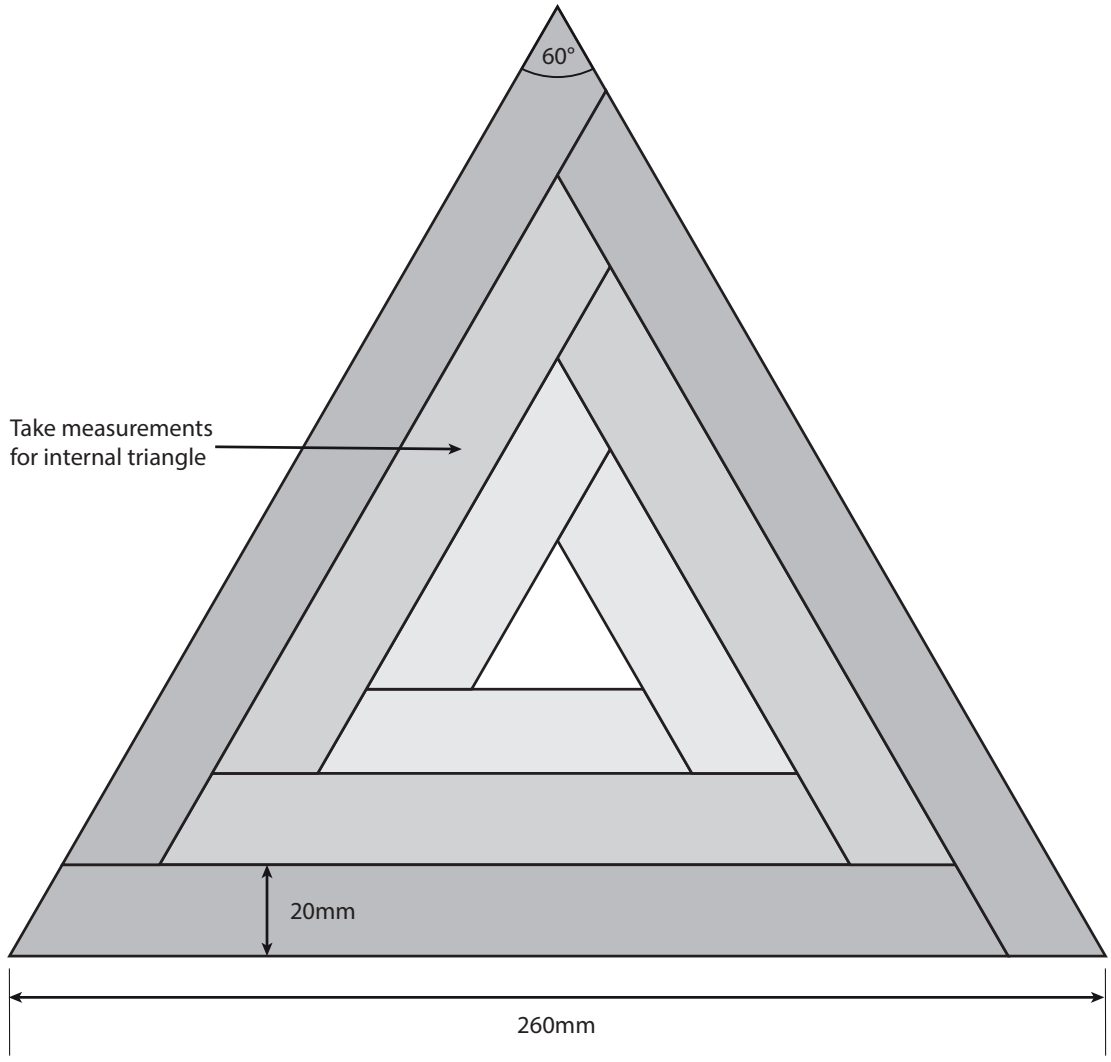
YOU WILL NEED

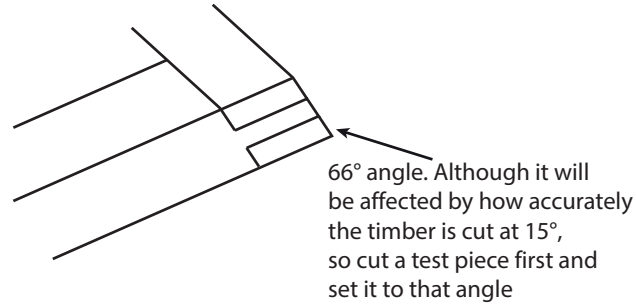
TOOLS:

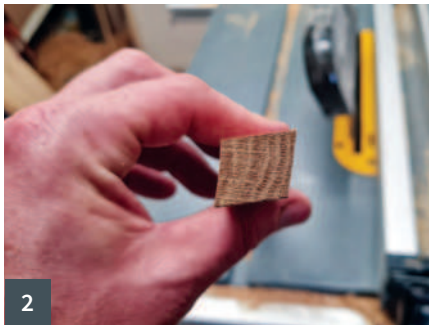
- Planer (optional)
- Tablesaw (optional)
- Sander (optional)
- Panel saw
- Tenon or dovetail saw
- Smoothing plane
- Block plane
- Stanley knife
- 25mm chisel
- 3mm chisel
- Mallet
- Sandpaper
- Small clamps
- Bench hook

MATERIALS:

- Some oak to finish 18mm thick by 25mm wide or similar timber (mixed timbers might look great as well). Having the pieces wider would make it easier to cut the long bevels. For this set of trivets, you need about 1.5m in total.
- Glue







PHOTOGRAPHS BY KEVIN ALVITI

Making the trivets

1. As my board was already planed to the thickness I want, I set about cutting strips with the parallel 15° angle on both sides. If you are starting with rough sawn boards, concentrate on thicknessing some boards to about 18mm thick, making sure they are parallel with each other – this is a great hand plane project.
2. I used a tablesaw to rip the timber down with the angle on it. I set it to cut the pieces a little wider than what I actually needed to allow me to plane the saw marks off afterwards. If you wanted to do this as a solely hand tool project, then it would be good ripsaw practice, just make sure you mark the lines the full length of the board. A jointing plane could also be used, use a heavy workbench with a good planing stop.
3. Tidy up the two edges you have cut using the tablesaw. A sharp smoothing plane is fine for this if your cuts are straight. You could also sand them smooth depending on how clean the cut was.
4. Get a scrap board and mark the angles on it for your bevels. This makes it far easier to reset your bevels should you accidentally knock one or drop it. I found it much easier to have two bevels set for this project: one at 60° for the angle on the top and bottom of the triangle and one at 66° for the shoulders of the tenons and mortises.
5. Mark both bevels up using some masking tape. This is a trick we use when putting on a cut roof, especially when there are Jack rafters to be cut, as it's so easy to get confused when the angles can be quite similar. Making them easy to identify reduces the risk of a mistake. An error wouldn't be so bad on the scrap timbers we're working with here, but can be quite expensive on larger structural ones so it's a good practice to adopt.
6. Now is the time to mark out the first joint. This will use both bevels. Mark which side of your timber is the top so that you are always working from the same side. Use the 60° bevel to mark the top, then the 66° one to mark the sides that splay away.
7. Although the previous picture showed the marks in pencil it will give far better joints if you work to a mark made using a knife. There are many fancy marking knives out there and I'm sure many of them are brilliant, but I have always used a Stanley knife with a sharp blade. This will give somewhere for the chisel to seat in later.
8. To mark the joint out, use the mating piece of timber to get the width perfect. Also, mark the joints with a letter or symbol so you know which goes where when it comes to assembly. The side with the mortise only needs the lightest of marks so it can be transferred to where it will be cut, the cheeks of the tenon side can be scored with a knife, mark all round for this joint.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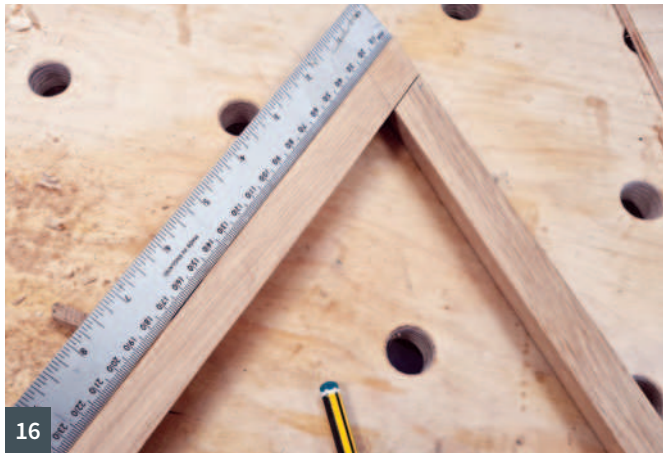
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9 To mark the depth of cuts on the tenons and the width of the mortise use a marking gauge. Normally I'd use a mortise gauge here but with the angle of the wood it won't work accurately. Split it into thirds, taking time to make sure all three parts are even.

10 Using a bench hook to push against, cut across the grain on the tenon shoulders using a fine bladed saw; you could also use a bench clamp but I find this quicker. I'd love a fancy dovetail saw for this but in truth my disposable tenon saw does a great job as well. Be sure to clearly mark which is waste and which is to be saved to avoid confusion.

11 Saw the cheeks of the tenon using a saw. Support your work in a bench vice if you have one or use a clamp to make it upright and easy to saw. Make sure you stay on the right side of the line, lower the angle of the saw and make sure you are eyeing through two sides of the cut to keep it straight and on track. Use slow steady strokes.

12 Use a sharp chisel to tidy up the tenon, chiselling back to the knife and marking gauge lines if needed.

13 Now cut the female part of the bridle joint, the sides of the open mortise are easier to cut with a saw, take care not to go too deep or past your lines.

14 Keeping your chisel in line with the compound angle (angled in both ways) of the cut, chisel out the waste. Although a 6mm chisel would work here, I found it far easier with a 3mm chisel as the depth of the steel of the chisel can work against you with the angles you're working at. Small cuts, not too hard, working your way to the middle from both sides are ideal. You can use an offcut here from one of the sawn ends to act as a guide for the chisel if you find it difficult to keep the chisel in line.

15 Put the joint together and it should fit first time! Well maybe third time… To get a good tight fit it's worth spending a bit of time fettling it, always remember you can take more wood off but never really put it back on. One reason for not cutting all the joints at once is to allow a bit of leeway for any mistakes, especially on the first joint.

16 Measure and mark the length you want to make the triangle. I opted for 235mm but would probably increase this by 10mm as the final triangle is slightly too small to get my finger into to lift it up!


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17 Have it laid out and check the bottom measurement will be the same as the sides. Use a bevel as well to make sure all the angles are the same and that it is a perfect triangle.

18 Cut the other joints for the first triangle. Make sure each piece has a male joint at one end and a female one at the other – it can help to lay them all out when they're marked up so you get the cuts the right way round. It's very easy to make mistakes/turn good timber into firewood when marking out.

19 Now assemble the first trivet without glue. Hopefully the joints are tight enough to hold it all together without clamps. Using a steel rule measure from the top what the inside trivet needs to be. Mine measured 163mm but I knocked off a couple of millimetres to allow for a space between them. It's worth taking your own measurements here though.

20 This time cut all the components to length first and lay them on top of the first trivet. I wanted all the joints to run the same way so made sure I marked them up like this. Remember that your measurement isn't the longest point and that the cuts splay outwards from either end of it.

21 Go through the same process as before marking and cutting all the mortise and tenons, making sure they all fit snuggly. Also make sure that this triangle fits inside the first.

22 The smallest triangle is probably the hardest because it's so fiddly. To make things easier you can cut one joint on each piece before cutting it to length so it gives you more of the wood to clamp.

23 The smaller pieces are tricky to work with and it can be a good idea to use a clamp to aid with work holding. It's worth getting this right as it's all too easy to slip when something moves and it's normally your hands that suffer if it does.


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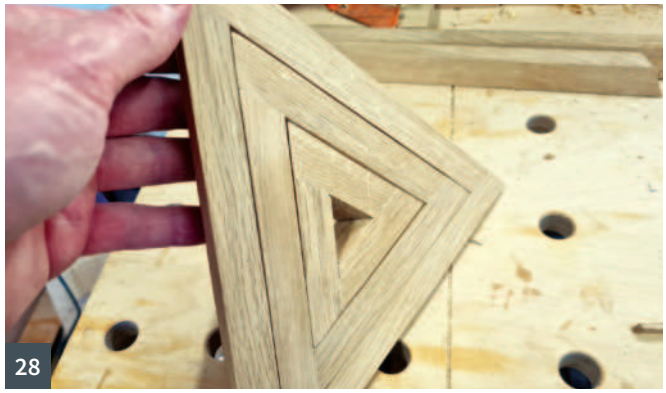
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24 Be careful when chiselling the smaller pieces. Not only are accidents more likely if the workpiece isn't held properly, it also means that splitting it is far more likely. I'd like to say I split this one on purpose as it makes a great example, but instead I'll say that a person who's never made a mistake has never made anything…

25 Hopefully you should have three triangles that fit one inside the other. It's now time for the gluing up. Using a brush and a good quality glue, make sure all mating surfaces are covered and put them together. Taking care that they are all glued at the correct angle – use your 60° bevel to check, much like you would check corners to make sure something is square.

26 Using some clamps, make sure all the joints are tight and then leave the pieces overnight for the glue to set.

27 Remove the clamps and make sure all the joints are flush using either a block plane or a sander. It shouldn't need much work. Also remove any pencil marks.

28 Remove the arris, sharp edges and points. The three trivets should nest nicely with each other.

29 Oil the piece with your chosen finish. Heat-resistant finishes are a minefield, with nothing really being recommended other than mineral oil/liquid paraffin wax, which is food safe. I opted to use raw linseed oil instead, which will probably discolour with hot pans being placed on it but is a saturation oil so will provide some protection to the oak once it's eventually dry.

Need more tools?

30 With woodworking it's very easy to start thinking of your next purchase rather than your next project. After 20 years as a carpenter believe me, I know how fun it is buying tools. When I started this little project, I thought how nice it would be to have a new dovetail saw for cutting the joints. But actually my 'throw away' tenon saw, which I've had in my tool box for years, is still sharp and cuts just fine. The same with the chisels: I have some nice Crown Butt chisels, but my old trusty 25mm CK black plastic handled one worked just as well and so did my very old 3mm Robert Sorby chisel, both bought at a car boot sale for about £2. We're brought up to be consumers but woodworking gives us the opportunity to be producers as well, even on a small scale like this project, making something useful from the scrap bin rather than using it as kindling or seeing it as waste.

MAKING REVEALS with the Domino Joiner – maths (and error) free

Charles Mak shares two time-saving techniques to set up the Domino Joiner for reveal joinery work

Reveals are essentially offsets between two parallel surfaces or edges. They can serve different functions, such as hiding imperfections in trim carpentry work, creating a toe-kick on a kitchen cabinet or making an object, such as a box, look lighter than it is. In furniture making, offsets add visual interest to a piece by creating variances in depths or shadows. Furniture and cabinetmakers incorporate them into tables, chairs, bookcases, beds, shelves and basically anything that can be enhanced in appearance through the use of reveals.

Typically, after deciding on the desired amount of offset, a woodworker would figure out the positions of the two mating pieces, and attach the pieces in place, using, for example, a mortise-and-tenon joint or dowel joint. In this article, I will illustrate the use of dominoes as the reveal joinery.

The standard way to mill mortises for reveals with a Domino Joiner is to position the fence at one height with the height gauge to cut one component, and then reset the fence at a different height to cut the mating part. This method involves some calculations to determine the second height gauge setting, and miscalculations or fence setting errors can happen. Here, I will cover two fool-proof methods to set up the small Domino machine (DF500) that require no maths during the process.

Fig 1: Thickness gauge method – view from top: (not to scale)

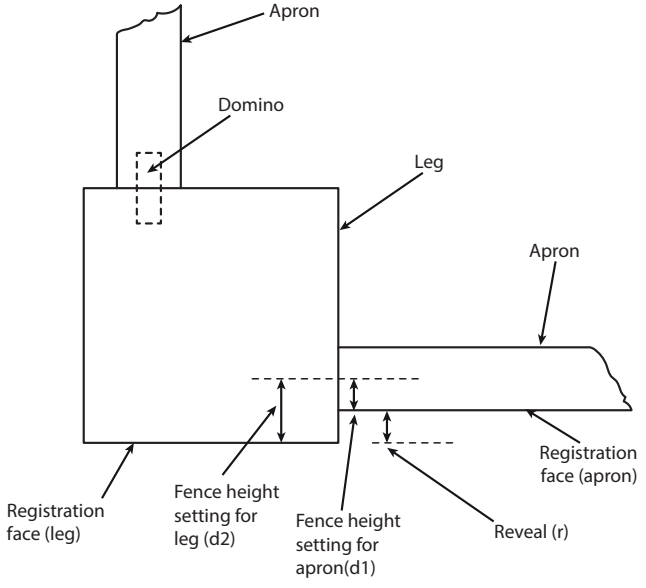

Fig 2: Amount of reveal – determining the reveal:

r=(d2-d1)/2

Seven preset fence heights on the board thickness gauge:
16mm, 20mm, 22mm, 25mm, 28mm, 36mm & 40mm

Fig 3: Thickness gauge settings and reveals chart

Stock thickness in mm	First thickness gauge setting (d1) in mm	Second thickness gauge setting (d2) in mm	Reveal (r) (r=(d2-d1)/2)
16 - 40	16	20	2
	16	22	3
	16	25	4.5
	16	28	6
	16	36	10
	16	40	12
20 - 40	20	22	1
	20	25	2.5
	20	28	4
	20	36	8
	20	40	10
22 - 40	22	25	1.5
	22	28	3
	22	36	7
	22	40	9
25 - 40	25	28	1.5
	25	36	5.5
	25	40	7.5
28 - 40	28	36	4
	28	40	6
36 & 40	36	40	2


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Using the board thickness gauge to set and reset the fence

The idea of using the thickness gauge instead of the height gauge to do offset joints came from American woodworker Charlie Belden. To illustrate the thickness gauge method, I would use it to set up the Domino Joiner to build a four-legged frame that mirrors the basic structure of the base of a table or desk. Figure 1 shows the joinery and the terminology used for the illustration.

We can cut the mortises on the aprons and legs in any order. For this project (with a 6mm reveal), I started with the aprons. Here is how I set up the fence using the thickness gauge for the aprons:

- Orient the aprons and legs in position and mark out the registration faces, in this example, with tape (**photo 1**).
- Set the first board thickness gauge (d1) at 16mm to suit the thickness of the apron (which is 19mm), and lock the fence in place (**photo 2**).
- Set the mortising depth.


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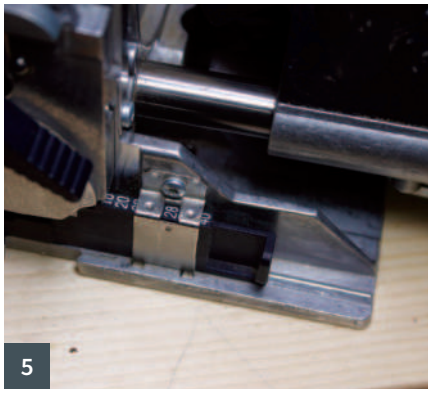
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PHOTOGRAPHS BY CHARLES MAK


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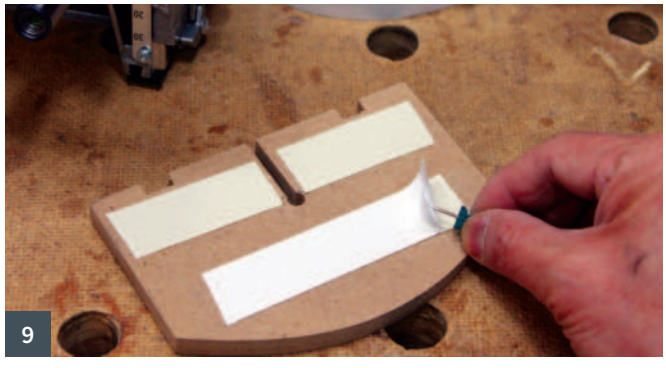
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- Attach the support bracket to use its stop latches (or use placement lines) to position the machine (**photo 3**).
- Proceed to cut all the mortises on the ends of the aprons (**photo 4**). In the next step, I milled the mortises on the legs as follows:
- To avoid any calculations to find the second thickness gauge setting for the legs (d2), I referred to the spreadsheet I made for all the possible thickness gauge settings and reveals (**Figure 3**). As given in the chart, to produce a reveal of 6mm after cutting the aprons at 16mm, the thickness gauge setting for the legs (d2) should be set at 28mm.
- Lock the fence in place with the thickness gauge set to 28mm (**photo 5**).
- Set the mortising depth.
- Use the stop latches on the support bracket for alignment as before.
- Mortise the legs with the standard mortising width for the top mortises, and with the wide mortising (middle) setting for the bottom mortises (**photo 6**).
- Dry-fit the frame to check for the consistent reveals before final assembly (**photo 7**).

By referring to the chart, I dispense with doing mid-build calculations or using the height fence while making the reveals. While convenient for some projects, this method does have two limitations: 1) It only works for materials that are at least 16mm thick, and 2) it is limited to making one of the 21 fixed reveals. A more versatile technique is discussed below.

Using a spacer to position the fence

Lily Schrum, another American furniture maker, has come up with a simple to use method for reveal joinery that cleverly employs a spacer to set the machine's fence. As an example, I will use a keepsake box that is built with a reveal feature to explain the spacer method (**photo 8**). The box's front and back are inset from the edge of the sides.

For this method, I prefer to start with the pieces for which the mortises are cut on their ends. So, for the keepsake box, they are the front and back pieces. Here is how I cut the mortises on the front and back components after marking all the placement lines:

- Set the mortising depth.
- Make a spacer (about the size of the fence) that is as thick as the amount of the desired reveal (**photo 9**). The spacer has a slot cut in the middle to facilitate viewing and alignment.


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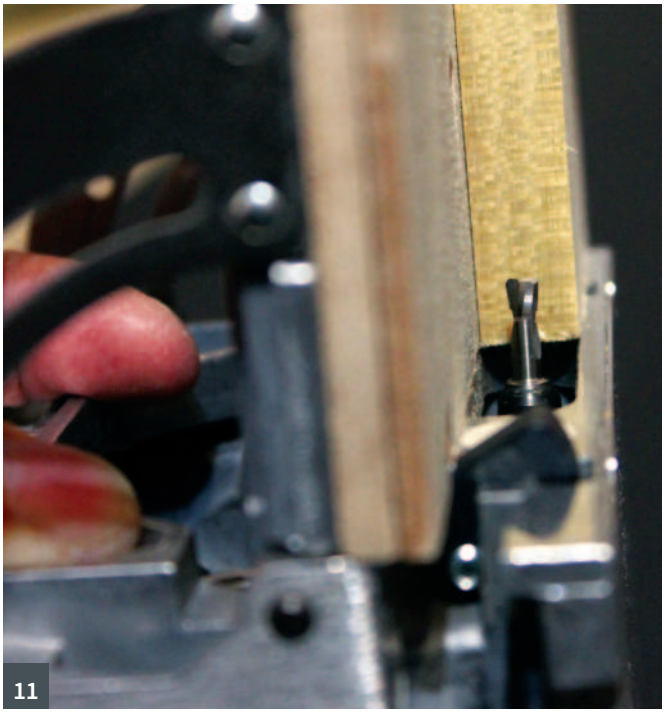
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- Using double-sided tape, apply the spacer to the underside of the fence (**photo 10**).
- Position the bit in the centre of the thickness of the work by eye, and lock the fence (**photo 11**).
- Using the modified fence for registration, cut the mortises on both ends of the front piece (**photo 12**).
- Repeat step 5 to mortise the back piece. Next, I completed these steps to mill the mating mortises on the side pieces:
- Set the mortising depth.
- Remove the spacer from the fence, while maintaining the same fence setting.
- Register the fence on the side piece, and mill the mortises on the inside face (**photo 13**).
- Repeat step 3 for the other side piece.

The result was perfectly aligned mortises and a perfect offset without any calculations or a change in the fence setting. While this method is easy to execute, it does require the extra effort of making a spacer of the proper thickness.

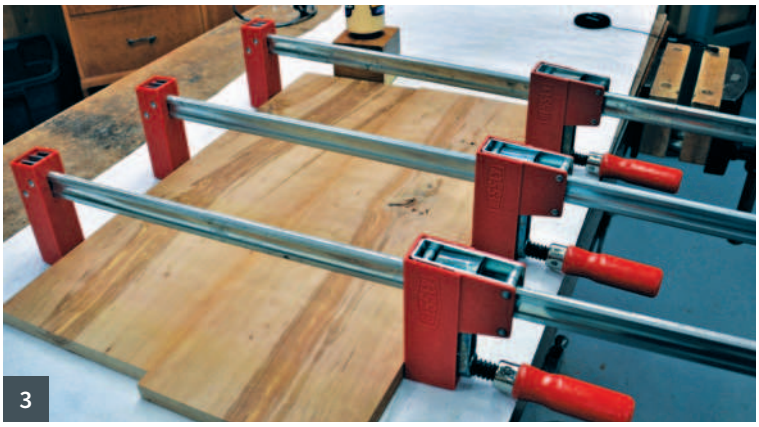
With a little practice, these two time-saving setup techniques will allow you to take your Domino machine to the next level, and cut reveal joinery with speed – and confidence.

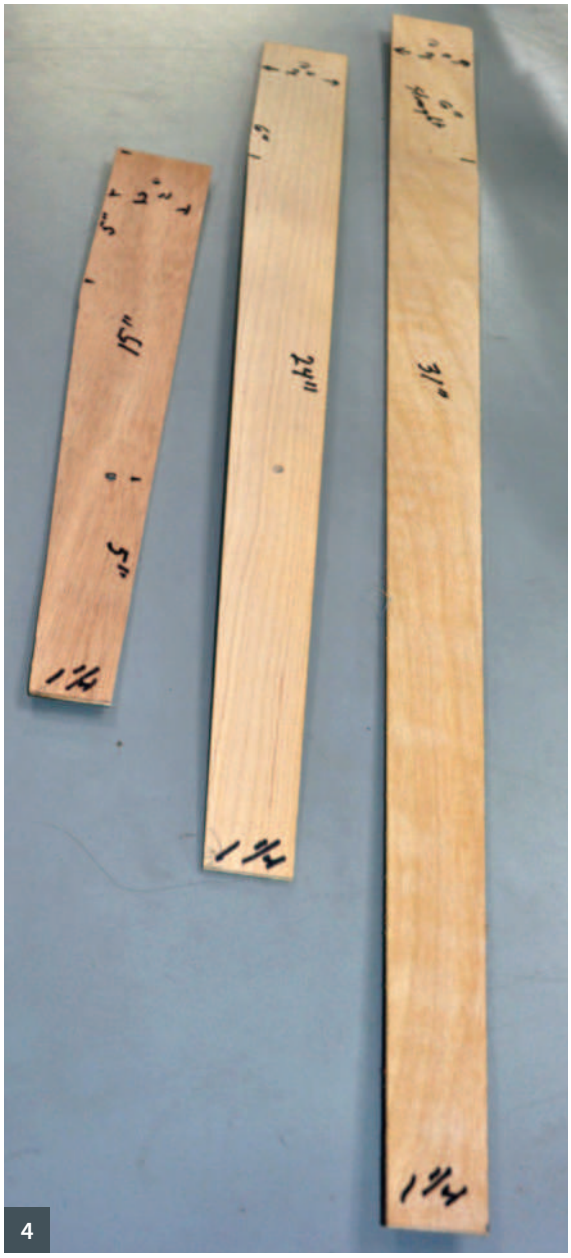
TABLE SCRAPS

Mark Palma turns pieces of waste wood into a beautiful piece of furniture

Scraps of hardwood seem to accumulate in dark corners and rafters of sheds and workshops – all those pieces left over from prior projects, that are too good for the bin. This table was designed to use up these odds and ends and make waste wood into something meaningful.

Frustrated with many plans that required stock of specific lengths and widths, this table design is different in three ways. First, it can be made with three different heights, using the same style leg. Second, the dimensions for most of the pieces are set by the size of the top you glue up, so you can adjust this table to your wood supply easily with simple maths. Lastly, you can use your favourite joinery method, not the one some author says is the 'only' way. So let's get started. One word of caution though – these tables are so easy and attractive you may be out buying timber to fill the demands for all those loved ones who want one!





PHOTOGRAPHS BY MARK PALMA

1 You can use scraps you have lying around your workshop for this versatile design **2** Choose and mark the best timber for the table top, and shelf if you're including one **3** Join and glue the boards for the top, clamp overnight **4** Table leg jigs: the legs can be made in three different heights depending on your needs

Project overview

Start with the table top. Use your best timber here. The legs can be made in three different lengths depending on your needs, but they are all the same width at the joinery end and can be fashioned by simple methods. The rails and table supports can be made out of leftovers and the least desirable timber. The table can be made out of two contrasting hardwoods, all of the same species, or can be partially (or fully) painted.

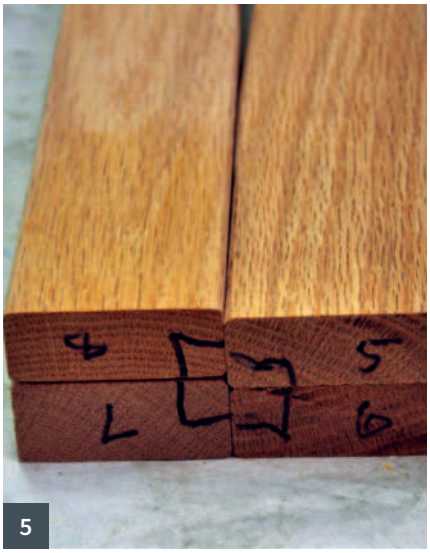
The final table top size determines everything. The long rails are 200mm shorter than the top's long dimension. The short rails and the shelf supports are 140mm shorter than the narrow table dimension. The shelf is 50mm shorter than the top's long dimension and 50mm narrower than the short rail dimension (which is also 190mm narrower than the top itself). No fussy maths involved.

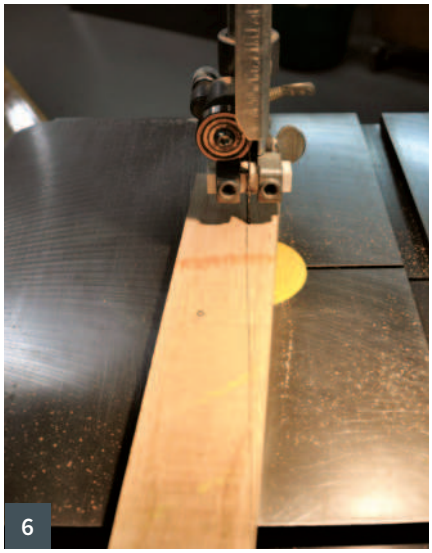
The table top

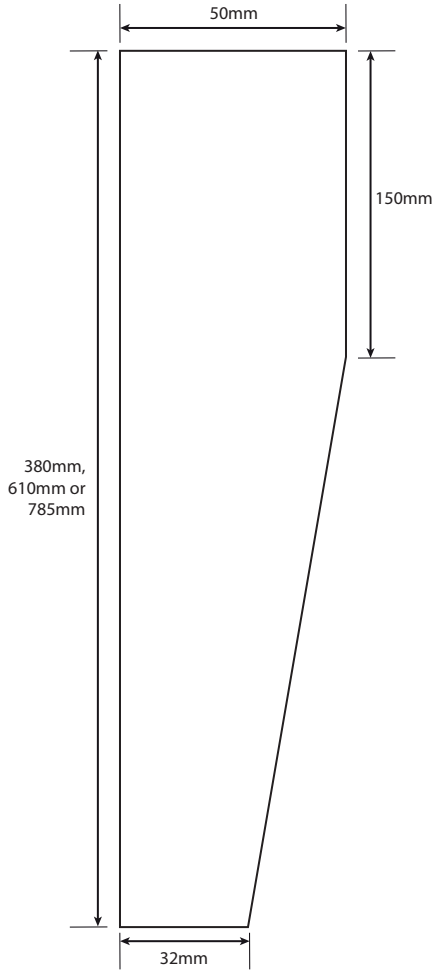
Pick your prettiest boards for the top. Your goal should be something ranging from 355–460mm wide and 560–760mm long (the one pictured is about 367mm wide and 610mm long). The top can be natural edged, irregular or whatever you choose.

Rough cut the boards a few centimetres oversize in length. Join the edges with a joiner, plane, router or any way you can get a straight glue edge. Glue up with fresh glue and good clamping pressure. Leave the top sitting in the clamps overnight.

Cut the top to its final size, sand flat and profile the edge as you prefer (mine has a very small micro bevel). Give it a final sanding by hand with your abrasive backed with a block of wood (the one in the photo was sanded to 600 grit because of the chosen finish, but more on that later).







5 Arrange the leg timber for the best grain orientation and then mark the top of the blanks **6** You can cut the taper on the legs using any type of saw **7** Adjustable glides with T nuts will keep your table from wobbling **8** A small edge treatment brings interest to your table design

Making the lower shelf

You can build this table with or without a lower shelf. It is a nice feature and brings stability to the table. The lower shelf was made from the same timber as the top. The same joining and glue-up process was used. After drying, the shelf was cut 50mm shorter in length than the top and 190mm narrower than the width of the top. The same profile and sanding process as the top was used.

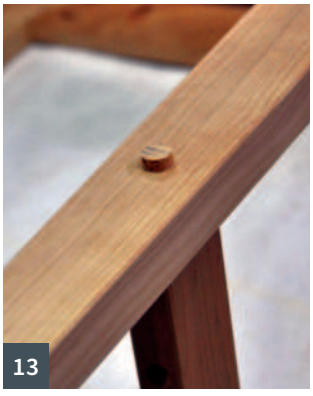
Leg options

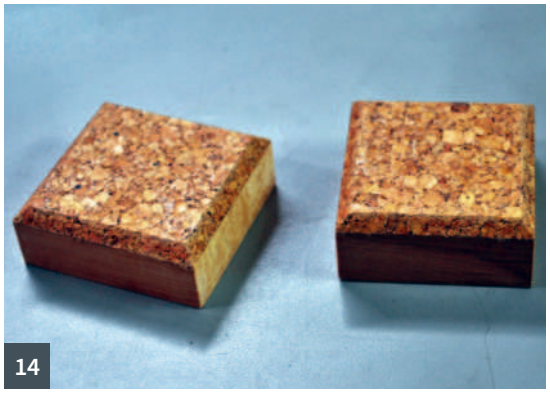
The width of the table leg is 50mm. There are three different height options 380–405mm (coffee table), 560–610mm (end table) and 785mm (hall table). Start by making a template for the size you choose, based on the dimensions in the diagram above. The reason for the 150mm flat section on the top of the tapered size is to allow for various rail sizes and to allow for any cutting mistakes that need to be corrected. Your goal is to have at least 100mm of flat leg above any taper. As long as you have that much the actual measurement is irrelevant, providing all four legs are the same.

Rip stock (20mm to 25mm is fine as long as all four are the same width) to 50mm and about 25mm longer than your planned finish length. Try to choose your straightest stock for the legs. Lay out the four boards so that the best matched pair are on each side and you get the most attractive grain appearance (take some time over this step). Mark the tops of the blanks and which side faces in and out (a simple box marking the four insides and the orientation is shown here).

Cut the legs to final length. Trace the taper on each leg, keeping the orientation consistent with your marking. Cut out the legs staying outside the line. You can use a tablesaw taper jig, bandsaw, , jigsaw, circular saw or handsaw. Clean up the bevel to the line with a joiner, router bit (using the taper jig as a guide), hand plane or block of wood and sandpaper. Just make them all the same.

To prevent the table from wobbling and to adjust if your scraps have a slight warp, a glide with an adjustable stem makes for a higher quality table. Drill the holes for the T nut now by drawing lines from corner to corner on the bottom of the leg. If you are adding a lower shelf drill the hole 200mm up from the bottom and 20mm from the outer edge of the leg. A bit with a recess for a wood plug hides the screw in the final leg. Sand and ease the edges and bottom of the leg (a small bevel works well).





9 Your joinery options include dowels, biscuits, floating tenons or pocket screws **10** In this example, the legs were joined to the rails using pocket screws **11 & 12** All the table parts cut out and prepared for pocket hole joinery **13** Glue a plug over the screw hole in the shelf support **14** Cork blocks are useful for marr-free assembly **15** Gently clamp the top to the table before fastening from below

Table rails

The table rails can be any width from 50–100mm (this example is 75mm). The long side rails (that connect to the wider side of the legs) are 200mm shorter than your finished top dimension. The short side rails are 190mm shorter than the table top width. Cut two of each size. Sand and profile. (The sample here has a small bevel on all four sides to create a small shadow line and soften the edge.)

Joinery options

You can use dowels, biscuits, floating tenons, pocket screws or any other method you like to join the rails to the legs. Add a mounting method for the top into the inside of the rails – wood blocks, pocket screws, figure 8 fasteners, L clips or any table top fastening system you like (the sample has pocket screws). Remember to allow for seasonal top movement, that is why there is only one screw in the short side rail of this example. You can create a more pronounced shadow line by spacing the rails back 3mm from the legs (a scrap of 3mm plywood is what was used on the example). Dry fit and clamp the table before gluing and make sure your marking system shows the legs are in the correct orientation. Measure corner to corner to ensure your table is square at each corner. Glue and clamp the rails and allow to dry.

Shelf support

The shelf support is made from 38mm scraps of the same timber species as the legs and rails. Drill a small hole centred in each end for clearance for the screw shank (but smaller than the threads themselves) to prevent splitting. Drill two holes 50mm from each end through the thicker dimension for later shelf attachment. Sand and profile (the example is bevelled on all sides and the four sides of the two ends). Add a drop of glue and screw in place with the thicker dimension facing up and down. Glue in a plug over the screw hole. After the glue dries, cut and sand the plug(s) flush.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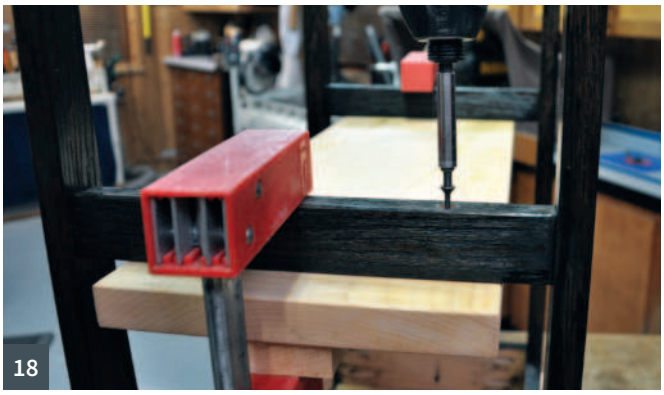
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16 Clamp the shelf in place before fastening from below **17 & 18** Screw the shelf support to the legs and to the table from below **19** Glide installed into finished leg **20** Close-up of the finished table **21** This design can be made in various different woods and finishes

Finish before final assembly

Now is the time to finish the table before final assembly. Use your finish of choice. As a guide, your final sanding grit should be consistent with your chosen finish. For surface finishes (polyurethane, shellac or lacquer) stop at 180–220 grit. For oils you can stop between 320–600 grit (the example was sanded to 600). By finishing the top, shelf and legs separately you can cover all surfaces and achieve better coverage of the finish to the timber. Allow the finish to completely dry. Be patient at this stage.

Final assembly

Locate the top on the leg assembly and gently clamp the top two together. Double check for 50mm overhang on all sides before attaching the top. Also make sure your screws will not be too long and ruin the top. The shelf overhangs the leg spacers by 25mm at each side and there should be a 25mm gap between the shelf and each leg. Clamp and fasten the shelf, again minding screw length. Install the T nuts into the bottom of the legs and install the glides.

Design variations

This table design lends itself to many variations. The 50mm overhang allows for making the table with square corners, rounded ones or arched sides either on two or four sides. You can reverse the legs and put the tapers to the outside and create a completely different look. You can make the rails with cutouts to make a table top appear to float above the legs. If you have a variety of odd species boards you can paint them to a uniform colour. Staining the legs and shelf support can create a desirable look (black dye or India ink makes an interesting variation).

The premise of this design is the flexibility to create a table to meet your needs. The leg template with the parallel sides for 150mm is the key to allowing you to vary the design. Have fun and express your own creativity while using up scrap boards from your shop.

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CARTER AND SON TOOLWORKS

THE DISCOVERY OF PYROGRAPHY

Danielle Dixon tells *WWC* how she took up the art of burning wood and shares a step-by-step guide to her technique

PHOTOGRAPHS BY DANIELLE DIXON & JOHN SAMWORTH

1 Plant label created for Enys Gardens, Cornwall **2** Orangutan portrait on lime wood: an early example of Danielle's work **3** Lamb Feeding **4** The Girls **5** The Firefly pyrography machine which allows for more detailed work

As a young girl I was always interested in nature within art and the wider environment, which led me to study illustration at art school. At this stage most of my artwork was in the medium of oil painting. I realised that the pressure of working to deadlines was not for me, so I began volunteer work at Trevarno Gardens in Cornwall. The work inspired me to study horticulture and I began the Royal Horticulture Society course and earned a place a RHS Wisley where I completed the Wisley diploma. I was very fortunate to be able to return to Cornwall to the post of Head Gardner at Enys Gardens, near Penryn, Cornwall.

About six years ago, by chance I discovered pyrography. I was considering alternative methods to make permanent, tasteful labels for the garden plants, not the ugly white plastic labels. Taking advice from the gardens' Woodsman, who kindly made up some durable chestnut posts and plaques, I burnt the plant names into the plaques with a soldering iron. After a top coat of varnish, I produced my first plant label using pyrography. I still had no idea what pyrography really was or indeed that such art skills existed. Soldering irons are not particularly practical for pyrography because they do not have a temperature control and are therefore very limited in scope for the more delicate work of shade control. My iron got very hot to hold and after a while of continuous use it burnt out.

For Christmas, a friend gave me a new soldering iron and an example of a pyrograph picture, a wooden plaque with a picture of a dog burnt onto it, and told me that I could do better.

This was the inspiration I needed. Armed with only a soldering iron and a few pieces of plywood from a local craft shop, I made my first attempts at real pyrography. But the combination of no heat control and plywood were not very successful. The wood was too burnt and unable to hold a clean edge to a line. After further discussions with the gardens' Woodsman as to what wood might be more suited for pyrography, I tried a piece of wany edge lime wood from the gardens' woods. The wood's pale colour and faint grain pattern do not detract from the artwork.

I sanded the surface flat and smooth, similar to textured paper and began work on a picture of an orangutan's face in profile. Working with the soldering iron was difficult, I was unable to achieve the shade control I wanted, lines tended to blur together, the iron's tip is large and not suited to fine detail and far too hot to hold comfortable. Still, I was extremely pleased with my first picture.

I researched pyrography and discovered that it was a 'real thing' with purpose-built tools. I invested in a Peter Child set, because it had different, interchangeable shaped nibs. Working predominantly with the spoon-shaped attachment for larger areas and a nib for finer detail I produced other work. But the nibs still were not fine enough for the delicate detail I wanted to achieve, so I purchased some wire and made my own nibs for the detail work.

I had by now joined the local college's evening class in woodcarving. Their brilliant teacher, the late David James, asked me to bring in my work to show the class. One of his students, John Samworth, invited me to demonstrate my technique to the Cornwall Wood Carvers, which I did. This day changed my skill levels dramatically.

David had a Firefly machine, different to mine, which he brought along; not only did it have a temperature control ranging from 0 (cold) to 10 (max) but also a selection of nibs including a scalpel-type nib. He kindly let me borrow his machine and with it I am now able to draw really detailed work.

For more information on my artwork, see: www.woodburningart.co.uk


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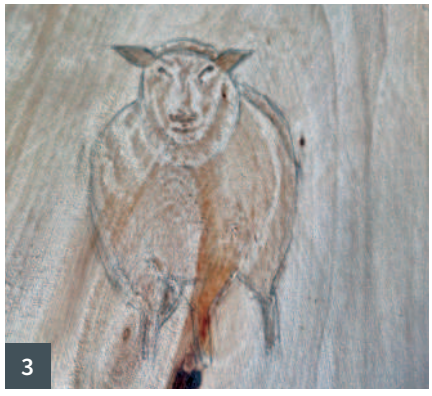
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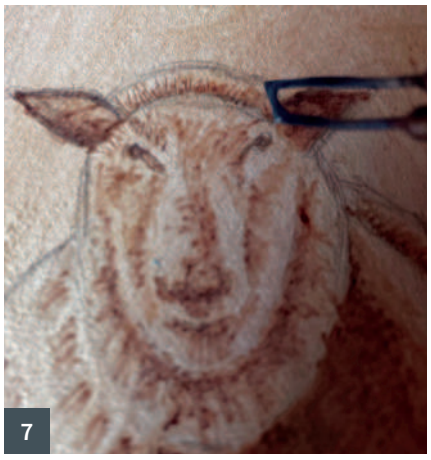
Pyrography technique

1. If you'd like to try pyrography for yourself, here's a step-by-step guide to making a picture of a sheep. Choose your piece of wood, this is a wany edge lime about 150mm square. Sand the surface to a reasonable degree of flatness and smoothness to suit your design. Lightly draw the outline of your design on the wood using medium pencil.
2. Select a spoon-shaped nib (this is a general nib I use for general shading of areas) and set it to a low 3 temperature setting; just hot enough to leave a mark. I found an early mistake I made with pyrography was going in too dark at the start and then not being able to adjust the tone. Always begin in lighter tones and build up colour and shade in layers. My technique is similar to pencil sketching, to block cover areas I use small circular strokes, going over lightly several times to slowly build up the colour.
3. With the machine set as above, and using broad strokes, begin to shade in the background tones to the piece, working the nib over the area. Avoid any areas which you want to remain the original wood colour, especially around the eyes, face, neck and left-hand side (in the light). It is not easy to remove the marks afterwards. The usable temperature range on this machine is 2.5 (too cold, leaves no mark) and 5.5 (too hot, burns very quickly).
4. Next, with the same nib, turn the temperature a little higher (on my machine up 3.5 to 4) and develop the darker shaded areas. Here the marks are a mixture of blocked sections and individual lines. Dark shadowed areas are now forming and contrast clearly against the original pale wood colour.
5. Turn the dial up a little further to around 4 to do more darker shaded areas, still avoiding the light areas. Here, I am working over a knot (by the foot) which can affect the tone, so be careful over those areas.
6. Now switch the nibs – here I am swapping over to the scalpel-type nib which allows me to introduce fine detail marks. Let the nib cool before swapping and don't burn your fingers.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7 Using individual nib strokes work close up starting again on the lower setting on the dial around 4.2, working lighter to dark. Here, I'm working the hair on the sheep's head.

8 For the first stage of using the scalpel tool, start with individual, short line marks to add the fleece texture.

9 Turning the dial temperature up to around 4.5, begin darkening up the shadow areas with small strokes, adding the fleece texture and detail around the eyes and nose.

10 Turning the dial temperature up to around 5 and working again on the fleece, eyes and nose with the fine nib. Don't forget to darken the belly area in dark shadow.

11 On temperature setting 5.2, add the final detail to the fleece, eyes and nose.

12 Swap the nib back to the spoon type and begin to rough in the shade on the background. The sky area is slightly darkened with broad strokes to emphasise the light area of the sheep's wool. The grass area is built up in a selection of tones using short, individual strokes.

13 Swap the nib back to the scalpel type to put the final bit of detail into the grass. Putting all the background in allows the sheep's fleece to stand out (the bit that has not been burnt).

VALENTINE'S DAY GIFT

Fred and Julie Byrne use the scrollsaw to make a romantic decoration

With Valentine's Day just around the corner, why not make that special person in your life happy? Everyone knows handmade presents mean so much more because you've taken the time to make them. A bunch of flowers will be in the bin within a week, but our heart-shaped decoration and 3D flower will be on show for years to come as a constant reminder of your love and, of course, skill.

Compound sawing

To make the 3D flower, you will need to use a technique called compound sawing. You can achieve some amazing results with this simple process. To do it, you cut around two patterns that are attached to two adjacent sides of a block of wood.

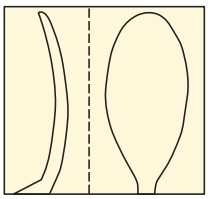
There are a few points to remember to attain good results:

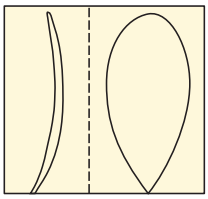
- Make sure the wood you use is square and straight.
- Fold the pattern evenly along the dotted line and then line up with the edge of the wood when gluing.
- Make sure that the scrollsaw blade is set 90° square to the table; a small square is useful for checking this.
- Start with a new blade and let the blade do the work; do not exert too much force on the blade as this will lead to distortion. The blade should be very taut to minimise wandering, particularly when using hardwoods.
- Stay on the cutting line or just to the outside, try not to go towards the inside of the line especially when cutting the thinner, more delicate, pieces.

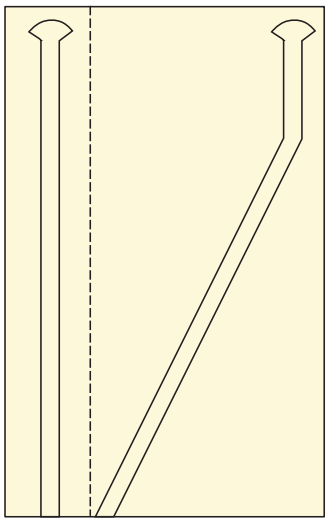
YOU WILL NEED

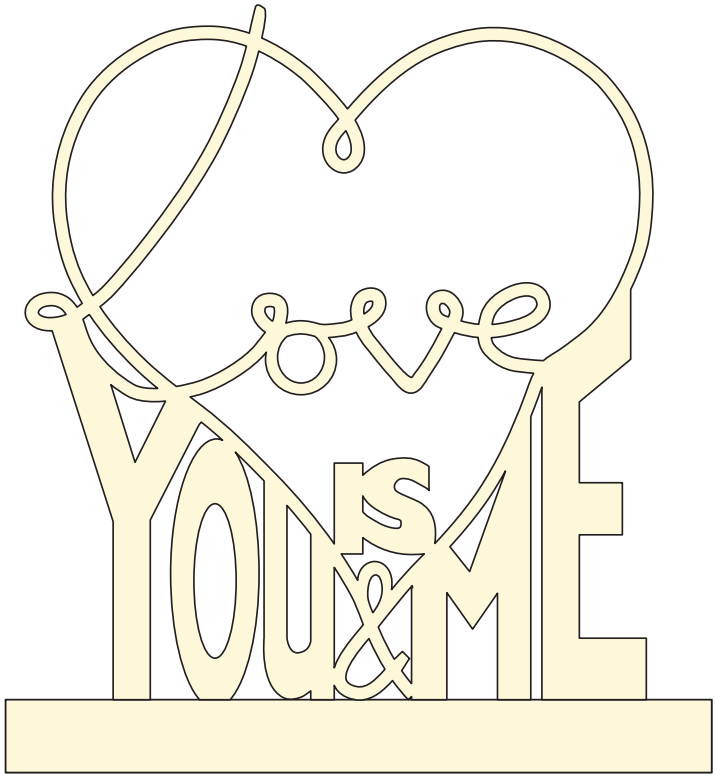
TOOLS:
- Scrollsaw: No. 7 reverse tooth blade
- Patterns
- Pillar drill – 3 & 5mm drill bits
- Sandpaper – 180, 240 & 320 grit
- Masking tape
- Glue stick/spray adhesive
- PVA wood & superglue

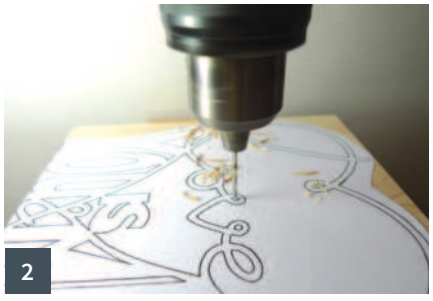
MATERIALS:
- **Heart-shaped 'Love Is' decoration:** 152 x 140 x 16mm
- **Base:** 150 x 50 x 16mm
- **Flower petals:** 360 x 25 x 19mm
- **Flower stem:** 115 x 50 x 19mm

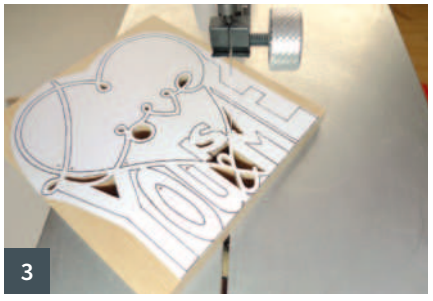


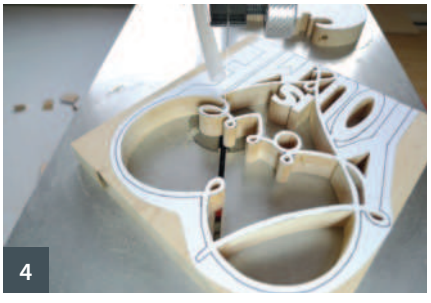


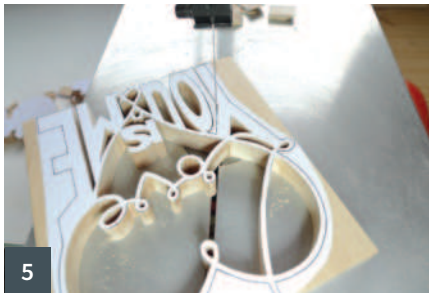






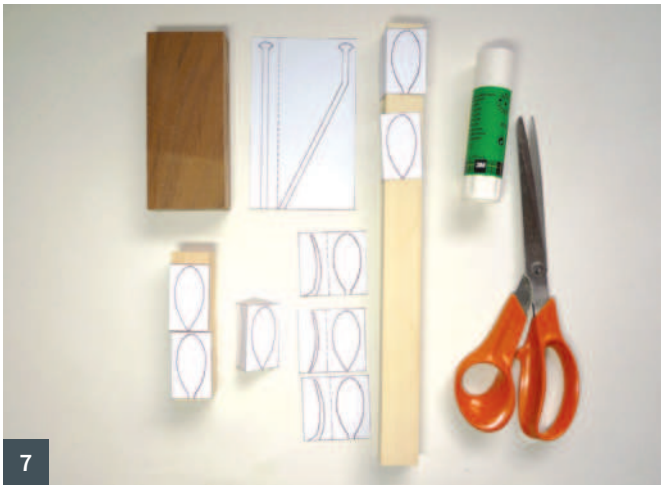






Making the lettering and heart

1. Begin by making a copy of the pattern and prepare your wood of choice by sanding both surfaces smooth, going through the grades of sandpaper. Then attach the pattern onto the best surface using either a glue stick or spray adhesive.
2. Next, fit the pillar drill with the 3mm bit and drill the blade entry holes.
3. Thread a No.7 reverse tooth blade through one of the small frets and begin by cutting out all the smaller pieces first.
4. Then carry on and cut out the larger ones.
5. Once all the inner pieces have been cut out, continue to cut out the pieces in between the lettering along the bottom.
6. Then finally cut out the perimeter returning to the corners to remove the waste. Sand away any burr and slightly round over the edges. Cut the base section and drill the 5mm hole in the corner for the flower stem.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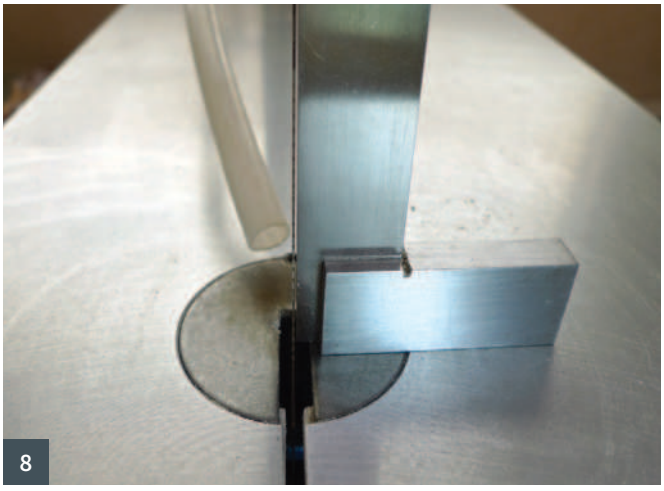
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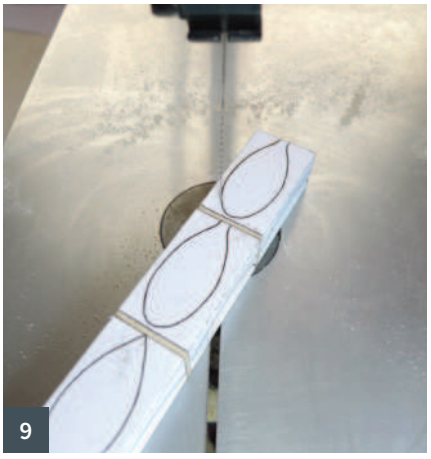
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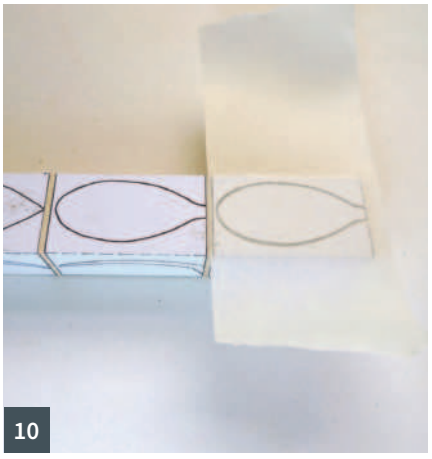
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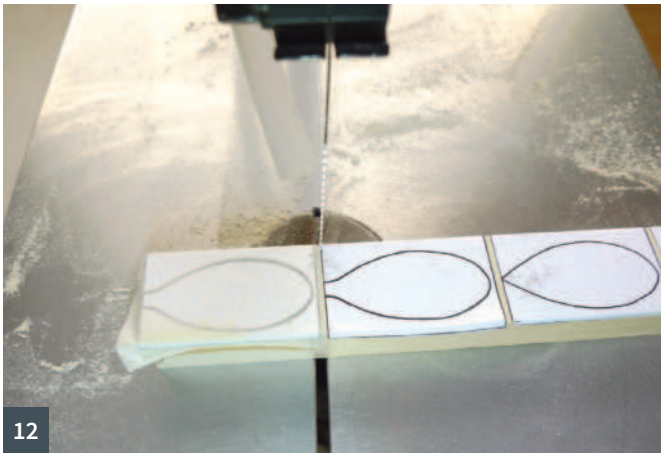
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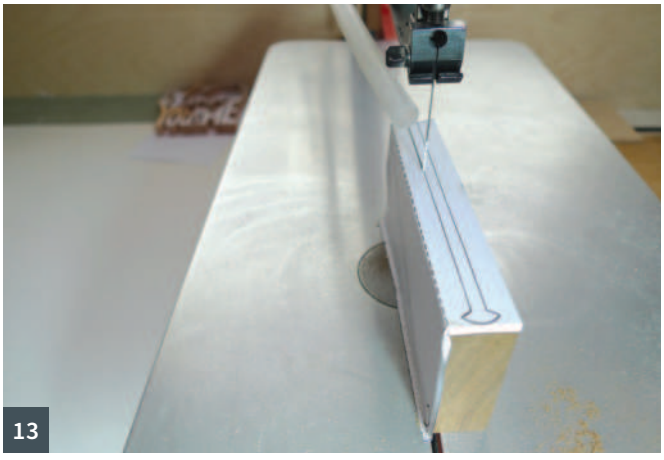
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Making the 3D flower

7 Now, using what you've learned above about compound sawing, start work on the flower by making four copies of each of the upper and lower petal patterns – eight in total – and one of the stem. Prepare the wood – see cutting list – cut out the patterns and fold along the dotted line, position and glue onto your wood of choice.

8 Fit the scrollsaw with a No. 7 blade or blade of choice, and use a small square to make sure that the blade is then set exactly 90° to the table.

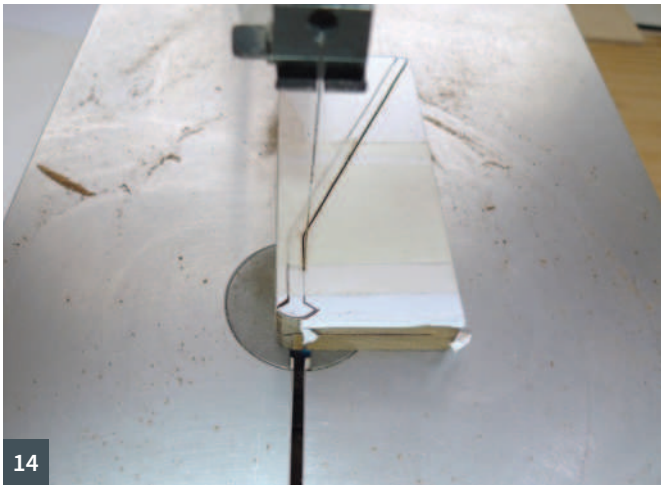
9 Starting with a petal, cut around the top pattern first.

10 Once the piece is cut out, secure it in its position by wrapping the whole piece with clear or masking tape. Then turn the whole piece onto its side and cut along one side of the petal to the tip.

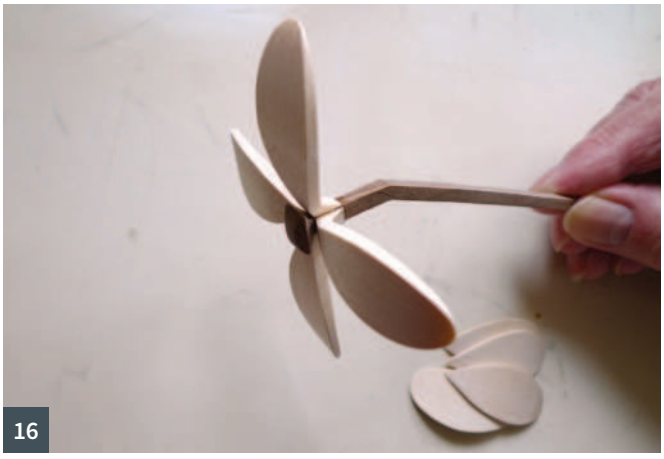
11 Back the blade up and cut along the other side to release the petal. Slide the petal out from the block and discard the outer waste.

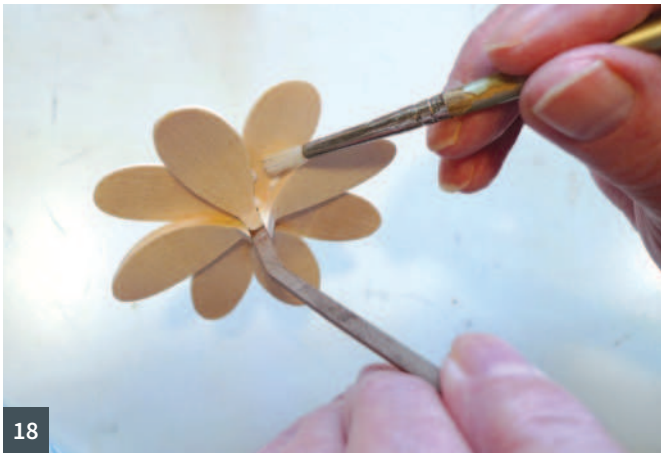
12 Cut the empty petal section from the main block and start on the next petal; carry on in this way until all the petals are cut out.

13 When cutting the stem, start by cutting though the tall, thin side first as this is the trickiest. This 50mm depth of cut is just about the limit most scrollsaws can handle.



PHOTOGRAPHS BY FRED & JULIE BYRNE





14 As with the petals, secure the stem pieces together with masking tape before making the second cut to reveal the stem within.

15 Hand sand the stem and petals smooth with fine 320-grit sandpaper. Next, prepare for gluing by first wiping away the fine dust. Lay the pieces out in order and have to hand an old artist's brush and a damp cloth.

16 Start by applying a small amount of Superglue to one of the lower petals where it meets the stem, position and hold the petal approximately 2mm down from the underside of the centre piece – we suggest Superglue at this stage merely for its quick drying properties – but feel free to use whichever glue you prefer.

17 Once the four lower petals are dry, apply wood glue to the underside of the upper petals where they rest on top of the lower petals and a small dab of glue on the top where it sits just under the centre of the stem.

18 Use the artist's brush to wipe away any glue that may ooze out before it dries.

19 We chose a liquid polish to finish the pieces as it is easy to apply and does not require a nib down between coats, but the choice is yours.

SASH WINDOW REPAIR

Anthony Bailey demonstrates how to replace a sash cord to keep your windows opening and closing safely

Sash windows are common in many older properties; they look good but have problems which set in over time. Apart from rot around the bottom of the frame, sash cords fail and paint gums the sashes closed or makes it hard to open them. All this can be inconvenient and also a safety hazard if you try to raise a sash without both cords working correctly.

Sash window construction

Properly made windows and frames have all kinds of details to them that are essential to their efficient operation and longevity. With the sash type, the whole window frame is not just solid wood but a cleverly constructed box arrangement at each side joined together by the header at the top and the cill at the bottom. Each box is usually divided into two by a movable 'waffle board' and in each compartment a counterbalance weight runs up and down as its sash is raised or lowered with a special cord, which runs over a pulley wheel at the top of the box on each side of the window frame. The problem starts when one weight cord finally breaks after years of use, leaving the weight sitting at the bottom of the box. The window runs unevenly and the single working weight isn't enough to hold the window up and people then use bits of cardboard or wedges to try and keep the sash raised. After a while, it is quite common for the window to be left closed as it doesn't work properly and then gradually it is 'painted shut' during redecoration.

Working safely on windows

Don't attempt this job without 'active assistance' from someone else. When you're at first or second floor height there is a potential risk working at an open window. Be careful in your working methods so you aren't at risk of a 'fall from a height'.

A sash unit can potentially fall outwards from the window frame. It shouldn't happen because the frame is designed to prevent this, but just be aware. The glass will be standard window glass – not toughened – and can splinter badly if broken.

Some repairs such as cill rot may only be possible from the outside of a building using ladders or an access tower, used correctly and safely.

If you use a heat gun to remove generations worth of paint, beware as the older layers may well contain lead-based paint, which can be dangerous. Wear a proper respirator or mask, which is specially designed for this.

Basic cord replacement guide

1 This window has a failed inner sash cord on the right-hand side; although the left-hand one is still working. The outer sash has newer cords, which look to be in good condition so we will replace just the inner ones. However, the same methods apply to the outer sash if this was needed.

2 The old sash window catch and the sash 'lifts' – the metal loops for lifting the inner sash – are in useable condition.

3 The right-hand inner cord has snapped so it will need to be replaced. The pulleys appear to be in good running order – again, replacements can be bought if these do not run easily.

4 It makes sense to change both cords on a sash because they are probably the same age and the other could fail at any time. It pays to get the job done properly now rather than wait for it to give out.

5 The 'staff bead' moulding around the inside of the frame holds the inner sash in its track and is removable because it is nailed in place. Lever the middle of one long side with a chisel – until the paint cracks and the moulding 'springs inwards' enough to hopefully pull one end towards you.

6 The trick is to lever the end outwards towards you in a slight arcing motion so the staff bead and its end nail come away completely.

7 It is now possible to lift the inner sash slightly over the bottom staff bead and swing it out of the frame and bring it carefully down to the floor and lean it somewhere safe.

8 Now the outer sash cords are pulled hard to bring each sash weight right to the top of its box and pin the cord to the outer window face using a slim nail so the cord doesn't get damaged.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9 The outer sash is pushed right to the top of the frame making sure the cords, which are now slack, do not get trapped. Help is necessary for all these operations to ensure safe working. The sash is then wedged up firmly so we can access the bottom of the window lining.

10 This window is quite slim and the access to the weights is via a removable panel. In this case, the wood was in a vulnerable state and had to be levered gently from the outside edge of the lining.

11 The shape of both the pocket cover and the access to the weight are clearly visible. The left-hand pocket was in poor condition so we decided to make a quick replacement in the workshop.

12 The inner and outer sashes are separated by a round-nosed moulding called a 'parting bead'. This was an obstacle to progress so we decided to remove it by carefully prising it out, working along the length of it with a chisel to loosen it. Sometimes the parting bead gets broken in the process of removal. You can buy replacement lengths from a good timber merchants.

13 The weights with the broken cords can now be lifted out. This is a bit easier said than done as they are a tight-ish fit in the box and sit down below the access hole. Sticky gloves can be helpful for pulling upwards.

14 The name 'Carron' is visible in the cast iron sash weight. The Carron ironworks of Falkirk produced the carronade, which is a small smooth bore cannon between 1770 and 1850 for the Royal Navy. They now manufacture bathroom suites.

15 A screwdriver and pincers or a pair of grips are used to lever the old cords off the sashes; the cords are then removed from the holes in the weights.


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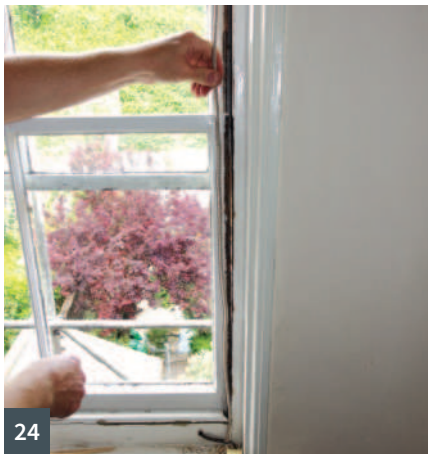
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16 The nails are completely removed from the cord groove. The groove reduces in depth as it goes down the side of the window stile.

17 Check the window frame and the sashes for rot or other damage. This window is in a reasonable state of repair but the external paintwork needs re-doing once the bottom edge of the glazing is re-puttied.

18 The replacement waxed cord will be either 6mm or 8mm diameter, depending on the window size. Check the size and buy first before starting this whole operation – a builder's merchants should have sash cord in stock.

19 Two new pieces of sash cord are cut – these need to be slightly longer than the internal height of the entire window frame – inside the 'reveal', as it is known. Attached to each cord in turn is a lighter cord or string with a small weight, in this case two nails attached to the other end.

20 The small weight, known as a 'mouse', is fed over the pulley and drops down to the bottom, thus helping the thick cord down after it. You can reach up inside the box to help pull the mouse down.

21 The new sash cord is showing at both top and bottom and is ready to attach the weight. The weight will go on first rather than nailing the cord to the window while still on the ground; this is because there is so little access space in the box to attach the weight afterwards.

22 Here at the right-hand side the waxed cord is fed through the small hole in the top of the weight and knotted just once.

23 We can see the cord just being attached to the weight with the top end of the cord hanging down over the pulley at the top.

24 The weight is pulled right to the top of the box and in a position about 25mm above the inner sash; it is gripped to show where to mark the cord. This mark will ensure that when the cord is attached to the sash, the weight will always be under tension and never lie on the bottom.


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25 That position is now clearly marked so we will know exactly where to attach the cord to the sash stile.

26 Three short flat-headed nails are needed to pin the cord into the groove. Do not use long nails as they will smash the edge of the glass! Do one side and then the other with some assistance.

27 The spare cord is cut off so it cannot foul against the side of the window lining. Note that the top nail must be lower than the position of the pulley mounted in the top of the window lining.

28 The inner sash is now loose but operational and should slide up and down freely. Remember we still need to refix both the parting bead and staff bead before the window is safe to use and weathertight. Remove the nails holding the outer sash cords and let the weight drop down slowly until it hangs freely.

29 Having loosely rehung the inner sash we can now refit the parting bead by pulling the sash slightly forward to get access. Long panel pins or slim oval nails are needed but they can easily mis-aim and come through one side if care isn't taken. The old nail holes are likely to be too loose.

30 On the left-hand side the new pocket cover made at the workshop is a good fit and just needs a couple of short nails to hold it in place. The parting bead is left loose here until the pocket covers are refitted, as it partly sits slightly over the cover when fitted in its groove.

31 The staff bead on the right has been refitted and decorator's caulk is applied around all the paint breaks and smoothed in by finger pressure; this will allow you to get a neat blend with the old paint surfaces ready for undercoating. Then the job is done!

WOOD AWARDS WINNERS

We celebrate the work of the prize-winning designers

The winners of the Wood Awards, the UK's premier competition for excellence in architecture and product design in wood, were announced at a ceremony in November 2021. Two pieces of furniture and six buildings were honoured with awards; we take a closer look at them here.

woodawards.com

Bespoke furniture award: Gayles Farm 5 by Wycliffe Stutchbury

PHOTOGRAPHS COURTESY OF THE WOOD AWARDS

This room divider was created to further the designer's exploration of textile techniques and characteristics using wood. The piece has a flowing appearance and is made up of thousands of small oak tiles glued to an open weave cotton twill, creating a curtain. The curtain is hung on a hinged, three-panelled European oak framework with hemp rope and cleats. The form is dictated by the ways in which the tile construction hangs over the supporting uprights, rather like a sail is held by the mast. The height is adjustable. The tiles were cut from discarded oak field fencing retrieved from the South Downs. The variety of colours and textures is explained by the different ways the timber reacted to weathering, and this piece is an attempt to display the many wonderful ways that timber responds to its environment.

Production furniture award: Iso-Lounge Chair by Jasper Morrison and Isokon Plus

An open brief was given to Jasper Morrison for his first collaboration with Isokon: to look at the company's archive, manufacturing capabilities and expertise, and design something that feels at home with the brand. Inspired by the original Isokon logo, alongside Gerald Summers' Bent Plywood chair with its single flowing plywood surface and Gerrit Rietveld's Zig-Zag chair, Jasper Morrison's design of the Iso-Lounge started life as a single sketch where the hand flowed from the back of the seat to the floor. Plywood was the only choice of material to follow the curve of the cantilevered design. The cantilever chair relies on a highly technical production to create balance and support, especially when produced in ply veneer. More than four complete prototypes, alongside many prototype sections were made over the course of a year to create a piece that offered total support and maximised comfort. Where it needed to be strong there are more layers and where it doesn't need to be as strong and needs to flex, there are fewer layers – the chair has been honed to be incredibly responsive. Integral to the chair is the tapering seat and its delicately curved back. The tapering is created by machining the individual veneer layers to a feather edge.

1 Education & Public Sector Building and Gold Award: Magdalene College Library by Niall McLaughlin Architects

Built alongside the Grade I listed Pepys Library, Magdalene College Library in Cambridge, is the first substantial addition to the main site in over 50 years. The new library is a suite of interconnecting rooms lined with bookcases, reading desks and galleries, arranged on a grid between linking passageways. The interior spaces are created by a glulam and CLT structure, supported on load-bearing brickwork and furnished with oak shelves and tables. The intention is for all the key features to be perceived as an interwoven set of elements: roof lights, columns, floor beams, shelves, windows, desks, and balustrades form a coherent warp and weft throughout the space. This project received the Gold Award, as it was chosen by the judges as the 'winner of winners'.

2 Commercial & Leisure Building Award: The Alice Hawthorn by De Matos Ryan

Nun Monkton in North Yorkshire was an important hub for the medieval river transport network, with many travellers stopping overnight. In recent years, the village's last remaining pub, a critical meeting point for the local community, had come under threat. This community-led project transforms the pub's sustainability with the addition of 12 guest bedrooms, eight of which are of an entirely timber frame construction around a new courtyard. The design takes its inspiration from the Norse 'garth' ('grassy cloister' or 'clearing in the woods'), creating a sense of quiet enclosure and a place of gathering. The Douglas fir framed buildings use authentic agricultural building materials, such as galvanised corrugated steel roofing and larch cladding. Externally, a single layer of tight-grained larch cladding has been used, while internally there is a sarking layer of fireshield poplar ply. Subtle distinctions between the timber species are blurred by a tinted treatment.

3 Private Building Award: The Boathouse by Adams Collingwood Architects

The Boathouse in Devon is a practical family residence that also respects the outstanding natural beauty of its surroundings. The geometry and materials used are expressed in different ways on different floors. Above-ground the materials are straight and man-made. Below ground, the emphasis is on stone and natural curves, from a curved bench and coat rail to curved doors. Everything above ground is made from timber supplied by the home owners' timber import company, sourced from Canada. Yellow cedar tiles and cladding adorn the roof and exterior, while the upstairs floor is made from Douglas fir. The long, straight grain of the wood has been deliberately exposed on all levels to show off its beauty. The typical house plan has been inverted, with the main living spaces set above the bedrooms. Other interesting design features include the eaves, which were inspired by thatched roofs, and the use of surplus roof copper throughout the project.

4 Interiors Award: St John Street by Emil Eve Architects

This London apartment has been reimagined as a warm, inviting home while retaining the building's original industrial character. The apartment opens directly into the library space, a rectangular room lined entirely in solid oak joinery. Large format terrazzo tiles pick up

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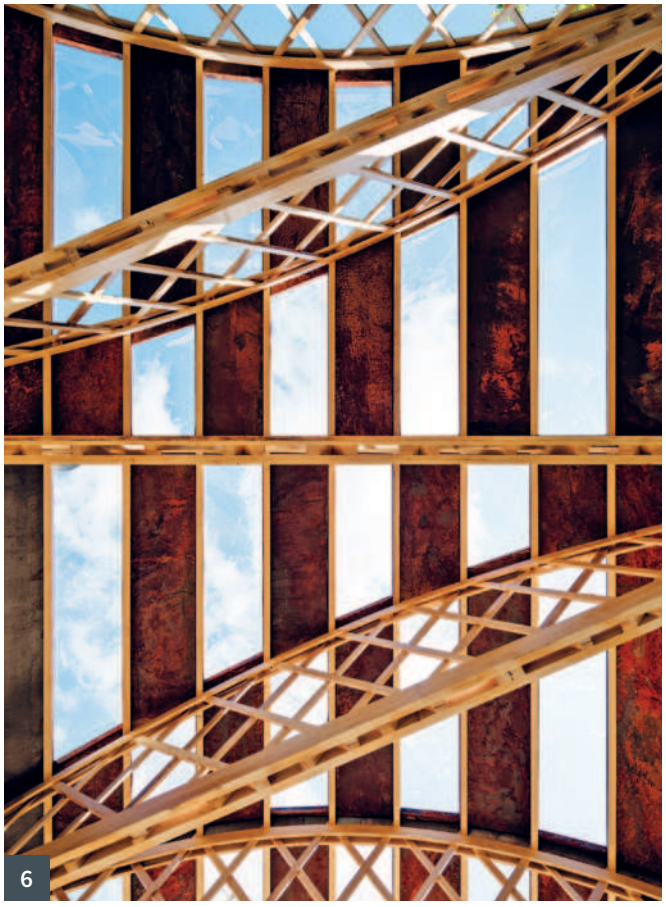

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the warm oak tones and align with the joinery panelling. The library's thick timber lining contains deep entrances into connecting spaces. Shifts in floor surface occur at these thresholds, delineating a change in atmosphere and function, with oak chevron parquet in the living and sleeping spaces and a lighter terrazzo tile in the bathroom. Sliding oak pocket doors enable these doorways to be opened fully, creating lateral views from one end of the apartment to the other, through the timber library interior. When closed, the area becomes a contained room, a book-lined sanctuary at the heart of the home. A palette of lime-washed birch plywood, set against the richer oak parquet flooring, continues in the dressing room and bedrooms in the form of storage elements and a slatted bedhead and window seat.

5 Structural Building Award: The Welcome Building at RHS Garden Bridgewater by Hodder + Partners

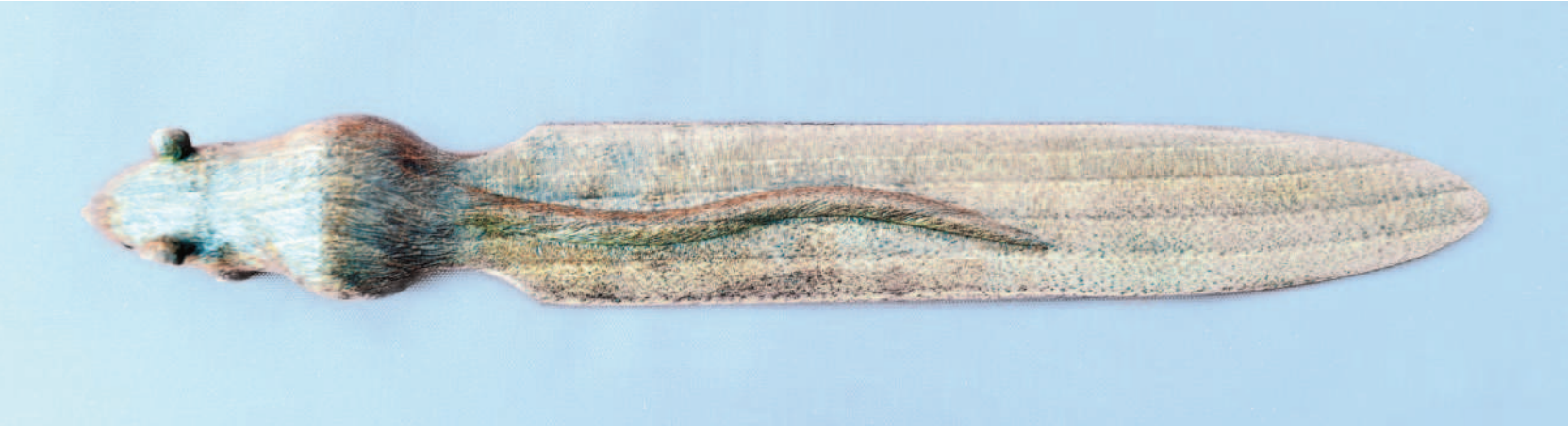
The Welcome Building sits within the new RHS garden on the site of the 154-acre Worsley New Hall in Manchester. The centre provides a gateway to the gardens as well as a visitor meeting and interaction point, restaurant, gift shop, offices and educational spaces. The building is predominantly one open space. All the public elements are contained under a single overarching glulam timber diagrid, supported on structural glulam trees. The roof extends beyond the enclosure to the north and south, blurring the edge between building and landscape, where it turns up and down at its edge, responding to the location of entrances, expressing specific uses, framing views and forming solar shading. The timber forms extend east beyond the building with a timber decking floating over a new lake. Glazed curtain walling spans between the ground and the roof to provide panoramic views. Natural light permeates the building through larch louvres, or filters through the diagrid via two rooflights, one running centrally and one that creates a glasshouse environment.

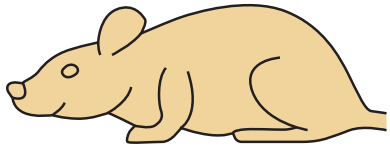
6 Small Project Building Award: Built: East Pavilion by OGU Architects + Donald McCrory Architects

Built: East was the winning design in The Belfast Flare competition run by the Royal Society of Ulster Architects. With cultural identity being a divisive issue in Belfast, especially in areas such as the pavilion's location which have lost prosperity as surrounding factories have closed, it was important to find common cultural ground shared across the neighbouring communities. The site has a rich industrial history and the Belfast truss used in the pavilion design represents the area's history of manufacturing ingenuity. Originally designed to make use of waste ship building timber, the Belfast truss inspired the team to make careful use of resources. Many of the city's largest factories had such a roof, including the Belfast Ropeworks which previously faced the site. Each element is designed to evoke memories of the area's industrial structures but rather than a nostalgic look backwards, it is an opportunity to draw attention to Northern Ireland's emerging construction innovation, and contribute to the local economy. The pavilion is an assembly of three elements, each crafted in a local factory. Traditional craft skills were combined with innovative technologies to create bespoke building components that could be rapidly assembled on site. 1:1 scale truss and joint prototypes were CNC produced to develop the design of each connection.

MOUSE LETTER OPENER

Paul Purnell makes good use of leftover timber by carving this handy letter opener





For a small carving like this, you'll need a piece of stable wood with an attractive grain. Walnut is a top choice, but other woods such as wild cherry and maple will work well too. I'm not sure of the exact species of the timber I used for this example, although I suspect it is American walnut.

YOU WILL NEED

Eyes:

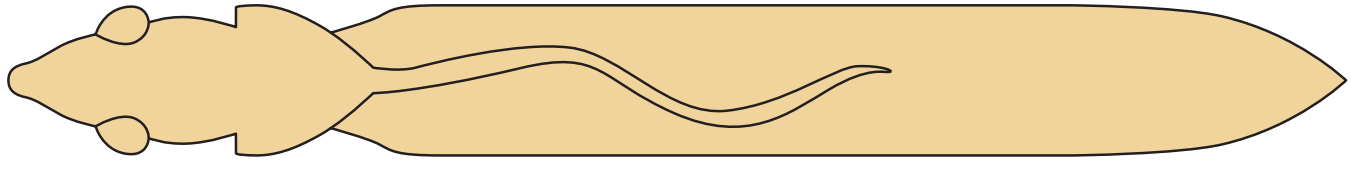
• Glass eyes: 4mm dark brown or black

Wood:

• Walnut, or other timber: 210 x 25 x 20mm

Tools:

• Bandsaw
• Rotary carving tool
• Coarse and medium spiked burrs
• Selection of diamond burrs
• Blue ceramic cone for texturing
• Carving knife or scalpel
• Cushioned-drum sander
• Cloth sandpaper 120 through to 400-grit
• Epoxy putty
• Finishing oil

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Getting started

1 Have plenty of reference material to hand before you start to carve. Use the diagram to make cardboard templates. Use the side template to bandsaw the blank. Do not touch the top view at this initial stage. Ensure you leave plenty of material on the blade to accommodate the tail – ideally a depth of 7–8mm. Have the grain run along the length of the piece of wood. Mark a centreline on both sides. Draw the side view positions of the legs and ears.

Roughing out the mouse

2 Use a coarse flame burr in your rotary tool to rough out the side view. Use the top view template to draw the top profile of the mouse's body.

3 From the top perspective, use the coarse burr to shape the snout, body and the cutouts at the point where the blade of the opener meets the backside of the mouse.

Refining the mouse

4 With a medium flame burr round over the body and snout. Separate the ears on the top view. As this carving is of a generic mouse, the ears can be of any size. However, don't carve them too large or too thin, as this will make them fragile. This is especially important if the intention is to use the opener as opposed to it just being an ornament.

5 Continue to refine the ears from both the side and top views. Start to outline the leg and feet positions – all with the medium burr. With a cushioned-drum sander and 120-grit abrasive, sand the body. Do not be too fussy, as this sanding is simply to enable a better perspective of how things are looking, and to facilitate the pencilling back in of the details.

6 Once you've finished sanding, redraw the features.

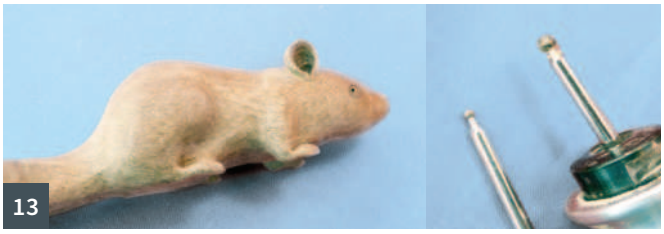
7 With a diamond flame burr continue to refine the ears, shape the head and nose, and remove any marks left on the body from the coarser burrs.

8 Then use the same diamond burr to obtain better definition of the legs and feet. A carving knife or scalpel will help with the shaping of the feet. Draw the position of the four feet on the underside.

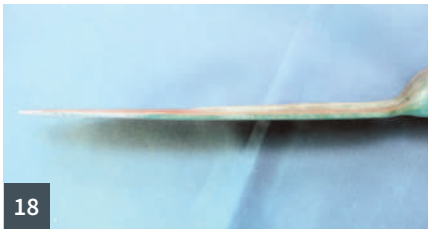
9 Outline with the carving knife and use the diamond taper to define further. Use the same burr to add shape to the belly.

10 Sand the feet and head with 240-grit paper in a split mandrel. Each foot has five toes. The number of toes you will be able to define will depend on how much wood you leave on the topside of each foot. It doesn't matter if you do not have room for five, as often only a couple of toes will be visible in this pose.

11 Use a knife or scalpel to run a line between each toe on the upper and lower surfaces. Then take a sliver from each side of this line to give a V-shaped groove. Use a thin, diamond needle burr to round over the edges. Sand with a piece of 240-grit abrasive folded to enable you to work between each toe by hand. If you just touch a 1mm diamond ball to the tip of each toe, the small indentation will give the impression of a toenail.



PHOTOGRAPHS BY PAUL PURNELL



12 Next, use two pins to locate the eye positions on either side of the head, as shown here.

13 Hollow out the ears using a 1mm and 2mm diamond ball. Do not make the edges too thin and fragile. Sand the ears using the mandrel with 240-grit paper.

14 Create a shallow depression running through the eye with the mandrel sander and 240-grit abrasive. Starting with the 2mm diamond ball, create the eye socket. Check the symmetry and alignment. Using a 3mm diamond ball, enlarge the socket to accommodate the 3mm glass eyes. Starting with the smaller diamond burr will enable you to adjust alignment if necessary. Ensure a tight fit. The eyes will be fitted with epoxy putty, which will show through if the sockets are too large. The nose is a tiny pip of around 2mm in width. Use a knife or scalpel to define it. Carefully round over with the small piece of folded, 240-grit paper. Mark the position of the mouth. Run a knife or scalpel vertically along the drawn line then cut at an angle of about 45° to take out a small section. Soften the edges with the piece of folded abrasive. Check over the mouse; remove any hard edges or imperfections.

Making the letter opener blade

15 Draw a line to bisect the side edges of the letter opener blade. This should leave 3–4mm either side. Draw the position of the tail on the top of the blade. Use a coarse, blunt-end carbide burr to remove the wood from one side of the tail down to the mid-point line. Now remove the wood from the other side of the tail. Tidy up both sides with a medium blunt-end burr.

16 Use a sanding block, with 240-grit abrasive, to sand the edges of the blade. Use the centreline to obtain symmetry. With the medium burr, reduce the remainder of the blade's top surface to match the bottom profile of the tail. Sand the top surface using the drum sander and the sanding block with 120, 180 and 240-grit abrasive. Use the mid-point line on the edge for reference. Shape the tip of the blade.

17 Round over the tail and tidy up around the mouse's backside where it meets the blade. Sand the underside of the blade using a sanding block with 120-, 180- and 240-grit abrasive.

18 The side profile of the blade should be around 3–4mm at the base of the tail, tapering down to 1mm at the tip of the blade.

Finishing

19 Sand the entire piece by hand with 320- then 400-grit abrasive. Use a blue ceramic cone to add the detail. Remove any debris from the carving with an abrasive brush in the rotary tool.

20 Wipe down the carving with white spirit, then allow to dry. Apply four coats of finishing oil. Fit the eyes with epoxy putty. Use the smallest amount to achieve the fix. If you are planning on using the opener, smear a thin layer of superglue over both surfaces at the tip of the blade to add extra strength.

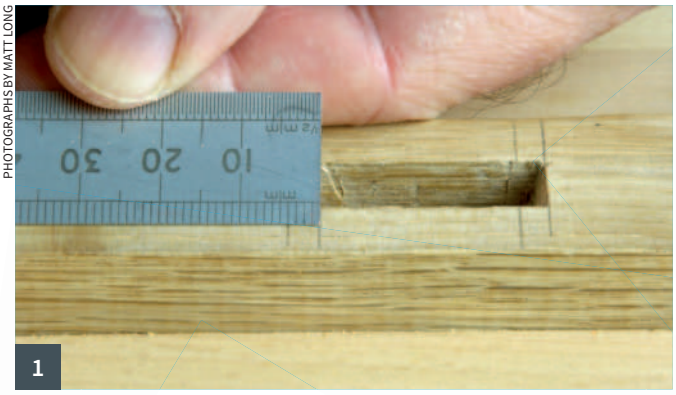
21 The finished carving will look something like this.

MEASURING AND MARKING TOOLS

Matt Long explains which tools you really need in your workshop

Starting out as a woodworker can seem like a daunting task, and it's not made any easier by the huge array of tools out there. In this article, I'm going right back to basics and focusing on what you need for measuring and marking.

PHOTOGRAPHS BY MATT LONG



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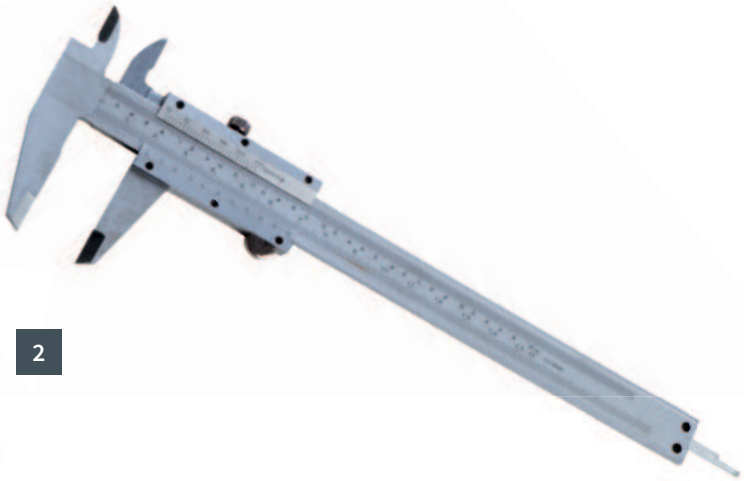

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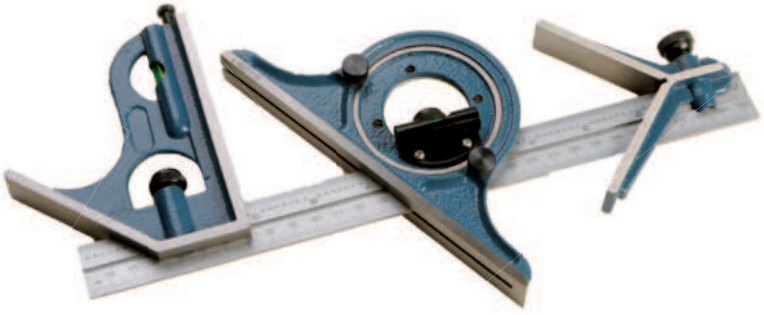

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1 Measuring with a steel rule is much easier than with a tape measure **2** Vernier callipers – the most accurate way of measuring small distances **3** A spirit level doubles as a decent straightedge **4** The try square has a metal blade set in a thicker stock. Ensure the stock is metal faced to keep it true in the long term **5** The combination square is a very versatile piece of kit

Measuring

Most woodworking problems are due to errors in marking and measuring. And most of these errors happen from using the wrong measuring instrument for the wrong job.

A tape measure is OK for basic DIY, but just wasn't designed for the accuracy many woodworking projects require. If you've ever tried marking up very accurately from a tape measure, you know that getting a clearly defined mark in the right spot can be a challenge.

For a basic toolkit, a steel rule, a carpenter's folding rule and, yes, a tape measure – but only for those jobs that do not require exact marking up – will suffice. For even more accurate measuring on small distances, vernier callipers are very accurate and quick, and especially handy for measuring thicknesses and rebate widths and depths.

And to complement your measuring gear, don't forget a straightedge – for a basic kit a long spirit level will do the trick, and will help in all those jobs where you need a level. You should consider getting a dedicated and very long straightedge if you plan on building larger projects.

Is it square?

Ensuring right angles on a workpiece is key, so a good set square is essential. You could be edge jointing boards or cutting the shoulder of a tenon, they all need a 90° angle.

Try squares have blades of brass which are set in a thicker wood or metal stock. If the stock is wood, it should be faced with metal to ensure long-term accuracy. The reliability of try squares can vary sharply. So when buying, always check the various squares on offer against each other – you can always draw a line from one side of a board, and then reverse the square to see if it matches up.

The combination square is a fantastic tool for the job, with its 90° and 45° angles, and an incorporated spirit level: if you only own one square, then this should be it. The moveable blade is also very handy for measuring the depth of rebates, and even for marking up along timber edges.

For marking angles other than 90° or 45°, most woodworkers use a sliding or T-bevel. The T-bevel's sliding blade is infinitely variable and great for marking up a known angle, or even gauging an existing angle to be checked on a protractor. Always look for one that has a good lock-down mechanism.

To measure an angle – the T-bevel only sets an angle but doesn't tell you what it is – you need a protractor: in conjunction with a good T-bevel, you'll be able to both mark out and measure angles. The Incra protractor is especially useful. The protractor itself has slots cut throughout at very fine intervals, so the lead of the clutch pencil they provide you with locates in these holes making it much easier to mark out the desired angle.

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6 Measuring rebate depth with a combination square **7** The sliding bevel is used for marking out and gauging angles **8** The Incra protractor and pencil is ideal for error free marking out of angles **9** Carpenters' pencils are coloured green, red and blue, which denotes hard, medium and soft lead **10** A traditional marking knife with a bevel on one side of the blade

Marking out

You have a few choices when it comes to basic marking out. Of course, every woodworker needs pencils for drawing up designs, marking timber for joints, position, length... the list is endless. Carpenters' pencils are quite literally made for the job, and can be bought in most tool shops – and being square means they don't roll off your bench. They come in three colours, green, red and blue, which are hard, medium and soft leaded, respectively. Choose the grade of lead for the job you are doing: hard for fine cabinetmaking, and blue for marking up sawn timber.

Knives are an alternative – and for the purists, superior – way of marking up. Many woodworkers prefer them as they give a thinner, more accurate line than a pencil, and the mark won't rub off. The knife is also handy as, when marking across the grain, the wood fibres are cut, creating a very clean edge for any subsequent cuts, assuming you can cut out accurately enough to hit the knife line, that is.

The awl – a sharp, pointed instrument, rather like a small screwdriver – has a variety of uses. A fine-pointed awl is useful for marking out, rather like a knife. A thick-shanked, broad-pointed awl is good for making pilot holes in wood prior to drilling. The dimple it leaves when tapped with a mallet can form the exact starting point for a drill bit as well.

Marking gauges

Marking gauges are used to mark a line parallel to a straightedge. Better quality gauges have brass inserts at the front of the stock –

11 A combination mortise marking gauge with screw adjustment **12–15** A pair of dividers, also dividers with a mount for a pencil to be used as a compass, and internal and external callipers

these help reduce wear on the stock as it is pushed along the wood, and prolong the gauge's working life.

Another variation of the marking gauge is the mortise marking gauge. This has two pins to scribe both sides of a mortise and the tenon. Some mortise gauges, called combination mortise gauges, have a single pin on the other side so you can use it as a regular marking gauge – other types allow you to retract one pin into the fence, for the same reason. A cutting gauge is a marking gauge with a knife instead of a pin. They really come into their own with really delicate operations, such as dealing with veneers.

Dividers and callipers

Primarily used for checking and transferring measurements, dividers are also a very useful addition to any basic toolkit. You will also need a good compass for marking large circles or curves. A pencil compass, or combination pencil/scribing compass, comes in very handy for this. If you are marking a non-circular curve, then investing in a flexible curve rule is also worthwhile, or indeed a set of French curves.

Odds and ends

Another useful device to have on hand is a profile gauge, such as the Diatec 5in Profile Gauge. This is a great tool if you need to reproduce a moulding. Simply push the device's prongs against the profile you are measuring, and it flows around the moulding to give you an accurate template of that profile for you to reproduce later.

AN ICONIC CHAIR REMADE

Furniture restorer Liam Thomas combines careful study and accurate jigs to make a replica befitting the original Contour Chair

1 An original example in purple vinyl – there's no denying the Contour Chair's distinctive style

It was while sitting on a tram one morning heading to the city of Melbourne that Grant Featherston became inspired. The story goes that, while watching the world go by, Grant absently tore and twisted his tram ticket; the shape born out of this daydreaming went on to become one of the most iconic pieces of Australian mid-century furniture, the Contour Chair.

This chair has become synonymous with postwar Australian modernism, being produced in a number of styles and guises up to the 1980s. Featherston's motto 'minimum of materials, maximum of effect' is clearly expressed in the chair's stylish design. However, as with many pieces made during this time that stretched the boundaries of existing manufacturing processes, the chairs are not without their flaws.

PHOTOGRAPHS BY LIAM THOMAS

2 Damaged legs are a common sight on Featherston chair bases **3** An original chair missing its base. This one was brought into my workshop by a local upholsterer **4** Not much material left at the end of the tenon **5** Housed tenon and housed sliding dovetail joinery options **6** The rear legs subtly show off the joinery **7** Making full-sized templates **8** Stained coachwood was used for the base **9** DeWalt router with guide bush

Leg damage

Whether it's a loose or damaged leg, a poorly repaired leg, a missing leg or a chair without an entire base, Featherston chairs are a common sight in my restoration workshop. The example shown in photo 3 was found, sans base, by a local upholsterer who commissioned two new bases to fit this chair as well as another for a client.

Reproduce or reinvent?

There are several factors that contribute to the slow deterioration of a Featherston base: slender legs, combined with a tenon cut a little too deep into the leg and a low sitting height mean that it's only a matter of time before the chair breaks down.

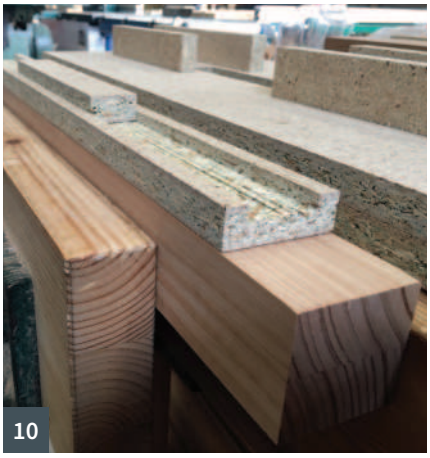
The shoulders on the rails of the original chairs were usually coped to meet the turned leg. Not having any suitable way to achieve this, a housed shoulder was chosen as an alternative. With this in mind, a revised leg to rail joint was tested using a sliding dovetail, the shoulder housed into the leg. Both this and a housed tenon were produced for the client to evaluate; alas they chose the more traditional in appearance, housed tenon option.

Time spent equals time saved

Although a relatively simple design at first glance, the timber base of a Featherston chair is actually quite complex. A compound angle half-lap connects the two rails, onto which are joined two turned, angled legs with visible joinery. This required some careful measuring and full-sized templates were produced. While it can be useful for packers and glue spreaders, for a dull brown material 6mm MDF really shines when it comes to full-sized layout drawings. Another chair base was found, from which all the important dimensions and angles were taken and then drawn up on a piece of MDF. Similarly, using some Vernier callipers, the critical dimensions of the front and back legs were noted down and drawn onto MDF.

Dive in legs first

With the leg joinery decided it was time to prepare the timber. The original chairs were made using folded plywood for the top and stained coachwood for the base. Not being a commercially available timber, I chose mountain ash, often described by its trade name Victorian ash, instead of coachwood. It is similar in weight and colour although slightly more open grained.



10 Jig-centring jig **11** The centring jig locating in the router jig slot **12** Jig fences clamped in position **13** Marking out the legs **14** Leg blanks, mortises drilled out **15** Routing the rail shoulder housing

Jigs for jigs

A simple router jig was designed to cut both housing and mortise by utilising a 24mm guide bush fitted to a DeWalt plunge router. The jig, made from chipboard, is first set up to cut the housing using a 16mm diameter bottom trim bit. Some care is needed to make sure the jig is centred correctly on the legs, this can be done in a number of ways but I used another jig to do the alignment. This jig is made from two pieces, the first is cut to the same width as the legs, in which is housed another piece the same size as the jig slot. This locates in the jig slot, then the jig fences are clamped either side of the main piece allowing them to be accurately secured.

Home and housed

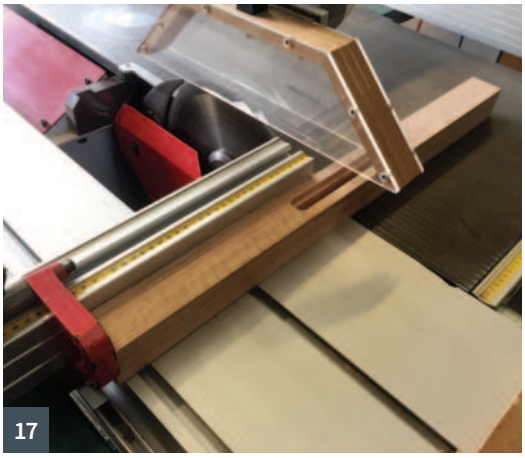
In an effort to improve efficiency and stability the leg blanks were machined with two legs in the one length. This allows for greater jig surface area and useful work holding as well as being able to rout two legs at the same time. The leg blank was cut oversize, leaving 10mm in the middle for cutting on the tablesaw. The marking out is done from either end, ensuring each leg produced will be the same. With the mortises marked, I drilled out much of the waste on the drill press. This doesn't save much time but extends the cutter edge life of the router bit by having less material to remove. The leg blank is held in the vice, the jig positioned and clamped to the leg, and once the depth of cut is set the routing can begin.

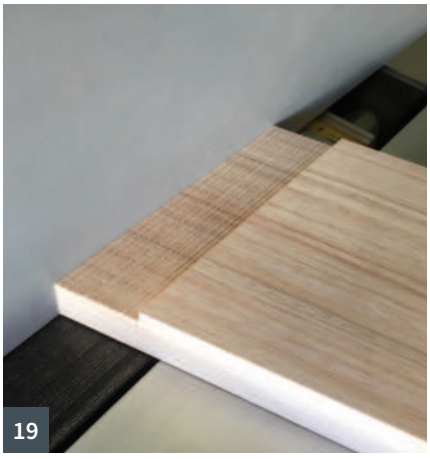
Same jig but more

The same jig was used to cut the mortise, this time with an 8mm straight router bit. By using the template formula I knew I needed to add some material to the walls of the jig slot to achieve a 10mm-wide mortise. Some scrap bin material was machined on the thicknesser, cut to size and affixed to the edge of the slot with doubled-sided tape. All the legs were mortised and then released from the blank by setting the cross fence stop to the desired length, then cutting from either end to produce the two legs per length.

Tenon shoulders on the saw

Before turning the legs it was time to cut and fit the tenons to the legs. Using the MDF template, the rails were machined and cut overlength, with the corresponding angles, to allow extra material for the tenons. Using the angle from the template the tablesaw fence was set to cut the tenon shoulders both front and back. This process involves setting up the angle fence with the end of the rail blank against the rip fence and the blade height lowered to just below the final shoulder depth. All shoulders are cut on the same setting. A few additional kerning cuts are made to remove the bulk of the material. The tablesaw angle fence is then swung back in the opposite direction; with the rip fence kept at the same setting it will yield an identical shoulder on the opposite face of the rail at the same angle. With all of the tenons cut roughly to size on the saw, a router and fence was used to refine the tenon thickness and final fitting done with a knife and paring chisel.



16 Material added to reduce the slot size for mortising **17** Cutting out the legs. Note the use of an independently mounted crown guard **18** The angled tenon shoulders cut on the saw **19** The rail itself is used to reset the fence angle **20** Knife run along the shoulder **21** Paring for a fine fit

Part-time turning

I'm not exactly a turning expert, but these legs are a fairly straightforward job on the lathe, the shoulder transition being the only breath-holding moment but that gets easier after each successive one. The real issue is in producing a clean surface around the pre-machined housing and mortise. One way to achieve this is by inserting a sacrificial piece into the housing. A new jig was designed that would be used to hold and locate the leg in the lathe scroll chuck, as well as hold a sacrificial piece in the housing. A number of sacrificial pieces were machined up, a new piece being used for each leg. With the jig ready, each leg was turned based on the templates.

Compound half-lap by hand

The centre half-lap joint required careful marking out, so the position and angles were all taken from the MDF templates. It is important to note the two inside front faces as this joint, like any compound angle joinery, is easy to lose track of. The joint was marked out with a knife; one edge was marked first, then the opposite edge, being the thickness of the material, was marked. A loose fit will come about if the joint is marked out simply from creating a knife line either side of the material, a close fit can be achieved after the first edge is marked, move the material over to just cover the outer edge of the first knife line, then mark the second edge.

As always with half-lap joinery, it's important to orientate your rails to be cut correctly, or put more simply, one part to be cut from the top, the other from the bottom.

The joints were cut a little oversize to the line with a Japanese Ryoba saw and pared back with a chisel. Using a handsaw for this kind of joinery is often less stressful as it is a slower process that is easier to control than cutting with a router or tablesaw. I'm a big advocate for a balanced mix of power and hand tools, a good workshop should be able to incorporate both into everyday work. For the compound angles, the resulting joins came out better than I had hoped for.

Demystifying the guide bush

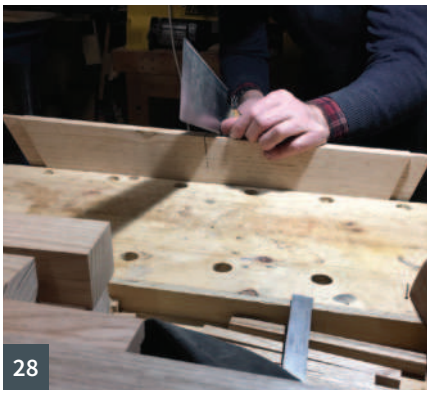
Here is the formula used to create a guide bush template. The resulting number is used to create the slot in the jig, or another way to look at it, the two pieces either side of the slot that make up the negative space. These pieces can be cut accurately on the tablesaw if using manufacture board material or with the thicknesser using solid wood.

PART 1

Desired housing/mortise width	21mm
Cutter diameter	- 16mm
Template add on	= 5mm

PART 2

Guide bush diameter	24mm
Template add on	+ 5mm
Template slot width	= 29mm



22 Test fit of housing and mortise **23** Turning the legs on the lathe **24** Lathe work-holding jig with sacrificial insert **25** Lathe jig with leg in position **26** Half-lap knife lines marked out **27** Ryoba saw cutting almost to the line **28** A little extra light can help with sawing **29** The half-lap joint cut, pared and test fitted **30** The bandsaw table angled to match the half-lap

Curved rails

With the joinery completed and test fitted to the turned legs, it was time to cut the curved rail profiles. Again the templates were used to mark out the shape, which was then cut oversize on the bandsaw and the resulting edges were cleaned up using spokeshaves, working to the line. A little further tidying up was done on the inside curves with a bobbin sander.

A mark of best practice

Even though most of the joinery for this job was done by machine I still prefer to mark out the joints prior to machining. This helps to ensure the jigs are still set up and cutting as they should. Two marking gauges, with their pins filed into knife points, one away from the fence and one towards, allow all the necessary layout line options. The knife point, combined with a satin-finished steel rule can achieve very accurate results. The centre point of the legs was established without the need of a rule, a gauge set close to the centre, and marked from either side will reveal the true centre. This can be refined by gently tapping the gauge on the bench, on its head to close up the setting or on its tail to increase the setting.

Pre-finishing

A smoothing plane was used to quickly clean the two faces of each rail, taking care not to affect the half-lap surfaces. A light arris of all edges was done, then all joinery surfaces, including the housed shoulder were taped up with blue painter's tape prior to pre-finishing. Two coats of Osmo Wood Wax (cognac) were applied, with a day left in between reapplication. Being relatively new to this Osmo product I've found it quite good, it has a stain incorporated into the wax that I find gives consistent results.

31 Cleaning up bandsaw marks with spokeshaves **32** Fitted to the reupholstered top **33** Setting a marking gauge **34** Rail curves after being cut and tidied **35** Taped up and stained **36** You can never have enough clamps **37** Shop-made liquid hide glue **38** Corner blocks glued and clamped **39** The finished bases

Glue-up and finish

It pays to keep custom-made clamping blocks. I made a pair of angled blocks for a repair job several years ago and they have come in handy ever since. These, coupled with the Bessey angle clamp heads, which pivot to match the angle on the workpiece, made gluing up the two halves a stress-free process. In a nod to the original bases, as well as furthering my own knowledge, I used some shop-made liquid hide glue for the job. It worked well, giving more than enough time to assemble the parts and get the clamps into position and tightened.

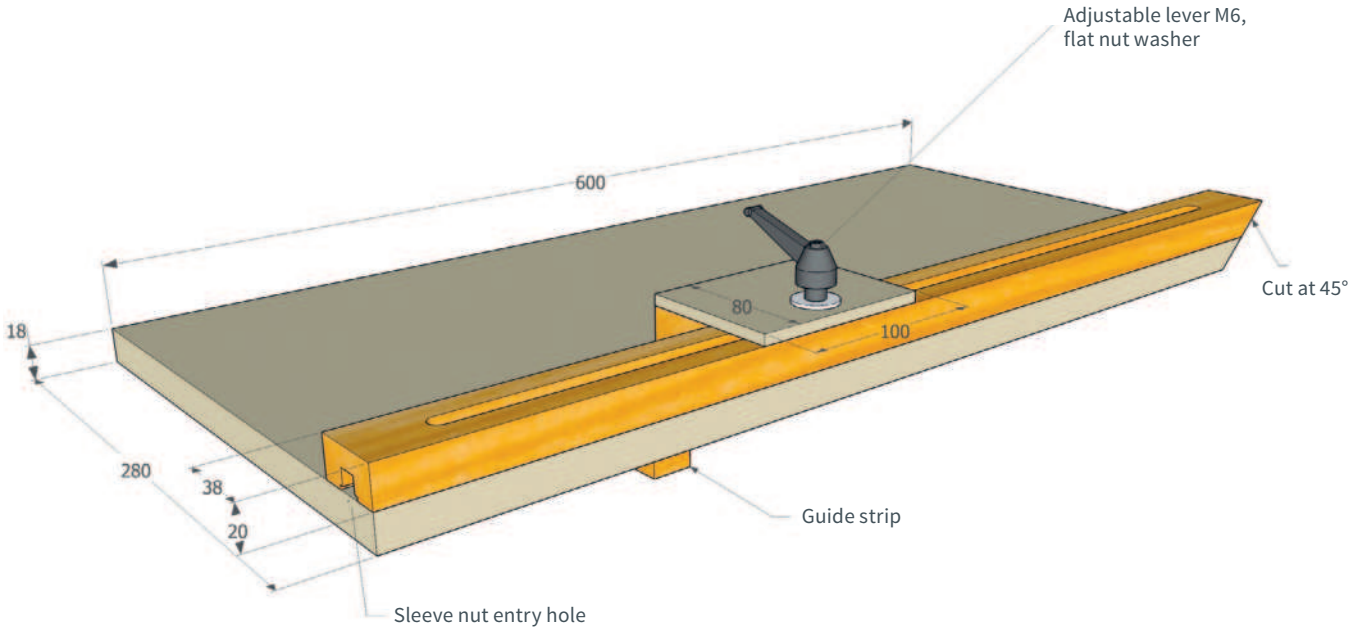
With the hide glue cured and the two halves out of the clamps, it was time to assemble them and add corner blocks to both internal sides.

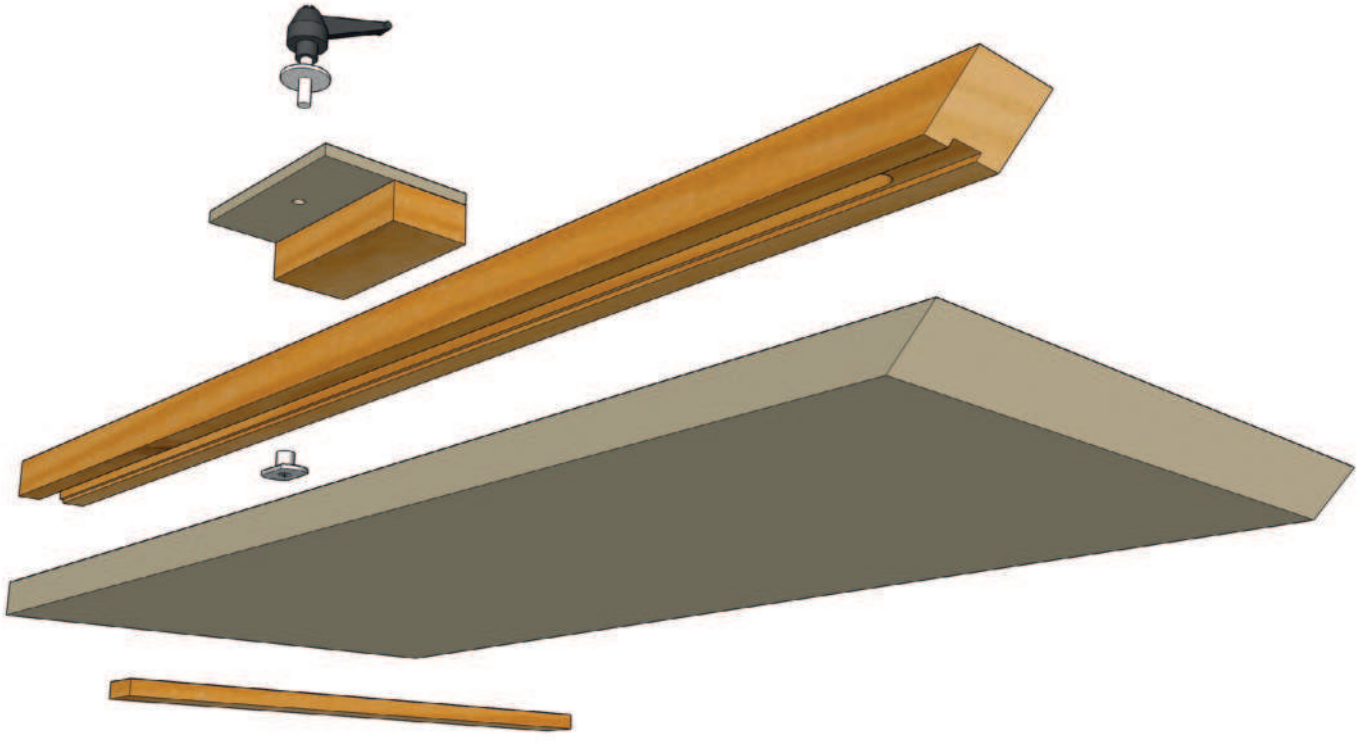
The bases were given a final coat of Osmo Polyx satin, some leather feet were glued on with hide glue and they were ready for fitting to the reupholstered top.

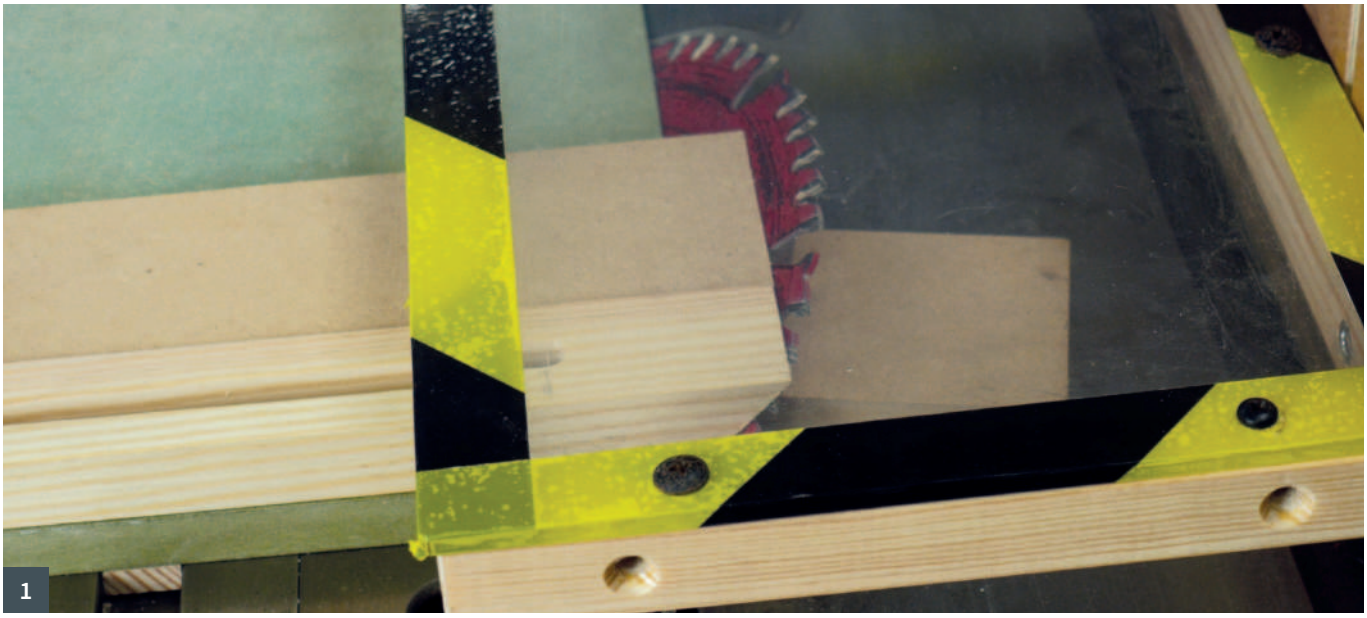
JIGS FOR BOXES – PART 1

In the first of a two-part series, Steve Maskery designs jigs to make the construction of small boxes easier and more precise

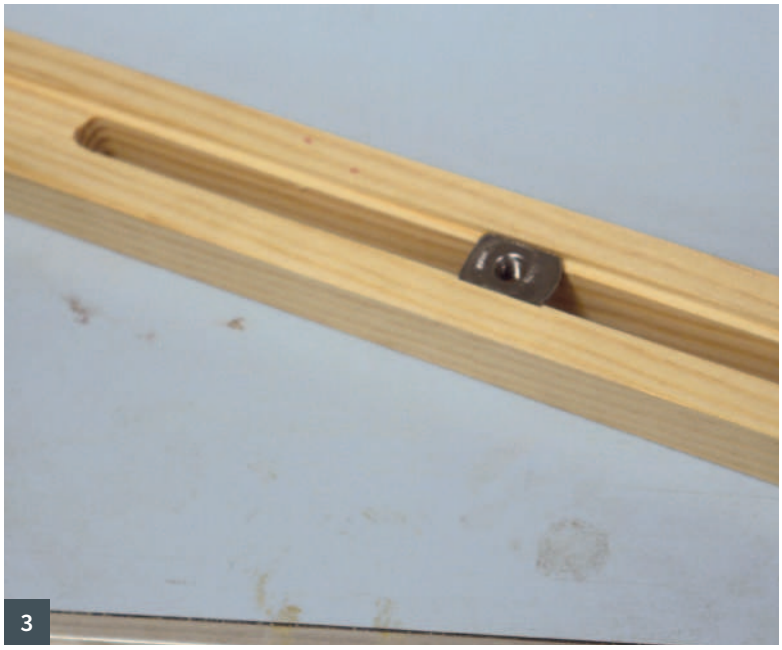
Recently I built some jewellery boxes, a nice and precise job that prompted me to upgrade my old, and honestly not very reliable, jigs which I hadn't used for a long time. The first jig I remade, although simple, is perhaps the most important and serves to cut precisely at 45°. Any well-made box has the sides joined in this way so as not to expose the end grain and give continuity to the appearance, and the opposite sides of the box must be exactly the same length, or it is impossible to get a good match. The new jig I have designed meets both needs.


Adjustable lever M6,
flat nut washer
600
Cut at 45°
80
100
18
280
38
20
Guide strip
Sleeve nut entry hole





PHOTOGRAPHS BY STEVE MASKERY/LEGNO



1 Depending on the direction in which the blade can be angled, you can decide which side to install the jig: for benches with blades that angle to the right it is advisable to arrange it on the left, so that the waste piece does not fall on the blade but on the table surface **2 & 3** The slot for the sleeve nut, the groove for its flange and the opening that allows the complete nut to be inserted into the stop, can be created on the router table

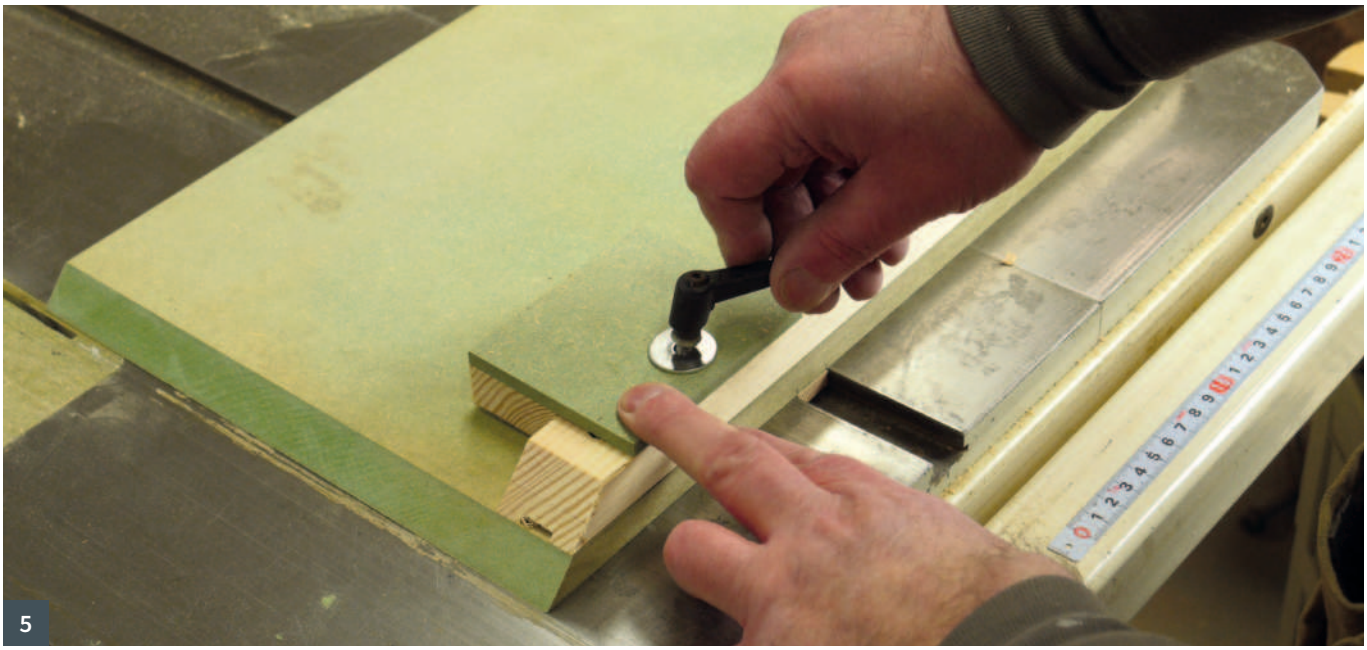
The construction

Before building the jig, you will have to decide which side to position it with respect to the saw blade, to the right or left, and it all depends on the way in which you can tilt the blade in relation to your bench. The waste material should fall on the machine table after cutting without the possibility of being snagged by the blade. I built this jig initially thinking about using it on the right, but I then changed it to the left, that's why both ends are angled.

The first piece to work on is the guide strip; prepare it in such a way that it fits in the slot on the table of your saw without any play. Screw it under the base panel so that the end of the panel is just past the saw blade by a couple of centimetres. Tilt the blade at 45° and cut the panel to obtain a cutting edge.

The next step is to make the slot in the fence. The price of T-tracks has almost doubled in two or three years and this type of track has become practically impossible to buy. So, for this jig, given the occasional use I will make of it, I decided to make a wooden equivalent that accepts a sleeve nut. If you're not familiar with this type of nut, search the internet. You need an M6 with an 8mm outer diameter.

On the strip to be used for the fence, a slot must be made for nuts to slide. This slot should be centred in the width of the piece. At the bottom it is necessary to cut the groove for the flange. A portion of the slot and the groove must also be extended to obtain access to one end of the strip. All this can be easily achieved on the router table with a 6mm cutter.

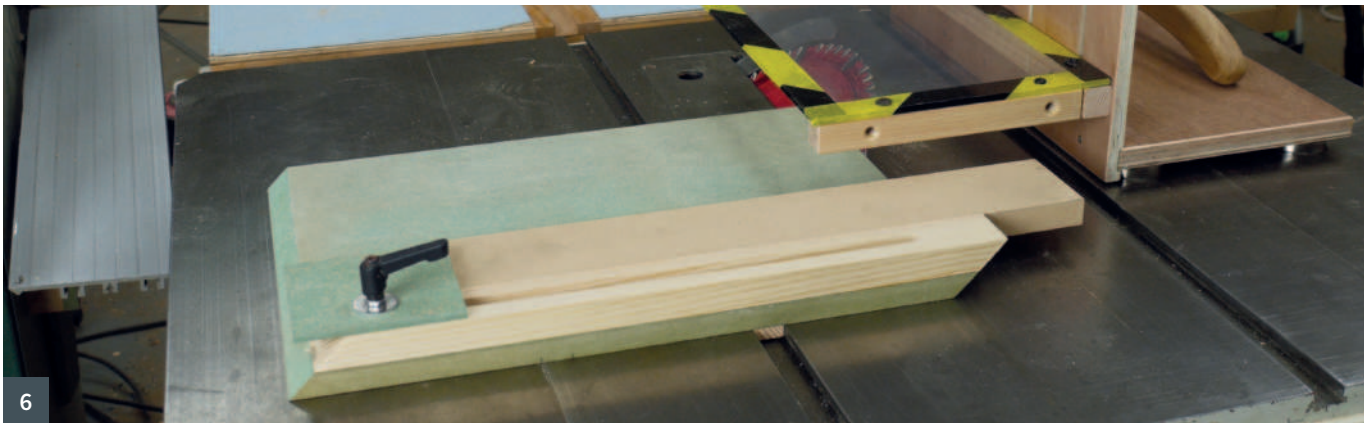


4 The sleeve nut is inserted into the stop from the side opposite to the one facing the blade **5** The stop for the repetition of the cuts is blocked at the stop by an adjustable lever; when you move the stop, the lever pulls with it the sleeve nut under which it takes hold

Cut the strip a couple of centimetres longer than the base panel and then move to the router table. Here you attach a stop on the in-feed side that allows you to lower the strip onto the rotating cutter without it being projected backwards. Attach a second to the outfeed side that stops the forward stroke of the piece at the predetermined point. Now adjust the stop so that the cutter falls in the centre of the width of the strip; to be on the safe side, make sure that the stop is just behind the centre so that in the next step the cutter does not catch in the wood in the wrong direction.

Set the height of the cutter to remove a couple of millimetres, turn on the router, position the strip on the stop on the in-feed side and let it lower on the cutter. Move it forward until it reaches the opposite stop and then turn off the router. Rotate the piece 180°, remove the sawdust that has compacted in the groove and repeat the step. The groove should be just over 6mm wide.

Then check the marks left by the two passes of the cutter on each end of the strip; they should coincide, if they don't, adjust the stop on the in-feed side until the marks end at the same distance from the end. Now move the stop back a little and repeat the two steps until the width of the groove allows the sleeve to slide. Then leave the stop in the last position and continue with the steps, each time raising the cutter by a couple of millimetres until it protrudes from the upper face of the piece. Then lower it again to bring it to a height equal to the thickness of the nut flange; it should be no more than a couple of



6–8 After making the first cut, position the stop for the desired length, rotate the pieces and make the opposite cut

millimetres. Move the stop back a little, eliminate the stops and make two full-length passes, always rotating the piece between one and the other. Continue like this until the width allows the flange to fit into the groove. At this point, all you need to do is extend part of the slot on one side to obtain the access through which to insert the nut into the stop.

It's important that the fence is fixed to the base panel perfectly at 90° with respect to the cut edge, otherwise assembling your first box could be a real problem! You can choose whether to fix it with screws or glue it to the panel; for my jig I chose glue.

The stop that allows you to repeat the measurement of the cuts with the jig is very simple to make: it is cut out of a block of wood of the same height as the stop on which a 6mm MDF rectangle is glued. A hole must be made on this in line with the underlying slot of the stop; the adjustable lever is inserted inside it and locks the stop by threading it into the sleeve nut.

How to use the jig

Prepare the sides of your box to the correct width but just a little longer than necessary. Remove the stop, position the pieces one at a time at the jig stop and cut the first end at 45°. Then set the stop distance for each pair of pieces and cut the opposite end. Two by two, the pieces will have the same length and will be ready to be glued together to form the perimeter of the box.

MORE JIGS

In the next issue, I will build two more jigs to help your box making.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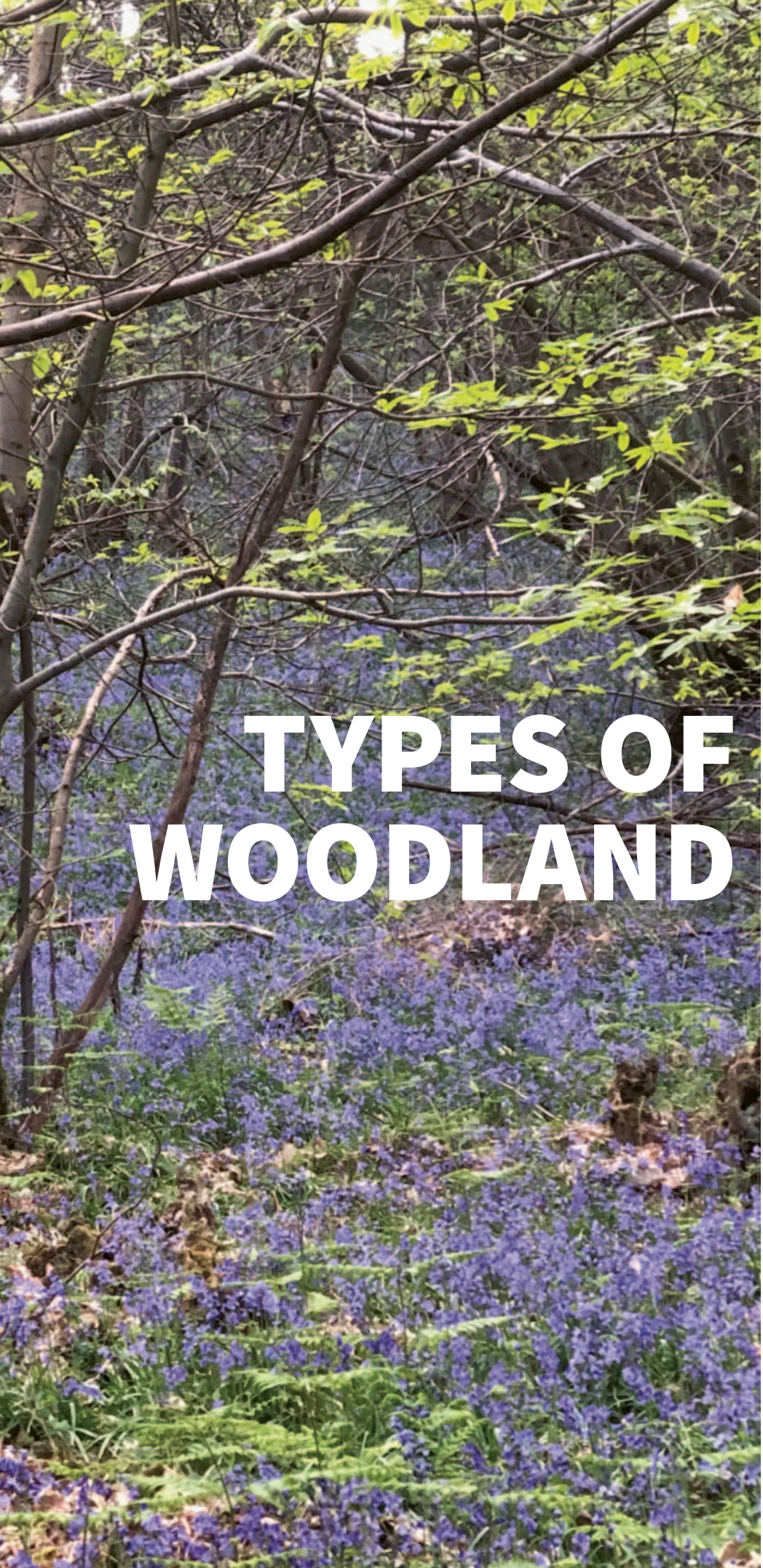


TYPES OF WOODLAND

In an abridged extract from his new book *Woodlander*, Ben Law explains the different categories of woodland

Woodlands can be categorised into different types. This is a starting point for gaining an understanding of your woodland. The age of it and how it has been managed often form the guidelines in terms of woodland type.

Bluebells, an ancient woodland indicator plant, brighten the transition into spring

PHOTOGRAPHS BY BEN LAW, UNLESS OTHERWISE STATED

1 Spring highlights the diverse ground flora in ancient woodland **2** The colourful fly agaric *Amanita muscaria* appears in the autumn. Note: this species is defined as poisonous **3** Looking down on part of the ancient yew forest at Kingley Vale, West Sussex **4** One of the many ancient yew trees at Kingley Vale, West Sussex

Ancient woodland

The woodlands of Great Britain are part of what we refer to as deciduous temperate forest, which stretches across Europe into Asia and runs north to south, from the southern edges of Scandinavia to the Mediterranean. The exception is the Caledonian Forest in the Highlands of Scotland, which forms part of the boreal coniferous forest stretching across Scandinavia into Russia.

The term ancient woodland is used to describe a woodland known to have been in existence continuously for 400 years or more (since 1600 in England and Wales) and 250 years or more (since 1750) in Scotland. Planting trees was uncommon 400 years ago, so it can be presumed that most of these woodlands developed naturally, containing soils undisturbed for hundreds of years.

ANCIENT WOODLAND ESTABLISHMENT

What is referred to as the UK's native tree species only colonised Great Britain after the Ice Age, forming as the ice retreated and the climate warmed. The process of woodland establishment at this time seems to follow the process of natural regeneration we see today. This process begins with the pioneer species such as birch and alder, which establish and grow quickly and then are succeeded by the slower-growing, longer-living species such as oak, beech and yew.

These slower-growing species form the canopy. We refer to these as the climax species because other species do not succeed them. They will die or blow over in a storm and then, with light reaching the forest floor, the process of regeneration begins again. Over time, the process of succession ensures the climax species form the canopy again.

A THRIVING ECOLOGY

The build-up of decaying wood in ancient woodlands creates a unique habitat for fungi and invertebrates. The plant species that can be found in these woodlands are often unique to woodland environments and cannot survive in more exposed conditions.

Ancient woodlands are a treasured seed bank and ecological resource. They are a place of learning, containing and maintaining the biological and cultural history of the past 400 years or more.

A visit to an ancient woodland is food for the soul. I recommend taking the time to research and find them near to where you live. Every woodland is unique and has its own balance of biodiversity and cultural history, and can give you an insight into species that have thrived on your local soils and an opportunity to take time to stop and observe.

5 Pollarded willows that are undergrazed with sheep **6** Old English longhorn cattle at Knepp Wildland play an important role in ground disturbance and seed transportation

Wood pasture

Wood pasture describes a landscape of widely spaced trees that are undergrazed by large herbivores such as sheep or cows. In fact, it can be seen as the influence for a number of agroforestry systems that involve trees and other crops or trees and livestock integrated into one system. For example, a silvopastoral system could involve sheep and geese grazing under standard walnut trees.

THE DECLINE OF WOOD PASTURES

A lot of the UK's 'commons' – land that wasn't closed off for private use – were once wood pastures where commoners had rights to graze livestock and collect firewood. Many of these commoners' rights were lost during Enclosure, when landholdings were turned into larger farms and restricted from use as common land, from about the 13th century onwards. This has affected the social balance of land, ownership and shared usage of land with the once-shared commons now mainly in the sole ownership of large estates and individual landowners.

POLLARDING

Pollarding is an important silvicultural practice for wood pastures as the regrowth after cutting is at a height beyond the reach of grazing animals. Pollarding trees and allowing the timber to lie on the ground allows grazing livestock to gain minerals from the bark before the trees are collected for firewood. This, in turn, creates a unique forest habitat that allows trees and grazing animals to thrive symbiotically.

Rewilding

The work of the Dutch ecologist Frans Vera has challenged the presumptions of how forests have evolved since the last Ice Age. His vision is based on wider-spaced trees with larger mammals grazing in a landscape of grassland and trees. The lack of predator species for the large mammals means that humans need to cull a percentage of the larger mammals to keep numbers in balance.

Rewilding, in its purest form, encourages humans to step back and allow nature to rebalance. They become a small part, rather than a dominant force, in the landscape. Provided large enough areas can become rewilding zones, this is an exciting change and should have a positive impact.

Knepp Wildland is an experimental rewilding project in Sussex, based on the work of Frans Vera. This 3,500-acre (1,416-ha) estate has five species of megafauna and still has a 'farming' element to the project with sales of organic meat. Early biodiversity results are very encouraging, with nightingales and purple emperor butterflies utilising the site.

I have visited Knepp a few times and I have no doubts about its value as a future wildlife and biodiversity site, although I observe with interest the balance needed to allow natural regeneration of trees within the system. Experimental projects such as Knepp may well guide some of our future forest-management systems.

PHOTOGRAPH BY ANDREW PERRIS

PHOTOGRAPH BY ANDREW PERRIS

7 Coppiced woodland at Prickly Nut Wood showing sweet chestnut coppice with three years of regrowth in the foreground and 27 years beyond **8** The multiple stems arising from one stool of coppiced sweet chestnut **9** Dog violet and wood anemone spring into life after this hazel coppice has been cut **10** A good-quality oak standard, formed through the management of the surrounding coppice **11** Oak standard over hazel coppice **12** Clearfelling plantations on hillsides, like this in North Wales, risks soil erosion

Coppice woodland

Coppicing is a traditional form of woodland management that has been practised for at least 1,000 years. Coppicing involves the successional cutting of broadleaf woodland during the dormant winter period. In spring, when the sap rises, the stump (referred to as the stool) sends out shoots of new growth. These shoots are encouraged to grow on until they reach an appropriate size and diameter for using the timber. They are cut again during the dormant winter period and the process repeats itself.

The wood cut during coppicing is used for craft produce, fencing, building products and woodfuel. Coppicing prior to the 1950s supported a large rural workforce, but with the arrival of plastics and the need to rebuild large parts of the country after the Second World War, the industry declined. It is currently seeing some revival as the desire for craft and sustainable products is on the increase. This will help reverse the loss of many habitats that the decline in coppicing affected.

THE COPPICING CYCLE

Cutting coppice on a regular cycle creates a patchwork of areas in a woodland, each at a different stage of regrowth. These areas create different habitats for different species, which move with the coppice worker from area to area. The freshly cut areas of coppice produce a flush of wildflowers – these plants have adapted to the cyclical pattern of shade and light provided by the regular and repeated cutting patterns of the coppice worker. Many of these plants are important food plants for butterflies and the decline in particular woodland butterfly species can be correlated with the decline of regular coppicing.

Coppicing is one of the rare patterns in nature where humans are an important part of the ecosystem. By cutting the coppice, humans are creating the patchwork of habitat so vital to so many species, and in return they are gaining materials to build and make craft produce. Take the human element out and the coppice becomes overstood, the plants are shaded out and biodiversity decreases.

Coppice with standards

Many coppice woodlands also have larger standard trees growing amongst the coppice. These trees add another layer to the woodland, creating habitat for many species of invertebrates, butterflies and birds. Standards are often different species to the main area of coppice.

Oak standards over hazel coppice is a traditional system. Typically, the oak standards were managed by the coppice worker for creating curves and braces used in ship- and house-building. Managing the growing pattern of the coppice to help create the shape of a curve would often take over 100 years, so it could be the grandchild of the original coppice worker who felled the standard tree. The main stem of the standard, well shaded by the coppice for most of its life, would often produce a good-quality knot-free piece of timber for sawing into planks.

MAINTAINING STANDARDS

Standards need to be managed, otherwise the coppice below will receive restricted light. This means the coppice regrowth, searching for light, grows in an irregular pattern and does not produce the straight poles that the craftsperson needs for their work.

13 A plantation on an ancient woodland site **14** Traditional orchard on M25 rootstock in flower

The ideal canopy cover of standards over coppice is about 10–15%.

Many coppices become neglected (or overstood) due to the standards getting too large and the quality of the coppice below deteriorating. Coppice workers are often only trained to fell small-diameter trees or do not have the equipment needed to deal with standards.

Standards with large spreading crowns should be removed and, over many coppice cycles, it should be possible to encourage a mixture of ages in standards, from maturing established trees through to young standards at the start of their lives. A well-managed coppice-with-standards woodland offers more biodiversity than a pure coppice woodland.

Short-rotation coppice

There are a number of species that are grown on a short rotation for a particular end use. With traditional crafts, where small-diameter stems are needed, coppice is cut on a short cycle of between one to four years to provide the raw material for the craft worker to weave or work into the finished product.

SPECIES GROWN ON SHORT ROTATION

The osier willow, almond willow and the purple willow are all cut on an annual cycle for basketry. Basket making is globally one of the most ancient of crafts and the need for wetlands to successfully grow osier beds has seen much of the industry in England being based around the Somerset Levels. Some willow growers in the Levels have more than 50 different varieties of willow, adding a variety of colour and form for the basket maker to work with. Varieties of these three species are cultivated and sold by the weighed bundle.

Modern hybrid varieties of willow and poplar are grown on a short rotation of one to four years for biomass production. They are harvested, chipped and fed into biomass woodchip boilers. These hybrid varieties have very high growth rates, often reaching more than 4.5m in a year – they are also referred to as 'biomass forestry'.

Sweet chestnut has its heartland in the south-east, with the majority of the UK's coppiced sweet chestnut being found in Sussex, Surrey and Kent. Although mainly cut on longer cycles, some areas are cut on a three-year short rotation coppice cycle for walking sticks. These are steam bent and have for many years been supplied to the NHS.

Plantations

After the First World War, the Forestry Commission was set up to produce a new timber resource for the country after so many woodlands had been depleted for the war effort. To that goal, they succeeded and the industrial forestry model was born. Plantations can be coniferous, broadleaf or mixed and nowadays make up the majority of woodlands managed for timber production in Great Britain.

Although successful in producing timber, plantation forestry has often come at a cost to the environment. Large monocultural plantings have reduced the diverse habitats that a more traditional mixed high forest provided.

The silvicultural (the branch of forestry concerned with the cultivation of trees) practice of management ending with a large clearfell operation has caused much loss of valuable woodland soils on hillsides, with the soil eroding away to block up streams and rivers below. On flatter landscapes, soils have been affected from rising water levels following clearfell operations.

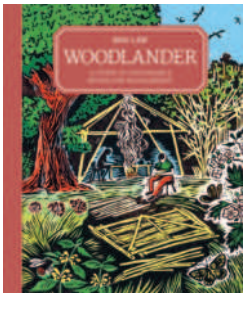
Orchards

Traditional orchards with large trees grown above pasture are an important landscape feature and social resource. Orchards provide food, spring blossom, a habitat for insects and a valuable pollen source for bees. They are also an important landscape feature and a place to work and to gather socially, for picking and celebrating the harvest.

MIXED USE WITH ORCHARDS

These traditional orchards not only produce fruit but can also be undergrazed with poultry. Undergrazing with chickens and geese produces an extra food crop in the orchard and the poultry help with pest control, manuring and eating surplus windfalls. Such systems are based on trees grafted onto large rootstocks (such as M25 for apple trees). The rootstock will determine the eventual size of the fruit tree, how long it lives and how soon it produces fruit.

Although usually planted as a separate area from woodlands, it is possible to incorporate fruit trees into a woodland system. Crab apple and wild pear can sometimes be found in ancient woodlands.



Win a copy of *Woodlander*

Ben Law's new book *Woodlander* is available now, priced £25, and we have FIVE copies to give away to *WWC* readers. To be in with a chance of winning one, simply send an email with your name and address to WWCEditorial@thegmcgroup by 4 March

STANDING TALL

Keep the rain at bay with Nick Arnull's impressive turned umbrella stand

An interesting commission came into my workshop for an umbrella stand, a project that had never been on my list of ideas to make. Some research was required so I searched online for traditional design ideas. Unfortunately, all I could find were numerous bin-type designs so I had to create the design from scratch. This took some time but the appearance I wanted to achieve was to be something similar to a classical column.

I had no idea how large this project would be as I rarely make furniture. I predicted four spindles, four bun feet, a base and a top ring… that can't be too hard! I chose to use sapele for this project and was going to stain it. Once sanded, the grain would be raised using water and allowed to dry naturally then re-sanded to 240 grit.

The stand here is my final design which could grace any traditional hallway and of course, hopefully meet the customer's commission.

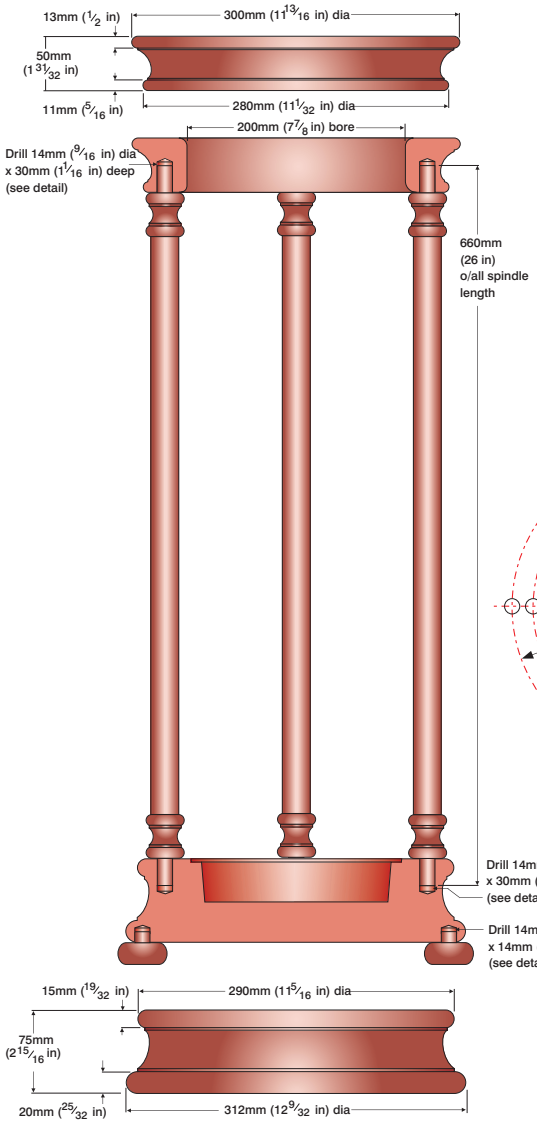
Turning safety tips

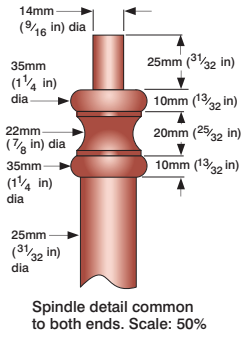
Protect your eyes and lungs at all times, and work at a speed that you feel is comfortable and safe. The wood you use must be sound or injury will occur. It is also advisable to run the lathe a little slower as heat is generated as the wood goes round. When turning the spindles, make full hand contact with the wood only when round. This adds support to the rear of the piece as spindles could bounce and not allow the cut to be made cleanly.

YOU WILL NEED

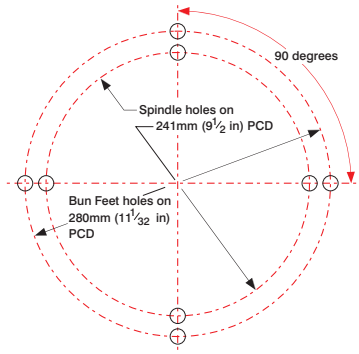
Materials:

- Spindles x 4: 40 x 660mm
- The base: 320 x 80mm
- The top ring: 310 x 55mm
- Bun feet x 2 (2 feet from each length): 100 x 50mm

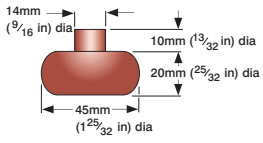




Spindle detail common to both ends. Scale: 50%



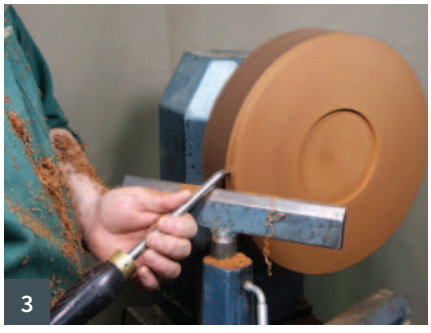
Setting out detail for drilled holes



Bun feet detail. Scale: 50%

The base

1. Centre the blank and drill a hole to allow it to be mounted on a screw chuck.
2. With the blank on the lathe, true the face and create a dovetail recess using the largest diameter jaws available.
3. True the side of the blank with a bowl gouge. Alternatively, you can use your parting tool.
4. Sand the base and mark 22mm from the edge assuming the base has been turned to the correct diameter. If not, the actual mark is 280mm pitch circle diameter (PCD = twice the radius of the centre line circle).
5. With the blank reverse chucked, true the face and mark the diameter of the tray allowing a small gap for wood movement, in this case 205mm.
6. Check the depth of the recess. It needs to be deep enough to allow the tray to sit just below the surface but not too deep. Using a baking tin is a good way to check this.



PHOTOGRAPHS BY JANE ARNULL

7 Now measure 40mm from the edge of the recess. This will be the outer diameter of the top bead. Mark the width of the rim.
8 Using a long grind bowl gouge, remove the waste wood to the depth required to allow the tray to sit in the opening.
9 Use a parting tool to clean up the side wall.
10 The tin should fit like this.
11 Now measure 25mm, 241mm PCD. This is the centre line for mounting the spindles.
12 Mark out the side for both top and bottom beads: 20mm and 15mm.
13 Use a parting tool to reduce the top bead to the line that was marked previously.
14 Create a fillet to relieve the bead at the bottom.
15 Repeat for the top bead.
16 Remove the waste wood to create the cove between the beads using a 10mm spindle gouge or skewchigouge.
17 Turn the top bead.

18 Now turn the bottom bead.

19 Using the indexing head, mark four equidistant positions around the face. These are for drilling the spindle mounting holes (every 90°).

20 With the sanding complete, raise the grain with water. This will allow the stain to be absorbed more evenly when applied.

Top ring

21 Using the 310 x 55mm blank, centre, drill and mount on the screw chuck and true the face. This will become the top. Turn to the same diameter as the bottom of the base, mark a line at the same position as on the top of the base and ...

22 ... mark the position for the spindle mounting holes using the index head again. Mark 20mm inside the previous line. This will become the opening in the top.

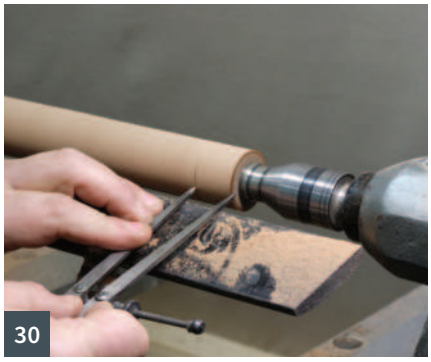
23 Sand the base and using a 3mm parting tool, make a plunge cut 15mm deep just inside the line.

24 Turn beads and coves as in steps 13–19, and using a point tool, radius the corner and sand.

25 Reverse chuck, clean the face and mark the same diameter as on the reverse. Plunge in 15mm and radius the corner again.

26 Tape the back of the piece and the circumference to hold the separated section in position without it letting go completely. Use gentle pressure to part the now two pieces. These are the pieces off the chuck.

27 With the piece separated, sand the inside of the top ring. Raise the grain and allow to dry. You can use large bowl/cole jaws to clean up after separating the two pieces, however, watch your fingers!



Drilling the holes

28 With a 14mm brad point bit drill, drill holes marked 30mm deep for the spindles and 14mm deep for the feet. I used a drill press and clamped the pieces on the table.

The spindles

29 Centre and mount the blank between centres. Rough to the maximum diameter required, in this case 35mm.
30 Using odd leg dividers, mark in 25mm.
31 Using a bead former, scribe its width.
32 With dividers, set to 20mm and scribe the area for the cove.
33 Using the bead former, turn your beads.
34 Using a 3mm parting tool, put in the fillets around the beads. This will give you the final diameter for the centre of the spindle, in this case 25mm.
35 Turn the cove between the beads using a skewchigouge or a 10mm spindle gouge.
36 Reduce the centre down to the required diameter of 25mm.
37 Check it's even with a steel rule.
38 Size the spigots with a 14mm spanner then sand and raise the grain.

The bun feet

39 Turn to round and mount in a chuck. Mark 20mm from the end.
40 Part in to allow access to turn the bead.
41 Using the spanner, reduce the spigots for the bun foot. Sand and raise the grain.
42 Remove the foot using a 1.5mm parting tool. When making pieces that need removing, use a small saw to remove them while the lathe is stationary.

Gluing up and finishing

43 Apply the glue carefully to the spigots with a brush. Fit the spindles to the base then to the top ring.
44 Clamp and leave until dry – this will ensure good, close joints.
45 Protect the wood with small pieces of cardboard.
46 I used Peruvian mahogany spirit stain. Apply with a brush and rub it over with a cotton cloth to even out the stain. Once dry, cut it back lightly, remove any dust and apply light coats of spray lacquer. Leave to dry then rub down with grey Nyweb/webrax. I waxed over the lacquer with Georgian mahogany to tone and calm the stain.
47 Finally, fit the bun feet.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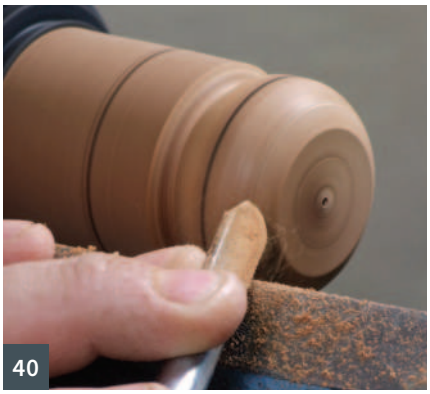
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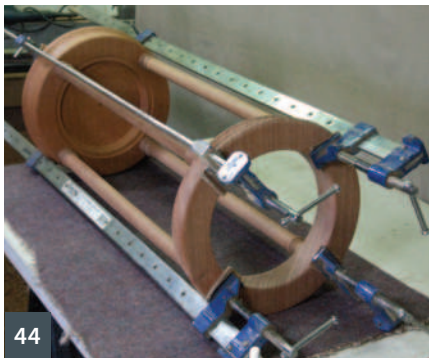
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Product news

Find out about the latest kit and tools for your workshop

Makita extends its range of cordless tools

Makita UK has recently added a number of new 40VMax cordless machines to its XGT range. The new high-powered products provide a one-battery solution to handle the most demanding jobs and environments, without sacrificing run time.

40VMAX LS004G XGT MITRE SAW

Driven by a 40VMax brushless motor, this XGT 260mm Slide Compound Mitre Saw provides a no-load speed of up to 3,600rpm for high power cutting that is comparable to corded machines.

The rail-forward design allows users to maximise workspace as the machine can be positioned next to a wall and its single sliding system enables smooth operation when cutting. Its 48° bevel range and 60° mitre range are easily adjusted with quick lock and release, making it simple to achieve the cut required.

Its safety features include Auto-Start Wireless System technology (AWS), enabling the machine to connect to compatible dust extractors via Bluetooth. When applied, the dust extractor is powered on and off while the saw is in use. An LED light improves task visibility, and for greater safety, an electric brake stops the blade in seconds.

80VMAX UR012GZ04 XGT BRUSH CUTTER

Delivering up to 6,400rpm and a maximum power output at 2.0kW, the powerful 80VMax (40Vx2) XGT Brushless Brush Cutter provides users with performance similar to a 40cc class engine grass trimmer, making this machine ideal for heavy duty applications.

Users can adjust speed according to the task with three-stage control, and thanks to Makita's Automatic Torque Drive Technology (ADT), which adapts the cutting speed according to the load conditions, users can trust that the machine is always working at its optimum.

The UR012GZ04 also features Active Feedback Sensing Technology (AFT) that shuts down the tool if the rotation speed suddenly slows, protecting the user against kickback. And the useful reverse switch removes any material that gets stuck in the blade, reducing user downtime.

www.makitauk.com

Clarke CTS16 250mm tablesaw with stand (230V)

Ideal for bench top use, the Clarke CTS16 tablesaw is perfect for cross cuts, rip cuts, mitres and bevel cuts on hard and softwoods. This model includes two table extensions with a total area of 940 x 640mm alongside a 45° tilt for bevel cutting and a leg stand for added versatility. Completing this saw is an adjustable blade height and dust extraction port for easy clean up.

Clarke CMS10S2B 10in sliding mitre saw with laser

The Clarke CMS10S2B 10in (255mm) sliding compound mitre saw is suitable for fast, accurate cross, bevel and mitre cutting in most hard and soft woods. The saw features a laser guide to give the user a preview of the saw blade path as well as dual sliding rail to ensure a smooth cutting angle on the large rotating/ lockable table.

The saw is supplied with a fitted clamping device, workpiece supports, sawdust bag, 40 TCT Blade (fitted), 60 TCT Blade (in box), 6mm Hex Key, 3mm Hex Key and is provided with a one-year manufacturer's warranty.

www.machinemart.co.uk

Record Power extends its UK manufacturing

As many woodworkers will know, Record Power is a world-renowned UK brand, with its historic roots planted firmly in Sheffield. In recent years it has been developing and expanding its UK-based manufacturing capacity, beginning with the acquisition of the CamVac brand of dust extraction machines back in 2014. Since taking on CamVac, it has improved and streamlined the manufacturing processes and ramped up production capacity, allowing it to sell these machines worldwide.

Further investment in 2020 allowed further expansion of the production department – which is now the largest in the company – in order to provide the ability to competitively manufacture a much wider range of products with greater control of quality and cost. Its range of modern CNC machinery, semi-automatic finishing technology, grinding stations, plasma cutting machinery and much more gives the flexibility and capacity to produce a wide range of products to exact specifications.

Turning tools are the latest new products to be made in its own factory in the UK. After extensive testing, Record Power has launched a range of safe, simple tools, that can easily be used by a beginner turner. These tools feature generously sized beech handles, which feel good in the hand and offer plenty of fine control as well as strong support for heavy cuts. The fluted tools have been refined to give the best clearance for smooth, easy cuts and all profiles have been chosen as the safest general-purpose grind for any level of user, with maximum ease of resharpening.

www.recordpower.co.uk

RECORD POWER
ESTABLISHED 1909

MADE IN BRITAIN

BEAVERCRAFT WORKSHOP APRON WINNER

Congratulations to the winner of the BeaverCraft Tools leather apron, Andrew Eastwood from North Yorkshire! BeaverCraft Tools' aprons are made from genuine leather with an additional surface wax coating for higher durability. They have reinforced straps with full-metal copper hardware, and a big kangaroo pocket together with an additional chest pocket to give plenty of storage. You can view the extensive range of BeaverCraft tools and accessories at the website below.

www.beavercrafttools.co.uk

BeaverCraft

KITCHEN WALL CABINETS

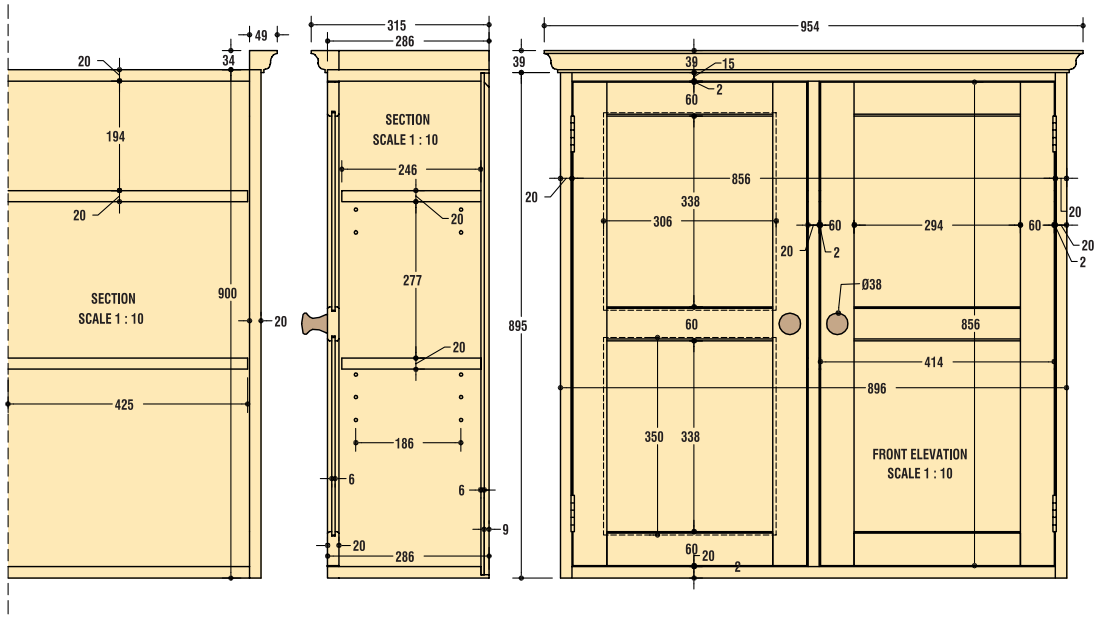
Duncan Rose's kitchen cabinets are made in maple, with contrasting turned walnut knobs, and hang from traditional French cleats

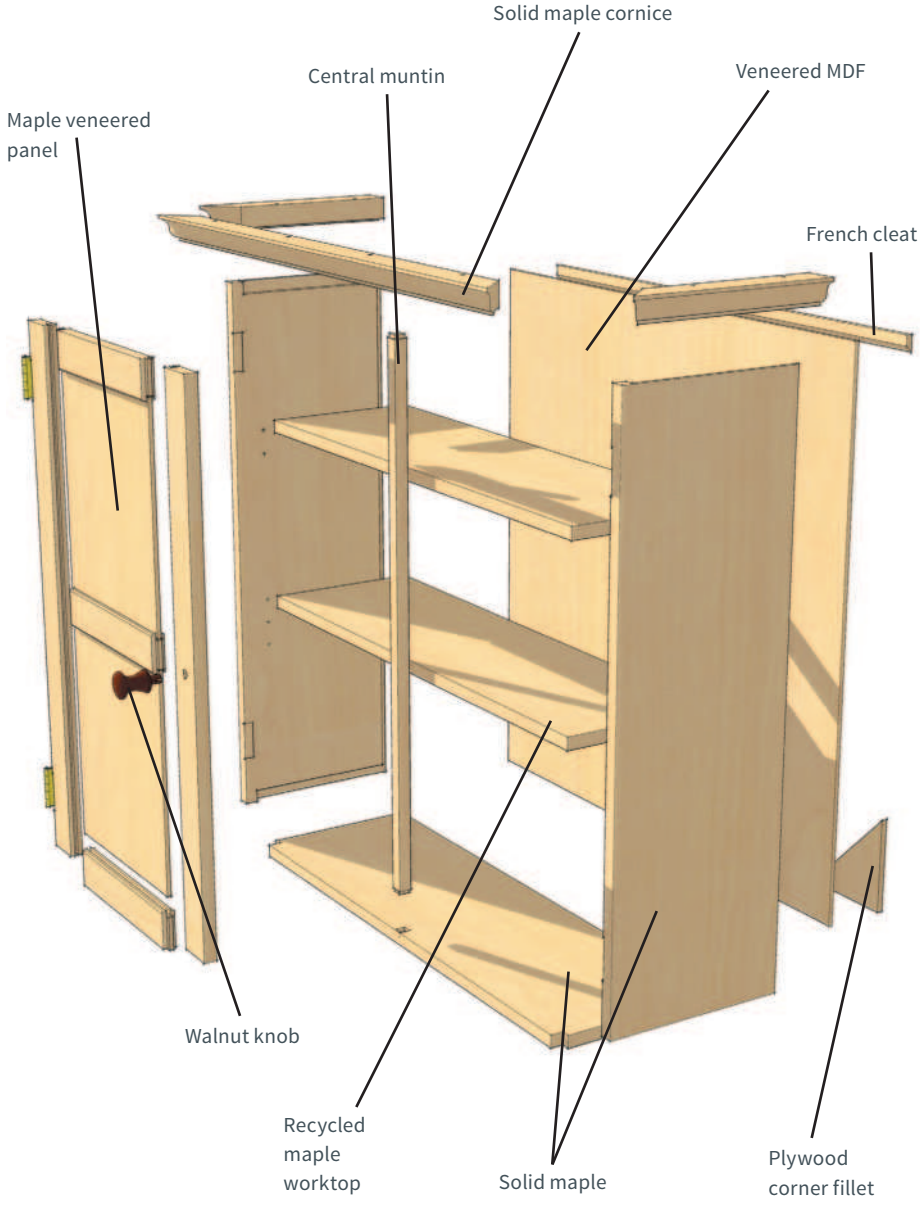
I remodelled my kitchen with a set of base units that have American maple worktops. To complete my kitchen makeover I needed a pair of matching wall cabinets to complement these. This design is versatile and can be easily adapted for other uses.

The cabinets feature adjustable shelving and a small ogee cornice, a centre muntin and inset doors, and are hung on a French cleat for ease of fixing to the wall. The muntin helps to keep the top and bottom panels from sagging and prevents the shelves from inadvertently being pulled out of the cabinet. Mid rails to the doors give aesthetically pleasing proportions and physical stability – useful in the kitchen with its changing humidity. The walnut knobs are hand turned from walnut and contrast nicely with the maple. The door catches use embedded magnets and close with an easy action.

French cleats

French cleats are cheap, easy to make and simple to use: the carcass is simply lifted onto the cleats in an easy, one-man operation without the need for supports or fiddly levelling. I used 3D CAD software to visualise and evaluate the scale and proportions of the design. This helps identify construction issues early on and generates an accurate cutting list.





YOU WILL NEED

Cutting list:

Maple:

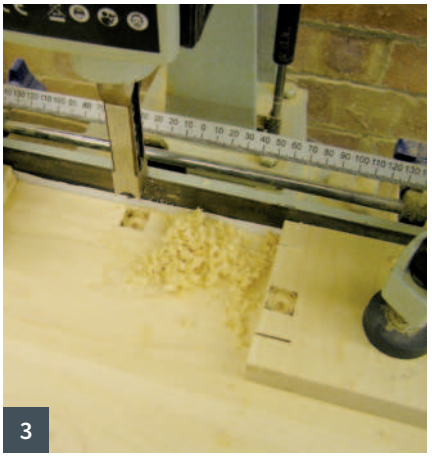
- Side, 2 off – 900 x 286 x 20mm
- Top/base, 2 off – 884 x 286 x 20mm
- Muntin, 1 off – 872 x 20 x 20mm
- Door stile, 4 off – 856 x 60 x 20mm
- Shelf, 2 off – 849 x 246 x 20mm
- Door rail, 6 off – 310 x 60 x 20mm
- Cornice front, 1 off – 954 x 49 x 39mm
- Cornice sides, 2 off – 315 x 49 x 39mm
- French cleat, 2 off – 884 x 25 x 9mm

Maple-veneered MDF:

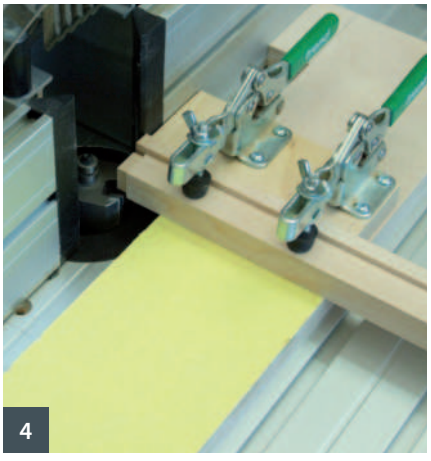
- Rear panel, 1 off – 888 x 884 x 6mm
- Door panel, 4 off – 350 x 306 x 6mm

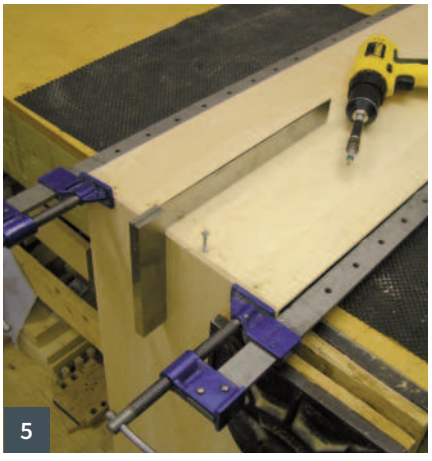
Plywood:

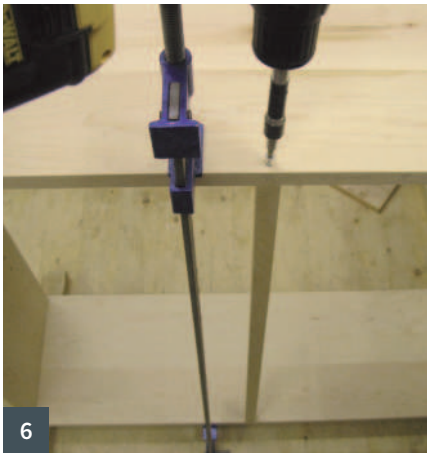
- Fillet, 2 off – 150 x 150 x 9mm
- Walnut for turned knobs



PHOTOGRAPHS BY DUNCAN ROSE







1 Chisel square the routed corners **2** Countersink the top and bottom panels **3** Mortise the top and bottom panels for the muntin **4** 'Tenon-jig' used to cut muntin stub tenons **5** Assembling the carcass top, bottom and sides **6** Fitting the muntin stub tenon with glue and screw

Timber preparation

I like to stick newly purchased timber indoors for at least a week before machining. This allows the moisture content to acclimatise to the correct levels and reduces future problems due to timber movement.

Surface, edge and thickness the sawn maple boards. Allocate any with 'unusual' character to the most suitable position.

For the shelves, I recycled an offcut of maple worktop from the kitchen sink cutout. This was cut into manageable widths, ripped in half using the bandsaw, then planed and thicknessed to 16mm.

Carcass

Solid maple boards form the carcass sides, top and base. I began by gluing the boards together to form a panel twice the width required and then cut them into pairs. Position the boards so the end grain alternates and the growth direction matches along the length. Rub joint them together with glue and leave overnight to dry in sash clamps.

Once the glue has cured, scrape off any remaining residue. I used polyurethane glue which makes this job easy. Dimension the panels to the final size. At this stage I sanded the panels to a good finish using a framed belt sander and random orbital sander. I used stopped rebates to join the top and bottom panels to the sides, secured with glue and screws. Router-cut the rebates on the side panels and hand finish the inside corner of the rebates by chiselling square. Cut away a piece from the front of the top and bottom panels to accommodate the stopped rebate. Drill clearance holes and countersink, in preparation for fixing.

For the back panel and French cleat, rebate the rear inside edges of the sides, top and base panels to a depth of 15mm.

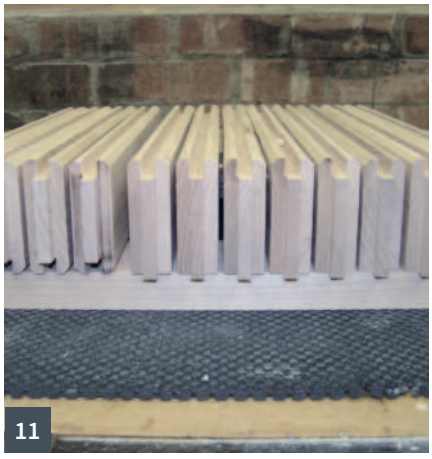
Next, mark the mortise positions for the muntin on the top and bottom panels. Cut the mortises and drill the base with a clearance hole. Countersink the outer surfaces ready for fixing. Make the muntin from a length of 20mm-square maple and cut the stub tenons. I cut nearly all my stub tenons quickly, safely and accurately using the router table, a rebate cutter and my favourite tenon jig. This clamps the work securely while sliding along the router table fence. Minimise end-grain breakout by sandwiching a strip of sacrificial wood between the rail and clamp stop.

The shelves are height adjustable using sockets and movable banjo pegs. Mark the positions of the sockets on the side panels. Before drilling the sockets, use a piece of scrap to determine the best drill to give a tight fit.

Chamfer the holes a little using a countersink to ensure the sockets can be pressed fully home. To prevent the sockets from getting clogged, do not fit them until after finishing.

Glue and screw the top and bottom to the side panels, and at the same time fit the muntin and secure with glue and a pair of screws.

Ensure the assembly is square by checking the carcass diagonals are equal. Use a sash clamp to make any corrections and also maintain the position while preparing and fitting the back panel. This is cut from 6mm-thick, maple-veneered MDF sheet. Glue and pin the back panel into position.



7 Cutting a 45° bevel on the French cleat **8** French cleat fitted to the upper rear of the cabinet **9** Plywood corner fillets glued and screwed **10** Grooving the door's mid rail using a slot cutter **11** Door rail stub tenons cut using a 'tenon-jig' **12** The door assembly glued and clamped

Cleats and fillets

After the back panel is fitted, use the remaining depth of rebate to accommodate the French cleat and a pair of lower corner fillets. The cabinet and wall cleats are made from hardwood offcuts, 25mm wide and 9mm thick.

Cut a 45° bevel along the full length of each cleat using the table router. The cabinet cleat is attached to the upper rear of the cabinet by gluing and screwing through the rear panel deep into the cabinet top. Clean any excess glue from the bevel that could prevent the wall cleat mating fully.

Make a pair of corner fillets from a 150mm-square piece of 9mm plywood by cutting across the diagonal. Glue and screw these into the lower rear cabinet corners. The fillets provide additional fixing for the cabinets and prevent the cabinets from being lifted off the cleats.

Doors

The doors were made with solid maple frames, a mid rail and maple-veneered panels. The frames were jointed using glued stub tenons with glued panels.

Groove the inside face of all the frame pieces along their full length. Cut the grooves to 8mm deep and 6mm wide, to house the rail stub tenons and panels. The mid rails are grooved along both inside faces. I cut the grooves using a router table and a biscuit joint slotting cutter. Once the cutter height is set, turning over the work produces the required groove width.

Next, cut the 8mm-long stub tenons on the door rails, using the router table, rebate cutter and tenon jig. Ensure the tenons are a snug fit when pushed into the stile grooves. Cut a chamfer along the inner edges of the rails using the router table and 45° chamfer cutter.

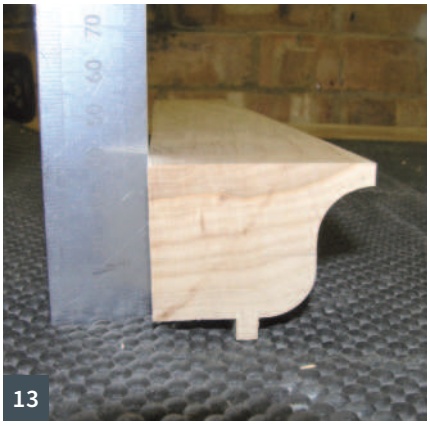
The door panels can be cut from the remainder of the maple-veneered MDF used for the two back panels. Cut the panels about 2mm undersize to ease assembly. Minimise cross-grain breakout using a piece of sacrificial wood placed beneath the veneered sheet.

After sanding the frame and panels, dry assemble them and check everything fits correctly. Once you're satisfied, apply glue to the grooves, tenons and panel edges, then assemble, using sash clamps and checking the doors are square. Once dry, remove any glue residue and lightly sand.

Cornice moulding

As an experiment I made the cornice from a single piece of maple using the router table with a small selection of standard cutters. I made the ogee profile in five simple steps (see pictures 14–19), taking several passes with each cutter and making identical cuts along both long sides of the maple.

A 1m length makes a front and two side pieces of cornice. Handling a single larger piece of maple makes the routing considerably safer. Next, cut the cornice to length with mitred corners. I attached the moulding using screws so it could be taken off when moving the cabinet.



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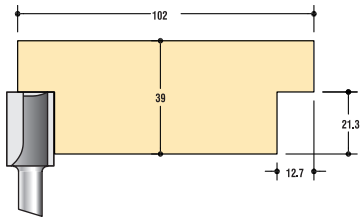

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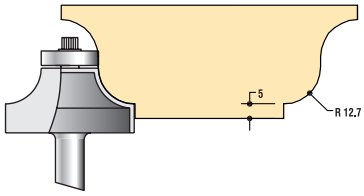

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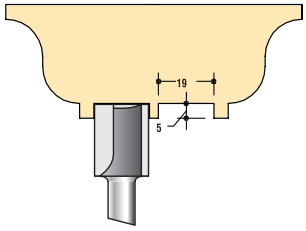

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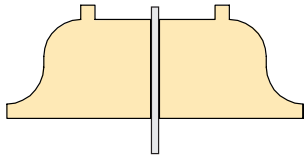

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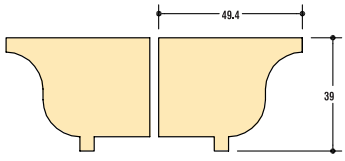

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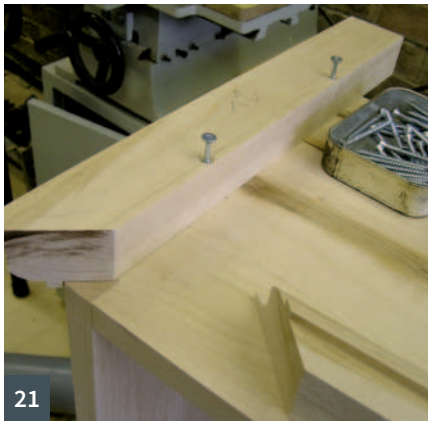

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13 The ogee profile cornice made from a single piece of maple **14** Cut a rebate **15** Cut a cavetto profile; my router table required a spindle extension to get sufficient height **16** Cut an ovolo profile **17** Cut a 5mm-deep trench **18** Turn upside down and rip into two lengths of cornice moulding **19** Result: a pair of matching lengths of cornice **20** The fitted side cornice **21** Securing the cornice

Door fitting

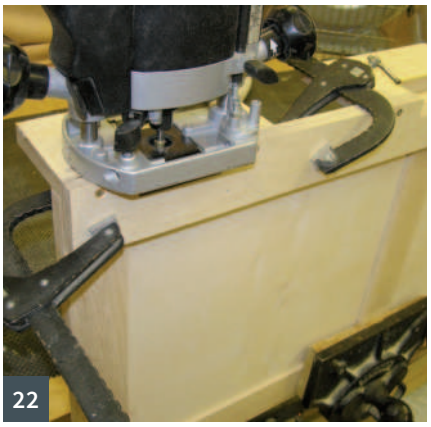
Before fitting the doors to the carcass I temporarily hung the cabinets on the workshop wall using the French cleat. The doors were fitted to the carcass leaving a small clearance along each edge. Cut the rebates for the brass butt hinges on the carcass and door frames. I used a hand router with guidebush and a simple clamp-on jig, chiselling the corners square.

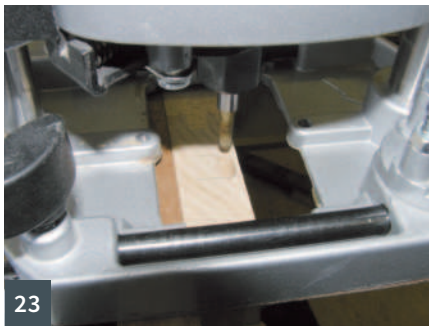
Initially fix the hinges using a single screw in each butt. Make any adjustments to the door before fitting the remaining screws. Yellow, zinc-plated, steel screws are easy to use and blend well with the brass hinges.

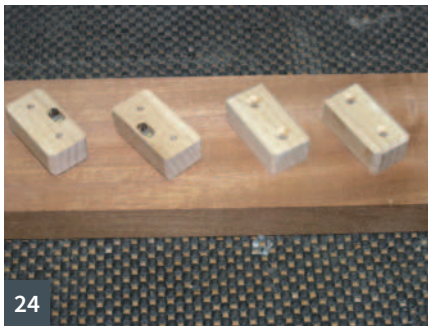
Door catches

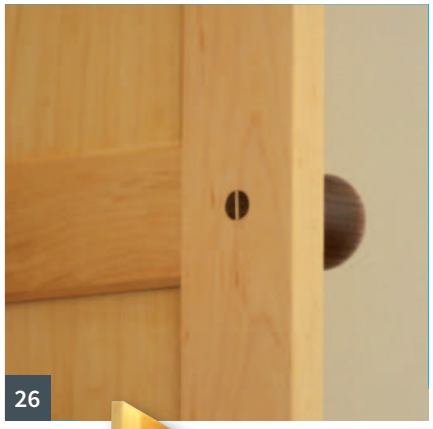
I make my own door catches from neodymium disc magnets; thus the mechanical parts are hidden and they close without the fierce snatch of traditional magnetic catches. The last stage of closing the door is nicely dampened by air escaping from the enclosed cabinet. I find 8mm-diameter and 5mm-thick magnets work really well.

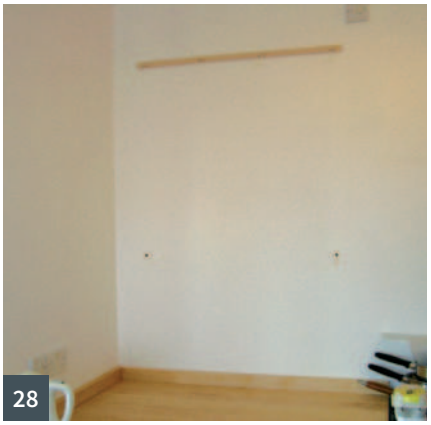
A magnet is inserted into the top of the door stile and another in a wooden stop block, about 2mm from the meeting faces. House each magnet in a slot using the hand router and a 4.8mm-diameter straight cutter. Cut the slot about 10mm deep and 12mm long. Adjust the router guide fence to make the slot 5mm wide. Make the magnets a snug push fit without distorting the wood. After inserting the door magnets, fill the top of the door stile and sand smooth.











22 The jig quickly cuts rebates for the butt hinges on the doors **23** Slots for the magnets cut using a guided hand router **24** Door stops with the magnets fitted **25** The door stops fitted to the carcass **26** Walnut handle fitted and secured with a maple wedge **27** Shelf sockets fitted with banjo shelf supports **28** The French cleat screwed to the wall **29** The finished cupboard

Stop blocks

The stop blocks are made from 20mm-thick maple. A larger piece is clamped more easily when routing the slots. Finish the blocks to size and chamfer the exposed edges. Drill clearance holes and countersink in preparation for fixing. Refit the doors to the carcass and find the best position for the stop blocks before screwing them to the top.

Knobs

The knobs were turned from a piece of solid walnut and included a 12mm-diameter pin. They are held tight by glue and a maple wedge driven into a kerf made in the pin base. Allow to dry and chisel flush any protruding pin and wedge.

Finishing

Detach the doors and cornice and check for any unwanted pencil marks. Sand the surfaces and remove any sharp edges. I finished the cabinets with four thin coats of Danish oil, cutting back between coats. Danish oil is very easy to apply, dries quickly and provides a tough satin finish, enhancing the grain. Knock in the brass shelf sockets, give the cabinets a polish with beeswax and refit the doors and cornice.

Finally, secure the wall cleat and simply lift onto the cabinet. Add a couple of screws through the corner fillets and install the shelves. Job done!

MAXIMUM RESULTS

Alan Holtham demonstrates how to get the most out of your drill press

The drill press is much more useful than you would at first think and there are a few really good jigs and tips that I'll share here to help you squeeze even more value from this machine.

PHOTOGRAPHS BY ALAN HOLT

False table with fence

1 The simplest addition is a custom-made false table with fence that can be bolted in place on the main table. This measure will instantly make the machine much more versatile.

2 As well as providing extra support and safety, the false table allows you to drill a series of holes the same distance in from the edge of the work without having to mark out each time.

3 Notice that the fence has a rebate machined in the bottom edge where it meets the table. This prevents any swarf that accumulates on the table from stopping the workpiece seating back properly against the fence.

Parallel guide

4 If you don't have a dedicated mortiser you can use this fence as a parallel guide to drill a series of overlapping holes. This technique will remove the bulk of the waste in a mortise.

5 If holes have to be evenly spaced, as you would find for the shelf support studs in a bookcase side, then add a simple indexing pin of some sort that locates in the previous hole each time you drill the next one.

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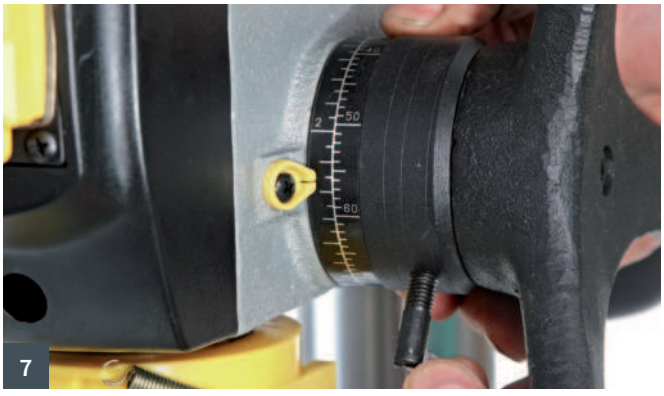

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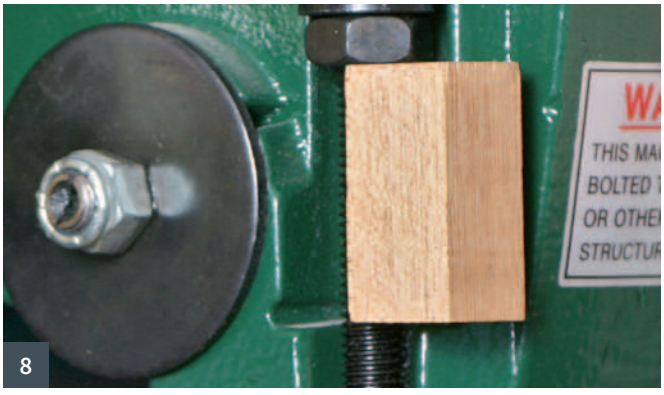

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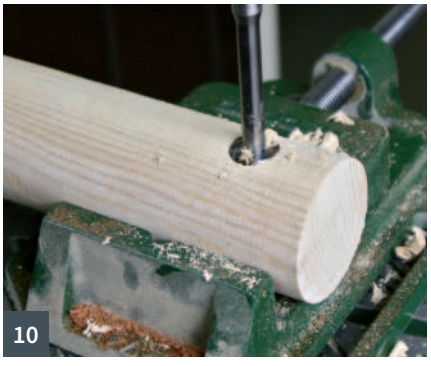

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Repetition drilling

6 A simple fence like this makes repetition drilling of any sort dead easy and you can clamp on end stops as well to make alignment foolproof. If you are having trouble with chuck clearance when working close to the fence with short drill bits, use a series of jacking pieces to lift the work (see photo). These packing pieces are always useful to have around as you are nearly always working within a small table-to-chuck range, and packing up the workpiece is often quicker than raising the table on the rack and pinion, particularly if you don't want to disturb any alignment settings.

7 Drilling a series of holes all to the same depth is obviously easy if you have a sophisticated depth stop ...

8 ... but if your drill press is more basic and you want to repeat drill to more than one depth without changing the settings, tape a wooden spacer in place to act as a temporary stop.

Safe practice

Safety is often overlooked on the drill press as it does not present the obvious dangers of spinning blades or teeth, but they are still quite capable of inflicting injuries, most accidents being caused by the wood spinning when a drill jams or breaks through the underside of the work. It goes without saying that you need a drill vice for holding small items; you should never rely on holding them with your fingers.

9 If the stock is long there is a danger of it swinging round and clouting you if the drill snatches. In this case use the machine column as a stop to eliminate the danger.

10 Drilling round pieces is not without its own problems, but if the stock is relatively large in diameter you can usually hold it securely enough by hand or in a drill vice, though this can mark the surface.

11 A better way, particularly if the stock is smaller in diameter, is to use a V-block that provides perfect support without any danger of damage.

Pocket hole screwing

12 Pocket hole screwing has become a very popular way of assembling furniture, but it is difficult to drill the holes accurately enough freehand so you need a jig of some sort. On the drill press add a false fence to your table with the face angled at 15° to ensure perfect positioning each time.


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Smoothing curved edges

13 A sanding drum held in the chuck is very efficient at smoothing curved edges while keeping them a true 90° to the face. Use a backing board with a hole in it on the drill press table to allow access to the whole sanding surface and to spread the wear evenly over the length of the sleeve.

14 Rigging up a temporary fence turns the drum sander into a mini thicknesser, allowing you to clean up the face and edges of small workpieces.

Setting angles

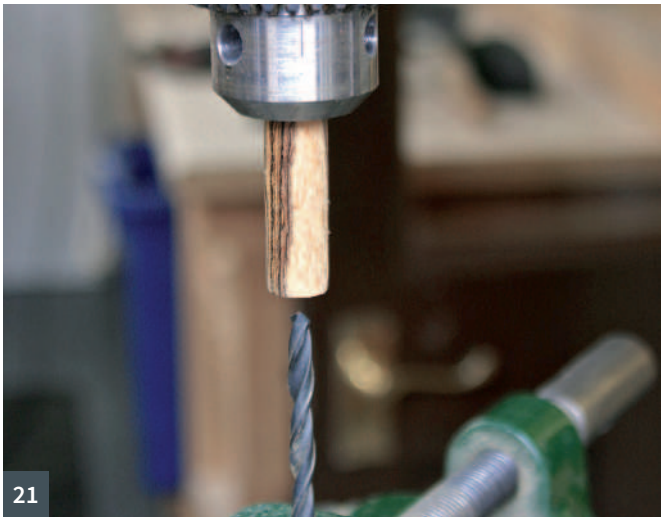
15 Although most drill tables have an angle scale these usually leave a lot to be desired, so if you need accurate angles, set them manually using a protractor.

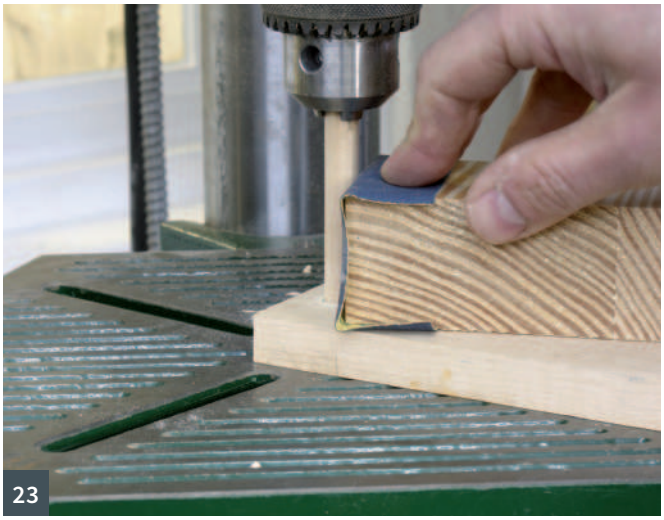
16 Sometimes it is difficult to get the angle you want simply by tilting the table, and in these situations it is better to use a homemade angling jig which clamps to the main table. This can be as simple as two bits of MDF hinged together, with a couple of threaded bars for height adjustment. Although very basic, it works really well for any type of angle drilling and is much easier to set than the tilting table.

17 Used in conjunction with a V-block for round stock ...

18 ... angle drilling for chair legs and the like becomes dead easy and very controllable.

19 To some extent the same effect can be achieved using your standard sub-table and fence and tilting the main table to create the V-block, but fine-tuning the angle is nowhere near as easy.





Use a jig for clearance

Another reason for using a jig rather than tilting the table is clearance. Often tilting the table with only relatively small workpieces causes the capstan handles to foul. You can usually overcome this by unscrewing one of the levers and just using the other two.

20 If you need to drill into the end of long pieces it is often better to tilt the table to 90° and clamp the work to this. If you need to drill deeper than the travel of the quill, stop the drill, raise the table and then have another go, but do clear out the swarf as you work.

Centring the drill

21 The business of centring the drill bit is sometimes critical and I was recently struggling to drill an accurate hole in the end of some small-diameter dowels. After several abortive attempts I eventually swapped the position of the drill bit and dowel, gripping the dowel in the chuck of the drill press and the bit in the drill vice (see photo). Lowering the revolving dowel onto the stationary drill had the effect of pulling it dead central and the holes were drilled perfectly, not an obvious method, but sometimes a different approach is needed.

Dowel truing

It seems to be difficult to get good-quality dowelling these days. For a start you have all the nonsense of metric dowel and imperial drills and no matter how many bits you have you never seem to have the right size! Then even if you do have the proper one, the dowel itself is often badly formed and probably it is not even round. Ideally the dowel needs to be perfectly sized to the hole you want to fit it into and this neat little trick trues and sizes it in seconds.

22 Drill a hole in a piece of scrap wood with a drill bit a fraction bigger than the dowel size you wish to create. Countersink the rim of this hole to help the dowel enter it easily. Grip one end of the dowel in the drill press and arrange the jig so that the dowel can pass through both it and the central hole in the table. Clamp the jig in place. Start up the drill and hold a piece of abrasive wrapped around a square-cut block of wood against the revolving dowel, maintaining downward pressure with the quill all the time. As the dowel trues up to the correct size it will gradually disappear through the hole so you know it must be the right size. Use a medium to slow speed to minimise any burning of the dowel in the hole.

23 When truing up a long piece, stop the drill and raise the table when you run out of quill travel.

THE MUSIC

OF

WOOD

We look at the stunningly intricate work of the Armenian carver Nairi Safaryan

'I hear the quiet music of wood, and want to make it heard by others.'

Nairi Safaryan's uncanny eye for beauty, never failing imagination, limitless patience and innate artistry have catapulted this Armenian sculptor onto the fine arts stage, where his masterful works are exhibited in many museums and private collections around the world. Each stunning piece is carved to the limits of the wood's capacity by combining technical knowledge with artistic talent. Digging several layers deep, his expert hands achieve extraordinary levels of refinement that allow delicate leaves and petals to be paper thin, and fine tendrila appear feather light and sinewy.

Becoming a master carver

Nairi was born in 1958 in the town of Shushi located in the Artsakh region of Armenia. His childhood memories are filled with carving wooden toys, drawing and creating chalk sculptures. In 1973 he moved with his family to Armenia's capital city, Yerevan. It was there that he attended Yerevan Polytechnic Institute and received his degree in engineering. Shortly after graduation he took a promising position with a prestigious company as an engineer.

Even with his duties at work, Nairi always found time for woodcarving. He was working day and night combining his technical knowledge with his artistic talent, and in 1987 he became a member of the Art Fund.

He began carving to the limits of the wood's strength, achieving extraordinary levels of thinness and refinement of the material. He also begun to make a name for himself in the local art world, garnering much respect and appreciation for his work from both his peers and local art critics.

In 1996, after being invited to participate in two exhibitions at the Yerevan Folk Art Museum, he was honoured with the title of Folk Master. This honour was bestowed on him not only because he had reached the level of Master Woodcarver, but because his work had a special charm which always showed his deep devotion to his roots and a great understanding of his national heritage.

He says of his work: 'I hear the quiet music of wood, and want to make it heard by others.' Many of his works are made in boxwood, walnut and ebony, from which he carves an extraordinary level of delicate detail.

The Wood Symphony Gallery

Nairi's work can be seen online at the Wood Symphony Gallery, which was founded in 2016 in Los Angeles by his daughter, Larisa Safaryan. Larisa is also an accomplished carver, who creates unique work using egg shells.

The Wood Symphony Gallery is dedicated to presenting the work of the finest contemporary artists working in wood. Through their online exhibitions and printed catalogues, the gallery aims to expand the boundaries of contemporary artistic practice and increase the exposure of work in this field. Today Wood Symphony Gallery represents over 200 prominent masters from around the world, focusing its efforts on the emerging field of contemporary wood art. Past and current exhibitions can be viewed on the gallery's website.

www.nairisafaryan.com & www.woodsymphony.com
Instagram: @nairi_safaryan & @woodsymphony

Amber Bailey repairs
a water mark on a 1950s
G Plan chest of drawers and secretaire

RE-FINISHING WATER DAMAGED FURNITURE

I distinctly remember my grandfather's house full of G Plan furniture, but I thought nothing of it at the time until I found my love of this particular style many years later. Recently, my aunt kindly offered me a G Plan chest of drawers and a secretaire, which she had bought during her time in the antiques trade. I leapt at the chance to have some G Plan of my own.

Both pieces were looking a little worn around the edges, with pieces chipped and damaged from the occasional knock, plus the dreaded water marks that always keep restorers in business. By the 1950s, cellulose lacquer had become the universal choice for surface finish, as it took fewer coats to build up and could be applied with a brush or sprayed on. A surface like this cannot be reworked; in the most damaged areas on the chest the entire surface finish needed to be removed back to the original grain.

The G Plan story

Genuine pieces of E Gomme furniture are stamped with the company logo (shown above left), which is usually found on the inside of a door or drawer. G Plan was a highly successful furniture range manufactured during the 1950s by E Gomme Ltd of High Wycombe. With the wartime Utility Furniture Scheme ending in 1952, Donald Gomme, the third generation of the family to join the firm, chose to produce a range of modern-style furniture for the entire house with the intention of designs running for several years so consumers were in the position to collect the pieces slowly, making allowances for the financial problems experienced by many during the postwar years. The name 'G Plan' was coined by Doris Gundry of J. Walter Thompson Advertising Agency and advertising was to play a key role in the range's success.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The chest and secretaire

Designed by Victor Bramwell Wilkins, the cupboard chest on a plinth, model No.B821a from the Brandon range, was made in oak, with the option of a mirror and lights. Two other models were available with the amendment of a secretaire fitment as 'B821b' or a makeup drawer as 'B821c'. The piece was advertised mainly for use in the bedroom or lounge for storing games, gloves, galoshes, etc. Its wholesale price in April 1953 was marked as £10 15s 0d.

The secretaire, a chest of drawers-cum-writing desk, also formed part of the Brandon range, made in oak with a mahogany interior. The top drawer flips down to reveal the desk.

Health and safety for restoration work

As with any work on surface finishes, a number of chemicals come into play – this project uses paint stripper and cellulose thinners, so it is important to work in a well-ventilated area with safety glasses and gloves. In contact with skin, paint stripper will cause irritation. If you begin to feel a burning sensation then neutralise immediately with water.

Assessing the damage

1. So much patching of colour on the front of the chest indicates it has come into contact with water or other liquid through either a splattering or having been severely dripped on.
2. This large stain down the side of the chest is raised and resembles glue or a similar robust liquid.
3. The inside of the secretaire has a number of ring marks from cups and mugs being put down without a coaster. The whiteness is the result of liquid coming into contact with the cellulose lacquer.
4. Marks and scratches look decidedly out of place over the top of the oak's rather lovely medullary rays.
5. The years following World War II left certain restrictions on materials that could be used by furniture makers, be it due to trading or that much of it had simply been used up and it was no longer abundant. Veneering furniture once again became a popular answer to reserving stocks – fine at the time, but half a century on these veneers are now easily catching and breaking off so will require patching.


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PHOTOGRAPHS BY ANTHONY BAILEY/GMC PUBLICATIONS


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Removing the finish

6 If your workshop isn't well ventilated, then it is a good idea to work outside when using paint stripper, making sure to always wear the appropriate PPE.

7 To begin with most of the surface finish was removed using Nitromors. This was applied with a brush and left for a few minutes until the surface began to bubble. A good test to see whether it is lifting the finish is to scrape a little off and onto a piece of tissue. The paint stripper should look dirty and contaminated with flecks of polish. When ready the paint stripper was removed completely using cut off wooden tongue depressors and coarse wire wool, following the grain to avoid scratch marks.

8 Most available paint strippers are much weaker than they once were due to changes in health and safety legislation. Several applications of stripper may be required in order to achieve a satisfactory result, depending on the state of the surface finish. Afterwards the remaining paint stripper is neutralised by washing down with water.

9 The chest of drawers was cleaned with a scouring pad and wax cleaner to make sure the surface was definitely free of wax and dirt.

10 There had been a sticky mark left for a prolonged period of time, so the wood underneath was a different colour. It could be colour matched at a later stage.

11 I began by working over the surface using 0000 wire wool, which shifted any remaining paint stripper from the grain.

12 A brass wire brush proved very effective at scraping off the remaining finish; this is a quick but invasive method, so is not advisable on a high value object. It is extremely important to only use brass as there is a danger that other metals will react with the tannins in the wood and stain it black, particularly timbers such as oak.

13 If there are very raised lumps of surface finish, then a sharp chisel can be used to lightly scrape the surface. You can avoid digging by using the chisel at an angle and pulling towards yourself.


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Bleaching and colouring

14 When applying the oxalic acid with cotton pads make sure to change them regularly as the dirt will quickly build up on the surface. Using oxalic acid at a ratio of two spatulas to 100ml water, I wiped the top surfaces down with cotton pads soaked in the solution and left for no more than 10 minutes in total.

15 The result of bleaching can be quite instantaneous, immediately picking up dirt from the grain. The solution needs to be neutralised preferably with isopropyl alcohol; however, methylated spirits can also be used.

16 As you can see, the dark stain was much less visible after the use of oxalic acid.

17 Although it can help to use a wire brush to lift dirt, if the surface is wet, then the wood will become very fibrous and may be easily damaged as a result.

18 I applied the Van Dyke brown with a natural fibre brush as the finer hairs are less likely to streak. Made from walnut husks in a boiling process that takes several days, Van Dyke brown acts as a wood stain, but can be wiped off with water if it is not sealed and, as a fairly nondescript colour, it works well for a number of shades of brown and a variety of timbers. Very few suppliers sell Van Dyke in paste form – generally it is sold as crystals to make up.

19 It can help to dab at the colour for an even covering so it doesn't dry with a nasty ring around it.

20 Rather than using a palette, dabbing out your brush onto the back of your hand is ideal for indicating the pressure needed to be applied for the right effect. Do this at your own risk.

21 When colouring up a surface, make sure to keep standing back to look at the patch from the angle most likely to be seen in everyday life. Where there were clearly light marks I brushed over a light wash of Van Dyke paste as if it were a watercolour.


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Repairing damaged veneers

22 With a scalpel it is always important to keep your fingers out of the way of the blade and cut away from yourself.

23 For as close a match as possible with the veneers, look for the best grain match that you can and ensure the grain direction is facing the correct way – matching colour can be dealt with later. The new pieces were then adhered with wood glue and taped in position with low-tack masking tape until dry.

24 When smoothing replacement veneers, light pressure and going with the grain ensures the surrounding areas aren't damaged and the new pieces don't break out.

25 There is no special formula that can be applied to every replacement patch as the wood is not one constant colour. Various different applications need to take place to find the perfect look; this can sometimes mean taking layers off and trying again until you achieve the desired result.

26 Once dry, the new veneers had to be smoothed carefully using a scalpel and fine grade abrasive paper before colouring up with a mixture of layers of yellow and orange wood stain followed by Van Dyke paste.

27 Tung oil was applied using a pad and then left for 15 minutes before any residue was rubbed off with a clean cotton cloth. Rather than re-apply cellulose lacquer, which can be messy work and involves a spray gun, I decided to go down a slightly alternative route and finish them with tung oil, reproducing the slightly golden tint that the oak once had. The timber had also become very dry over its many years so the tung oil was able to rejuvenate the surface and give it a healthy appearance that was then finished off by buffing with microcrystalline wax to bring back the original shine.

28 The restored secretaire...

29 ...and chest are now back in good order and looking their stylish selves all over again.

Time to tidy

Alan Goodsell takes a break in his newly decluttered workshop

PHOTOGRAPH BY SHUTTERSTOCK

You often hear that you can never have too many tools and I recently found out that is not really true. My workshop was seeming to get smaller and more difficult to get around in – that's when I had an epiphany and realised that it had slowly got jammed up with all manner of tools that I either thought I had to have or got them cheaply so couldn't miss the deal. My lust for more tools that I thought would make my life more productive had in fact worked out to have exactly the opposite effect and had hindered my ability to work due to the lack of space. Following this discovery, I systematically pruned out the tools that I hadn't used or had duplicates of; these were the ones that I thought I might need 'just in case'! I started putting all the tools I no longer wanted up for sale at really good prices; my marketing strategy was simply telling people of my unburdening project, and with the incredible power of the woodworker's network system in full flow, word soon got around that there were some good deals to be had. It wasn't long before I had many visitors and got rid of pretty much everything I no longer wanted, and a nice side effect of the tools leaving was that my wallet got a little fatter. Not only that, but it was also tremendously satisfying to know that all the tools had gone to places where they would be used instead of gathering dust. Throughout this process I met a lot of interesting people and ended up with a workshop I can finally use to its full extent again; I realise now the space is much more valuable to me than the bunch of tools that were cluttering it up. The only tools I didn't get rid of were clamps because you can literally never have too many clamps and fortunately, they don't take up too much space… honest. Happy purging!

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K	Y	E	W	N	Q	M	G	A	E	L	I	A	H
E	R	E	L	G	W	W	I	S	N	E	U	M	M
R	L	M	Q	L	D	I	J	C	R	E	R	S	Y

SUDOKU

Sudoku is a great activity to sharpen the mind. The object of Sudoku is to fill in the empty spaces of a 9x9 grid with numbers 1-9 in such a manner that every row, every column and every 3x3 box contains all numbers 1 through 9.

		1						2
		5	3		4	9		1
9					1			
7	1				5	2		3
		8				5		
2		4	6				8	9
			7					5
5		9	8		3	6		
1						8		

CLASSIC FIRE SURROUND

Anthony Bailey's router comes in handy for this elegant fireplace surround in sapele

This design could well be made as part of a general sitting room makeover, or could stand alone as a rather grand focal point for a room. Although it is made to a particular size, obviously you will need to check and adjust the dimensions to suit your specific fireplace measurements. The construction is a mixture of solid sapele and veneered sapele-faced MDF, chosen to help reduce cost and preparation time and also to use up leftover material.


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PHOTOGRAPHS BY ANTHONY BAILEY/GMC PUBLICATIONS


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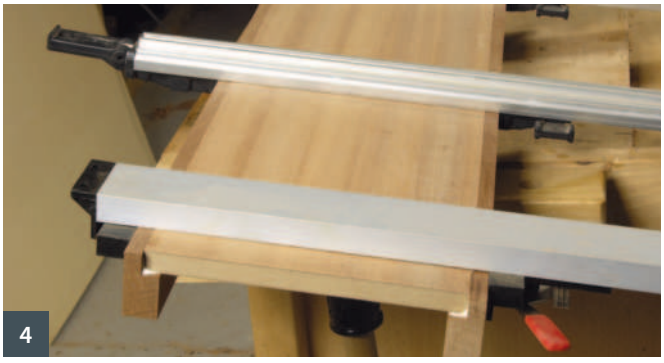
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Preparation

1 Make up a cutting list for the veneered board and another one for the solid wood. The veneered board pieces are cut to finished size and the solid timber is cut oversize for planing. The sections that will eventually be mitred need to be plenty overlength to allow for accurate trimming. Plane and thickness all solid parts, checking for straight and square. Having created a pile of basic components we will create a number of U-shaped subsections that will eventually all fit together to make the surround.

Uprights

2 Start by making the two uprights that sit against the wall. These each have a solid section down both sides, 40 x 20mm. This has a rebate which reduces the amount visible on the front to 9mm with a rebated depth that matches the board thickness, in this case 13mm allowing for the veneer. The solid sections are best fitted overlength and trimmed flush once the glue has set. Rebating can be done on the router table (as here), or a spindle moulder if you have one. Note that in this photo the bearing has been removed to obtain adequate depth using the fence.

3 Two glue lines are used to ensure both faces of the rebate are properly glued up.

4 The reason for the rebate is to increase the glue area without resorting to any other form of jointing method and it helps to hold the solid edges square during glue-up. Glue and clamp the sides on and leave to set. An upright section glued and clamped; these clamps have shallow jaws which help keep it square.

Fascia

5 The next piece to attach is the fascia section over the top of the surround. In order to do this the top inside edge of the uprights needs to be notched out to take it. This must be done neatly as a poor cut may be visible afterwards. A sharp handsaw cut to neat pencil lines is best.

6 The fascia piece runs behind the uprights right up to the outer solid edges which then helps to align it square when clamped together. The meeting surfaces are merely butt-glued together. Here you can see the fascia clamped to the upright: note how it presses against the upright thus ensuring it is perpendicular.

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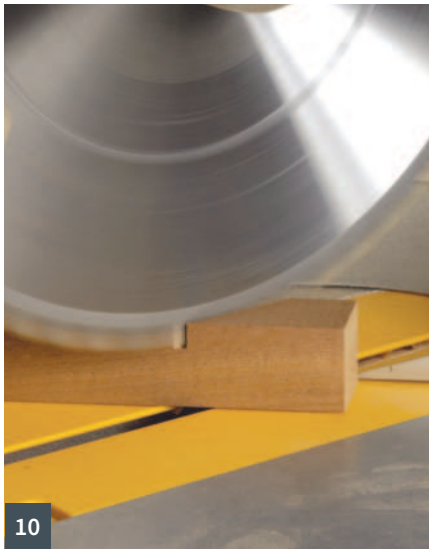

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Columns

The columns are made next. These are fitted plain and the fluting done later on. Unlike the uprights these columns have the solid sides simply butt-glued without a rebate, using 30 x 10mm solid lippings. The columns start at the top position, and run right through to the base of each upright. The base facing pieces for each column are sawn exactly to column width and trimmed to length then glued in place, but it is critical that the edges are flush with both column sides, otherwise when the solid side lippings are applied they may not lie flat or gaps may show when viewed from the front.

7 Butt glue and rub the columns into place.

8 Check the columns are correctly centred and clamp them on to the uprights behind. Then leave them to set.

Solid lippings

The solid lippings are flush with the veneered board. Starting with the uprights and including all the operations so far it is imperative that where solid edgings butt together with veneered board, they are flush to each other, something that doesn't always happen due to minor inaccuracies creeping in when machining or assembling – once the joint is set you will have a problem.

It is better to allow the solid lippings to overhang very slightly as these can be trimmed carefully, whereas if the veneered board is proud the veneer will get sanded away while trying to level it off. There are several strategies that can be employed.

If the amount of overhang is small a random orbital sander may be enough to level the solid section. If the amount is greater, a very well set up smoothing plane with a sharp blade with minimal projection can be used, but with great care as it may tear up 'short grain' as found on wood like sapele and may dig into the veneer as well. When a dye is used, as here, any surface deficiencies left behind will show even after sanding.

The last method involves use of a router with an extension sub-base to hold flat on the job with a top bearing-guided cutter fitted. This will allow flush trimming of the solid material.

9 Three rather different means of levelling solid to veneered board joints: random orbital sander; smoothing plane with a fine set and sharp blade; router with extended base and top bearing-guided flush cutter.

Mantle assembly

We now have an inverted U-shape that forms the basic surround. The next step is to put the mantle top section together. The topmost section is biscuited on while square and unmoulded. Once the glue has set, the mantle top is run over the router table with great care.

I used the largest roundover cutter I have to create two slightly different mouldings. This mould should have a projecting square edge to look imposing. The secondary moulding which goes underneath and is set back to give a 'cornice' look doesn't need very much of a projecting edge; this in any case will be facing downwards. It is a matter of taste and experimentation based on what cutters you possess. The underneath secondary moulding is machined and then cut and fitted underneath. This is hard to fix in position by jointing.

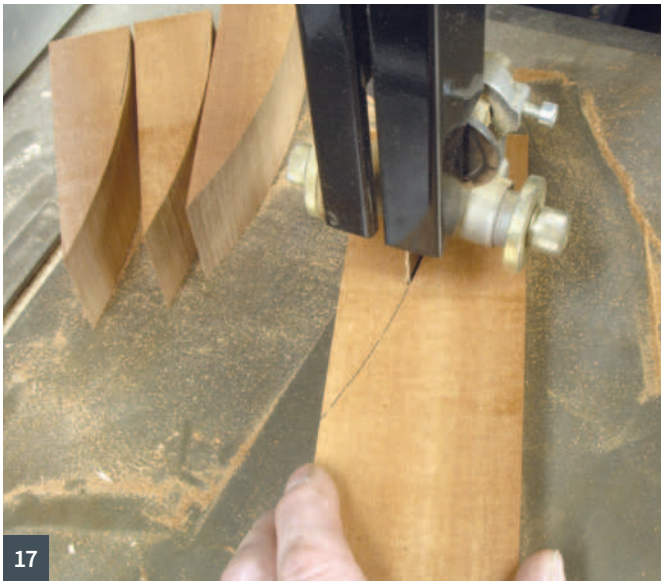
10 Good clean cut mitres are essential for a neat finish.
11 Clamping up the 30mm-square solid edges on the mantle top ready for moulding. The biscuit slots are close to the board edge as the jointer base was used as datum instead of the fence.
12 The secondary mantle top moulding glued and held in place with heavy-duty tape with mitres carefully taped closed. I chose to butt-glue and use tape to hold it on, making sure to close the mitres properly. Check it is aligned straight and square on the other moulding.

Top/surround assembly

Once dry, the top needs to be assembled on to the surround. The back edge of the top needs to be flush with the back edge of the uprights. This means a line of '10' biscuits in a position that will require either freehand slotting to a carefully drawn line or using the biscuit jointer's fence if that is possible.

Once both joint halves are machined, dry assemble the surround onto the inverted top. Hold the surround upright, possibly by using sash clamps and duct tape while doing the next part of the operation.

13 The basic surround minus the mantle top.
14 Using a spare piece of board to use as reference surface for the jointer while slotting ready to take the top.
15 Making the biscuit slots in the top, working freehand to a drawn line.



Brackets

Now is the time to make the double bracket pieces that support the top and the roundover moulding directly beneath it. Make up the latter pieces first by cutting planed stock exactly to length. Match the overhang to the column sides to that of the front.

16 On the router table use a through sub-fence so these small components are properly supported when the narrow ends are machined. Use a 6.4mm roundover cutter or similar, from both faces, to give a full roundover, and sand until smooth. I found it useful to glue these on top of the inverted columns and hold with tape until dry. While this was going on I made up the base mouldings and cut and glued those in place too, although you may prefer to lay the surround down to do this to check the fit.

17 Once set, with the whole assembly still inverted and dry fitted, the bracket pieces can be made up. These are crucial for the strength of the top and its joint with the surround, so must be the exact length needed. Mark out and bandsaw the curve on each and use a static belt sander or bobbin sander to get a smooth even finish.

18 Here you can see the twin brackets in place; a tight fit is needed here.

19 Check the fit and then lift off the surround, glue the biscuit slots and push the joint together. Install the brackets with glue on the meeting faces and clamp the whole assembly together, ensuring that the top is at 90° to the surround. There will be plenty of glue squeeze-out between the brackets and the surround and top. Use a tapered piece of wood to tease out most of the glue, and wash off the excess with a cloth.

20 The rear view of the assembly: note how it is clamped directly to the bench.

Column detailing

Two important operations remain to be done: the column fluting and corner roundovers. The mouldings top and bottom act as stops for the router thus ensuring all cuts are exactly level. I used a laminate trimmer with a small fence for the flutes, but a smallbase router and narrow fence will work too.

21 Machine the roundover edges first as the remaining 'land' in the middle will then determine the flute spacing. Machine a slight step down from the front face.

22 With the roundovers done, machine the fluting. Do the centre flute first using a V-groover, and make it smaller than finished size just in case that proves to be enough. Carefully check the other flute positions and then re-machine the centre flute to the correct depth. Your fence needs to project down enough to contact the column sides below roundover level. Now machine the outer flutes, turning the router around to do each side rather than altering fence-to-cutter distance, to ensure consistent spacing.

Fascia moulding

The last machining operation is to make up an applied moulding for the fascia between the columns. The frame size is not critical as the moulding is a 'classical' pattern constituting a small roundover and matching cove with a small step in between, found in one cutter. Rout this moulding on the edge of a wider board and then saw it off ready to fit. Mitre, glue and tape in position.

Finishing

Careful fine sanding with the grain is required everywhere, but particularly all around the brackets where washing off the glue will have raised the grain. Once a good sanded finish has been obtained, apply a suitable mahogany stain and leave to dry.

Apply Danish oil or a polyurethane varnish. In both cases allow it to soak in and carefully wipe off all surplus varnish while still sticky. Reapply once the first coat is dry and again wipe off.

Finally, use fine wire wool to obtain a silky finish, wax thoroughly and buff to a sheen using old loop towelling or similar. Installation is easiest done with standard mirror brackets screwed to the rear of the uprights and, if necessary, buried slightly in the plaster in order to hide them.

23 The finished fire surround: note the applied frame moulding on the fascia.

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OPEN AND SHUT

David Barron gets great results straight off the blade to produce this open mortise and tenon

I'm not sure if there is an official name for this joint but I've always known it as a 'through' or 'open' mortise and tenon joint. Years ago I drooled over close-up shots of this joint in James Krenov's books, they were perfectly executed and complemented the exposed dovetailed joinery he often used. The need for this joint to be cut perfectly, both structurally and visually, put me off trying for a while and my early attempts were time-consuming and not great. Once I finalised my technique, however, the joint became easy and quick to execute and is one I often use.

As with any other technique, accurate preparation is essential. Firstly the stock to be joined needs to be exactly the same thickness (if you want one part to be thinner do this after the joint has been cut). The ends also need to be perfectly squared all-round. I usually prepare a small to medium door 1mm oversize to allow for final fitting. I use the bandsaw to make the cuts and these need to be set up with both the table and the fence square to the blade. I find a homemade fence much more accurate and sturdy than the one on the machine and it is also much easier to capture the drift angle of the blade.

PHOTOGRAPHS BY DAVID BARRON

1 Setting up the bandsaw square to a workshop-made fence. Note: the guard has been removed for the photo only **2** Marking the pieces for the mortise and tenon **3** Checking the thickness of the spacer with dial callipers **4** The finished mortise **5** The finished joint

Marking out

The stock needs to be marked out with the width of each piece marked on its mating piece, similar to marking the baselines on dovetails. The tenon piece is marked all round while the mortise piece is just marked on the edges. A cutting or wheel-marking gauge is best used for this, giving a knife line to drop your chisel into.

Clean cutting

As we're looking to achieve a fit straight from the bandsaw a clean cutting blade is necessary. I use a carbide-toothed blade but a standard 6 or 10tpi blade would do the job.

The key to achieving a good fit is to use a spacer that is the exact width of the chosen blade. I've found that the best way to find this dimension is to make a stopped cut against the fence, taking care not to wobble in the cut. Then cut off the two sides and compare the dimension before and after using dial callipers. The difference will be the exact width of the kerf and a piece this width can be prepared through a thicknesser and tweaked with a hand plane.

The mortise

The first part to cut is the mortise and the fence should be set so that the mortise is approximately one-third of the stock. With the stock firmly against the fence make one cut down to the knife line, then reverse the stock and cut the other side. The waste is removed with a thin chisel making sure no humps are left which will prevent the joint closing up.

The fence

Leaving the fence in the same position, take the spacer and place this between the fence and the tenon piece. Cut one side of the tenon with firm pressure against the fence then flip it over and cut the other side. Remove the waste close to the line with a handsaw and finish off with a sharp chisel. You are looking for a friction fit, but not so tight that it bulges the cheeks of the mortise.

Glue-up

On glue-up I use gentle clamp pressure on both sides of each corner to ensure tight shoulders, not forgetting to check the backside as well. In addition, I like to add a small clamp across each corner just to make sure of a tight, strong and good-looking result.

This may seem like a lengthy process but once you have tuned up your bandsaw and made a spacer the actual joint cutting is fast, accurate and very satisfying.

BATHROOM CHEST

In an attempt to de-clutter the bathroom, Mitch Peacock makes a storage chest, with bubbles

After failed attempts to camouflage bathroom clutter with house plants, my wife implored me to make a box to keep all her bits and pieces in. The only free real-estate in the room was a tiled shelf at the end of the bathtub, so with its dimensions, and that of the largest item to be housed in it, I duly designed a chest and added a few bubble motifs befitting its location.

Materials and design

1 I had recovered some hardwood from windowsills a couple of years ago. Having survived for a few decades being lashed by coastal weather, the wood seemed appropriate for a bathroom project. I'm not entirely sure what species it was, but it had aspects of both sapele and dark red meranti; either of which would be good choices. For the decoration, I chose to use English holly, which gave a nice contrast.

2 A hinged lid, with pivots set forward of the rear, would be easiest to use. With the chest placed against the wall, the lid could be opened with one hand and rest safely against it. I prefer finger joints for the corners of large boxes or chests, so I settled on those too.


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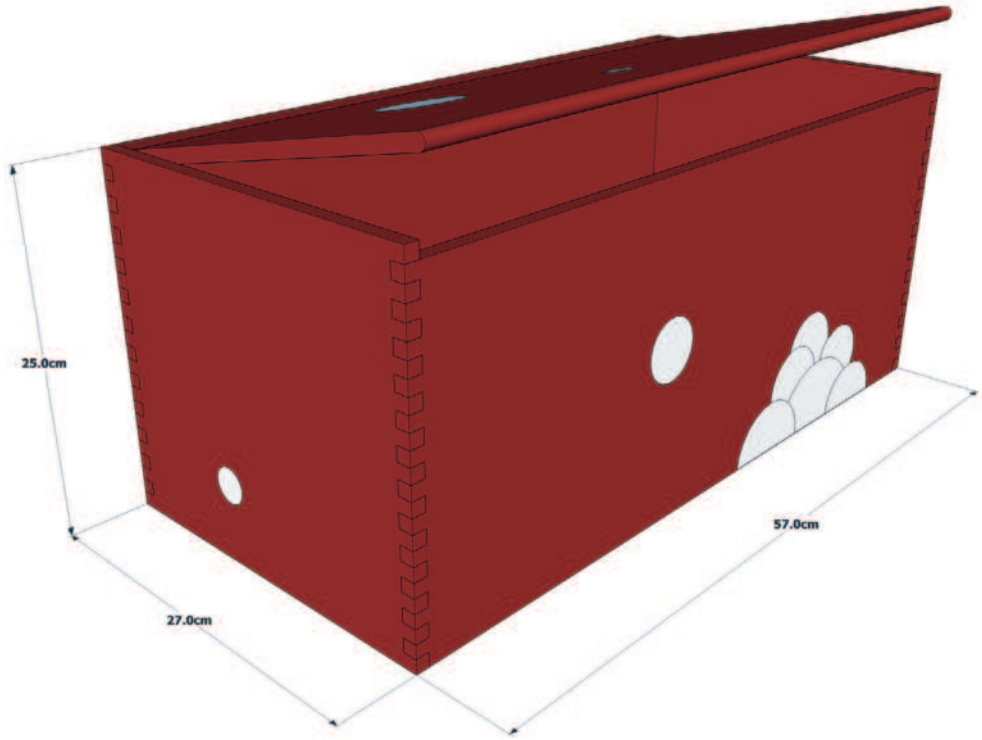

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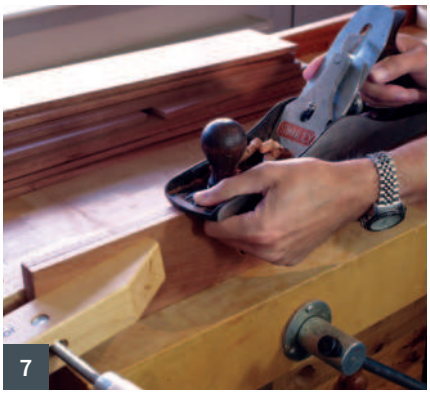
Construction

3 The main material was far too thick for the chest, and so I opted to rip each board through, starting the cut using a kerfing blade attached to my small plough plane.

4 My aim was to cut straight through the middle of each board, and yield thick enough pieces to build up the four sides, lid and base.

5 The kerf cuts provided a very clear guide for hand ripping the boards, which was done at the bench vice.

6 The thin boards were planed to clean up the saw marks, and remove any slight movement that occurred after ripping.



PHOTOGRAPHS BY MITCH PEACOCK

7 Each side, the lid and the base, were all wider than the boards, so pairs were clamped together and jointed with the plane …

8 … so that they could be opened out to produce flat, wider panels…

9 … which were glued and clamped overnight.

10 With the six panels produced, it was easier to see how the chest would come together to produce the required storage.

11 Cured glue squeeze-out was removed, and the panels smooth planed prior to joinery.

12 The panels were sized, and then the four sides had the baseline for the finger joints scribed in.

13 I love unplugged woodworking but, with so many fingers to cut for the joints, the sensible choice on this occasion was to use my old router finger cutting jig.

14 Since I was using recovered wood, there were a few screw holes to patch up. This helped inspire the bubble decoration, and initially I used a Forstner bit and a plug cutter to plug these holes with holly plugs.

15 Next I started cutting for larger inlays, including some overlapping bubbles. Some of these recesses would end up receiving raised, carved bubbles, but not until the chest was ready to be assembled, as they would impair work holding at the bench.

16 To hold the base in the chest, a groove was ploughed into the four sides.

17 The base was fitted to the grooves by marking…

18 … and then planing in the style of a raised panel. The raised surface would face downwards, so that the chest had a flat internal bottom.

19 An extra strip was added to the rear panel to set the hinges a little further forwards and allow for mortising and suitable length screws.

20 Fitting the hinges to the rear panel before assembly just made the work easier to handle.

21 A little residual movement in the panels meant that a few extra clamps were needed to hold the joints perfectly tight and true during gluing.
22 Once cured, the finger joints were all flushed, and the outside smooth planed.
23 The lid was finally trimmed to size, bull-nosed on the front lip, and attached.
24 For a finish, the chest first got a coat of sanding sealer, followed by fine sanding, and then three coats of acrylic lacquer.
25 The finished chest provides plenty of storage, and frees the bathroom space from clutter. I'm slightly worried that it's almost full already, but I guess there is still room for a little baby brother ...

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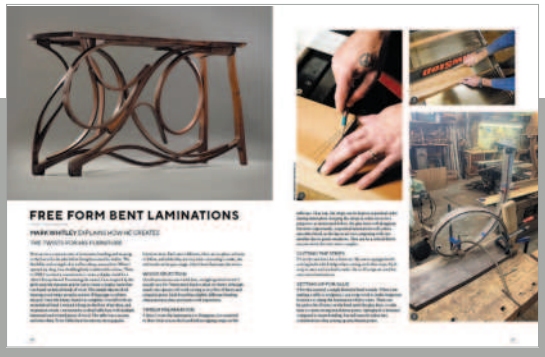

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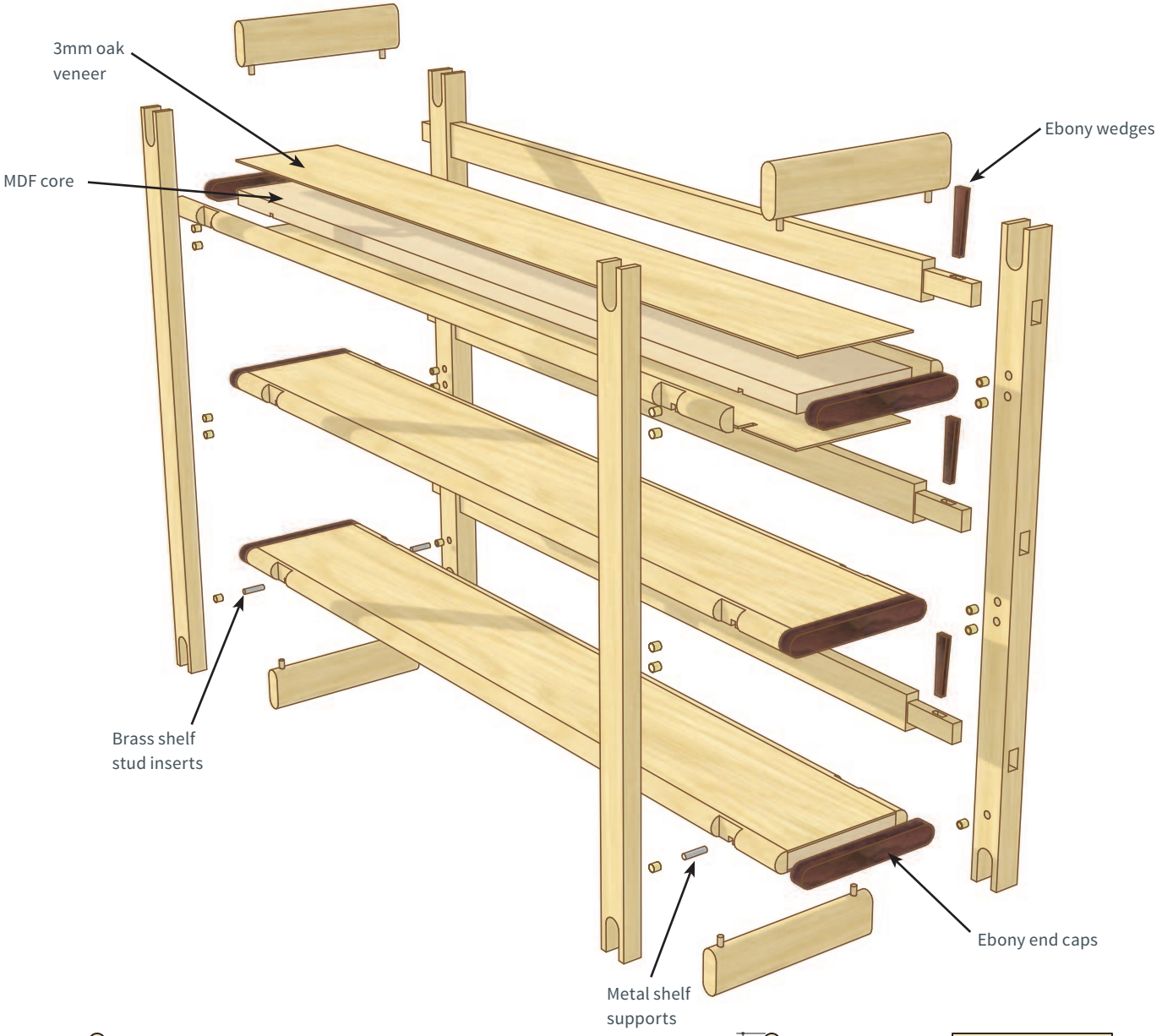
SHELVING UNIT

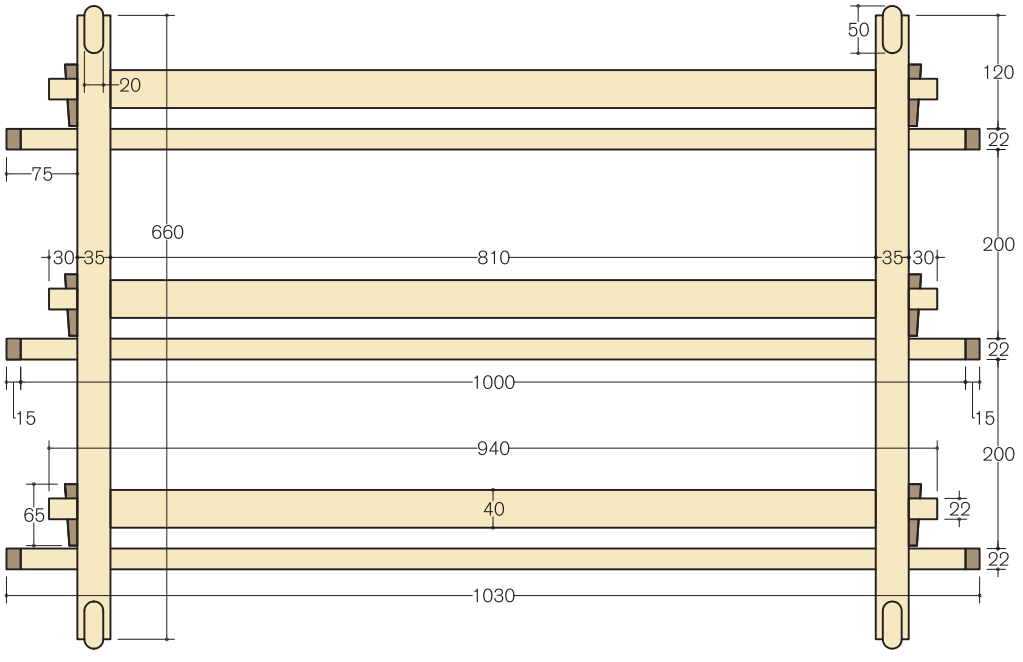
Rob Stoakley makes a simple set of shelves from oak and plywood

This is a simple, small shelving unit with some interesting design features; the shelf edges have a semi-circular profile and the ends are in a much darker timber. The shelves are supported on a pair of rectangular frames where the top and bottom rails have an unusual joint arrangement. They're shaped similarly to the shelves and then simply glued into a corresponding recess in the stile, but there's a slight overhang of 3mm in the joint, so it's not flush to it – a feature that needs to be taken into account when the frames are cleaned up and glued. A dowel is used to reinforce the joint and to act as a locating pin to ensure the correct spacing from top to bottom of each frame. A set of three rails are jointed into the frames using tusk tenons, so the whole thing is effectively a flat-pack solution.

Materials

Lurking in a dusty corner of the workshop, I happened to find a small piece of 'Goldilocks' 18mm marine ply for the shelves – not too big, not too small, but just the right size – to make three shelves. The main construction is in air-dried English oak with African ebony for the detail accents.


3mm oak veneer
MDF core
Ebony wedges
Brass shelf stud inserts
Metal shelf supports
Ebony end caps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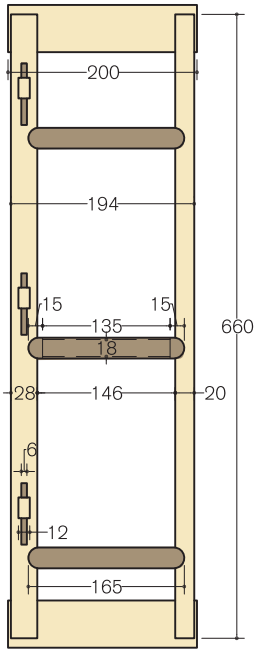
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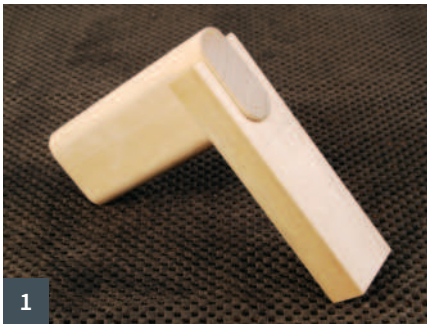
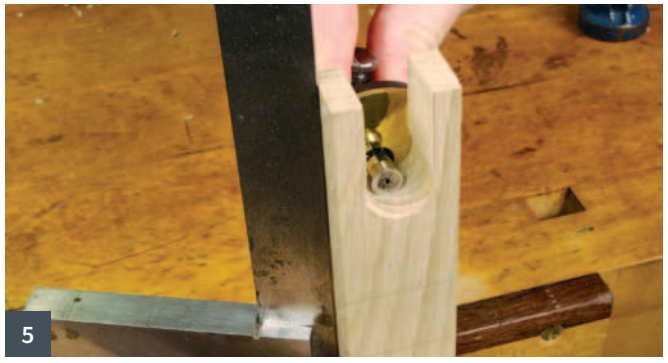
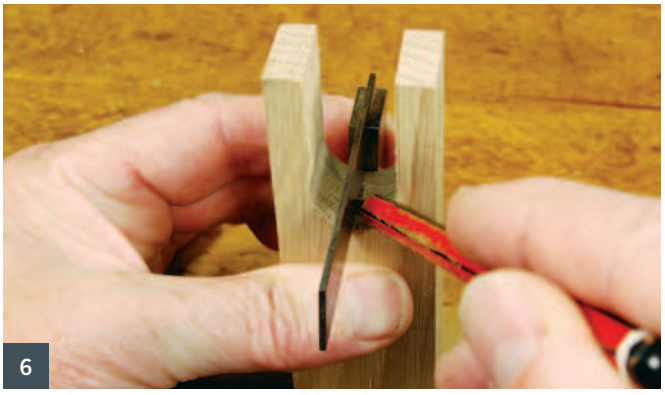



PHOTOGRAPHS BY ROB STOAKLEY


1 I made a trial joint initially to avoid any problems later on **2-4** I used the top of a felt-tip marker pen to mark out the curves, then a wooden jack plane and a block plane to finish **5 & 6** Marking out for the dowels, remembering to take into account the 3mm overhang **7** This joint is bare-faced and will become looser as material is removed from the rails to clean up

Construction

The construction details are fairly straightforward, but result in quite an interesting end effect when everything is assembled. After the frame materials have been planed and cut to size, the four top frame rails can be drilled for a 6mm dowel, after which the shaping can be marked. Shaping is easily done either with a round-over bit and a router or suitably shaped cutters in a spindle moulder. I had neither, so used a wooden jack plane, LN block and a shaped sanding block to gradually bring the edges to the required profile.

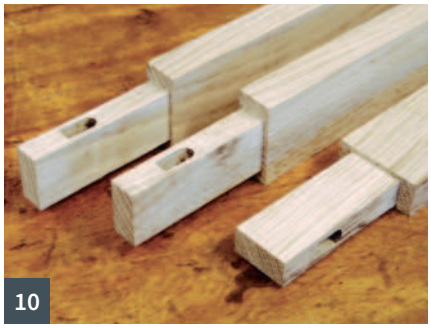
The U-shaped mortise in the stile is very simply made by marking out and drilling a 20mm-diameter hole and then removing the waste with the bandsaw. The saw cuts are then carefully chiselled to the line so that a firm fit can be achieved. The corresponding dowel position can be marked at the bottom of the 'U' by using a wheel gauge and small try square, after which it's drilled out at around 5.7mm to ensure the dowel is a tight fit in the long grain.

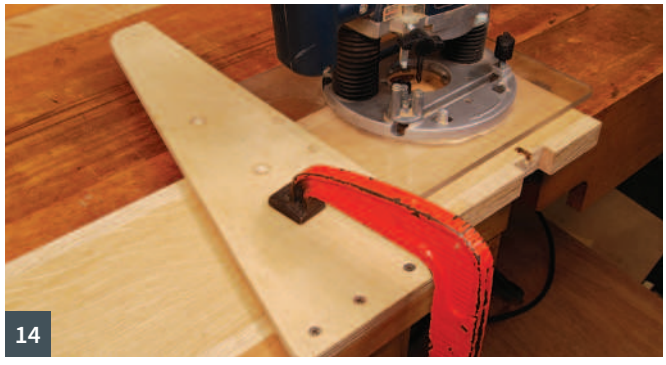
I cut the mortises for the tenons using a router. I've fitted an alternative square acrylic base on my router which means that the start and finish points for each mortise are easily seen so that, once set up, there's no need to look at the bit as it's cutting. I use an 8mm bit to cut a central 12mm mortise by routing from each side in turn. In that way it's guaranteed that the hole will be central in the stile. All that's really essential is an additional support piece to balance the router and in this case the other half of the frame is used. A pair of key-hole slots can be machined on the reverse side for hanging on the wall and then 8mm holes for the brass shelf sleeves can be drilled on the inside faces of the frame stiles.

Once they've been cut, the rail cheeks are removed on the bandsaw and cleaned up using the router table. A close fit (as required in a glued joint) isn't really needed in this situation as a reasonably loose sliding fit is perfectly acceptable.

The shelves

As the shelves are to be lipped after veneering, they're cut to the exact size with the edges planed dead square. The veneers were obtained from a single piece of quartersawn oak and were





8 Note the start and finish arrows to highlight the mortise **9** Once the mortises have been cut, the ends were squared using chisels **10** The 6mm mortises for the tusk tenons are cut in the same way but one end is slightly tapered with a 3mm chisel to accommodate the wedge shaped peg later on **11** Generous 3mm-thick slices of quartersawn oak veneer to face the shelves **12** Oak lipping is applied to the edges after veneering **13** Chopping the recesses is similar to making one half of a simple housing joint **14** I used pieces of 6mm steel to make pins to support each shelf and the small stopped grooves for these can then be routed in the underside of each shelf

generously cut 3mm thick, on my little Euro 260 bandsaw and then pressed in the AirPress, the waste being removed with a bearing cutter when set. Each of the shelf surfaces are then hand planed so that the veneer thickness finishes at 2mm, a stimulating and therapeutic experience with a sharp LV jack plane. Each edge is lipped with oak and the semi-circular profile produced in the same way as the short frame rails. The 12 recesses (four in each shelf) can then be marked out and chopped in a similar manner to making one half of a simple housing joint.

The last thing to do with the shelves is to glue the ebony end pieces in place and then finish to the shelf profile with planes and sandpaper. A big problem in using a dark and light wood is the inevitable 'creepage' of dark sawdust into the lighter grained timber, a particular problem with an open-grained timber like oak. However, this can be circumvented to a very large extent by using the quite excellent Abranet sanding grits and a powerful shop vacuum cleaner. Using this method, I found no ebony dust contamination in the oak.

Polishing and gluing

Starting with the frames, all surfaces are cleaned up with a sharp, finely set smoother, being careful to take off the minimum on the shaped rails, and then sand gently with 240g paper. Sharp edges on the frames can be removed with a few passes of a close-mouthed block plane and then lightly sanded. The rails have to be carefully masked off to allow the maximum surface for gluing. Then each part of the frame, including the outside of the stiles, is finished with two thin coats of Fiddes Satin hardwax oil applied with a fine brush and then de-nibbed between each coat with some worn 320g paper.

All surfaces are next treated to a good application of Alna teak wax, (alas now long out of production) and finally polished with a soft cloth. Being a pair of fairly straightforward rectangular frames, the actual gluing process was relatively easy. As the glue blocks were being applied to a finished surface, I lined them with some cereal box cardboard which was enough to prevent any slight damage. Once set, the glue was easy to lift off the polished surfaces with the point of a scalpel or a chisel edge.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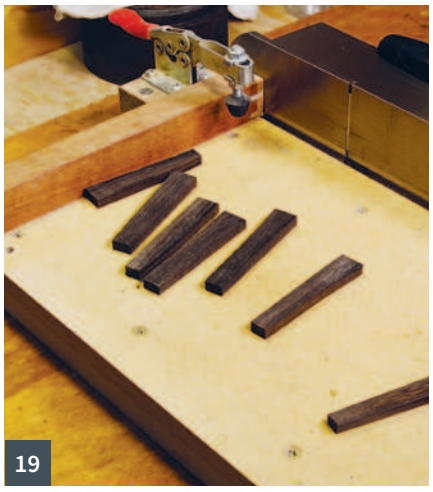
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15 Mask the rails off carefully to allow maximum surface for gluing **16** The last job is to glue the ebony end pieces in place **17** I lined the glue block with cereal box cardboard to eliminate any bruising to the rounded-over edge **18** The assembled unit ready to receive the ebony wedges **19** Be careful that the ebony is shot to fit to avoid unequal amounts **20** The wedge, when tapped home, will pull the joint tight against the shoulders in the final assembly **21 & 22** The final assembled joints capped with ebony

Assembly

The ebony wedges were fitted to the assembled unit individually the next day in the workshop. Nothing would have irritated me more than to see unequal amounts of black showing above and below each tenon, so each one was shot to fit, after which they were numbered on the back to fit the mortise. After sanding, they were given a couple of coats of blond shellac and then waxed. The finished piece was then broken down and taken through to the lounge and hung on the wall using suitably sized screws, making sure, of course that all the shelves were dead level.

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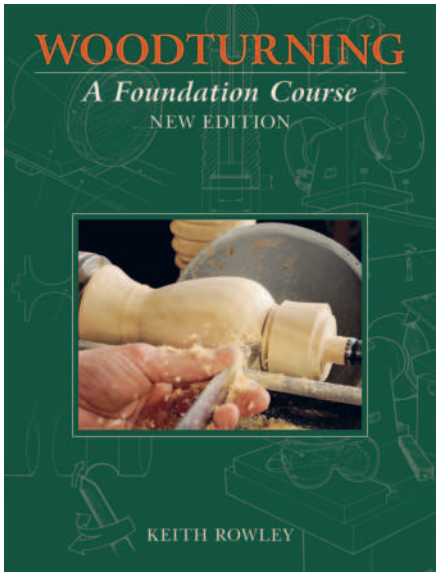

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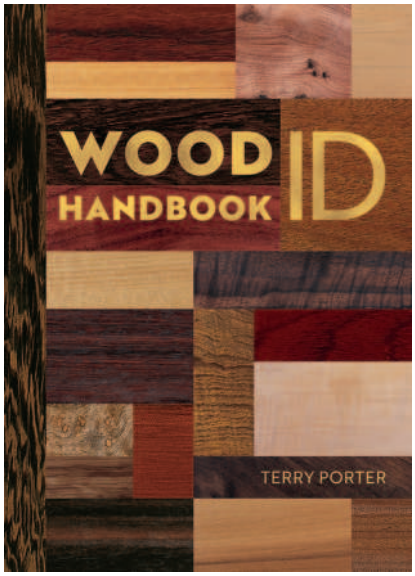

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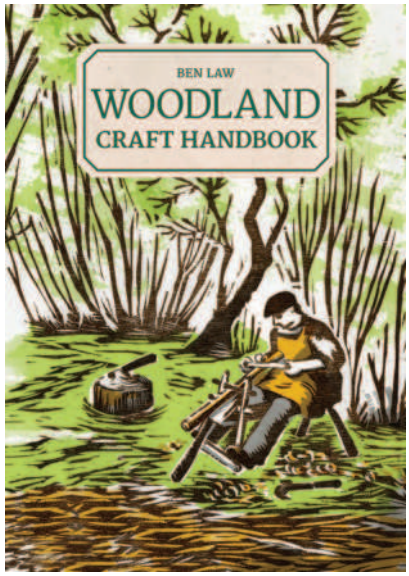

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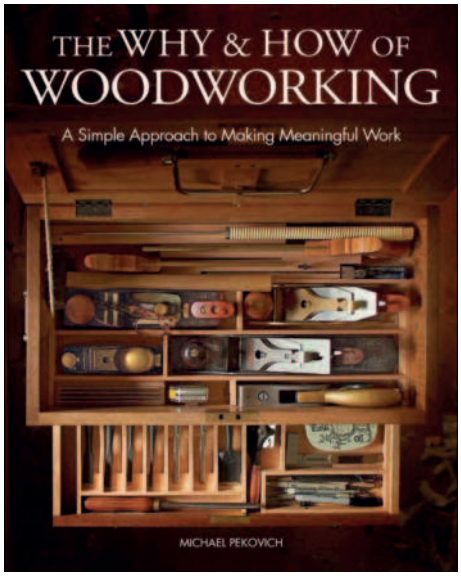

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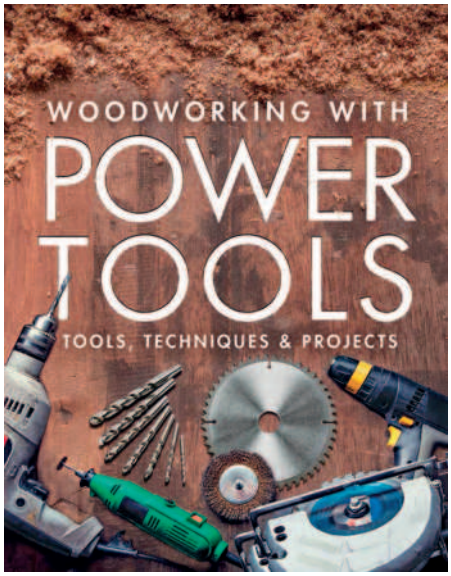

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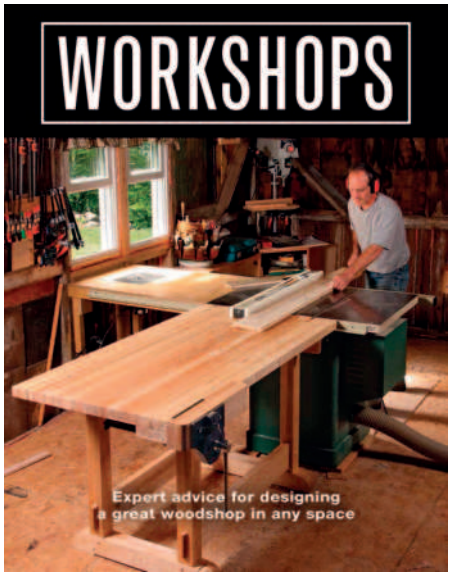

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BENCH.TALK.101

Mitch Peacock introduces the social woodworking group and tells us about the Class of 2021 Charity Build

Bench.Talk.101 was created at the start of the Covid-19 pandemic to allow like-minded woodworkers the chance to meet up and talk shop live online, sharing knowledge and experience, and a lot of laughter. Eighteen months later, the friendly group of woodworkers, from all over the world, who are still meeting each week on Zoom, decided to get together in person and raise some money for charity.

The event took place between 2 and 4 November 2021 at the London Design & Engineering UTC in London's Docklands, where excellent facilities were available, and everyone had the chance to try a good selection of tools. Participants who couldn't join in person were also able to take part on a live video stream throughout the whole event. With a wide range of abilities, the sharing of techniques and helping each other out was a significant part of the experience.

The goal of everyone making a dovetailed wall cabinet with raised panel door, using only hand tools, in just three days, proved too much, but with the help of pledges, donations and an auction on the last evening, the event looks set to have raised in the order of £5,000 for Macmillan Cancer Support.

PHOTOGRAPHS BY MITCH PEACOCK

Joining Bench.Talk.101

Anyone interested in hearing more about the Bench.Talk.101 group can find them on Instagram, Facebook and YouTube (where previous Zoom meeting talks can be viewed).

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CONVERTING LOGS INTO USEABLE TIMBER

Tony Davis explains the factors to consider before attempting to convert logs into timber


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PHOTOGRAPHS BY CARL DAVIS

Converting logs into useable timber is not as straightforward as many people think; certain factors should be taken into account. Converting wet logs is different to half dry and dry logs. If the wood is wet, you have to think about relieving stress, the drying process and cracking, etc. With these thoughts in mind, you must allow for wastage with splitting, worm holes – if present – and any soft or fluffy parts.

Inspect the log before cutting, brush clean and re-inspect after every cut. You should also consider how and where you are going to store it. With semi-dry and dry logs, the decision where to cut is usually taken with a finished product in mind but remember, even dry wood can move after cutting, as stress is relieved.

Safety

A sharp, well maintained saw is a safe saw. Always wear proper safety gear before you start converting timber. A chainsaw is potentially dangerous and care needs to be taken when using them. When you have cut your log, always coat the ends with wax or PVA to stop splitting, but this also stops discolouration from bacteria on lighter woods.

Converting logs

1 Converting logs with a chainsaw is by far the quickest way, and if you wish to go the whole hog you can make – or buy – yourself a chainsaw mill with a dedicated ripping chain fitted. Most people settle for a small electric chainsaw; these have a safer anti-kick chain fitted. Always buy and use the full safety equipment.

2 When converting a wet log, cut off each end until you have gone past any cracks or discolouration, then mark the end and down the sides where the cuts will be. In case you start to wander, make sure the work area is nice and clear and stand the log on a rubber door mat so you can cut right to the base. Always have some wooden wedges available to stop the chain binding; these can also be used to split the last inch.

3 When converting a log you need to consider what the wood is required for and drying with little degrade. If you cut out the centre pith, this will relieve tension and lower the chance of splitting. Cutting into four quarters for vases, boxes, etc., is by far the safest from a splitting point of view. Planking is much quicker to dry, though. As you will see from this photo, I have marked and cut these logs to relieve the centre tension.

4 When using a bandsaw to cut logs always wear eye protection and make sure the log is held firmly. I fasten 50 x 50mm on the log – whether cutting along or across the log – and use a sharp blade with a good wide set on the teeth to stop heat and binding. Use a wedge to open the cut on a long log.

The vintage toolbox

Colin Sullivan tells the story of the Preston No.9 smoothing plane

1

The American inventor and plane maker Leonard Bailey spent several years perfecting the design of the 'Bailey' bench plane made by Stanley and used since by millions. Stanley kept the design well covered by world patents until 1930 when the demand for hand planes reduced, allowing firms like Preston and Marples to make the first copies.

Preston, based in Birmingham, away from the competing Sheffield tool manufacturers, were famous for quality tools with attractive decoration. Established in 1827 and run by the Preston family until 1932, they sold up to Record Tool Company due to the Great Depression and competition from American imports.

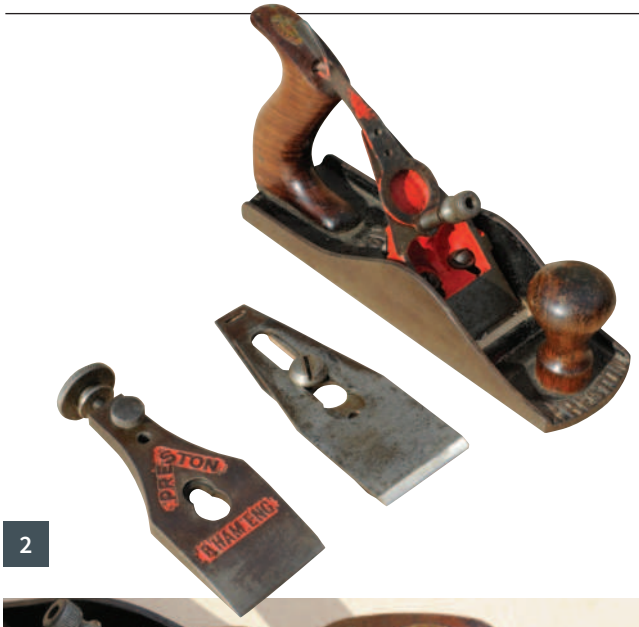
The No.9

This plane, first made in 1925, was probably Preston's answer to avoiding the Stanley patents. I can't find any written evidence or catalogues from this period so we have only the planes to testify for themselves.

The first thing to say is how complicated it is compared to the Bailey design of about 70 years previous. There were not only more parts, they also required more careful machining, so were more expensive to produce and perhaps added to Preston's financial woes.

The castings and finish are up to Stanley's quality with fine rosewood handles; the rear handle is held exactly as Stanley's and the front knob uses a secret stud screwed into a boss on the casting. The cap iron is a substantial casting with a polished finish and proudly says 'PRESTON B'HAM ENG.', plus a clamping screw and cutter adjusting nut. With the back iron exposed you can see how different it is; longer than the actual blade to engage with the adjusting nut on the cap iron, shaped on the edges with a grinding template for the blade. This detail was stamped on the Record back iron after they took over production. The blade is a bit thicker than Stanley's, clamped to the back iron with a well made screw that engages with the hole in the lateral adjustment lever. The lever pivots on a central bolt which holds down the cap iron and is twisted at the top for grip.

The frog is cast iron and adjusts in much the same way as the Stanley by loosening the two holding down screws and turning the screw on the back. The cast-iron sole has 'PRESTON' at the front and 'No.9' behind the frog, likely chosen as the plane is 230mm (9in) long. Setting up is not as easy as the Stanley and despite its complexity the performance falls short compared to other planes I have used. On hardwood the blade tends to swing over to one side, giving a tapered shaving – with a lot of use you could overcome these problems.



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PHOTOGRAPHS BY COLIN SULLIVAN

1 The Preston No.9 smoothing plane. This rare plane was kindly loaned by TATHS, www.taths.org.uk **2** The precision and complexity of these parts is astounding **3** Here you can see the numbering system **4** A similar frog adjustment to that used by Stanley **5** The original decal showing the red and gold graphic and famous Preston symbol

It was a clever attempt to overcome patent problems, but the number of surviving examples suggests they did not sell well.

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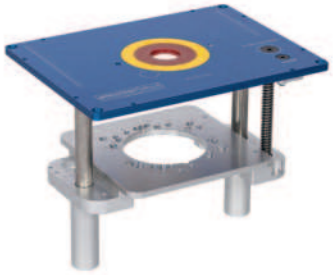

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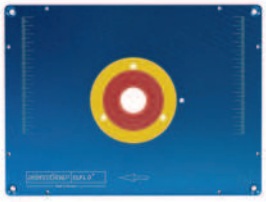

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